

Preventing suicide in prisons is an international priority which necessitates a thorough evidence base. This dissertation reports on findings from a case file analysis, questionnaire survey, systematic review, meta-analysis, diagnostic interviews, and qualitative methods. Results indicate that suicidal thoughts and behaviour are four times more prevalent in prisoners than in the general population, contributing to substantial morbidity and mortality, with a range of modifiable risk factors. Specifically, the data suggest that prison-specific stressors increase the likelihood of developing suicidal thoughts, whereas imported vulnerabilities characterised by behavioural disinhibition facilitate the transition towards suicidal behaviour. Given that risk of suicide is determined by a complex web of synergistically interacting factors, there is a need for a multilevel approach to suicide prevention that incorporates targeted strategies aimed at high-risk individuals in combination with population strategies that promote the health and wellbeing of all prisoners, with multi-agency collaboration having a key role.

Suicidal thoughts and behaviour in prison: epidemiology, risk factors, and prevention

 FACULTY OF
LAW AND CRIMINOLOGY

Suicidal thoughts and behaviour in prison: epidemiology, risk factors, and prevention

Louis Favril

Supervisor Prof. dr. Freya Vander Laenen
Co-supervisor Prof. dr. Kurt Audenaert

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Louis Favril



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Louis Favril

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| | |
|--------------------|-------------------------------|
| Supervisor | Prof. dr. Freya Vander Laenen |
| Co-supervisor | Prof. dr. Kurt Audenaert |
| Guidance committee | Prof. dr. Gwendolyn Portzky |
| Exam committee | Prof. dr. Tom Vander Beken |
| | Prof. dr. Stijn Vandevælde |
| | Prof. dr. Kees van Heeringen |
| | Prof. dr. Kristel Beyens |
| | Prof. dr. Marieke Liem |
| | Prof. dr. Michel Tison |

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Medio 2014 werd ik uitgenodigd op het bureau van professor Freya Vander Laenen om een onderwerp te bespreken voor een potentiële doctoraatsstudie. Gezien mijn vooropleiding als klinisch psycholoog en criminoloog—waar ik stages liep in de UPSIE en de gevangenis van Gent—was de keuze relatief snel gemaakt: suïcide in detentie. Een ideale synergie van mijn eerder gelopen traject. Een zestal jaar later, met een onderzoeksmatig intermezzo rond gebruiksruimtes in België en de ‘bevordering’ tot assistent, kan ik met veel fierheid dit doctoraat voorleggen. Het feit dat gedurende dit tijdsbestek ongeveer 100 individuen, eenieder met een uniek levensverhaal, overleden door suïcide in een Belgische gevangenis, onderstreept enkel maar de relevantie van het gekozen onderwerp. Het is dan ook aan deze personen dat ik dit doctoraat opdraag.

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Voor degene die nog niet hebben afgehaakt: wat volgt is de neerslag van een erg boeiende en leerrijke periode in mijn leven—191 pagina's onversneden leesplezier.

Ledeberg
Maart 2021

EXECUTIVE SUMMARY

Suicide is a public health concern that affects all strata of society, albeit not equally so. Compared with adults in the community, incarcerated offenders are at a disproportionate high risk of suicidal thoughts and behaviour, which represents a substantial burden of morbidity and mortality in prisons worldwide. The prevention of prison suicides has been highlighted as an international priority by the World Health Organization, which necessitates comprehensive and up-to-date knowledge of modifiable risk factors. This dissertation aimed to extend prior research and advance scientific theory, in the hope that findings could support national and local decision makers in allocating limited prison resources and prioritising interventions in areas with the greatest need for preventing and managing risk of suicide in prisoners. To do so, this dissertation adopted a mixed-methods approach, which encompassed (1) a national case file analysis of all suicides in Belgian prisons spanning a 20-year period, (2) a survey of 1326 randomly selected prisoners in Belgium, equalling 13% of the national prison population, (3) a systematic review and meta-analysis synthesising data from 17 studies, comprising over 12,000 prisoners in 19 countries, (4) validated diagnostic interviews in a representative national sample of 1212 New Zealand prisoners, and (5) qualitative interviews and focus groups with a total of 35 professionals from 13 Belgian prisons. The data indicate that prisoners in Belgium are around four times more likely to consider, attempt, and die by suicide compared with their age-equivalent counterparts living in the surrounding community. Overall, results highlight that suicidal thoughts and behaviours are multi-determined phenomena, with a complex web of synergistically interacting risk factors implicated in their aetiology. Risk of suicide in prisoners is best understood as a result of the interplay between individuals and their surroundings, in that offenders import complex care needs into prison, and these vulnerabilities are exacerbated by the deprivations inherent to incarceration. Specifically, findings suggest that environmental stressors (such as the lack of autonomy, purposeful activity, and social support) increase the likelihood of experiencing suicidal *thoughts*, whereas imported vulnerabilities characterised by behavioural disinhibition (such as violent offending, trauma, substance use, and non-suicidal self-injury) facilitate the transition towards suicidal *behaviour*. Since risk of suicide in prisoners is a complex and multi-factorial issue that does not lend itself to a single solution, there is a need for a comprehensive and multi-agency approach towards suicide prevention, which incorporates targeted strategies aimed at high-risk prisoners in combination with population interventions that address systemic and environmental stressors of the prison context. This includes ongoing risk assessments based on clinical judgement, a multi-disciplinary care planning process, well-resourced mental health services, psychosocial treatment, and prison-wide interventions that promote safety, autonomy, purposeful activity, and social support within a healthy prison regime. Overall, a policy to prevent suicide in prison should be tailored to local needs and requires collaborative working between sufficient trained staff across mental health, social care, and criminal justice sectors.

SAMENVATTING

Zelfdoding is een wereldwijd volksgezondheidsprobleem dat bepaalde groepen disproportioneel treft. In vergelijking met personen in de vrije samenleving hebben gedetineerden een verhoogd risico om te overlijden door suïcide. De Wereldgezondheidsorganisatie stelde dan ook dat de preventie van suïcide in detentie een internationale prioriteit vormt, hetgeen een grondige wetenschappelijke basis vereist. Dit proefschrift had de ambitieuze doelstelling om zowel een empirische als een theoretische bijdrage te leveren aan de bestaande literatuur, met als finaliteit beleidsmakers te ondersteunen bij het maken van keuzes en het toewijzen van schaarse middelen. Hiervoor werd gekozen voor een *mixed-methods* onderzoeksdesign, bestaande uit (1) een dossierstudie van alle suïcides in de Belgische gevangenissen over een periode van 20 jaar, (2) een grootschalige survey bij 1326 gedetineerden, goed voor 13% van de totale gevangenisbevolking in België, (3) een meta-analyse van 17 studies met een totaal van 12,515 gedetineerden uit 19 landen, (4) diagnostische interviews bij een nationaal representatieve steekproef van 1212 Nieuw-Zeelandse gedetineerden, en (5) interviews en focusgroepen bij 35 professionelen die werkzaam zijn in 13 Belgische gevangenissen. De resultaten tonen aan dat gedetineerden in België een viermaal hogere kans hebben om suïcide te overwegen en suïcidaal gedrag te stellen dan volwassenen in de algemene populatie. Het blijkt dat suïcidale gedachten en gedrag in detentie ontstaan vanuit een complexe wisselwerking tussen synergetisch op elkaar inwerkende risico- en beschermende factoren. Centraal bij de etiologie van suïcidaliteit in detentie is de interactie tussen personen en hun omgeving; gedetineerden importeren een vatbaarheid voor suïcide binnen de muren van de gevangenis, hetgeen wordt versterkt door de ontberingen en deprivaties die eigen zijn aan de gesloten context van detentie. Meer specifiek tonen de data aan dat detentie-specifieke stressoren (zoals het gebrek aan autonomie, zinvolle activiteiten en sociale ondersteuning) het risico op suïcidale *gedachten* verhogen, terwijl een geïmporteerde kwetsbaarheid die wordt gekenmerkt door gedragsontremming (zoals geweld, trauma, middelengebruik en zelfverwonding) de transitie naar suïcidaal *gedrag* faciliteert. Samen benadrukken deze bevindingen de noodzaak aan een multifactoriële aanpak ter preventie van suïcide, met een focus op de gedetineerde, de context en de verscheidene stadia van het suïcidaal proces. Dit behelst idealiter geïndiceerde strategieën die gericht zijn op het identificeren (via herhaalde screenings), beheersen (via fysieke maatregelen) en behandelen (via psychosociale interventies) van individuen met een verhoogd suïciderisico, in combinatie met populatiestrategieën die het welzijn van alle gedetineerden promoten (via een detentieklimaat gekarakteriseerd door veiligheid, zinvolle dagbesteding en sociale interactie). Hierbij is het van fundamenteel belang dat een suïcidepreventiebeleid wordt toegesneden op de lokale noden en op de specifieke gevangeniscontext, waarbij een multidisciplinaire samenwerking tussen alle betrokken actoren en sectoren—justitie, (geestelijke) gezondheidszorg en welzijnszorg—de essentiële randvoorwaarde vormt. Enkel een integraal en geïntegreerd beleid kan suïcide in detentie voorkomen.

PUBLICATIONS

Portions of several chapters are based on peer-reviewed articles, of which Louis Favril was the first and main author. Each of these chapters represent a thorough update of the previously published paper in terms of data, analysis, and interpretation. Full details are listed at the start of the respective chapters. For a complete list of publications, see <https://biblio.ugent.be/person/000070311963>.

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1

CHAPTER 1

Introduction

Despite being preventable, suicide remains a leading cause of death worldwide. An estimated 800,000 people across the globe die by suicide annually, with millions more considering or attempting to do so. Prisoners are at a disproportionate high risk of suicide compared with non-incarcerated adults living in the surrounding community, with up to half of all deaths occurring in prisons being the result of suicide. The causes of suicidal thoughts and behaviour in prisoners are complex and multi-factorial, and involve contributions from clinical, psychosocial, and environmental risk factor domains. Key to understanding suicide risk in prisoners is the interplay between individuals and their surroundings. Theoretical models hypothesise that prisoners import a vulnerability to suicide into prison, which is exacerbated by prison-specific stressors they are faced with while incarcerated. However, empirical data supporting this claim are scarce, and limited research has yet adopted an ideation-to-action framework to explain why most prisoners who think about suicide do not engage in suicidal behaviour. This chapter sets the backbone for the current dissertation and emphasises the importance of considering both individual-level factors and environmental influences associated with theoretically distinct points along the suicidal process.

THE TOWER OF BABEL: DEFINING THE SUICIDAL SPECTRUM

Although several efforts have been made to propose a standardised language of suicidology (O'Carroll *et al.*, 1996; Posner *et al.*, 2007; Silverman *et al.*, 2007), there currently is no agreed-upon set of terms, definitions, and classifications for the spectrum of thoughts and behaviours that are related to suicide (Goodfellow *et al.*, 2018, 2019, 2020), despite uniformity and transparency being critical for academic research, clinical practice, and suicide prevention (Silverman & De Leo, 2016). One major barrier in the study of suicide is that researchers often use a diverse and inconsistent terminology to describe similar phenomena under investigation (Chappell *et al.*, 2017). As a result, the interpretation and integration of the literature is complicated by the multiple terms that are considered across the suicidal spectrum, which is an impediment to the advancement of knowledge across disciplines.

Whilst a detailed discussion of the many issues relating to terminology and definition is beyond the scope of this dissertation (for reviews, see Posner *et al.*, 2014; Silverman, 2016), one of the capital obstacles of reaching consensus on a uniform nomenclature pertains to the concept of *suicidal intent*. Suicide is commonly defined as “a fatal self-injurious act with some evidence of intent to die” (Turecki & Brent, 2016). The fact that a person desires a certain outcome—he or she intends to die—is a central feature in most definitions of suicide (e.g., Goodfellow *et al.*, 2019). When it comes to *non-fatal* suicidal behaviour, however, the literature particularly remains replete with confusing and vague terminology. Specifically, there is much debate about what truly constitutes *suicidal* behaviour and what is classified as other forms of self-harm. Some contend that the motives underpinning self-harm are multiple and fluid, advocating a conceptualisation of self-harm along a continuum regardless of intent (Kapur *et al.*, 2013). Others argue that a categorical distinction can be drawn between acts of self-harm that occur with (suicide attempt) and without (non-suicidal self-injury; NSSI) intent to die (Butler & Malone, 2013; Muehlenkamp, 2014; Nock, 2010). Determination of the presence vs. absence of suicidal intent, thus, is a central factor when differentiating suicidal from non-suicidal behaviour. The American Psychiatric Association (APA, 2013) has addressed this definitional issue with their publication of the most recent edition of the Diagnostic and Statistical Manual for Mental Disorders (DSM-5), where NSSI and suicidal behaviour disorder are classified as “conditions for further study” in Section III. Because these different phenomena—suicide attempt and NSSI—have different prevalence rates, functions, risk factors, and outcomes (Hamza *et al.*, 2012; Muehlenkamp, 2014), it is vital to be precise with the use of definitions and terminology. Whilst the challenges surrounding an intent-based dichotomy are in no way ignored (House *et al.*, 2020; Orlando *et al.*, 2015), throughout this dissertation, a distinction between self-harm with and without suicidal intent will be adopted. This decision is consistent with a large body of studies among prisoners (e.g., Carli *et al.*, 2011; Chapman *et al.*, 2014; Fulwiler *et al.*, 1997; Jenkins *et al.*, 2005; Larney *et al.*, 2012; Lohner & Konrad, 2006; Power *et al.*, 2016; Sarchiapone *et al.*, 2009; Snow, 2002).

As for the cognitive spectrum of suicidal phenomena, similar issues arise (House *et al.*, 2020). Thoughts of suicide or suicidal ideation are variously operationalised, ranging from ‘thinking about’ to ‘seriously considering’ suicide (Berman & Silverman, 2017). Some define suicidal ideation as “thoughts about taking action to end one’s life, including identifying a method, having a plan, or having intent to act” (Turecki & Brent, 2016), whereas others take additional steps to differentiate thoughts from plans; the latter concept referring to the formulation of a specific method through which one intends to die (Nock *et al.*, 2008b). Furthermore, suicidal ideation may be distinguished from *passive* suicidal ideation based on the criterion of suicidal intent (Baca-Garcia *et al.*, 2011; Liu *et al.*, 2020b), commonly defined as “thoughts about death or wanting to be dead without any plan or intent” (Turecki & Brent, 2016).

For the purpose of this dissertation, a *suicide* refers to a fatal act of an individual intentionally ending their own life. A *suicide attempt* describes the engagement in self-injurious, non-fatal behaviour in which there is at least some intention of dying as a result of the behaviour. *Suicidal behaviour* refers to self-injurious behaviour that may result in ending one’s life—whether fatal (suicide) or not (suicide attempt). *Suicidal ideation* refers to having thoughts about intentionally taking their own life. A full list of terms and definitions is detailed in TABLE 1, which are based on those used in recent state-of-the-art review papers (Cha *et al.*, 2018; Franklin *et al.*, 2017; Turecki & Brent, 2016; Turecki *et al.*, 2019).

However, in view of the inconsistent use of terminology in the literature, the authors’ original terms will be adhered to as much as possible when discussing their respective research findings.

Table 1. Terms and definitions for suicide-related thoughts and behaviours.

| Term | Definition |
|---------------------------|---|
| Suicide | Death caused by self-injurious behaviour with some evidence of intent to die. |
| Suicide attempt | Non-fatal self-injurious behaviour with inferred or actual intent to die. |
| Suicidal behaviour | Self-injurious behaviours that may result in ending one’s life, whether fatal or not. This excludes suicidal thoughts (suicidal ideation) and a suicide plan. |
| Non-suicidal self-injury | Self-injurious behaviour without any intent to die. |
| Self-harm | Any type of non-fatal self-injurious behaviour, irrespective of intent or motive. This includes both suicide attempt and non-suicidal self-injury. |
| Suicidal ideation | Thoughts about ending one’s own life, with or without a clear plan for suicide. Suicidal ideation is used interchangeably with suicidal thoughts. |
| Suicide risk | A composite term referring to one’s risk to consider, attempt, or die by suicide. This includes both suicidal ideation and behaviour. |
| Passive suicidal ideation | Thoughts about death or wanting to be dead without any intent to die. |
| Suicide plan | The formulation or consideration of a specific method through which a person intends to end their own life. |

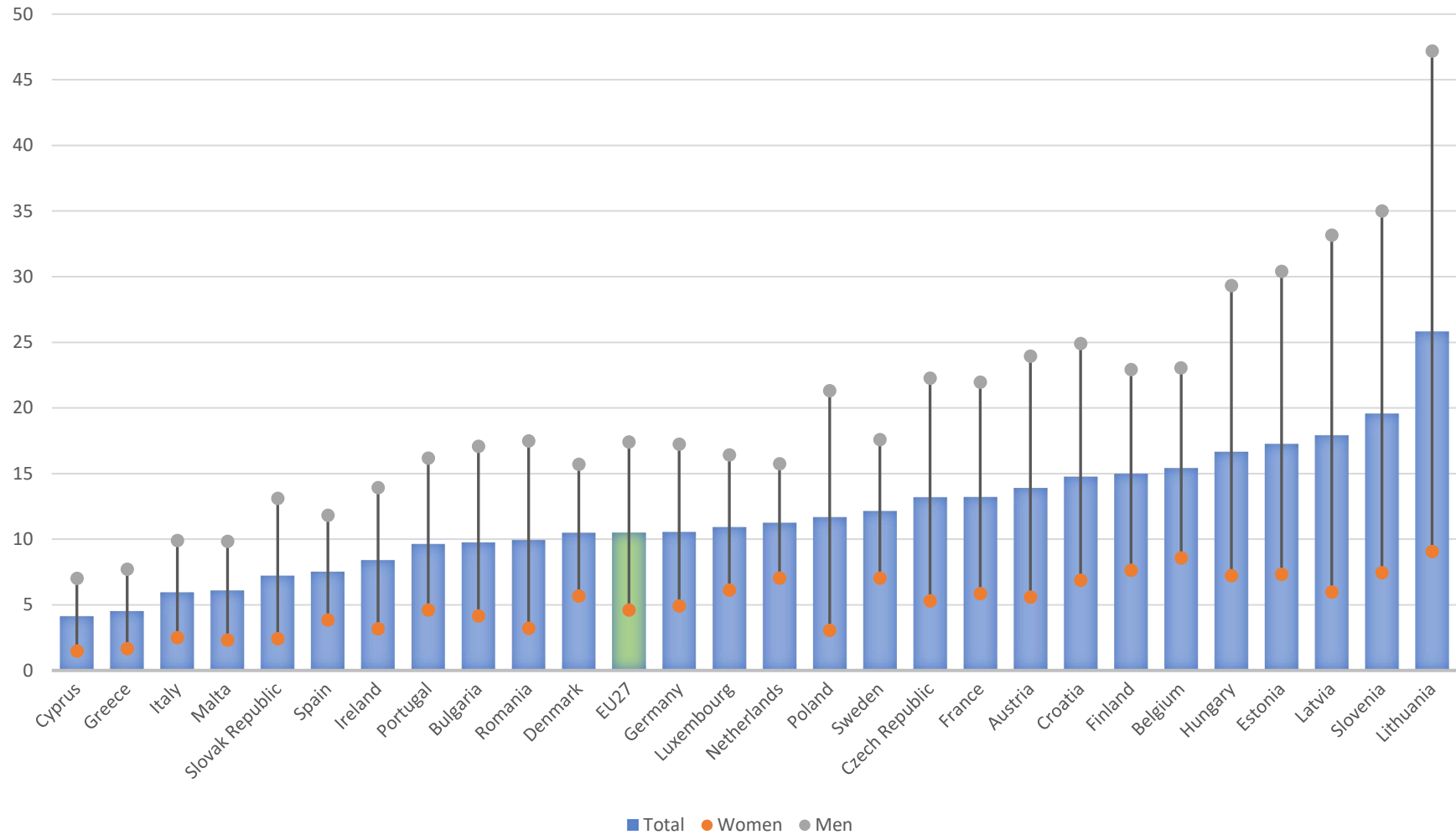
THE EXTENT OF THE PROBLEM: EPIDEMIOLOGY AND IMPACT

Suicide is a global public health concern (Naghavi, 2019), ranking as the 15th leading cause of years of life lost (Vos *et al.*, 2020). The World Health Organization (WHO, 2019b) estimates that 800,000 people worldwide die by suicide annually, which is equivalent to 10.5 suicides per 100,000 people or one every 40 seconds. Although these estimates are likely conservative given the disparities in how suicide deaths are recorded globally (Katz *et al.*, 2016), suicide accounts for more deaths each year than all wars and other forms of interpersonal violence combined—meaning that we are more likely to die by our own hand than by someone else’s (Nock *et al.*, 2012). However, suicide rates vary substantially between as well as within countries (Glenn *et al.*, 2020; Wu *et al.*, 2021). According to the Health Statistics compiled by the Organisation for Economic Co-operation and Development (OECD, 2020), the age-standardised rate of suicide in Belgium was 15.4 per 100,000 inhabitants; a figure that is among the highest of all 27 European Union countries and well above their average that marks 10.5 per 100,000 people (FIGURE 1).

These startling suicide statistics, however, only shed light on part of the issue. As big a problem as suicide is, millions more people attempt suicide or struggle with suicidal thoughts. Suicide attempts greatly outnumber suicide deaths—for every individual who dies by suicide, there are an estimated 20 others who attempt to do so (WHO, 2014). The 12-month prevalence for suicide attempts ranges from 0.3% to 0.6% worldwide, and suicidal ideation is even more prevalent, with 2–4% of adults considering suicide every single year (Beautrais *et al.*, 2006; Bebbington *et al.*, 2010; Borges *et al.*, 2010a; Castillejos *et al.*, 2020; Han, 2020; Johnston *et al.*, 2009; Kessler *et al.*, 2005). In the World Mental Health Surveys, a large-scale epidemiological study of nearly 85,000 adults across 17 countries, the *lifetime* prevalence of suicidal ideation and attempt was 9.2% and 2.7% respectively (Nock *et al.*, 2008a). Other population-based studies in western countries found similar, albeit varying, estimates for suicidal ideation (4–16%) and suicide attempt (2–5%) in nationally representative samples of adults (TABLE 2). A meta-analysis of 24 studies published between 2008 and 2017 identified comparable estimates (9.1% and 2.9%) among European adults (Castillejos *et al.*, 2020). According to the 2018 Health Interview Survey (Gisle *et al.*, 2020), one in every seven (14%) adults in Belgium has seriously considered suicide at some point in life (4.3% in the past 12 months) and 4.4% has ever attempted suicide (0.2% in the past 12 months); figures which have increased since 2013 (Gisle, 2014). Lower proportions (8.4% and 2.5%) for adults in Belgium were documented in the European Study of the Epidemiology of Mental Disorders (Bernal *et al.*, 2007).

Globally, suicide rates are 2–3 times higher in men than in women (Naghavi, 2019; WHO, 2014; FIGURE 1), whereas women are typically 50% more likely as men to consider or attempt suicide without a fatal outcome (Carrasco-Barríos *et al.*, 2020; Nock *et al.*, 2008a; TABLE 2). Such a discrepancy in suicidal outcomes by sex—known as the *gender paradox* (Canetto & Sakinofsky, 1998)—has been observed in most countries worldwide (Fox *et al.*, 2018), Belgium being no exception (van Landschoot *et al.*, 2019).

Figure 1. Age-standardised rate of suicide per 100,000 population (European Union, 2017 data).



Source: Organisation for Economic Co-operation and Development Health Statistics (OECD, 2020).

Beyond the loss of life due to suicide, suicidal thoughts and attempts comprise a major burden of wide-ranging morbidity (Briere *et al.*, 2015; Copeland *et al.*, 2017; Fergusson *et al.*, 2005; Goldman-Mellor *et al.*, 2014; Herba *et al.*, 2007; Mars *et al.*, 2014; Reinherz *et al.*, 2006) and functional disability (Fairweather-Schmidt *et al.*, 2016; Hoeymans & Schoemaker, 2010; Kerkhof, 2012; Lutz & Fiske, 2018) for the individual, indicative of profound psychological distress. In addition to the impact on population health, the consequences of suicidal thoughts and behaviours are widespread and extend far beyond the individual concerned. Concomitant economic costs to society are high (Shepard *et al.*, 2016; Sinclair *et al.*, 2011; Tsiachristas *et al.*, 2017). Consequences for family and friends are equally profound, with research suggesting that for every suicide, another 60 to 135 people are intimately affected (Berman, 2011; Cerel *et al.*, 2019). Based on the above WHO statistics, this would translate into 50 to 110 million people that are exposed to suicide each year. The lifetime prevalence of losing a close friend or relative to suicide is estimated at 22% (Andriessen *et al.*, 2017), indicating that more than one in five individuals will experience at least one suicide in their close surroundings. These individuals have an increased risk of adverse health outcomes, including psychiatric morbidity and suicidal behaviour (Bolton *et al.*, 2013; Erlangsen *et al.*, 2017; Pitman *et al.*, 2014; Qin *et al.*, 2002; Sveen & Walby, 2008; Wilcox *et al.*, 2010).

Table 2. Lifetime prevalence (%) of suicidal ideation and suicide attempt in community-residing adults.

| Study | Country (n) | Suicidal ideation | | | Suicide attempt | | |
|---------------------------------|----------------------|-------------------|-------|-------|-----------------|-------|-------|
| | | Men | Women | Total | Men | Women | Total |
| Kessler <i>et al.</i> (1999) | United States (5877) | 9.9 | 15.8 | 13.5 | 2.9 | 6.3 | 4.6 |
| Beautrais <i>et al.</i> (2006) | New Zealand (12,992) | 14.0 | 17.4 | 15.7 | 3.4 | 5.6 | 4.5 |
| Johnston <i>et al.</i> (2009) | Australia (8841) | 11.5 | 15.0 | 13.3 | 2.1 | 4.4 | 3.2 |
| Bebbington <i>et al.</i> (2010) | England (8580) | 12.4 | 16.9 | 14.8 | 3.5 | 5.1 | 4.4 |
| Nicoli <i>et al.</i> (2012) | France (6796) | 9.6 | 14.9 | 12.4 | 1.1 | 5.4 | 3.4 |
| ten Have <i>et al.</i> (2013) | Netherlands (6646) | 7.4 | 9.2 | 8.3 | 1.7 | 2.7 | 2.2 |
| Miret <i>et al.</i> (2014) | Spain (4583) | 2.7 | 4.6 | 3.7 | 1.2 | 1.7 | 1.5 |
| Sareen <i>et al.</i> (2016) | Canada (15,981) | 14.0 | 14.8 | 15.2 | 2.4 | 4.8 | 3.6 |
| Gisle <i>et al.</i> (2020) | Belgium (11,611) | 12.6 | 15.2 | 14.0 | 3.2 | 5.5 | 4.4 |

THE SUICIDAL PROCESS: FROM IDEATION TO ACTION

A crucial first step towards better understanding (the mechanisms of) suicide is to recognise suicide as the culmination of a process, rather than an event in itself. To die by suicide, one must attempt it, and such behaviours are preceded by thoughts of suicide. As it is difficult to enact a behaviour that has not been considered, even when impulsive, suicidal acts rarely occur in the absence of suicidal thoughts.¹ A central tenet of this thesis is that suicidal behaviour—whether fatal or not—is considered contingent upon suicidal thoughts. Accordingly, when conceptualising suicide as a *process*, suicidal thoughts and behaviours can be broken down chronologically into distinct phases—beginning with the development of suicidal ideation, that (in some cases) progresses to planning, then putting thoughts (and plans) into actions through (recurrent) attempts, and, if fatal, resulting in suicide (Bonner, 1992; Malhi *et al.*, 2018; Retterstøl, 1993; Schrijvers *et al.*, 2012; Sveticic & De Leo, 2012; van Heeringen, 2001). Thus the *suicidal process* describes the development and progression of ‘suicidality’ as a process, defined as the latency between the onset of suicidal ideation and overt suicidal behaviour. The duration, course, and intensity of the suicidal process can vary considerably, but suicidal ideation logically precedes suicidal behaviour, reflecting a continuum of gradually increasing risk as people progress from each of the preceding steps. The suicidal process presumes a relationship between different aspects of suicide risk, in which suicidal ideation and attempts increase the risk of death by suicide. Whilst for some people the suicidal process can progress from one phase to the next in a linear fashion, for others, this process is far more dynamic, where risk is transient in nature and fluctuates over time (e.g., De Leo *et al.*, 2005; Kleiman *et al.*, 2018).

Studies examining the course and duration of the suicidal process (Deisenhammer *et al.*, 2009; Fortune *et al.*, 2007; Portzky *et al.*, 2005; Runeson *et al.*, 1996) suggest at least two types of processes: (1) a longer-duration suicidal process, where enduring mental disorders and complicated dysfunctional interpersonal relationships confer severe distress resulting in overt communication of suicidal ideation and recurrent attempts; and (2) a suicidal process of shorter duration, where few or no attempts occur and communication of suicidal ideation is minimal, mental disorders are episodic and of less intensity, and psychosocial stressors are less severe (Malhi *et al.*, 2018). The development, course, and outcome of the suicidal process is influenced by myriad synergistically interacting factors—although the relative impact of specific factors (e.g., psychiatric vs. environmental) might differ depending on the exact stage of the process (Bruffaerts *et al.*, 2015; Neeleman *et al.*, 2004; Nock *et al.*, 2016; van Heeringen, 2001).

¹ However, it is recognised that a very small proportion of attempters do not endorse past ideation (Brezo *et al.*, 2007; De Leo *et al.*, 2005). A meta-analysis found that 95–99% of attempters endorse previous ideation (May & Klonsky, 2016), with similar proportions identified among Australian (95%; Larney *et al.*, 2012) and New Zealand (100%; Indig *et al.*, 2016) prisoners. Cases in which a suicide attempt but not ideation is reported may represent measurement error. However, even if attempting without ideation is a true phenomenon, it is rare, and the small proportion of individuals who fall within this category would not affect research findings (May & Klonsky, 2016).

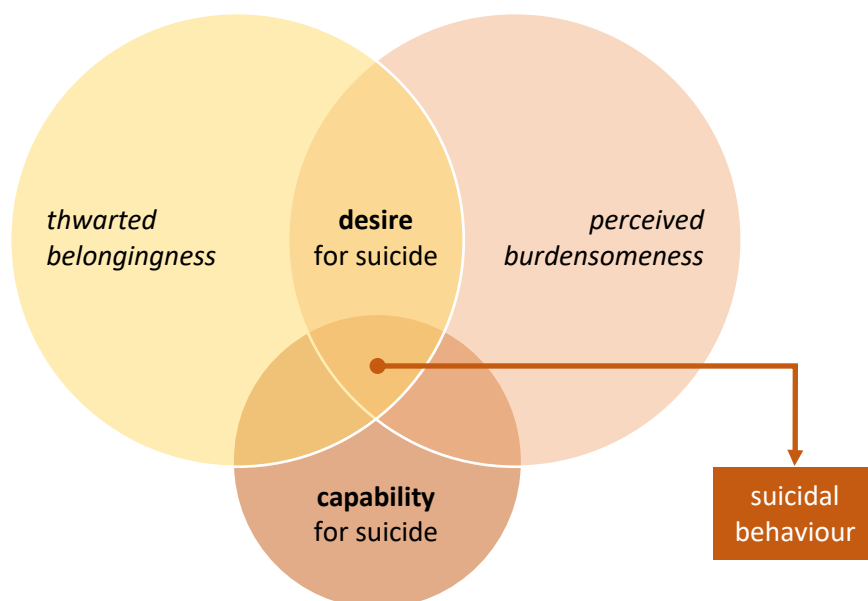
In support of this continuum hypothesis, both suicidal thoughts and suicide attempt are strong predictors of subsequent suicidal behaviour. First, prospective studies have identified suicidal ideation as a major risk factor for future suicidal behaviour (Brown *et al.*, 2000; Kuo *et al.*, 2001; Reinherz *et al.*, 2006; ten Have *et al.*, 2009), with recent meta-analyses supporting these findings (Castellví *et al.*, 2017; Franklin *et al.*, 2017; Hubers *et al.*, 2018; McHugh *et al.*, 2019; Ribeiro *et al.*, 2016). Typically, 60–80% of all transitions from suicidal thoughts to attempt occur within 12–24 months of initial ideation onset (Kessler *et al.*, 1999; Nock *et al.*, 2008a, 2013; Sunderland *et al.*, 2021; ten Have *et al.*, 2013). Second, population-based findings (Borges *et al.*, 2006, 2008a; Olfson *et al.*, 2017) and meta-analytical evidence (Castellví *et al.*, 2017; Franklin *et al.*, 2017; Harris & Barraclough, 1997; Yoshimasu *et al.*, 2008) suggests that a previous suicide attempt is among the strongest predictors of future attempts as well as suicide. Around 60–80% of people who die by suicide do so on their first attempt, and the large majority (80%) of subsequent suicides will occur within the first year following an index attempt (Bostwick *et al.*, 2016; Castellví *et al.*, 2017; Isometsa & Lonnqvist, 1998; Jordan & McNeil, 2020).

Notwithstanding the strong associations between suicide-related outcomes, there are several points at which discontinuity exists. Of people who have attempted suicide, 60% will not make another attempt in their lives (Nock *et al.*, 2012) and approximately 90% will not die by suicide in the following decades (Bostwick *et al.*, 2016; Jenkins *et al.*, 2002; Kuo & Gallo, 2005; Probert-Lindström *et al.*, 2020; Runeson *et al.*, 2010; Suominen *et al.*, 2004). Similarly, the majority of people who think about suicide will not engage in suicidal behaviour, as evidenced by the fact that suicidal ideation is three times more prevalent than suicide attempts globally (Castillejos *et al.*, 2020; Nock *et al.*, 2008a). For many, suicidal ideation resolves spontaneously (Nock *et al.*, 2012). Prospective studies show that, among people who experience suicidal ideation at baseline, around two-thirds will not report having such thoughts in the following 18 months (Gunnell *et al.*, 2004), two years (ten Have *et al.*, 2009), and 10 years (Borges *et al.*, 2008a). For others, however, suicidal thoughts will persist and even progress to suicidal behaviour. Nationally representative studies indicate that some 24–29% of adults who consider suicide will go on to attempt suicide at some point in their lives (Bruffaerts *et al.*, 2015; Kessler *et al.*, 1999; Sunderland *et al.*, 2021; ten Have *et al.*, 2013). This finding has been replicated in a multi-national sample of 84,850 adults, where the conditional probability of ever making a suicide attempt was 29% among those with suicidal ideation (Nock *et al.*, 2008a). In a unique prospective population-based cohort study of roughly 5000 Dutch adults, less than 10% of people with baseline suicidal ideation reported having attempted suicide in the subsequent 24 months (ten Have *et al.*, 2009). Taken together, high-quality studies have shown that, whilst suicidal thoughts may be frequent, only a relative minority of those who think about suicide will go on to engage in suicidal behaviour. This represents an important behavioural threshold, which is consistent with a process-oriented approach towards suicide. Contemporary models of suicide can account for why most individuals who think about suicide do not act upon their suicidal thoughts.

Ideation-to-action theories

Historically, theories of suicide have not offered explanations for why most people who have thoughts of suicide do not attempt suicide. For example, seminal theories emphasising psychache (Shneidman), escape (Baumeister), hopelessness (Beck), and social isolation (Durkheim) address suicide as one single phenomenon in need of a singular, overarching explanation (Barzilay & Apter, 2014; Selby *et al.*, 2014). An important theoretical advance occurred when Thomas Joiner proposed his interpersonal theory of suicide (Joiner, 2005), which is considered to be the first in a line of ‘next generation’ theories of suicide (Klonsky *et al.*, 2018). This theory posits that the coexistence of *perceived burdensomeness* (feeling a burden on others) and *thwarted belongingness* (feeling alienated or that you do not belong), and being hopeless that these states will not change, leads to the development of a *desire* for suicide (i.e., suicidal ideation). Although a necessary ingredient, a desire for suicide is not in and of itself sufficient to prompt suicidal behaviour; individuals also need to be capable of acting on such a desire. The core assumption of this theory is that it is only in the presence of a *capability* for suicide that a desire is transformed in suicidal behaviour (FIGURE 2). This capability for suicide is characterised by a reduced fear of death and increased tolerance of physical pain which, according to Joiner, is acquired through exposure to painful and provocative events. A capability for suicide is posited to be imperative for overcoming one’s innate fear of death and the instinctive drive towards self-preservation, which might explain why most people who think about suicide do not engage in suicidal behaviour (Chu *et al.*, 2017; Van Orden *et al.*, 2010).

Figure 2. Graphical depiction of the core assumptions underpinning the interpersonal theory of suicide.



Note. Figure reproduced from Van Orden and colleagues (2010).

Since its publication, several other “ideation-to-action” models expanding on the interpersonal theory have emerged—the integrated motivational-volitional (IMV) model (O'Connor & Kirtley, 2018) and the three-step theory (Klonsky & May, 2015). A central commonality across each of these three theories is an emphasis on the fact that suicidal ideation is *necessary though not sufficient* for a person to engage in suicidal behaviour. Although defined somewhat differently across theories, each of them alludes to the notion that a capability for suicide must be present in order for someone to bridge the behavioural threshold from suicidal ideation to action (for a summary, see TABLE 3). Individuals will not act on their suicidal thoughts unless they have the capability to do so. Diverse experiences are found to contribute to a person’s capability, such as risk-taking behaviour, combat exposure, substance use, interpersonal violence, physical and sexual trauma, and self-injurious behaviours (Gallyer *et al.*, 2021; May & Victor, 2018; Smith & Cukrowicz, 2010). Essentially, experiences which decrease fearlessness about death and increase habituation to pain are postulated to promote one’s capability to engage in suicidal behaviour when suicidal ideation is present. Reviews found that such variables related to a suicide capability were associated with suicide attempt among those with ideation (Klonsky *et al.*, 2017; May & Klonsky, 2016). More generally, ideation-to-action theories stipulate that (a) the *development of suicidal ideation* and (b) the *progression to suicidal behaviour* should be viewed as distinct processes with distinct predictors and explanations (Keefner & Stenvig, 2020; Klonsky & May, 2014; Klonsky *et al.*, 2016, 2018; TABLE 3).

Table 3. *Theoretical models of suicide within an ideation-to-action framework.*

| | Interpersonal theory (Van Orden <i>et al.</i> , 2010) | IMV model (O'Connor & Kirtley, 2018) | Three-step theory (Klonsky & May, 2015) |
|----------|---|--|--|
| Ideation | The simultaneous presence of thwarted belongingness and perceived burdensomeness leads to a desire for suicide. | The experience of defeat and humiliation from which there is no escape (entrapment) is the key driver of suicidal ideation. | A combination of pain and hopelessness cause suicidal ideation, which escalates when pain exceeds connectedness. |
| Action | To act upon a suicidal desire, an individual must have an acquired capability for suicide, characterised by a lowered physical pain sensitivity and high fearlessness of death. This capability is acquired through repeated exposure to painful and provocative events (e.g., self-harm, childhood abuse, interpersonal violence). | Volitional moderators govern the transition from ideation to action. The theory expands beyond an acquired capability and includes other factors that explain the propensity to act on suicidal thoughts (e.g., impulsivity, intent/planning, exposure to self-harm of others, access to lethal means, past suicidal behaviour, mental imagery). | Suicidal ideation progresses to action when one has the capability to attempt suicide. The theory identifies three distinct contributors to an increased suicide capability: dispositional (e.g., genetics, personality traits), acquired (e.g., fearlessness of death, habituation to pain), and practical (e.g., knowledge of and access to lethal means). |

Implications for suicide prevention

The suicidal process is defined as the development of suicidal thoughts and the progression to suicidal behaviour, and alludes to the notion that one's suicide risk has the ability to change over time (BOX 1). Suicidal thoughts and behaviour develop on a continuum of gradually increasing risk of suicide—to die by suicide, one must attempt it, and this act is preceded by suicidal ideation. Luckily, there are several points at which discontinuity exists. The majority of individuals who experience suicidal thoughts never attempt suicide, and most who have attempted suicide will not die by suicide. From a preventive point of view, an advantage of concentrating on this suicidal process is that by understanding which factors may precipitate the transition from thought to enactment, points at which to disrupt this trajectory of risk can be identified. The continuum approach to suicide risk acknowledges the central role of suicidal thoughts in the trajectory towards suicidal behaviour—therefore, interventions should be targeted at addressing suicidal ideation when it first emerges, before it progresses to a suicide attempt. Prevention and treatment strategies should also distinguish which intervention targets and mechanisms of change address the onset of suicidal ideation and which are meant to impede progression towards behavioural enactment (Anestis *et al.*, 2017; Jobes & Joiner, 2019; Kleiman, 2020; Klonsky *et al.*, 2016).

Box 1. The suicidal process.

- Suicide is the culmination of a complex and dynamic process, which develops over time and involves contributions from genetic, biological, psychological, clinical, social, and environmental domains.
- The suicidal process reflects the development of suicidal ideation and the transition to suicidal acts, and offers the opportunity of intercepting suicidal trajectories at different stages.
- Whilst only a proportion of individuals who consider suicide will progress to make a suicide attempt, (virtually) all people have experienced suicidal thoughts before engaging in suicidal behaviour.
- Ideation-to-action models postulate that suicidal ideation is a necessary though not sufficient cause to engage in suicidal behaviour—individuals will not act on their suicidal thoughts unless they have the capability to do so.
- There are different risk factors for suicidal behaviour than for suicidal thoughts; the relative impact of specific risk factors differs depending on the exact stage of the suicidal process.
- Prevention and treatment strategies should distinguish which intervention targets and mechanisms of change address the development of suicidal ideation and which are meant to impede progression towards suicidal behaviour.

PRISONERS: A HIGH-RISK GROUP FOR SUICIDE

Suicidal ideation and behaviour affect all echelons of society, albeit not equally so. Suicide risk is known to markedly vary across populations, and to disproportionately impact on the most vulnerable groups of society—including psychiatric patients and criminal offenders (Fazel & Runeson, 2020; WHO, 2014). Compared to the general population, people who are in contact with the criminal justice system—both offenders serving sentences in the community and those who are incarcerated—are at heightened risk of suicide (e.g., Hensel *et al.*, 2020; King *et al.*, 2015; Skinner & Farrington, 2020; Webb *et al.*, 2011).

Worldwide, some 11 million individuals are imprisoned at any given time, with three-fold more people transitioning through prisons annually (Walmsley, 2018). Suicide is a leading cause of mortality in prisons internationally, accounting for 30–50% of all deaths (Fazel & Benning, 2006; Joukamaa, 1997; Rabe, 2012; Willis *et al.*, 2016). National studies show that prison suicide rates far exceed those in the general population (Duthé *et al.*, 2014; Fritz *et al.*, 2021; Fruehwald *et al.*, 2000; Morthorst *et al.*, 2020; Rabe, 2012; Radeloff *et al.*, 2017; Willis *et al.*, 2016). In England and Wales, for example, standardised mortality ratios for suicide are 5 times higher in male prisoners (Fazel *et al.*, 2005) and 20 times higher in female prisoners (Fazel & Benning, 2009) compared with their age-equivalent peers outside prisons. Based on data sampled across 24 high-income countries, suicide rates in prisoners have been reported as being at least 3 times higher than those recorded among their non-incarcerated counterparts in the population at large—reflecting rates in excess of 100 suicides per 100,000 prisoners in many European countries (Fazel *et al.*, 2017a). More specifically, as detailed in TABLE 4, Nordic countries generally have the highest rates of prison suicide, followed by western Europe, especially in France and Belgium. Rates of suicide are generally not higher in female than in male prisoners, but when compared to the general population, rate ratios in prisons are typically higher than 3 in men and 9 in women (Fazel *et al.*, 2017a), suggesting a higher proportionate excess in women. This finding is consistent with evidence indicating that rates of suicide are (at least) similar among male and female prisoners (Dye, 2011; Liebling, 1994), despite a clear preponderance of male over female suicides in the community at large (Fox *et al.*, 2018).

There have been only a few studies which have documented the prevalence of suicidal ideation and attempt in large and unselected samples of prisoners. A national UK study found that 40% of 3139 prisoners had experienced suicidal thoughts in their lifetime, whereas 22% had ever attempted suicide (Jenkins *et al.*, 2005). Similarly, a lifetime history of suicidal thoughts was noted for one-third (34%) of 996 prisoners in New South Wales, Australia, and 21% had made a suicide attempt (Larney *et al.*, 2012). Among 903 male prisoners in Italy, the lifetime prevalence of suicidal ideation and suicide attempt was 44% and 15%, respectively (Sarchiapone *et al.*, 2009). Relative to estimates in the general population, thus, the prevalence of suicidal thoughts and attempts appears to be 4 to 7 times higher in prisoners.

The data are clear. What, now, could explain this disproportionate risk of suicide in prisoners?

Table 4. Number and rates of suicide in prisoners compared with the general population, 2011–2014.

| | No. of suicides ^a | Annual suicide rate (per 100,000) | | Rate ratio ^d |
|------------------------|------------------------------|-----------------------------------|------------------------|-------------------------|
| | | Prison ^b | Community ^c | |
| <i>Eastern Europe</i> | | | | |
| Croatia | 2 | 10 | 14.6 | 0.7 |
| Czech Republic | 44 | 54 | 17.8 | 3.1* |
| Poland | 59 | 24 | 26.4 | 1.0 |
| <i>Northern Europe</i> | | | | |
| Denmark | 14 | 91 | 12.9 | 7.0* |
| Finland | 13 | 103 | 21.0 | 4.8* |
| Iceland | 1 | 165 | 28.4 | 5.8 |
| Norway | 26 | 180 | 12.9 | 14.0* |
| Sweden | 26 | 104 | 14.1 | 7.4* |
| <i>Western Europe</i> | | | | |
| Belgium | 57 | 114 | 24.1 | 4.7* |
| England & Wales | 284 | 83 | 13.6 | 6.1* |
| France | 467 | 176 | 19.3 | 9.1* |
| Germany | 220 | 81 | 12.7 | 6.4* |
| Ireland | 8 | 47 | 15.7 | 3.0 |
| Netherlands | 43 | 99 | 13.0 | 7.6* |
| Northern Ireland | 2 | 29 | 20.1 | 1.5 |
| Scotland | 22 | 69 | 26.2 | 2.6* |
| Switzerland | 26 | 98 | 11.5 | 8.5* |
| <i>Southern Europe</i> | | | | |
| Italy | 204 | 81 | 6.7 | 12.1* |
| Portugal | 59 | 108 | 10.4 | 10.4* |
| Spain | 95 | 43 | 7.8 | 5.5* |
| <i>Australasia</i> | | | | |
| Australia | 37 | 40 | 17.2 | 2.3* |
| New Zealand | 23 | 67 | 13.2 | 5.1* |
| <i>North America</i> | | | | |
| Canada | 31 | 27 | 11.4 | 2.3* |
| United States | 2143 | 23 | 17.4 | 1.3* |

Note. Table reproduced from Fazel *et al.* (2017a). ^a Total number of prison suicides, both sexes (2011–2014). ^b Annual rates calculated based on however many years available between 2011–2014. ^c Annual suicide rate per 100,000 general population aged 30–49 years (WHO data). ^d Rates compared with those in the general population of similar age. * $p < 0.05$.

VULNERABILITY AND STRESS: A FRAMEWORK

The higher incidence of suicide in the prison population compared with the general population implies that there are contributory factors specific to prisons—either the prison environment, or the prisoners within. Accordingly, theoretical explanations of prisoners’ disproportionate risk of suicide have tended to fall within two main conceptual paradigms, which alternately focus on the *individual prisoner* or on the *prison context*. One line of (clinical and public health-oriented) research has focused on prisoners’ background vulnerabilities which are ‘imported’ into custody. Another school of thought, mostly within sociology and criminology, has emphasised the key role of imprisonment itself in precipitating suicidal ideation and behaviour. The former (importation) model has underlined the complex health needs and high burden of disease among prisoners, typically set against a backdrop of social disadvantage, whose risk of suicide is equally heightened before and after imprisonment. The latter (deprivation) model has brought attention to the ‘pains of imprisonment’ in relation to the increased risk of suicide in prisoners. These two—relatively isolated—bodies of literature attribute prison suicide to either factors which are specific to the prison experience (deprivations) or pre-prison background characteristics that offenders bring with them (import) into prison (Dye, 2010; Liebling & Ludlow, 2016; Marzano, 2010).

Importation model: pre-existing vulnerabilities

Before they are even incarcerated, prisoners are a vulnerable population at a high risk of suicide. Whilst not a homogeneous population, individuals exposed to the criminal justice system come from the most economically deprived and socially disadvantaged strata of our society. Offenders’ life trajectories are characterised by entrenched disadvantage, instability, poor education, poverty, trauma, and violence (AIHW, 2019; Ginn, 2013; Indig *et al.*, 2010; Kouyoumdjian *et al.*, 2016a). These intertwined drivers of justice involvement, in turn, largely overlap with social and structural determinants of health morbidity (e.g., Bramley & Fitzpatrick, 2015; Caruso, 2017; Hughes *et al.*, 2020; Stewart *et al.*, 2018). As a result, people who pass through prison are distinguished by poor health profiles (Enggist *et al.*, 2014; Fazel & Baillargeon, 2011; Kinner & Young, 2018). Many have complex and co-occurring health conditions such as infectious and chronic diseases (Binswanger *et al.*, 2009; Dolan *et al.*, 2016; Maruschak *et al.*, 2015; Voller *et al.*, 2016). Additionally, as detailed in TABLE 5, comprehensive meta-analyses have established the disproportionate prevalence of various mental disorders in prisoners (Fazel *et al.*, 2016), including major depression and psychosis (Fazel & Seewald, 2012), substance use disorders (Fazel *et al.*, 2017b), posttraumatic stress disorder (Baranyi *et al.*, 2018), and personality disorders (Fazel & Danesh, 2002). Taken together, it is clear that prisons accommodate a highly vulnerable group of individuals who face many compounding health and social care needs (Aldridge *et al.*, 2018; Marmot, 2018).

Table 5. Prevalence (%) of mental disorders among prisoners and community-residing adults, by sex.

| | Men | | Women | |
|----------------------|--------|-----------|--------|-----------|
| | Prison | Community | Prison | Community |
| Psychosis | 3–4 | 1 | 3–5 | 1 |
| Major depression | 9–12 | 2–4 | 10–18 | 5–7 |
| Personality disorder | 61–68 | 5–10 | 38–45 | 5–10 |
| PTSD | 4–9 | 1 | 17–26 | 3 |
| Drug use disorder | 22–38 | 4–6 | 43–58 | 2–3 |
| Alcohol use disorder | 23–30 | 14–16 | 16–24 | 4–5 |

Note. Data drawn from meta-analyses (Baranyi *et al.*, 2018; Fazel & Danesh, 2002; Fazel & Seewald, 2012; Fazel *et al.*, 2017b).

Such indicators of social disadvantage and health morbidity—which characterise the prison population as a whole—are established risk factors for suicidal thoughts and behaviour in the community at large. Ample evidence in the general population shows that those who are the most vulnerable are found to be at higher risk of suicide than others; as evidenced by socioeconomic deprivation, early-life adversity, traumatic experiences, social isolation, physical illness, drug and alcohol abuse, psychiatric morbidity, neurobiological disturbance, and personality traits such as impulsivity and aggression (Cha *et al.*, 2018; Fazel & Runeson, 2020; Hawton & van Heeringen, 2009; Nock *et al.*, 2008b; O'Connor & Nock, 2014; Richardson *et al.*, 2021; Turecki & Brent, 2016; Turecki *et al.*, 2019). Such vulnerability factors not only contribute to disproportionate levels of imprisonment, but given the excess prevalence in incarcerated offenders, may account for the increased risk of suicidal thoughts and behaviour observed in prisoners. Accordingly, the *importation model* argues that the increased risk of suicide in prisoners is attributable to their social and health inequalities they bring with them (import) into prison, referred to as imported vulnerability. Evidence in support of this importation model comes from case-control studies (Humber *et al.*, 2013; Rivlin *et al.*, 2010), systematic reviews (Lohner & Konrad, 2007; Marzano *et al.*, 2016), and meta-analyses (Fazel *et al.*, 2008; Zhong *et al.*, 2021) which have all identified pre-prison vulnerabilities as robust risk factors for suicidal behaviour in prisoners; including homelessness, childhood trauma, a history of violence and self-harm outside of prison, impulsivity, substance abuse, psychiatric diagnoses, and previous psychiatric treatment. Cross-sectional data on suicidal ideation, including a national study in the UK (Jenkins *et al.*, 2005), corroborate such findings (Larney *et al.*, 2012; Sarchiapone *et al.*, 2009).

In summary, the most vulnerable and marginalised members of society—where levels of social disadvantage and health morbidity are most marked—are overrepresented within prisons. People who break the law inherently have many risk factors for suicide, and these intersecting vulnerabilities which are imported into prison account for the disproportionate high risk of suicide in incarcerated offenders.

Limitations

Arguably, the prison population represents a selection of vulnerable people who are already at a higher risk of suicide before imprisonment due to histories of trauma, mental disorders, and substance abuse. Many have complex health and social needs that are imported into prison when they are incarcerated. The importation theory emphasises that individual-level, pre-prison vulnerabilities influence one's risk of suicide in prison. From this perspective, risk factors operate the same in both prisons and the general population. Under this essentially individual-centred take on the issue, a key limitation of this paradigm is its rather narrow focus on previous experiences and personal characteristics of those who consider, attempt, or die by suicide, whilst principally ignoring the larger institutional context surrounding these outcomes. In doing so, the pains and harms produced by the prison experience are largely overlooked, and therefore appears to suggest that prisons *per se* contribute little to the risk of suicide in this group.

Deprivation model: prison-specific stressors

These constraints of the importation model led scholars to shift focus towards the detrimental health impact of imprisonment and custodial factors that confer risk of suicide in prisoners. According to this perspective, known as the *deprivation model*, prisoners are at increased risk of suicide by virtue of the deprivating and stressful environment they find themselves in while detained. Drawing on the seminal work of Clemmer (1940), Sykes (1958), and Goffman (1961), the deprivation model holds that suicide is a consequence of the restrictive, total prison milieu and related pains of imprisonment—such as the loss of freedom, security, and autonomy. In support of this, empirical evidence has demonstrated that isolation, boredom, lack of purposeful activity, bullying, and victimisation all increase the likelihood of prison suicide (Blaauw *et al.*, 2001; Huey & McNulty, 2005; Leese *et al.*, 2006; Rivlin *et al.*, 2013b). Risk of suicide is also higher under social extremes of incarceration: being subjected to solitary confinement (Duthé *et al.*, 2013; Kaba *et al.*, 2014) or, at the other end of the spectrum, living under conditions of overcrowding. Specifically, ecological studies have found a positive association between overcrowding and suicide in prison (Huey & McNulty, 2005; Leese *et al.*, 2006; Preti & Cascio, 2006; Rabe, 2012). One explanation is that overcrowding may place a substantial strain on the system and exacerbates existing problems in terms of prisoner-staff ratios, conflicts, purposeful activity, and prisoners spending more time locked up. However, other studies found a negative (Duthé *et al.*, 2009) or null (Fazel *et al.*, 2017a; van Ginneken *et al.*, 2017) association, possibly due to the protective effect of sharing a cell (Zhong *et al.*, 2021) through companionship and supervision provided by a cellmate. In a similar vein, poor social support is a clear risk factor for suicidal behaviour (Duthé *et al.*, 2013; Jenkins *et al.*, 2005; Rivlin *et al.*, 2013b). Furthermore, rates of suicide are not evenly distributed across types of facilities and regimes.

For example, research has shown that suicides occur more often in higher (compared to lower) security prisons (Dye, 2010; Huey & McNulty, 2005; van Ginneken *et al.*, 2017). This may reflect a difference in population composition with regards to individual factors (e.g., violent offenders), but it is also possible that high-security facilities exemplify loss of control, deprivation, and isolation. Cells in prisons with a higher security level are often single cells, whereas those in lower-security facilities are mostly multiple occupancy cells or dormitories. Moreover, there are periods of imprisonment when risks are elevated, particularly the early days and weeks of custody (Humber *et al.*, 2011b; Shaw *et al.*, 2004), where pains and deprivations are often experienced most intensely (Harvey, 2005). Remand imprisonment may be especially difficult due to the sudden separation from friends and family, lack of activities, uncertainty of the pre-trial period, and the changing prisoner population. First-time prisoners may feel particularly anxious about facing an unknown situation, a new environment, and being deprived of their freedom.

In summary, there is compelling evidence that suicidal thoughts and behaviour in prisoners are associated with institutional conditions, including general aspects of the regime every prisoner is faced with (such as the loss of freedom and autonomy, and the removal from a familiar environment) as well as more specific aspects of life in prison which only apply to some prisons or prisoners (including a lack of purposeful activity, solitary confinement, violence, victimisation, overcrowding, and boredom). This finding is consistent with research focusing on prisoners' mental health and wellbeing more generally (e.g., Goomany & Dickinson, 2015; Nurse *et al.*, 2003; van Ginneken *et al.*, 2019; Walker *et al.*, 2014).

Limitations

The deprivation model stresses the role of the prison environment in precipitating suicide. Situational and environmental factors unique to the prison setting are what primarily account for the high rate of suicide in prisons. The main critique on the deprivation model is that, in similarly depriving conditions, or even within a single facility characterised by high levels of deprivation, the vast majority of prisoners will not consider, attempt, or die by suicide. As such, the deprivation perspective largely fails to explain why incarceration leads to suicide for some prisoners, but not others. This model assumes a monolithic prison population and, consequently, overlooks prisoners' individual needs and backgrounds (TABLE 6).

Combined model: vulnerable individuals in a stressful environment

The causes of suicide in prison traditionally have been organised by features of the prison environment (deprivation) and characteristics of the individual prisoner (importation). Whilst empirical support was found for each model individually, deprivation and importation models both have limits for explaining prison suicide, and scholars now concede that it is best explained by a combination of the two models, in which "prisons expose already vulnerable populations to additional risk" (Liebling & Ludlow, 2016).

The few available studies support this notion of a combined importation-deprivation model for suicide risk in prisoners, emphasising the complex interactions between prisoners' pre-existing vulnerabilities they import into prison and the deprivations of the correctional environment they are faced with while detained (Dye, 2010; Liebling, 1992; Marzano *et al.*, 2011b; Rivlin *et al.*, 2013b; Stoliker, 2018). Key to this *combined model* is the notion that people respond differently to the pains of imprisonment, largely as a function of their background characteristics and levels of imported vulnerability. Reciprocally, this model acknowledges that vulnerable prisoners may successfully cope with institutional stressors when conditions are less depriving. This finding tallies with studies focusing on the psychological adjustment of prisoners more generally, in that they import complex care needs into prison, and these background vulnerabilities are exacerbated by the deprivations inherent to the prison environment (Armour, 2012; Brons *et al.*, 2013; Cooper & Berwick, 2001; Fedock, 2017; Gover *et al.*, 2000; Slotboom *et al.*, 2011).

Table 6. Summary of models explaining risk of suicide in prisoners.

| Model | Premise | Risk factors |
|-------------|--|---|
| Importation | Prisoners represent a selection of vulnerable people who already are at high risk of suicide before imprisonment. The disproportionate risk of suicide in prisons is a result of the social and health inequalities that offenders import into prison. | Socioeconomic disenfranchisement Trauma and childhood adversity Drug and alcohol abuse Psychiatric morbidity Impulsivity and aggression |
| Deprivation | Prisoners are at increased risk of suicide by virtue of the highly demanding environment they find themselves in when incarcerated. Deprivations and stressors inherent to prisons are what primarily account for the excess risk of suicide in prisoners. | Pains of imprisonment Lack of purposeful activity Social and physical isolation Overcrowding Violence and victimisation |
| Combined | Prisons expose already vulnerable individuals to additional risk. Prisoners import complex care needs into prison, and these vulnerabilities are exacerbated by environmental prison stressors. | A combination of prisoners' pre-existing vulnerabilities and the prison-specific deprivations they are faced with while incarcerated. |

The crossroads of criminology and psychiatry

The above literature suggests that suicide is likely the result of a complex interplay between prisoners' imported vulnerability and the depriving environment they find themselves in when imprisoned. This finding aligns with the *diathesis-stress model* of suicidal behaviour—a psychiatric-oriented framework in which suicide is purported to result from the dynamic interaction between proximal stressful events on the one hand and an individual's predispositional diathesis to respond with suicidal behaviour when stress is encountered on the other hand (Mann *et al.*, 1999; van Heeringen, 2001, 2012, 2018).

The diathesis-stress model takes the multiplicity of causes into account by stating that suicide is the consequence of a dynamic interaction between stressful events and a susceptibility for suicide. The *diathesis* component is understood as a predisposition to think about suicide or engage in suicidal behaviour when exposed to stress. A diathesis is held to be the crucial determinant of whether or not suicidal outcomes are manifested under the influence of external stressors—the diathesis determines an individual’s threshold for suicide. When the threshold is low (due to a high diathesis), the likelihood of engaging in suicidal behaviour upon exposure to stressors is high, and vice versa. Studies have shown that predisposing factors, contributing to one’s diathesis, are background characteristics or underlying vulnerabilities that heighten an individual’s risk of suicide anytime in life; including early-life adversity, childhood trauma, chronic illness, psychiatric morbidity, substance abuse, impaired decision-making, maladaptive coping strategies, emotional dysregulation, impulsive-aggression traits, and serotonergic dysfunction (i.e., imported vulnerability). This vulnerability towards suicide becomes heightened under the influence of situational stressors. This *stress* component refers to stressful events and other state-based factors. In a prison setting, these include, amongst others, one’s loss of freedom and autonomy, a lack of purposeful activities, violence, victimisation, social (removal from a familiar environment) and physical (segregation) isolation, and overcrowding (i.e., deprivations).

In summary, the diathesis-stress model explains that the risk of suicide is determined not only by environmental stressors but also by a person’s diathesis rooted in susceptibilities. It is apparent that the importation and deprivation models correspond with the diathesis and stress components of this model, respectively. The vulnerability an individual imports into prison relates to their predispositional diathesis, which becomes heightened under the influence of environmental stressors inherent to being incarcerated, thereby increasing the likelihood of suicidal thoughts and behaviour while in prison.

Box 2. A combined vulnerability-stress model of suicide risk in prison.

- Prisoners are at increased risk of suicide compared with their counterparts living in the community.
- Suicidal thoughts and behaviour in prison are, like elsewhere, the outcomes of a process influenced by myriad genetic, biological, psychological, clinical, social, and environmental factors.
- Suicide risk in prisons is best understood as the result of a dynamic interaction between individuals and their surroundings—prisoners import complex care needs into prison, and these vulnerabilities are exacerbated by the stressors and deprivations of the prison environment.
- Pursuits to bridge predispositional (importation) and situational (deprivation) models of suicide risk in prisons are, albeit sparse, consistent with the wider diathesis-stress model, in that a pre-existing susceptibility to suicide becomes heightened under the influence of environmental stressors.

Summary

Although its aetiology is not fully understood, the available evidence suggests that suicide is rarely the consequence of a single cause or stressor, but rather depends on the cumulative and interactive effects of many genetic, biological, psychological, clinical, social, and environmental factors. The excess risk of suicide among prisoners is now widely accepted to be due to a combination of both imported risks and environmental stressors within prison. This combined importation-deprivation model of prison suicide is consistent with a diathesis-stress model of suicide. Such a dual framework—whether criminological (importation-deprivation) or psychiatric (diathesis-stress) in nature—accounts for why most prisoners (all exposed to a stressful environment) do not engage in suicidal behaviour, and why biopsychosocial vulnerabilities (which are overrepresented in prisoners) do not constitute a sufficient cause for suicide. In other words: “it cannot be argued that there is no psychiatric element in or predisposition to suicide in those who succeed, both in and out of prison; but what should be acknowledged is that just as outside, it is more usually a combination of (psychiatric) vulnerability, situational stress and individual perceptions which trigger the final suicide act than either component alone” (Liebling, 1992, p. 85).

There do however remain several important gaps in our understanding of suicidal ideation and behaviour among prisoners. Most studies to date have examined importation and deprivation models in isolation from one another, and empirical data supporting the assumptions of the combined model are limited. Furthermore, the vast majority of studies have focused on suicidal behaviour in prisons as a discrete outcome, with little attention given to the suicidal *process* of prisoners (BOX 1). Principles of the ideation-to-action framework have not yet been studied comprehensively in prison populations to examine whether and why most prisoners who think about suicide do not engage in suicidal behaviour. Essentially, it remains unclear whether vulnerability (importation) and environmental (deprivation) risk factors differentially relate to distinct stages of the suicidal process while incarcerated. Efforts directed towards integrating these scattered domains represent an important avenue for further investigation, which could lay foundations for developing and improving suicide prevention interventions in prisons.

AIMS AND METHODOLOGY

Suicide is an important public health issue that warrants extensive empirical investigation. Prevalence rates of suicidal thoughts and behaviour in prisoners far exceed those found among non-incarcerated populations. In response, there have been calls for increased suicide prevention efforts in prisons, for example, by the World Health Organization (WHO, 2007) and the National Institute for Health and Care Excellence (NICE, 2017). To inform such efforts, and support the public health goal of reducing suicidal behaviour among vulnerable populations (WHO, 2014), there is a critical need for comprehensive data pertaining to the epidemiology of, and risk factors for, suicidal outcomes in prisoners. In contrast, such national data on the number and characteristics of prisoners who consider, attempt, and die by suicide are currently lacking for Belgium—a country that has, by international standards, a high rate of suicide. With the exception of a pilot study with substantial methodological limitations (Wittouck *et al.*, 2016) and a study assessing prisoners' physical and mental health needs more generally (Vyncke *et al.*, 2015), empirical research on suicidal outcomes among Belgian prisoners is lacking to date. This dearth of data could translate into policy approaches that neglect the issues pertinent to prisoners at risk of suicide. Against this background, this dissertation addressed three distinct though reciprocally connected aims (to extend research, advance scientific theory, and inform policy) by focusing on the (1) epidemiology, (2) risk factors, and (3) prevention of suicidal thoughts and behaviour among incarcerated offenders.

Aims and relevance

Epidemiology

Accurate knowledge of the epidemiology of suicidal thoughts and behaviour in prisoners is a necessary prerequisite for understanding the extent of the problem, allocating resources, developing prevention programs and intervention strategies, and monitoring changes over time. Up-to-date national data are required to guide policies aimed at reducing suicidal outcomes in prisoners. In contrast, however, such information is not available for Belgium. Annual reports that are published by the Directorate-general of Penitentiary Institutions (DG EPI) solely report on the absolute number of suicides in Belgian prisons, without any further details on decedents' characteristics. Data on non-fatal attempts are not routinely registered at all. Previous studies examining the prevalence of suicidal ideation and attempts in Belgian prisoners (Vyncke *et al.*, 2015; Wittouck *et al.*, 2016) are not reliable due to their methodological flaws. This lack of data represents a major gap in public health policy. As such, this dissertation aimed to map the epidemiology of suicide, suicide attempt, and suicidal ideation among prisoners in Belgium. Several methods were used to achieve this aim, including a national case file analysis of all prison suicides over a two-decade period and a large-scale survey comprising more than 1300 randomly selected prisoners.

Risk factors

The increased risk of suicide in prisoners, and the burden it exerts, makes it imperative to improve our understanding of factors that contribute to the development of suicidal outcomes while incarcerated. Knowledge about risk factors for suicidal thoughts and behaviour in prisoners is essential for a number of reasons, including advancing scientific theory, improving understanding of underlying mechanisms, informing risk assessment, and developing evidence-based prevention efforts and clinical intervention. Whereas research on suicide risk factors in the general population has gained considerable momentum in the past decade (Astraud *et al.*, 2020; Franklin *et al.*, 2017), this sharp increase has not been mirrored by a parallel growth of prison research. Although findings from community-based studies may advance our understanding of suicide risk factors more generally, the unique nature of the prison environment mandates that research also be conducted among prisoners. However, relatively few studies focusing on risk factors for suicidal outcomes in prison exist; only a minority of which are of high methodological quality. Many of the studies in this field that examine non-fatal suicidal outcomes are characterised by four important limitations. First, studies often rely on small and non-representative samples, hindering generalisability of findings. A second issue pertains to the assessment of prisoners' suicidal outcomes on a *lifetime* basis, hence providing limited information concerning what factors are related to suicidal ideation and attempt *while incarcerated*. Third and relatedly, the vast majority of studies has examined only a limited range of potential risk factors, primarily investigating prisoners' imported vulnerabilities. Whilst informative, these studies are too narrowly focused on individual-level determinants of risk and, thereby, largely neglect the custodial context in which prisoners are held. Although scholars now agree on the importance of, and need for, a combined model of suicide risk in prisons, empirical attempts to bridge importation and deprivation models are still highly underdeveloped (Dye, 2010; Stoliker, 2018). Fourth, despite a growing recognition that factors associated with suicidal thoughts are distinct from those that govern the transition to suicide attempt, prison research adopting principles of the ideation-to-action framework is—with one important exception (Larney *et al.*, 2012)—lacking to date. Together, these four shortcomings of the extant literature represent vital and timely areas of suicide research in prisoners—all of which this dissertation sought to address. Clearly, a comprehensive understanding of both predisposing and precipitating risk factors which can be modified through intervention, at various stages along the suicidal process, is crucial in order to develop and implement appropriate prevention strategies. The second aim of this dissertation, therefore, was to delineate risk factors associated with theoretically distinct points along the trajectory from suicidal ideation to behaviour in a way consistent with the ideation-to-action framework. To achieve this aim, this dissertation drew on multiple methods and samples which, in addition to a large survey of prisoners in Belgium, also incorporated data from a representative national study of New Zealand prisoners and a meta-analysis of international studies.

Prevention

Suicidal thoughts and behaviour in prison are preventable when evidence-based strategies are in place. Anno 2021, an overarching suicide prevention policy in Flemish prisons is lacking. Little is known about which strategies are currently implemented within Flemish prisons. Establishing good practices, as well as identifying local needs and barriers, holds valuable yet unexplored information and has the potential to inform suicide prevention efforts that may be tailored to the local prison setting. The third and final aim of this dissertation was to explore the perspectives of professionals about the needs, barriers, and ways forward in suicide prevention. Semi-structured interviews and focus groups were conducted with 35 prison staff from all relevant disciplines who were employed across 13 different prisons in Belgium.

Methodology and ethics

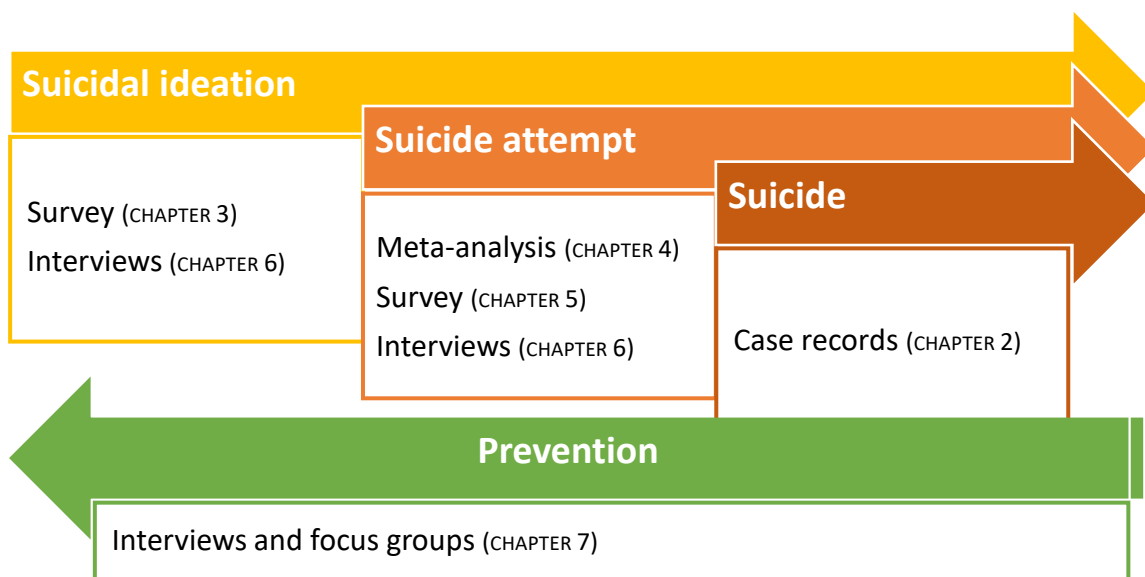
In order to grasp a complex and multi-factorial phenomenon as suicide, multiple research methods are required. Every methodology used to study suicidal thoughts and behaviour has its inherent strengths and limitations (Glenn *et al.*, 2016), and combining different methods holds the advantage to improve our understanding of the epidemiology and risk factors of suicidal outcomes, in prisons and elsewhere. To achieve the aims outlined above, this dissertation adopts and combines a series of well-established methods in suicide research (FIGURE 3). Specifically, the epidemiology of suicide mortality and non-fatal suicidal outcomes among Belgian prisoners was respectively examined by means of a national case file analysis (CHAPTER 2) and a large-scale survey (CHAPTERS 3 and 5). Risk factors for suicidal outcomes were investigated using a survey of Belgian prisoners (CHAPTERS 3 and 5), a comprehensive meta-analysis of international studies (CHAPTER 4), and diagnostic interviews conducted among a representative sample of New Zealand prisoners (CHAPTER 6). Perspectives of prison staff concerning suicide prevention were mapped using qualitative methods, including semi-structured interviews and focus groups (CHAPTER 7). Together, the mixed-methods approach adopted by this dissertation allows for a thorough and diverse exploration of multiple domains that are relevant to suicide risk and its prevention in prisons (BOX 3).

Ethical approval for this dissertation was granted by the Ethics Committee of Ghent University, Faculty of Law and Criminology. Permission for the fieldwork in Belgian prisons was obtained from the Directorate-general of Penitentiary Institutions. The case study was prospectively registered with the Commission for the Protection of Privacy. The research protocol for the meta-analysis was registered on PROSPERO before the systematic review was done. For the New Zealand data, ethical approval was obtained from the Central Health and Disability Ethics Committee of the Ministry of Health. Both the funding agency and the original study authors gave approval to include the New Zealand data in this dissertation. All procedures complied with the ethical standards of relevant national and institutional committees on human experimentation and with the Helsinki Declaration of 1975, as revised in 2008.

Summary

Preventing suicide in prisons necessitates a thorough evidence base. This dissertation addressed three distinct though reciprocally connected aims—extend research, advance theory, and inform policy—by focusing on the epidemiology, risk factors, and prevention of suicidal ideation and behaviour in prisons. A common thread throughout this dissertation was to investigate relations among individual-level and prison-specific influences associated with theoretically distinct points along the trajectory from suicidal thoughts to behaviour in a manner consistent with the ideation-to-action framework. The aspired goal was that findings from the six empirical chapters included in this dissertation may support national and local decision makers in allocating limited prison resources and prioritising interventions in areas with the greatest need for preventing and managing suicide risk.

Figure 3. Overview of empirical chapters included in this dissertation, by outcome and methodology.



Box 3. Chapter outline of research questions, methodology, and relevance.CHAPTER 2: Prison suicides in Belgium, 2000–2019

Research question: What is the incidence and characteristics of suicides in Belgian prisons?

Methodology: Case file analysis of all suicides in Belgian prisons over a 20-year period (2000–2019).

Relevance: Accurate and up-to-date information about the incidence and characteristics of suicides in prisons is essential to inform policy and support the implementation of prevention strategies.

CHAPTER 3: Suicidal ideation while incarcerated

Research question: What is the prevalence of, and risk factors for, suicidal thoughts in prisoners?

Methodology: Large-scale cross-sectional survey of 1326 randomly selected prisoners in Belgium.

Relevance: An improved understanding of factors associated with suicidal thoughts may contribute to the early identification of prisoners at risk of suicide.

CHAPTER 4: Review of risk factors for suicide attempt

Research question: What is the overall evidence on risk factors for suicide attempt in prisoners?

Methodology: Systematic review and meta-analysis of 17 studies with more than 12,000 prisoners.

Relevance: A quantitative synthesis of all the available evidence can identify appropriate targets for intervention and assist decision-makers in allocating scarce prison resources.

CHAPTER 5: The transition from ideation to action

Research question: What factors distinguish between prisoners who consider and attempt suicide?

Methodology: Large-scale cross-sectional survey of 1326 randomly selected prisoners in Belgium.

Relevance: Identifying what factors may precipitate the transition from suicidal thoughts to attempt could elucidate points at which to disrupt this trajectory of risk while incarcerated.

CHAPTER 6: Mental disorders and the suicidal process

Research question: Which mental disorders facilitate the transition from thought to enactment?

Methodology: Diagnostic interviews with a representative sample of 1212 New Zealand prisoners.

Relevance: Advancing our understanding of how different mental disorders relate to distinct stages of the suicidal process holds valuable information for prevention efforts and clinical intervention.

CHAPTER 7: Staff perspectives on suicide prevention

Research question: What are the needs, barriers, and ways forward in suicide prevention in prison?

Methodology: Semi-structured interviews ($n = 13$) and three focus groups ($n = 22$) with prison staff.

Relevance: Identifying good practices, needs, and barriers in suicide prevention has the potential to improve risk management and inform interventions that can be tailored to the local prison setting.

CHAPTER 2

Prison suicides in Belgium, 2000–2019

Suicide is a leading cause of death in prisons worldwide, yet empirical data on this outcome are lacking for Belgium. This study reports on a national consecutive case series of deaths by suicide in all Belgian prisons, defined by date of death (from January 1, 2000, to December 31, 2019). All documented cases of suicide (n = 303) were reviewed using a standardised assessment checklist. Official archival records were abstracted for prisoners' demographic, criminological, and clinical information, as well as suicide-related characteristics. Over the 20-year period covered by this study, suicide accounted for one-third (33%) of all deaths in prison. The mean annual suicide rate (120 per 100,000) was four times higher in prisoners relative to the general population in Belgium. Examination of all suicide cases highlights both individual (violent offending and psychiatric morbidity) and situational (single-cell accommodation, the early period of custody, and use of lethal methods) factors common in many suicides. Whilst this study provides novel insights into the incidence of, and factors related to, suicide in Belgian prisons, a central limitation concerns its reliance on data available in administrative records. Future studies should focus on the continuum on which suicide falls—suicidal ideation and suicide attempt—in order to more fully examine modifiable risk factors for suicidal outcomes which might, through intervention, be altered.

Portions of this chapter are based on Favril, L., Wittouck, C., Audenaert, K., & Vander Laenen, F. (2019). A 17-year national study of prison suicides in Belgium. [*Crisis*](#), 40(1), 42-53. Louis Favril conceived and designed the study, collected and analysed the data, interpreted the results, drafted and revised the article. This chapter represents a thorough update of the previously published paper.

INTRODUCTION

Suicide is a prevailing cause of mortality in prison settings worldwide (Konrad *et al.*, 2007; Rabe, 2012), and reducing its occurrence has been highlighted as an international priority (WHO, 2007). Dating back to the early 1970s, retrospective studies have typically analysed official records of prisoners who died by suicide in order to develop a *suicide profile* which highlights common features of prison suicides (for reviews, see Camilleri *et al.*, 1999; Liebling, 1992; Lloyd, 1990). In more recent years, many descriptive (e.g., Dixon *et al.*, 2020; Gauthier *et al.*, 2015; Hayes, 2012; O'Driscoll *et al.*, 2007; Shaw *et al.*, 2004) and case-control (e.g., Blaauw *et al.*, 2005; Fruehwald *et al.*, 2004; Humber *et al.*, 2013; Winter, 2003) studies have sought to delineate relevant factors associated with suicide in prisons, although few have been *national* in scope (for an overview, see TABLE 7). According to a 2008 meta-analysis comprising 34 studies, the most important risk factors for prison suicide were single-cell occupation, remand status, serving a life sentence, suicidal ideation, a history of suicide attempt, and having a psychiatric diagnosis or a history of alcohol abuse (Fazel *et al.*, 2008). An updated meta-analysis was published in 2021 and confirmed previous findings; across 77 studies from 27 countries including 35,351 cases of suicide, the factors most strongly associated with prison suicide were suicidal ideation, suicide attempt, self-harm, single-cell occupancy, a psychiatric diagnosis, remand status, and violent offending (Zhong *et al.*, 2021). Importantly, circa half of all studies included in this review were from countries outside of Europe (36% from the US alone, accounting for 40% of all suicides), and findings may therefore not be generalisable to other countries with different penal policies and prison regimes, including Belgium.

To my knowledge, only one study has been conducted on suicide mortality among prisoners in Belgium. This was a small descriptive study by Wilmotte *et al.* (1973) who examined 45 cases of suicide that occurred in Belgian prisons between 1958 and 1968. Needless to say, this study is outdated given that important changes in the management of prisoners and in clinical service provision have occurred since the 1960s. Current data on prison suicides in Belgium are provided by the DG EPI in their annual reports, but this is limited only to absolute figures (the number of suicides each year) without further details on decedents' sociodemographic, criminological, and clinical characteristics. This dearth of data could potentially translate into prevention and policy approaches that neglect the issues pertinent to prisoners' risk of suicide. Indeed, comprehensive and up-to-date information about the incidence and related factors of prison suicides is vital to inform policy and to implement evidence-based prevention and intervention strategies. Given the public health significance of suicide in prisons, a national review was conducted of all suicides that occurred in the prison estate of Belgium from 2000 to 2019 inclusive. In order to inform prevention strategies at the individual, staff, and organisational level, the aim of this study was to answer three basic questions: (1) *how often* do suicides occur in Belgian prisons, (2) *who* dies by suicide in prison, and (3) *when, where, and how* do these suicides take place?

Table 7. Summary of findings from selected national studies on suicide in prison.

| | Australia (1999–2013) | Austria (1975–1999) | England, Wales (1999–2007) | Finland (1969–1992) | Netherlands (1987–1998) | Norway (2000–2016) | United States (2003–2014) | Worldwide (1967–2020) |
|-----------------------------------|--------------------------|------------------------|-------------------------------|------------------------|----------------------------|-----------------------|------------------------------|--------------------------|
| <i>Incidence</i> | | | | | | | | |
| Suicides (<i>n</i>) | 240 | 220 | 776 | 184 | 95 | 62 | 1896 | 35,351 |
| Rate (per 10 ⁵) | 68 | 127 | — | 169 | 102 | 134 | — | — |
| <i>Prisoners' characteristics</i> | | | | | | | | |
| Mean age (years) | 35 | 34 | 31 | — | 34 | — | — | — |
| Men | 93 | 97 | 91 | 98 | 94 | 94 | 91 | 94 |
| Unsentenced | 53 | 47 | 38 | 17 | 44 | 77 | — | 67 |
| Violent offence | 32 | 42 | 33 | 27 | 41 | 47 | 43 | 21 |
| Suicide attempt | — | 49 | 48 | — | 54 | — | 20 | 50 |
| Psychiatric diagnosis | — | 40 | 51 | — | 73 | — | 34 | 43 |
| <i>Suicide details</i> | | | | | | | | |
| Location: single cell | — | 68 | 70 | 37 | — | — | 17 | 71 |
| Method: hanging | 86 | 82 | 92 | 88 | 79 | 87 | 92 | — |
| <i>Timing of suicide</i> | | | | | | | | |
| Within one month | 29 | 20 | 47 | 20 | 25 | 40 | 68 | — |
| Within three months | 50 | 35 | — | 45 | 46 | — | — | — |

Note. Data are reported as percentages unless specified otherwise. A dash (—) denotes the absence of information. Sources: Australia (Willis *et al.*, 2016), Austria (Fruhwald *et al.*, 2002, 2004), Finland (Joukamaa, 1997), England and Wales (Humber *et al.*, 2011b), Netherlands (Blaauw & Kerkhof, 1999; Blaauw *et al.*, 2005), Norway (Bukten & Stavseth, 2021), United States (Dixon *et al.*, 2020), worldwide (Zhong *et al.*, 2021). When multiple studies were available for a single country, the most comprehensive one was retained (e.g., Dooley, 1990; Duijst *et al.*, 2012; Hayes, 2012; Shaw *et al.*, 2004). Other national studies provided little information beyond suicide rates (e.g., Preti & Cascio, 2006; Spinellis & Themeli, 1997) or analysed only a small number of suicide cases (e.g., Bogue & Power, 1995; Gauthier *et al.*, 2015).

METHODS

Definition of outcome

In Belgium, every death occurring in prison is subject to a coronial inquest and an inquiry by the Public Prosecutor. Medical examiners classify the death as a suicide where, after investigation and evaluation of circumstances, it is established that a prisoner committed an act with the intention of taking his/her own life. Only deaths where suicide was the defined cause of death by coroner's verdict were included in the current study. Suicides of offenders who were administratively registered in the prison database but who were not physically residing in prison—for example, in case of electronic monitoring or those who were granted a temporarily penitentiary leave—were not included in this study.

Data sources and analysis

This study is a retrospective analysis of suicides that occurred in the Belgian prison estate. The period covered was a 20-year consecutive case series defined by date of death (January 1, 2000, to December 31, 2019). The DG EPI provided a list of all prisoners who died by suicide from 2000 to 2019 inclusive. Prisoners' official records of each suicide case were requested. Over the 20-year study period, the total number of prison deaths classified as a suicide by coroner's verdict was 303. Employing a standardised checklist, all available records (general prison files, psychosocial evaluation reports, and suicide review reports) were abstracted for demographic, criminological, and clinical information, as well as suicide-related characteristics. The primary data sources comprised prisoners' general prison files and official suicide review reports (a mandatory investigation report describing the circumstances of the suicide). These two information sources were available for most cases, except for 21 (6.9%) review reports that could not be retrieved.² There was considerable variation in the quality and quantity of information in the case files of prisoners who died by suicide. Supplementary sources of information, when available, included psychosocial evaluation (PSD) reports and suicide notes.

The annual DG EPI reports were examined for official statistics of the average daily population (ADP), number of annual receptions, and number of deaths in Belgian prisons; supplemented through other sources (Beyens & Maes, 2017; DG EPI, 2020). Since no control group was included in this study, analysis was largely descriptive in nature. When available, data were benchmarked against information of the total prison population for the period spanning 2005–2015, compiled by the Council of Europe (Aebi *et al.*, 2019). If an item of information was missing for a case, the case was removed from the analysis of that item; the denominator of all estimates is thus the number of valid cases for each item.

² Prisoners with a missing report ($n = 21$) were significantly more likely than those with a report ($n = 282$) to have died in a prison located in Wallonia and, interestingly, during the period 2017–2019.

RESULTS

Incidence and rates

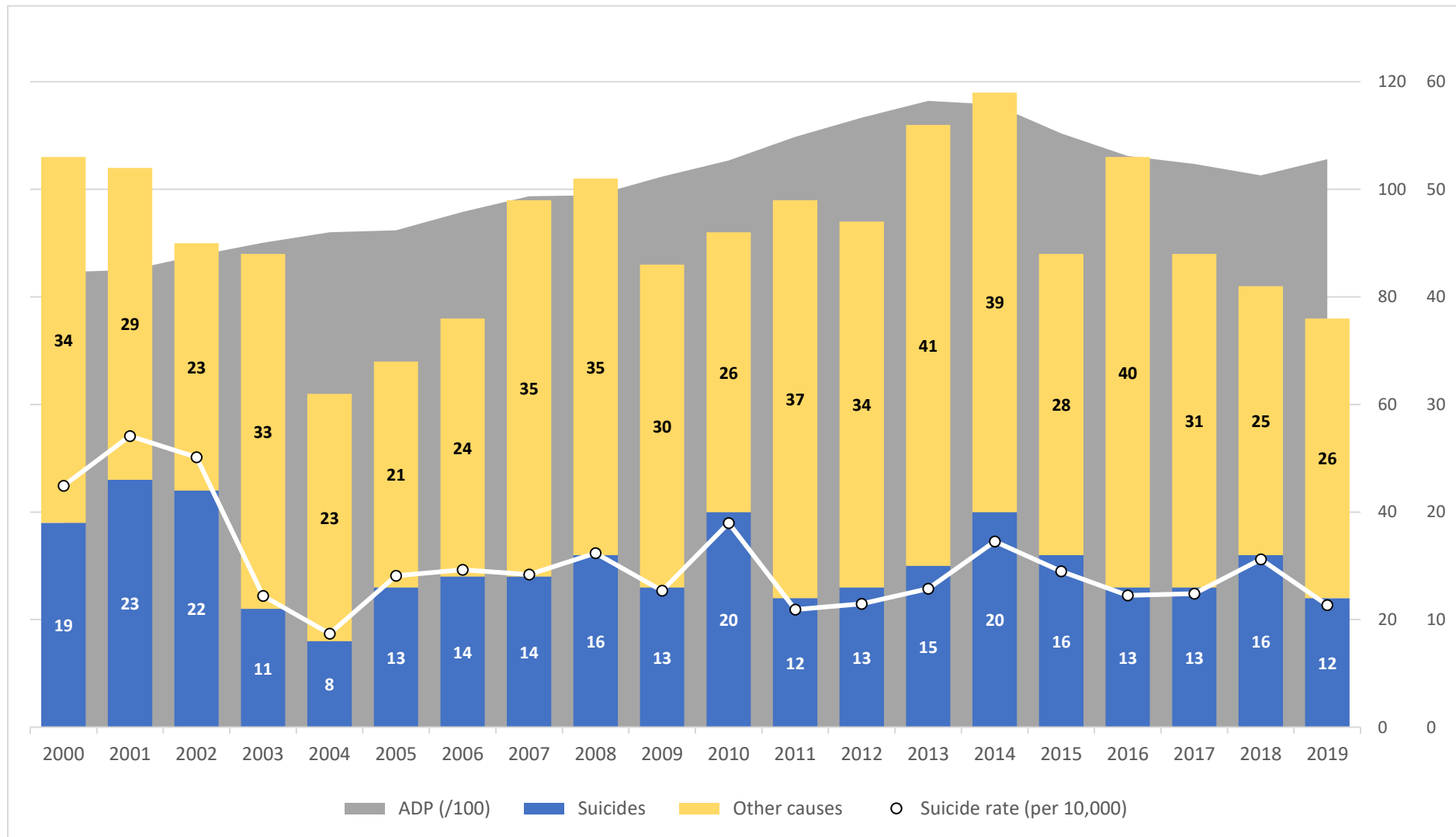
Over the 20-year study period, there were a total of 917 deaths in Belgian prisons, of which 303 (33.0%) were classified as suicide—equalling an average of 15.2 suicides every year. Based on ADP figures, the annual rate of suicide (per 100,000 prisoners) fluctuated widely, ranging from 269.4 in 2001 to 86.6 in 2004 (FIGURE 4). The suicide rate from 2000–2019 was estimated to be 152.1 (based on ADP) and 88.7 (based on receptions), averaging to 120 suicides per 100,000 (TABLE 8). A downward temporal trend in suicide rates was observed (ADP: $\beta = -0.49$, $p = 0.028$; reception: $\beta = -0.46$, $p = 0.042$). The annual rate of suicide was negatively associated with both ADP ($p = 0.024$) and number of receptions ($p = 0.042$).

Table 8. Deaths, suicides, and suicide rates in Belgian prisons, 2000–2019.

| Year | Prison population | | Number of deaths | | Suicide rate per 100,000 | |
|------|-------------------|------------|------------------|--------------|--------------------------|------------|
| | ADP | Receptions | Total | Suicides (%) | ADP | Receptions |
| 2000 | 8543 | 14,960 | 53 | 19 (35.8) | 222.4 | 127.0 |
| 2001 | 8536 | 14,443 | 52 | 23 (44.2) | 269.4 | 159.2 |
| 2002 | 8804 | 15,882 | 45 | 22 (48.9) | 249.9 | 138.5 |
| 2003 | 9046 | 15,887 | 44 | 11 (25.0) | 121.6 | 69.2 |
| 2004 | 9239 | 15,735 | 31 | 8 (25.8) | 86.6 | 50.8 |
| 2005 | 9293 | 15,774 | 34 | 13 (38.2) | 139.9 | 82.4 |
| 2006 | 9611 | 16,740 | 38 | 14 (36.8) | 145.7 | 83.6 |
| 2007 | 9873 | 17,255 | 49 | 14 (28.6) | 141.8 | 81.1 |
| 2008 | 9891 | 17,884 | 51 | 16 (31.4) | 161.8 | 89.5 |
| 2009 | 10,238 | 18,503 | 43 | 13 (30.2) | 127.0 | 70.3 |
| 2010 | 10,536 | 18,829 | 46 | 20 (43.5) | 189.8 | 106.2 |
| 2011 | 10,974 | 18,300 | 49 | 12 (24.5) | 109.4 | 65.6 |
| 2012 | 11,330 | 17,663 | 47 | 13 (27.7) | 114.7 | 73.6 |
| 2013 | 11,645 | 17,908 | 56 | 15 (26.8) | 128.8 | 83.8 |
| 2014 | 11,578 | 18,755 | 59 | 20 (33.9) | 172.7 | 106.6 |
| 2015 | 11,041 | 18,668 | 44 | 16 (36.4) | 144.9 | 85.7 |
| 2016 | 10,619 | 17,648 | 53 | 13 (24.5) | 122.4 | 73.7 |
| 2017 | 10,471 | 17,867 | 44 | 13 (29.5) | 124.2 | 72.8 |
| 2018 | 10,261 | 17,668 | 41 | 16 (39.0) | 155.9 | 90.6 |
| 2019 | 10,559 | 18,832 | 38 | 12 (31.6) | 113.6 | 63.7 |
| Mean | 10,104 | 17,260 | 45.9 | 15.2 (33.0) | 152.1 | 88.7 |

Note. ADP, average daily population. Prison population data are based on Beyens and Maes (2017) and DG EPI (2020).

Figure 4. Deaths by suicide and other causes in Belgian prisons, 2000–2019.



Sociodemographics

Sociodemographic characteristics of all decedents are listed in TABLE 9. The large majority (95.4%) were men, with only 14 women, giving a male to female ratio of 20:1. At the time of suicide, prisoners' mean age was 37.5 years ($SD = 11.4$, range 19–72), with a modal age of 25 to 34 years (35.3%). Only 28 (9.2%) prisoners were aged 55 years and older. Three quarters of prisoners had the Belgian nationality (76.6%) and were single at the time of death (75.2%).

Table 9. Sociodemographic details of all suicide cases ($n = 303$).

| | Suicide cases | | Prison population ^a (2005–2015) |
|-----------------------|---------------|------|---|
| | <i>n</i> | % | |
| Male sex | 289 | 95.4 | 95.7 |
| Age, years | | | |
| 18–24 | 35 | 11.6 | |
| 25–34 | 107 | 35.3 | |
| 35–44 | 90 | 29.7 | |
| 45–54 | 43 | 14.2 | |
| ≥ 55 | 28 | 9.2 | |
| Belgian nationality | 232 | 76.6 | 58.5 |
| Single marital status | 228 | 75.2 | |
| Parent | 100 | 33.0 | |

^a Data from Aebi *et al.* (2019).

Criminological variables

TABLE 10 illustrates the criminological features of all 303 prisoners included in the study. At the time of their death, 126 (41.6%) prisoners were on remand, 124 (40.9%) were sentenced, and 53 (17.5%) were offenders deemed criminally irresponsible (ODCI or 'geïnterneerden'). Taken together, those convicted (sentenced and ODCI) represent 58.4% of the suicide group. For sentenced prisoners ($n = 124$), a similar proportion received sentences for 3 to 5 years and 10 years or more (both 25.8%), of whom eight were serving a life sentence. Regardless of custodial status, one-third (33.7%) of prisoners was charged with, or convicted of, murder or manslaughter, followed by acquisitive crimes (26.7%) and sexual offences (16.8%). Drug-related crimes were the main offence in 10.9% of cases, with other crimes (e.g., stalking, destruction of property, financial fraud, and money laundering) in 11.9%. Half of all prisoners died by suicide during their first-ever episode of imprisonment; 46.5% had a previous history of incarceration.

Table 10. *Criminological characteristics of all suicide cases (n = 303).*

| | Suicide cases | | Prison population ^a (2005–2015) |
|------------------------------|---------------|------|---|
| | <i>n</i> | % | |
| Custodial status | | | |
| Remand | 126 | 41.6 | 40.0 |
| Convicted | 177 | 58.4 | 60.0 |
| Sentenced | 124 | 40.9 | |
| ODCI | 53 | 17.5 | |
| Sentence length ^b | | | |
| ≤ 1 year | 4 | 3.2 | |
| 1–3 years | 26 | 21.0 | |
| 3–5 years | 32 | 25.8 | |
| 5–10 years | 30 | 24.2 | |
| > 10 years | 32 | 25.8 | |
| Main offence | | | |
| Sexual | 51 | 16.8 | 12.9 |
| Homicide | 102 | 33.7 | 11.9 |
| Acquisitive | 81 | 26.7 | |
| Drug-related | 33 | 10.9 | |
| Other | 36 | 11.9 | |
| Prior incarceration | 141 | 46.5 | |

Note. ODCI, offenders deemed criminally irresponsible. ^a Data from Aebi *et al.* (2019). ^b Sentenced prisoners only (*n* = 124).

The time interval between prisoners' (initial) reception to prison and the time of suicide was calculated. A total of 23 (7.6%) prisoners died by suicide within the first 24 hours of confinement (TABLE 11). One-fifth (21.2%) of suicides occurred within a month of incarceration, with 15.2% during one week after initial reception. Cumulatively, half (49.2%) of all suicides occurred within six months of reception into prison (FIGURE 5). The median time between prisoners' initial reception into prison and their death was 202 days (corresponding to 6.6 months).

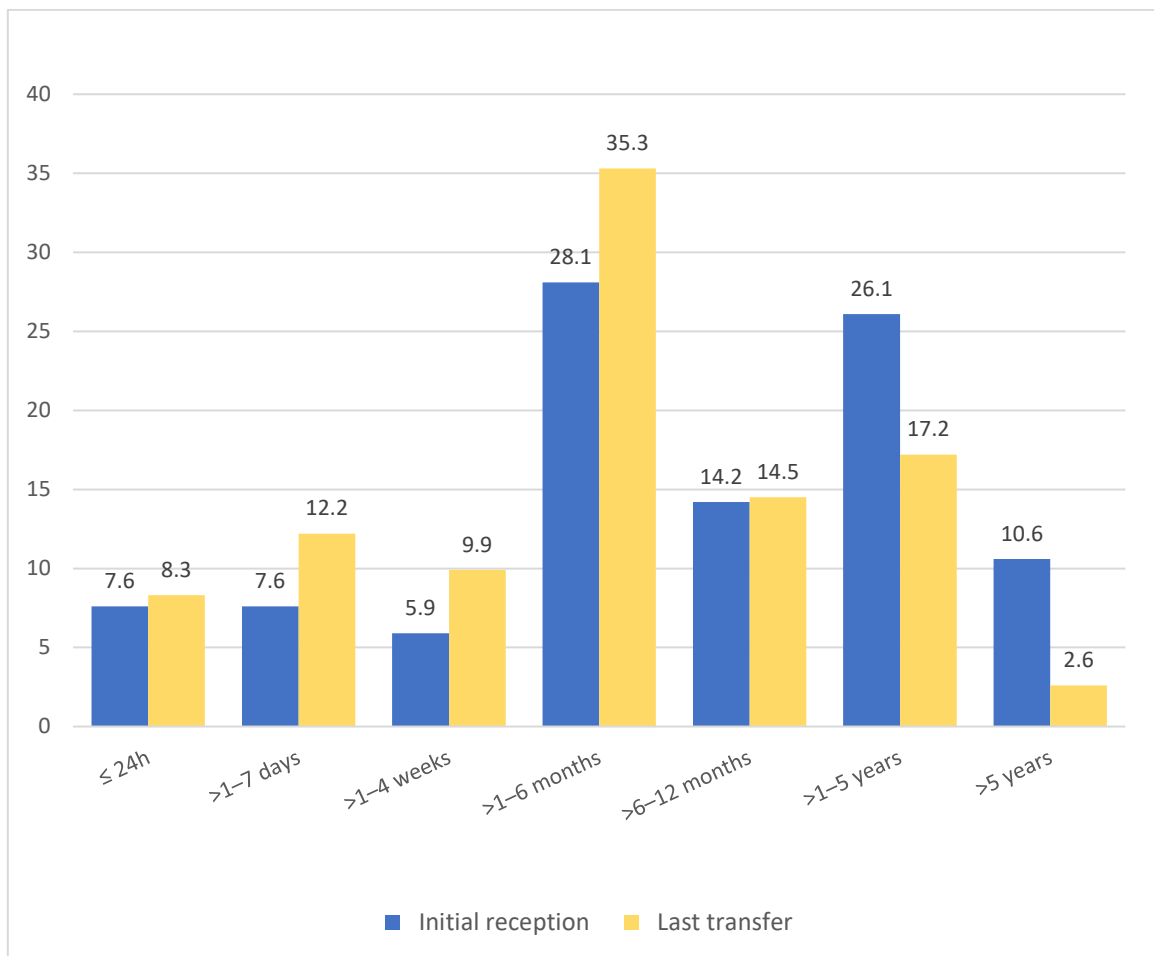
When considering interfacility transfers, 179 (59.1%) prisoners died in the prison where they were initially incarcerated; the other 124 (40.9%) prisoners were transferred at least once during their period of incarceration. Taking into account the interval between the last transfer (i.e., reception into the prison where the suicide occurred; the initial confinement for individuals without a transfer) and their suicide (TABLE 11), 20.5% of suicides took place within seven days of the last transfer (30.4% within the first month; FIGURE 5). In this case, the median length of incarceration was 95 days (3.1 months).

Table 11. Time interval from initial prison reception and last transfer to suicide (*n* = 303).

| Latency | Since initial reception ^a | | Since last transfer ^b | |
|-------------|--------------------------------------|--------|----------------------------------|--------|
| | <i>n</i> (%) | Cum. % | <i>n</i> (%) | Cum. % |
| ≤ 24 hours | 23 (7.6) | 7.6 | 25 (8.3) | 8.3 |
| 1–7 days | 23 (7.6) | 15.2 | 37 (12.2) | 20.5 |
| 1–4 weeks | 18 (5.9) | 21.2 | 30 (9.9) | 30.4 |
| 1–6 months | 85 (28.1) | 49.2 | 107 (35.3) | 65.7 |
| 6–12 months | 43 (14.2) | 63.4 | 44 (14.5) | 80.2 |
| 1–5 years | 79 (26.1) | 89.4 | 52 (17.2) | 97.4 |
| > 5 years | 32 (10.6) | 100 | 8 (2.6) | 100 |

^a Duration of incarceration since initial reception in prison (not necessarily the facility where the suicide occurred). ^b Duration of incarceration since last reception (to the facility where the suicide occurred) due to a transfer. For those without transfer (*n* = 179), latency since initial reception equals latency since last transfer.

Figure 5. Latency between initial prison reception or last transfer and suicide (*n* = 303).



Clinical characteristics

Clinical features of suicide cases are presented in TABLE 12. Based on the files which contained clinical information about mental health ($n = 211$, 69.6% of all cases), 83.9% of prisoners who died by suicide were identified as having (a history of) a mental disorder, including substance use, developmental, and personality disorders. In half (47.7%) of the prisoners for whom information was available in their case files ($n = 172$, 56.8% of all 303 cases), a history of at least one suicide attempt was documented; 16.3% attempted suicide before imprisonment and 34.3% did so in prison (5 prisoners attempted suicide both in the community and during their incarceration). These proportions substantially declined when all 303 cases were considered as the denominator; 58.4% of prisoners had (a history of) a mental disorder and 27.1% had previously attempted suicide in their lives.

Table 12. Documented clinical features of prisoners who died by suicide.

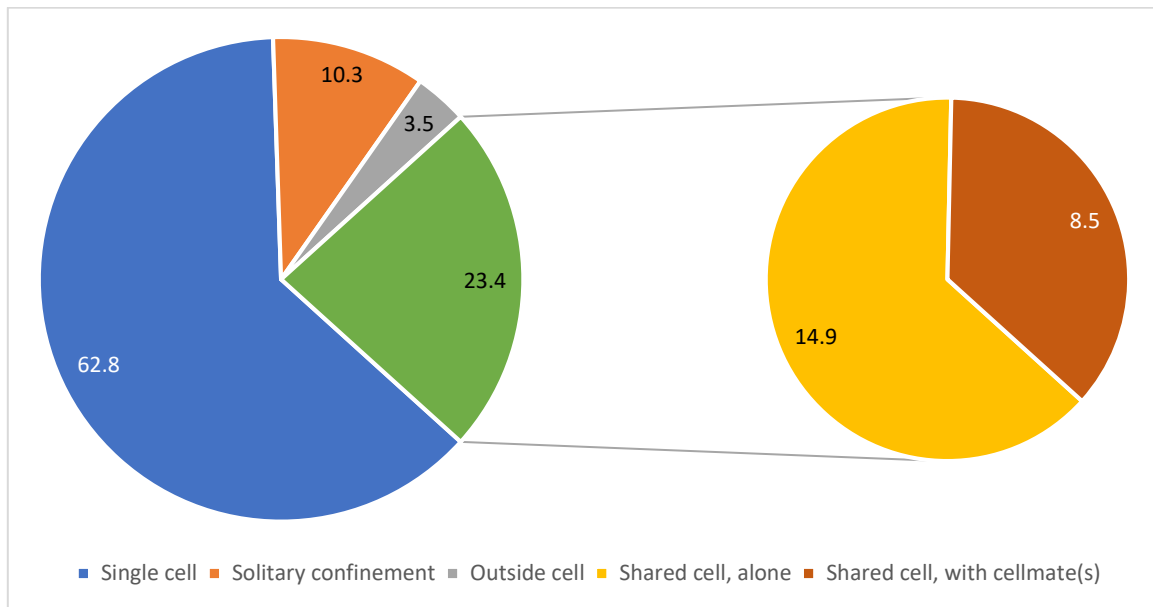
| | <i>n</i> | Valid % | % |
|---|----------|---------|------|
| (History of) mental disorder ^a | 177 | 83.9 | 58.4 |
| Prior suicide attempt ^b | 82 | 47.7 | 27.1 |
| In the community | 28 | 16.3 | 9.2 |
| While incarcerated | 59 | 34.3 | 19.5 |

^a Data available for 211 (69.6%) cases. ^b Data available for 172 (56.8%) cases.

Circumstances and characteristics of suicides

Location and cell accommodation

TABLE 13 shows the circumstances of 282 suicides (93.1% of all identified cases) since details were not available for 21 cases. In total, 243 (86.2%) suicides took place in prisoners' regular cells. Almost two-thirds (62.8%) of all suicides occurred in a single-occupant cell, and 66 (23.4%) suicides occurred in a shared cell. In the latter case, cell mates were absent from their cells (for example, due to visitation or airing) in 63.6% of the 66 suicides that occurred in multiple-occupancy cells. Thus, of all 243 suicides that occurred in prisoners' cells, 219 (90.1%) were alone at the time. Of the 39 (13.8%) suicides which did not occur in regular cells, 29 (10.3% of all suicides) took place in solitary confinement (i.e., when a prisoner was placed in a safe cell or disciplinary cell, irrespective of its reason). The remaining suicides occurred outside the prison cell but within the correctional facility (e.g., the laundry room or common areas such as the hallway or stairwell) and just one suicide took place *outside* prison (when the prisoner was transferred to a courthouse). The distribution of all suicides by location is detailed in FIGURE 6.

Figure 6. Distribution (%) of suicides by location of the act ($n = 282$).

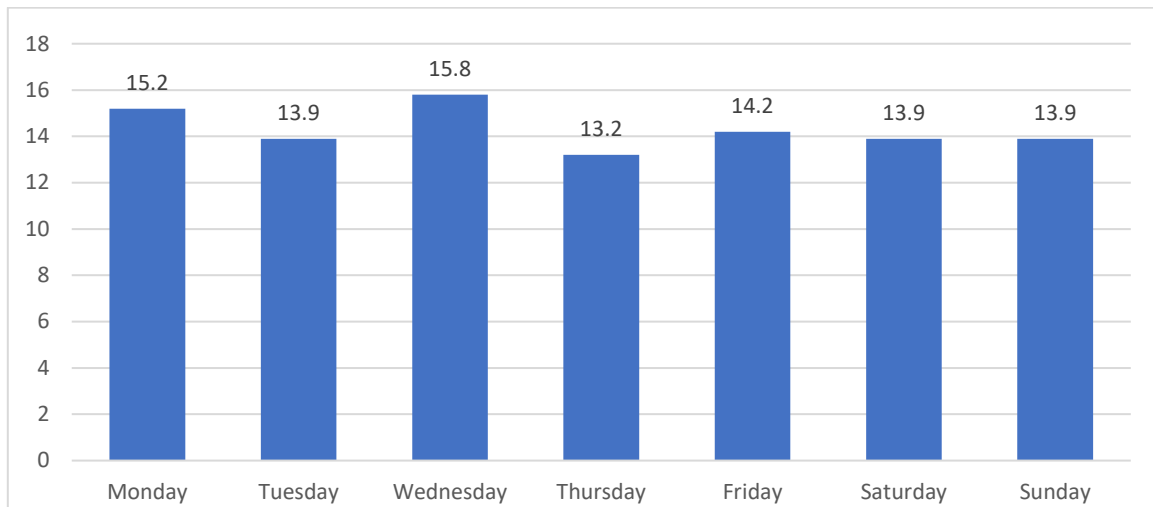
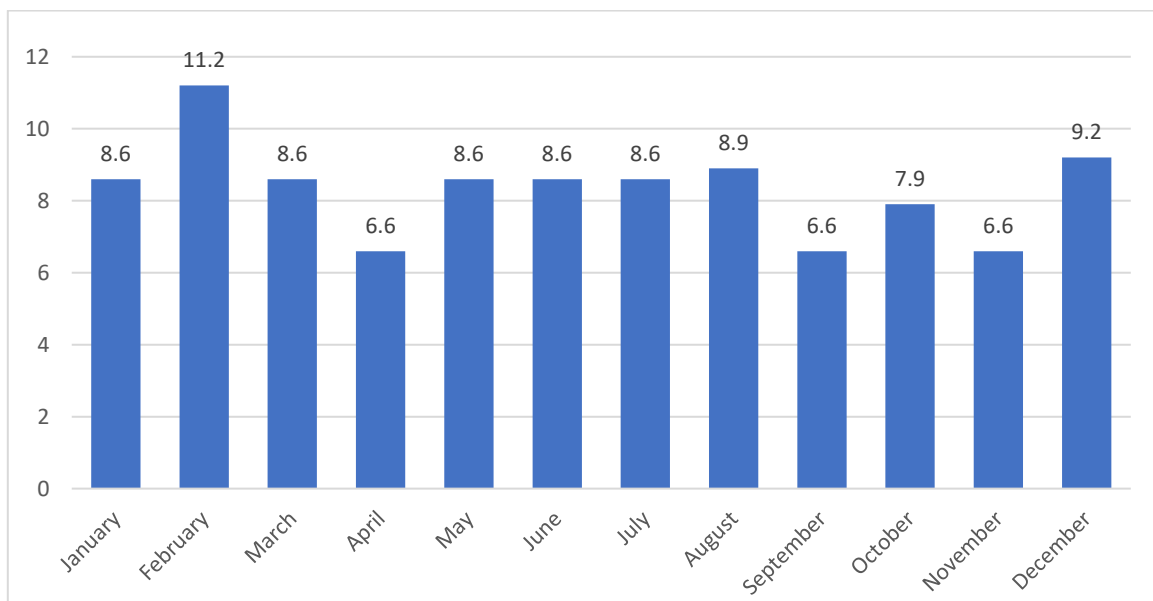
Method

A total of 257 (91.1%) suicides were the result of hanging or self-strangulation (TABLE 13). Of these, the most common ligature was bedding (49.4%) and personal clothing (often shoelaces and belts; 34.2%). Cell window bars were the ligature point used in 65.8% of all suicides by hanging, followed by prisoners' bed or bunk (10.5%). In the remaining suicides by hanging (23.7%), anchoring points consisted of easily accessible cell fittings such as ventilation or heating, pipes, sanitary devices (toilets and sinks), or doors. Other suicides ($n = 25$) were the result of jumping from a height in prison (2.5%), laceration (2.8%), and self-poisoning or intentional overdose (3.2%).

Timing

Suicides were fairly spread by day and month, without a distinguishable pattern. Suicides were evenly distributed throughout the week—ranging from 13.2% on Thursdays to 15.8% on Wednesdays (FIGURE 7), with 84 suicides (27.7%) occurring during the weekend. There was no pronounced accumulation of suicides during certain months, with a low of 6.6% suicides in April, September, and November, and a high of 11.2% in February (FIGURE 8). Over one-third (37.6%) of suicides took place during the trimester December to March.

There was a certain discernible pattern by time of day (TABLE 13). In three-hour intervals, most (16.3%) suicides occurred between 21:01 and 24:00, and the least number of suicides (6.0%) between 06:01 and 09:00. Around 60% of suicides occurred during the 12-hour period between 18:01 and 6:00, with the remaining suicides (40%) taking place during the day shift of prison staff (6:01–18:00).

Figure 7. Distribution (%) of suicides by day ($n = 303$).**Figure 8.** Distribution (%) of suicides by month ($n = 303$).**Surrounding events**

Of all cases, a quarter ($n = 68$, 24.1%) of prisoners had been transferred from another prison within six months prior to their death, with 10.3% ($n = 29$) being transferred to the prison where they died within one month. Furthermore, 60 (21.3%) suicides occurred prior to or after five days of a significant event related to the criminal case, such as a court proceeding, conviction, prolongation of the pre-trial period by the Council Chamber, or a reconstruction of the crime; 59% of whom were on remand at that time.

Table 13. *Circumstances of suicides (n = 282).*

| | <i>n</i> | % |
|--|----------|------|
| Location of act | | |
| Regular cell | 243 | 86.2 |
| Single cell | 177 | 62.8 |
| Shared cell | 66 | 23.4 |
| Cellmate(s) present | 24 | 8.5 |
| Cellmate(s) absent | 42 | 14.9 |
| Solitary confinement | 29 | 10.3 |
| Outside cell | 10 | 3.5 |
| In prison | 9 | 3.2 |
| Outside prison | 1 | 0.4 |
| Day (weekend) ^a | 84 | 27.7 |
| Timing | | |
| Morning (06:01–12:00) | 45 | 16.0 |
| Afternoon (12:01–18:00) | 69 | 24.5 |
| Evening (18:01–24:00) | 87 | 30.9 |
| Overnight (00:01–06:00) | 81 | 28.7 |
| Method | | |
| Hanging or self-strangulation | 257 | 91.1 |
| Laceration | 8 | 2.8 |
| Jumping from height | 7 | 2.5 |
| Self-poisoning or overdose | 9 | 3.2 |
| Other | 1 | 0.4 |
| Suicide note present | 52 | 18.4 |
| Increased supervision measure ^b | 117 | 38.6 |

^a Saturday and Sunday; data available for all cases ($n = 303$). ^b A visual check by prison staff every 15 or 30 minutes; this also includes those housed in solitary confinement at the time of death ($n = 29$, 24.8%).

Supervision measure

At the time of suicide, 117 (38.6%) prisoners were subjected to conditions of increased monitoring and supervision ('bijzondere bewaking') due to a disciplinary or safety measure. Such a monitoring measure encompasses a visual check by prison staff every 15 or 30 minutes. Prisoners who are subjected to this measure can be either housed in their regular cells, or can be (physically and socially) isolated from the mainstream population in solitary confinement; as was the case for 88 and 29 individuals, respectively. Of those who died outside of solitary confinement ($n = 253$), 88 (35%) were under such supervision.

DISCUSSION

Main findings

This study reports on a national review of all documented suicides in Belgian prisons during the period 2000–2019. There are three key findings arising from this study. First, suicides accounted for one-third of all 917 deaths during imprisonment, which translates to a rate of 120 suicides per 100,000 prisoners. Second, prisoners who died by suicide were mainly middle-aged men of Belgian nationality who were incarcerated because of a violent crime, with many having some documented evidence of poor mental health. Third, the majority of suicides occurred in prisoners' own cell by means of hanging, often during the early stages of custody. Each of these findings warrants additional comment.

How often do suicides occur in prison?

Over the two decades covered by this study, suicide was a leading cause of mortality in Belgian prisons, accounting for 33% of all deaths in prison. Similar proportions have been reported in previous national studies, ranging from around 20% in Canada (CSC, 2017) and Greece (Spinellis & Themeli, 1997) to 35% in Australia (Willis *et al.*, 2016) and 50% in France (Chan Chee & Moutengou, 2016), Finland (Joukamaa, 1997), England (Fazel & Benning, 2006), Italy (Esposito, 2018), and Norway (Bukten & Stavseth, 2021). In a pan-European study spanning 12 years, 36% of all prison deaths were due to suicide (Rabe, 2012).

Considering *absolute* numbers, suicide in prison appears to be rare in Belgium, with an average of 15 incidents every year. However, the number of suicides in a given population can give a misleading picture of its incidence when considered on its own. Relating these numbers to the average size of the prison population in Belgium, the mean suicide rate was 152 per 100,000 prisoners. Based on such ADP figures, large variations were noted, with the suicide rate in 2001 being 211% higher than in 2004. Such fluctuations are due to the (statistically) small number of suicides upon which rates are based (ranging from 8 to 23), causing small fluctuations in the number of suicides to have a large impact on calculated rates.³ With relatively rare events like suicides, it is difficult to know if fluctuations are coincidental or whether they reflect real changes. There was a downward temporal trend in the suicide rate from 2000 to 2019, but, from a statistical point of view, these numbers are too low to reach reliable conclusions. However, a similar decrease in prison suicide rates over time has been documented in other countries, for example in England and Wales (Humber *et al.*, 2011b) and Nordic countries (Morthorst *et al.*, 2020).

³ The size of the population should be considered when looking at suicide rates. Smaller populations (such as the prison population in Belgium; $N \approx 10,000$) often produce rates that are less reliable as the rates per 100,000 are based on small absolute numbers. Therefore, differences in the number of suicides have a greater impact on the rate than in larger populations such as the general Belgian population ($N \approx 11$ million), as illustrated in FIGURE 9.

Furthermore, suicide rates in prisons based on ADP figures were substantially attenuated when considering an alternative denominator which takes into account the annual throughput of prisoners.⁴ Rates of suicide calculated based on the annual number of *receptions* to prisons ranged from 51 to 159 per 100,000 prisoners, averaging to 89 over the study period. This estimate corresponds to a reduction of 41% in the mean annual prison suicide rate compared with rates using the ADP as denominator. The ‘actual’ rate of suicide in Belgian prisons most likely falls in between both estimates (with 89 being an underestimation and 152 being an overestimation), with the average between the two estimates (120 suicides per 100,000 prisoners) presumably being the best approximation. Further, regression analyses suggest that the annual rates of suicide were negatively associated with the average size of the national prison population in Belgium (ADP) and with the annual number of receptions into prison.

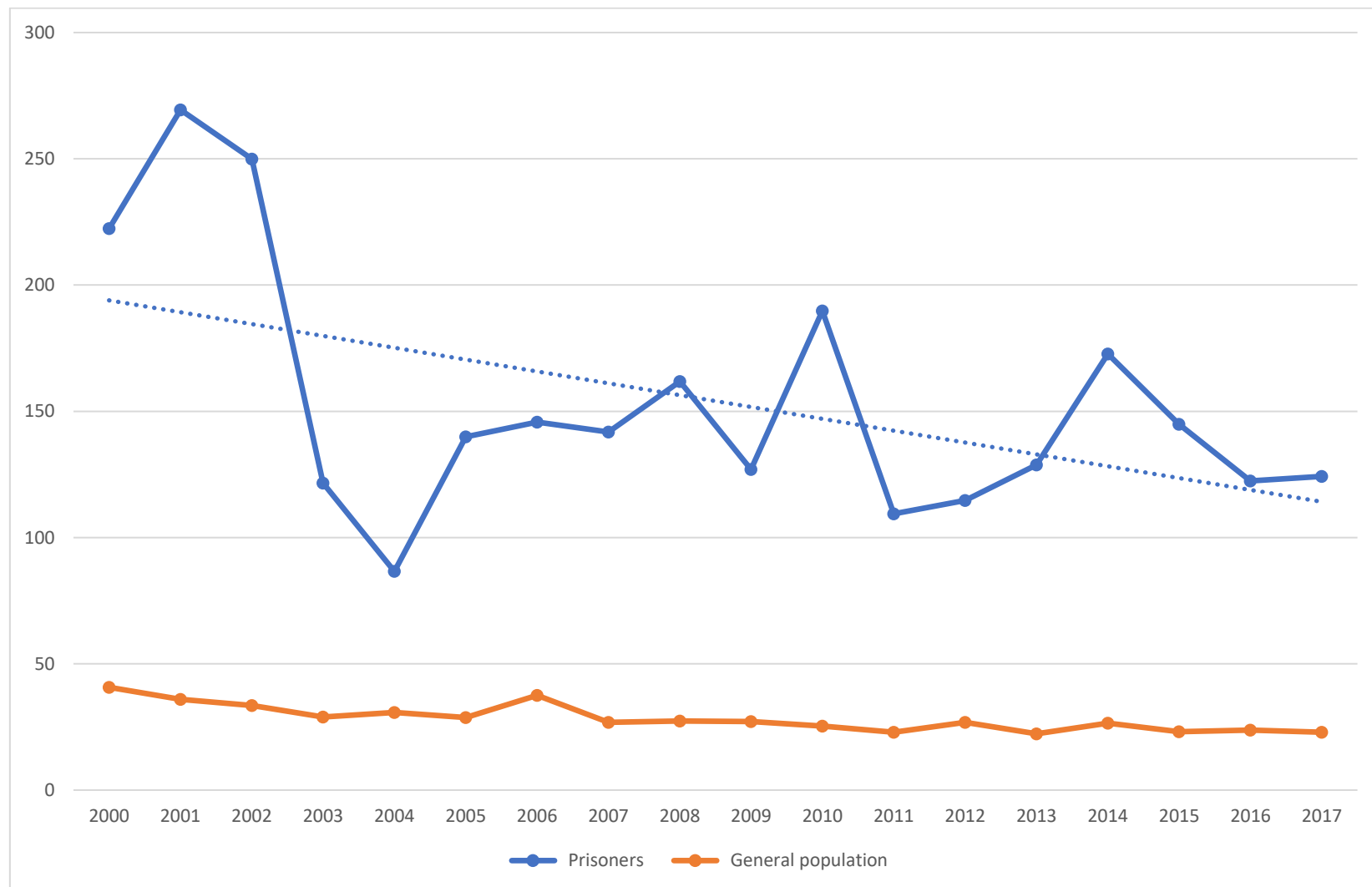
Compared with the general Belgian population,⁵ the rate of suicide in prisoners is estimated to be four times higher relative to their age-equivalent community counterparts (5.4 times based on the ADP [FIGURE 9] and 3.2 based on number of receptions; TABLE 14). A similar excess in prison suicide rates has been reported in many other high-income countries, with rate ratios ranging from 3 to 9 (Duthé *et al.*, 2014; Fazel *et al.*, 2017a; Kaur *et al.*, 2019; Morthorst *et al.*, 2020; Rabe, 2012; Willis *et al.*, 2016). It was not possible to calculate suicide rates of men and women separately given the small number of suicides in female prisoners annually (range 0–3). However, recent studies indicate that rate ratios are typically higher in women than in men—suggesting a higher proportionate excess in female prisoners (Fazel *et al.*, 2017a; Fritz *et al.*, 2021; Morthorst *et al.*, 2020). Furthermore, prison suicide rates showed a positive association with the rates of suicide in the general Belgian population over that same period.

In summary, 33% of all deaths in Belgian prisons are attributable to suicide. Between 2000 and 2019, the mean annual rate was 120 suicides per 100,000 prisoners. The suicide rate in Belgian prisons has been declining over the past 20 years, but remains approximately four-fold that of society at large.

⁴ Several issues have been raised as to whether the prison suicide rate should be calculated based on the ADP or on the number of receptions as denominator (O’Mahony, 1994). ADP-based rates do not factor in the number of receptions into prison. As many individuals do not stay in prison for a 12-month period, ADP figures will invariably underrepresent the number of offenders passing through the prison system, leading to an inflation of the actual rate, especially in populations with a high turnover (Gallagher & Dobrin, 2007). Inversely, rates calculated based on the number of receptions are equally biased because (1) this includes offenders who are referred to electronic monitoring and (2) offenders (especially those serving short sentences) can be incarcerated multiple times within a single 12-month period. Ideally, in order to calculate suicide rates more accurately, one would need the number of *unique* individuals who entered prison and the length of stay (“exposure-to-risk”) each person spent in prison. Unfortunately, such granular data are not available in Belgium. Despite the problem of overestimation, suicide rates calculated based on ADP figures are most commonly reported in the literature, enabling fair comparisons across studies and between countries (e.g., Fazel *et al.*, 2017a; Fritz *et al.*, 2021; O’Mahony, 1994; Pratt, 2016).

⁵ As the demographic profile of prisoners—mainly middle-aged men—markedly differs from that of the general population, suicide rates in prisoners should be compared with rates of community-based adults with a similar sex and age distribution; in this case, men aged 30–34 years. For example, when using the rate of suicide in the *total* Belgian population—men and women of all ages combined—as the comparison group, the rate ratio would be much higher (8.3 based on ADP and 4.9 based on receptions [see APPENDIX A], which reflects a 53% increase). Without an appropriate group to compare prison suicide rates with, rate ratios would thus be artificially inflated.

Figure 9. Rates of suicide per 100,000 population in prisons (with trend line) and in the general population, Belgium (2000–2017).



Note. Prison suicide rates based on average daily populations. Adjusted suicide rates per 100,000 men aged 30–34 years in the general population (source: Sciensano SPMA database).

Table 14. Rates of suicide in prisons compared with the general population, Belgium (2000–2017).

| Year | Suicide rate (per 100,000) | | | Rate ratio ^b | |
|------|---------------------------------|--------|------------|-------------------------|------------|
| | General population ^a | Prison | | ADP | Receptions |
| | | ADP | Receptions | | |
| 2000 | 40.7 | 222.4 | 127.0 | 5.5 | 3.1 |
| 2001 | 35.9 | 269.4 | 159.2 | 7.5 | 4.4 |
| 2002 | 33.5 | 249.9 | 138.5 | 7.5 | 4.1 |
| 2003 | 29.0 | 121.6 | 69.2 | 4.2 | 2.4 |
| 2004 | 30.8 | 86.6 | 50.8 | 2.8 | 1.7 |
| 2005 | 28.7 | 139.9 | 82.4 | 4.9 | 2.9 |
| 2006 | 37.5 | 145.7 | 83.6 | 3.9 | 2.2 |
| 2007 | 26.8 | 141.8 | 81.1 | 5.3 | 3.0 |
| 2008 | 27.4 | 161.8 | 89.5 | 5.9 | 3.3 |
| 2009 | 27.2 | 127.0 | 70.3 | 4.7 | 2.6 |
| 2010 | 25.3 | 189.8 | 106.2 | 7.5 | 4.2 |
| 2011 | 22.9 | 109.4 | 65.6 | 4.8 | 2.9 |
| 2012 | 26.8 | 114.7 | 73.6 | 4.3 | 2.7 |
| 2013 | 22.3 | 128.8 | 83.8 | 5.8 | 3.7 |
| 2014 | 26.5 | 172.7 | 106.6 | 6.5 | 4.0 |
| 2015 | 23.1 | 144.9 | 85.7 | 6.3 | 3.7 |
| 2016 | 23.8 | 122.4 | 73.7 | 5.2 | 3.1 |
| 2017 | 22.9 | 124.2 | 72.8 | 5.4 | 3.2 |
| Mean | 28.4 | 154.1 | 90.0 | 5.4 | 3.2 |

Note. ADP, average daily population. Data on suicide rates for the general Belgian population were not yet available for the years 2018 and 2019. ^a Adjusted suicide rates per 100,000 men aged 30–34 years in the general population (source: Sciensano SPMA database). ^b Prison suicide rates compared with general population suicide rates for that same year.

Who dies by suicide in prison?

Examination of all 303 suicide cases suggests that the typical prisoner who died by suicide was that of a single, middle-aged man of Belgian nationality. Such a risk profile, however, mirrors the demographic constellation of the national Belgian prison population from which the suicide cohort was drawn (Aebi *et al.*, 2019). Furthermore, 5% and 42% of cases comprised female and remand prisoners, respectively, reflecting the distribution of the general prison population nationwide. Reliance on such demographic and criminological indicators will, therefore, be of limited practical use for identifying prisoners at high risk of suicide (Hayes, 2012; Liebling, 1992; Winter, 2003). There were, however, two notable findings.

First, violent crimes (such as homicide and rape) appeared to be proportionally more common among prisoners who died by suicide (48%) compared with the national prison population in Belgium, where 25% of all prisoners were incarcerated because of such crimes in 2005–2015 (Aebi *et al.*, 2019). Excess risk of suicide in violent offenders has been replicated across numerous case-control (Fruehwald *et al.*, 2004; Humber *et al.*, 2013), ecological (Rabe, 2012; Radloff *et al.*, 2019), and population-based cohort studies (Bukten & Stavseth, 2021; Duthé *et al.*, 2013; Webb *et al.*, 2011), and was confirmed by a recent meta-analysis (Zhong *et al.*, 2021). There are several possible explanations for this finding. For example, feelings of shame and/or guilt over the alleged offences may drive violent offenders towards suicide, especially so in the context of intimate relationships (e.g., when victims were family members). Moreover, there is evidence documenting that past violence is a risk factor for suicide among prisoners (Humber *et al.*, 2013). Compared with their non-violent peers, violent offenders may be characterised by higher levels of impulsivity and aggression—traits known to increase one’s risk of suicide, with poor behavioural control being a likely mechanism (O’Donnell *et al.*, 2015; Sahlin *et al.*, 2017). Alternatively, the association between suicide risk and offence type could be confounded by the accompanied length of prison sentences. The narrowing of future perspectives in the prospect of a long sentence faced by violent offenders may be more salient than the crime itself. Whilst it remains unclear whether violent offending as a risk factor for suicide is really about the sentence length, the reason thereof and related feelings, or the characteristics of individuals who commit such crimes, it appears that violent offenders are largely overrepresented amongst the suicide group compared with the general prison population.

Second, for prisoners where a mental health record was available, the vast majority (84%) had a documented psychiatric diagnosis. It should be noted, though, that for 30% of all 303 cases, no such clinical information was available. Undoubtedly, this limits the reliability of the findings since it remains unknown whether the absence of clinical information indicates that mental disorders were in fact not present, not considered to be clinically relevant, or simply not assessed. As mental disorders frequently go unrecognised and undiagnosed in prisoners (Senior *et al.*, 2013), the lack of information in case files does not necessarily imply the absence of morbidity.⁶ Conversely, if missing data would indeed indicate the absence of disorder, the estimate of 84% would be a stark overestimation. Using all 303 cases as a denominator, then, the lower bound estimate would be 58% (similar to other research; TABLE 7). Either way, since no (reliable) estimates are currently available on the prevalence of mental disorders among Belgian prisoners, it was not possible to verify whether these figures (58–84%) were disproportionate or not. Nonetheless, several meta-analyses have highlighted mental disorders as robust and replicated risk factors for suicidal behaviour in prisoners worldwide (Fazel *et al.*, 2008, 2013; Zhong *et al.*, 2021).

⁶ For example, clinical data were especially missing for those who died early upon incarceration, and studies show that “early suicides” are proportionally more common in prisoners with drug dependence, which may be related to a withdrawal period shortly after arrival to prison (Dixon *et al.*, 2020; Humber *et al.*, 2011b; Shaw *et al.*, 2004).

When, where, and how do suicides occur in prison?

In addition to some personal characteristics common among *prisoners* who died by suicide, there were also several recurring patterns in prisoners' *suicides* with regard to timing, location, and methods used.

In keeping with similar national studies (TABLE 7), the first months of imprisonment were found to represent a critical risk period for suicide. Half of all suicides occurred within six months of reception into prison; 21% in the first month. Arrival in prison is a particularly stressful event, with many prisoners experiencing feelings of loss, uncertainty, and shame (Harvey, 2005). Withdrawal from drugs or alcohol might further increase the propensity to suicide during early periods of custody (Humber *et al.*, 2011b). Therefore, the immediate days, weeks, and months following imprisonment present a crucial time for prevention—underscoring the relevance of suicide screening at reception. However, since suicide risk fluctuates over time, and 37% of suicides still occurred after one year of initial incarceration, screening should not be limited only to the point of reception into prison, but must be an ongoing and systematic process—at regular intervals throughout prisoners' period of detention. Re-assessments are especially indicated when there are changes in prisoners' circumstances (Marzano *et al.*, 2016). Based on findings from this study, interfacility transfers, periods shortly before and after significant court appearances, and changes in custodial status (after sentencing or appeal) should prompt a screening protocol.

More than 90% of suicides occurred by means of hanging, which aligns with an average of 87% based on other national studies (TABLE 7). The methods by which people in prison die by suicide appear to be more violent than those used in the wider community, where hanging accounts for no more than half of all suicide deaths (Varnik *et al.*, 2008). A recent US study showed that prisoners have a 33 times higher odds of dying by hanging than suicide decedents in the general population (Dixon *et al.*, 2020). This discrepancy points to the limited availability of other, less violent means inside prisons. As hanging is a relatively quick and highly lethal method with an estimated fatality rate of more than 70% (Gunnell *et al.*, 2005), opportunities for intervention are fairly limited once initiated. Restricting access to lethal means should therefore be considered, including minimising suspension points in prisoners' cells, such as window bars (e.g., changes to cell window frame design, the removal of bars, or the covering of bars with acrylate; Gunnell *et al.*, 2005). Physical prevention efforts could also focus on ligatures—however, these commonly consist of easily accessible materials such as bedding and clothing (Dixon *et al.*, 2020), and modifying their availability is difficult to control. Access to means of suicide is already restricted in prisons—which likely contributes to the frequent use of hanging—and reducing it further will come at a price in terms of human dignity. Although many opportunities for suicide could indeed be minimised through architectural interventions and means restriction, a *suicide proof* cell remains an elusive goal, and there are several unintended consequences that such manipulations might exert upon prisoners, for example, frustration and loss of control as a result of being held in such a restrictive environment.

Single-cell occupancy has been identified as a major risk factor for suicide (Zhong *et al.*, 2021). Being housed in a single cell might confer an increased risk due to the characteristics of these particular prisoners, and exacerbation of these factors by the isolated environment within which they are placed (Humber *et al.*, 2013). Prisoners located in single cells may also lack informal monitoring by cell mates, allowing for more undisturbed opportunities to attempt suicide. Inversely, having a cellmate might be a protective factor due to increased social engagement and belongingness. Hence, placement in shared accommodation has been recommended as a prevention strategy (WHO, 2007). In this study, however, over two-thirds of all suicides in shared accommodation occurred at a time when prisoners were alone in their cell—even if they were technically sharing one (see also Shaw *et al.*, 2004). Although it was not possible to examine the number of suicides that would have been prevented by this measure, it seems that such a prevention strategy should only be considered a supplement to—and not a substitute for—other prevention efforts (e.g., monitoring and support by trained staff).

Single-cell housing may be particularly conducive to suicide risk when it involves physical and social isolation from the mainstream prison population. As it inherently reduces protective factors such as social support and purposeful activity, exposure to solitary confinement is detrimental to prisoners' mental health (Brown, 2020; Haney, 2018; Luigi *et al.*, 2020) and has been shown to increase one's risk of suicide (Duthé *et al.*, 2013; Kaba *et al.*, 2014), even *after* release from prison (Brinkley-Rubinstein *et al.*, 2019; Wildeman & Andersen, 2020). It is possible that this association is confounded by pre-existing characteristics of those who are placed in solitary confinement, and hence increase their risk of suicide regardless of housing assignment. For example, prisoners with mental health problems are more likely to be placed in solitary confinement (Dellazizzo *et al.*, 2020; Siennick *et al.*, 2021), which might account for this relationship. However, there is evidence that solitary confinement *itself* is an independent risk factor for prison suicide rather than reflecting a selection effect (Frottier *et al.*, 2007; Kaba *et al.*, 2014). In Belgium, one prisoner in ten was in solitary confinement at the time of death. Since prevalence data on utilisation of solitary confinement in the Belgian prison estate are not available, it was not possible to generalise whether this proportion was disproportionate or not. However, 10% of suicides occurring in such restrictive conditions, which are supposed to be safe and subject to increased supervision, seem worrying at the least. Similarly, 35% of all prisoners who died by suicide *outside* of solitary confinement (i.e., in their own cell in the general prison population) were also placed under a measure of increased supervision. Taken together, these findings suggest that mere isolation and monitoring, in the absence of any psychosocial support or clinical intervention, may not suffice and should not be considered as a stand-alone intervention. Moreover, prisoners may experience these restrictive measures as punitive and unpleasant due to their harsh nature, which may discourage disclosure of suicidal thoughts to staff (Way *et al.*, 2013). Kerkhof and Bernasco (1990) found that many prisoners felt restricted in discussing suicidal feelings because they feared negative consequences related to segregation and monitoring.

Methodological limitations

This study was the first endeavour to examine characteristics of the total Belgian suicide population in prison by reviewing official records. The strength of this study lies in the complete nature of a national population—rather than a sample—of people who died by suicide over a 20-year period, and the fact that the vast majority (93%) of suicide reports, all obtained from the DG EPI, was available for scrutiny. Three methodological issues should, however, be considered when interpreting this study's findings.

First, only deaths receiving a coroner's verdict of suicide were included in this study. There may be some degree of inaccuracy in such data. It is possible that some suicides were not classified as such, since suicidal intent is hard to establish retrospectively. Determining the manner of death from suicide requires a high level of affirmative evidence, and medical examiners may default to 'undetermined' as the cause of death when faced with ambiguous circumstances. For example, in the absence of a suicide note from which to infer suicidal intent, suicides by self-poisoning are not uncommonly (mis)classified as accidental overdoses, especially for people with a history of substance abuse (Bohnert *et al.*, 2013; Rockett *et al.*, 2018; Stone *et al.*, 2017). Therefore, official figures—upon which the current estimates are based—possibly represent an underestimation of the actual number of suicides in prison, and likely affected the reported rates and characteristics of prison suicides in Belgium.

Second, this study described characteristics of individuals who died by suicide in prison without the inclusion of a comparison group. Since it is not possible to ascertain *risk factors* when studying only the suicide group itself, this descriptive study was unable to delineate which factors were significantly more common among suicide cases, and which factors merely reflect those of the prisoner population as a whole from which the suicide group was drawn (Liebling, 1992; Pratt, 2016). To partially overcome this limitation, aggregated data of all cases were benchmarked against information about the general Belgian prison population, when available (Aebi *et al.*, 2019). A next step would be to conduct a case-control study—including at least one (matched) control for each case—in order to elucidate the unique contribution of risk factors for suicide in prisoners (e.g., Fruehwald *et al.*, 2004; Humber *et al.*, 2013).

A third limitation relates to the sources of data. Since administrative records provided the sole source of information for this study, the researcher was highly reliant on both the quality and quantity of archival data available in prisoners' files—which are initially not collected for scientific purposes. As file information may be incomplete, biased, or incorrect, a problem inherent to retrospective record-based research is the potential unreliability of recorded information in case files. For example, besides basic demographic and criminological data, there was little information available in prisoners' records on health and behavioural factors known to be associated with risk of suicide—particularly so in those who died shortly after arrival into prison. Such an absence of (clinical) information could merely reflect the lack of standardised assessments, and suggests an optimisation of intake registration upon arrival.

Furthermore, a retrospective study relying on registry data available in administrative records misses a great deal of information relating to one's subjective experience of imprisonment and the context in which suicides arise (Liebling, 1992). Many relevant variables not appearing in prisoners' records (such as staff-prisoner interactions, social support, bullying, and hopelessness) could thus not be covered in the current study. More broadly, studying death by suicide, in prisons or elsewhere, poses a significant problem—the subject of interest has died. Without being able to interview the person directly involved in the suicide, both the reliability and validity of the data collected in this study was inherently limited to the scope and quality of registry data available in cases' archival records, maintained by the DG EPI.

Despite these important shortcomings, this study provides novel information on the incidence and characteristics of suicide throughout all Belgian prisons over a period which spanned two decades.

Implications and future directions

Many of the findings outlined here corroborate previous national studies on suicide in prison (TABLE 7), suggesting that existing standards and guidelines for the prevention of prison suicide in other countries (Daigle *et al.*, 2007) could serve as an evidence-based starting point for the development of a national blueprint for suicide prevention in Belgian prisons. As discussed above, effective prevention strategies include screening and risk assessment at regular intervals (Gould *et al.*, 2018; Perry *et al.*, 2010), mental health care and psychological interventions (Marzano *et al.*, 2016), restricting access to lethal methods, especially hanging (Gunnell *et al.*, 2005), and multi-disciplinary collaboration (Barker *et al.*, 2014).

Given the lives at stake, it is imperative that policy and prevention interventions are maximally underpinned by high-quality research evidence. Whereas this study provides a modest contribution in this direction, further research is needed to identify modifiable risk factors and to elucidate actionable targets for intervention. This retrospective study was limited in its reliance upon administrative records for data collection. Invariably incomplete, such records contain data that were gathered for a different purpose than research, so that the variables that could be examined were rather restricted. Particularly missing was information relating to prisoners' subjective experience of imprisonment and their mental health. Many of the variables that were available in prisoners' official records were, however, largely unmodifiable risk factors, such as demographic and criminological ones. In contrast, suicide prevention would benefit from identifying factors which can, through intervention, be modified. To overcome this limitation, the continuum on which suicide falls would be more fruitful to investigate. More specifically, studying suicide-related antecedents (i.e., suicidal ideation and suicide attempt—which are among the strongest risk factors for suicide in prison; Zhong *et al.*, 2021) would allow for a broader range of factors to be assessed, which is not possible through analyses of official records. Understanding and modifying risk factors for non-fatal suicidal outcomes would be a promising approach to prevent suicide in prison.

CONCLUSION

Suicide in prisons is an important public health concern—in Belgium and abroad. This review examined (1) *how often* suicides occur in Belgian prisons, (2) *who* dies by suicide in prison, and (3) *when, where, and how* these incidents take place. Results from this 20-year national review suggest that suicide is a leading cause of mortality in Belgian prisons, accounting for one-third of all prison deaths. On average, one prisoner dies by suicide every month in Belgium, and the suicide rate in prisons is four times higher compared with the general Belgian population. Variables common across many prison suicides include violent offending, psychiatric morbidity, single-cell occupancy, the early period of custody, and use of lethal methods. Given the inherent challenges in studying suicides directly, future studies should focus on identifying modifiable risk factors implicated in the early stages along the suicidal process. Studying suicide-related outcomes with a higher base rate—suicidal ideation and attempted suicide—is not only more feasible from a research point of view but also has the advantage of improving understanding of vulnerability and environmental factors involved in the pathway leading up to suicide.

Key points

- Worldwide, suicide occurs at much higher rates in prisoners compared with the general population.
- Accurate and up-to-date information about (the incidence and characteristics of) suicides in prisons is crucial to inform policy and support the implementation of evidence-based prevention strategies; however, no such data are currently available in Belgium.
- This national review examined all documented cases of prison suicide over a period of two decades.
- One-third (33%) of all 917 deaths in Belgian prisons during 2000 to 2019 was attributable to suicide, equating to an average of one fatal incident every single month.
- Whilst the rate of suicide in Belgian prisons has been declining over the past two decades, it remains approximately four-fold that of the general population in Belgium.
- Both individual (violent offending and psychiatric morbidity) and situational (single-cell occupancy, the early period of imprisonment, and use of lethal methods) factors were common in many prison suicides, which present actionable targets for suicide prevention in Belgian prisons.
- An important limitation of this study was its reliance on registry data available in prisoners' records, and future work should focus on suicide-related antecedents to identify modifiable risk factors.

CHAPTER 3

Suicidal ideation while incarcerated

As an early stage in the trajectory towards suicidal behaviour, suicidal ideation represents an important target for suicide prevention, yet research on this outcome is limited in prison populations. Risk factors for recent suicidal ideation while incarcerated were examined in a sample of 1326 offenders (91% men) who were randomly selected from 15 Belgian prisons. A quarter (25%) of participants reported recent suicidal thoughts during their incarceration, which was independently associated with both individual vulnerabilities (violent offending, NSSI, and markers of psychiatric morbidity) and variables unique to the prison experience (lack of working activity, exposure to suicidal behaviour by peers, and low levels of perceived autonomy, safety and social support). A first-ever period of imprisonment and a shorter length of incarceration (less than one year) were also associated with increased odds of recent suicidal ideation while incarcerated. Collectively, these findings underscore the importance of both vulnerability factors and prison-specific stressors for suicidal ideation in prisoners, and hence the need for a multi-faceted approach to suicide prevention. In addition to mental health care, environmental interventions that target modifiable aspects of the prison regime could provide a substantial buffer for the onset and persistence of suicidal thoughts among this population of incarcerated offenders at high risk of suicide.

Portions of this chapter are based on Favril, L., Vander Laenen, F., Vandeviver, C., & Audenaert, K. (2017). Suicidal ideation while incarcerated: prevalence and correlates in a large sample of male prisoners in Flanders, Belgium. [*International Journal of Law and Psychiatry*](#), 55, 19-28. Louis Favril conceived and designed the study, collected and analysed the data, interpreted the results, drafted and revised the article. This chapter represents a thorough update of the previously published paper.

INTRODUCTION

Suicidal ideation is an important risk factor for subsequent suicidal behaviour in the general population (Castellví *et al.*, 2017; Garcia de la Garza *et al.*, 2021; Hubers *et al.*, 2018; Large *et al.*, 2021; Ribeiro *et al.*, 2016; Rossom *et al.*, 2017; ten Have *et al.*, 2009). In their meta-analysis of 365 longitudinal studies published in the past 50 years, Franklin *et al.* (2017) found suicidal ideation to be the third leading risk factor for suicide. Similar findings are observed in prisoners. For example, a meta-analysis comprising nearly 35,000 cases of suicide found a 15-fold increase in the odds of suicide among those with recent suicidal ideation—the largest effect size of all risk factors investigated (Zhong *et al.*, 2021). Similarly, a prospective case-control study in Greece found that close to 10% of men with baseline suicidal ideation attempted suicide during the 12 months following assessment, as opposed to none of the prisoners in the control group (Lekka *et al.*, 2006). Given this strong and consistent association, elucidating factors associated with suicidal ideation can contribute to the early identification of prisoners at increased risk of suicide. This could provide opportunities to prevent progression to suicidal behaviour, by halting the suicidal process in its early stage. In addition to being a predictor of suicidal behaviour, suicidal ideation is equally important in its own right as a marker of profound distress (Kerkhof, 2012; van Spijker *et al.*, 2020) and therefore reflects a key clinical target for intervention (Jobes & Joiner, 2019; Kleiman, 2020).

In spite of clinical concern, however, research on suicidal ideation in adult prisoners is scant to date. Whereas studies have been conducted in selected samples of prisoners, including women serving a life sentence (Dye & Aday, 2013) or awaiting trial (Charles *et al.*, 2003), men with major depression (Richie *et al.*, 2021) or HIV (Peng *et al.*, 2010), older prisoners (Barry *et al.*, 2016), and those receiving mental health treatment (Way *et al.*, 2013), there is a dearth of research in general prison populations. Notably, one large Australian study found that suicidal ideation was associated with violent offending, traumatic brain injury, depression, self-harm, and psychiatric hospitalisation (Larney *et al.*, 2012). In a similar vein, studies in Italy (Sarchiapone *et al.*, 2009), England and Wales (Jenkins *et al.*, 2005), China (Zhang *et al.*, 2010), and the United States (Schaefer *et al.*, 2016; Stoliker *et al.*, 2020) highlighted white ethnicity, psychiatric morbidity, a history of a suicide attempt, childhood adversity, poor social support, and personality traits as risk factors for suicidal thoughts in mainstream prison populations (TABLE 15). While yielding important insights, however, these few studies share two significant shortcomings. First, most of this research examining suicidal thoughts has included a relatively narrow range of predictors, primarily focusing on participants' pre-existing vulnerabilities, thereby neglecting the potential role of prison-specific influences. Second, the majority of these studies examined a *lifetime history* of suicidal thoughts as the outcome variable, consequently limiting our knowledge about risk factors for suicidal ideation *while incarcerated*. Given these important shortcomings, this study aimed to examine a wide range of both importation and deprivation variables in relation to suicidal ideation while incarcerated.

Table 15. Summary of large studies examining risk factors for suicidal ideation in unselected prison populations.

| Study | Country | Sample | Method | Outcome | Prevalence | Risk factors |
|----------------------------------|----------------|---|---|--|--|--|
| Jenkins <i>et al.</i> (2005) | England, Wales | 3139 prisoners (24% women) randomly selected from all prisons in England and Wales | Interview-based survey | Lifetime suicidal ideation was assessed by the Paykel Suicide Scale (“have you ever thought of taking your own life, even though you would not actually do it?”) | 40% of men and 55% of women had experienced suicidal ideation in their lifetime | Mental disorders, young age, single status, white ethnicity, leaving school early, poor social support, social adversity |
| Sarchiapone <i>et al.</i> (2009) | Italy | 903 male prisoners detained in five prisons in the region of Abruzzo | Psychiatric interview and questionnaire | Lifetime suicidal ideation was assessed using the Mini International Neuro-psychiatric Interview (MINI) | 43.7% of prisoners had a lifetime history of suicidal ideation | Violent behaviour in prison, substance abuse, family history of suicide, childhood abuse, neuroticism, depression |
| Zhang <i>et al.</i> (2010) | China | 514 adult prisoners (39% women) recruited from three correctional facilities in Zhejiang province | Self-report questionnaire survey | The 19-item Scale for Suicide Ideation (SSI) was used as a measure of past-week suicidal ideation | About 70% of all inmates reported past-week suicidal ideation | Depression, lack of social support, low self-esteem (female prisoners only), child mistreatment (male prisoners only) |
| Larney <i>et al.</i> (2012) | Australia | 996 prisoners (20% women) randomly selected from 30 adult correctional centres in New South Wales | Survey administered via telephone | Lifetime suicidal ideation was assessed by asking participants “have you ever thought about suicide?” | One-third of inmates (33.7%) reported a lifetime history of suicidal ideation | Violent offending, traumatic brain injury, depression, self-harm, psychiatric hospitalisation |
| Schaefer <i>et al.</i> (2016) | United States | 511 prisoners (32% women) recruited from one US jail | Interview and questionnaire | Suicidal ideation upon incarceration was measured with the 12-item suicidality scale from the Personality Assessment Inventory | 16% of participants reported clinically significant suicidal ideation upon incarceration | White ethnicity, history of psychiatric diagnosis, history of suicide attempt (bivariate analyses only) |
| Stoliker <i>et al.</i> (2020) | United States | 18,185 prisoners (21% women) randomly selected from 326 prisons nationwide | Computer-assisted interview | Lifetime suicidal ideation was assessed by asking participants “have you ever considered suicide?” | One in four (23.2%) prisoners reported a lifetime history of suicidal thoughts | Mental disorders, mental health care, psychological symptoms, ethnicity, substance use, trauma |

METHODS

Sampling

Between October 2015 and May 2016, a cross-sectional study was conducted in Flemish correctional facilities. Prisons were selected based on their geographical proximity—the Flanders region of Belgium, serving around half of the national prison population (DG EPI, 2017). All 16 Flemish prisons agreed to participate in the research. However, one facility (Merksplas) was unable to actually participate due to situational circumstances. Before the fieldwork commenced, a meeting was held with the local prison authorities in order to discuss and reach consensus about participation and logistical issues to minimise interference on daily prison operations. Sampling, recruitment, and data collection for each of the 15 participating prisons occurred sequentially—when data collection was finished in one prison, the next facility was contacted. At each prison consecutively, a census of all prisoners housed in the facility was obtained from the respective prison administration (based on the Sidis Suite database) on the first day that I visited the prison, generally one or two days prior to recruitment and data collection. Offenders deemed criminally irresponsible (ODCI, in Dutch ‘geïnterneerden’) were *a priori* excluded from this list, since they constitute a specific population, and inclusion of this group might limit a reliable comparison with other international prisoner samples given this unique Belgian situation (Vandevelde *et al.*, 2011). After exclusion of ODCI in the prisons of Gent, Antwerpen, Turnhout, and Brugge ($n = 236$), a total of 3862 individuals (3636 men and 226 women) were eligible to participate in the study during the study period. A random sample of minimum a third of all eligible prisoners was consequently drawn in every prison. Sample sizes could exceed this proposed minimum depending on the time of administering the questionnaires (e.g., weekends or evenings) and characteristics of the prison (e.g., population size and staffing level). The final sample comprised 1550 prisoners (1414 men and 136 women) which equates to 40.1% of the eligible population physically present at the time of obtaining the list of prisoners from the local administration. Since there were no *a priori* criteria for inclusion (with the exception of ODCI), and all participants were randomly selected by computer, the sample was reflective of the population that was residing in the 15 selected prisons. All prisoners were aged 18 years and over.

Recruitment

Rather than handing out flyers or involving prison staff in the recruitment of participants, each prisoner included in this random sample ($n = 1550$) was personally (face-to-face) approached by the researcher; the majority of whom in their own cell. This first informal contact took place in Dutch, French or English, during which the researcher clarified his independence to the prison system, and all prisoners were provided a description of the study and an opportunity to ask questions before deciding to participate.

All potential participants were informed about the voluntary, confidential, and anonymous nature of participation. In the event of the researcher being unable to contact a particular prisoner at the time of recruitment—for example due to placement in solitary confinement, hospitalisation, sudden release or transfer to another prison—the individual was replaced by another prisoner drawn from the reserve recruitment list (also randomly selected) who was subsequently contacted. The same procedure was applied in case of intellectual disability or severe mental illness (e.g., those who were actively psychotic at the time of recruitment) that prevented individuals from providing informed consent. Only in cases where a selected inmate was contacted but who refused to participate, a non-response was registered and was not substituted by another prisoner.

Data collection

After agreement to participate and informed consent was obtained, two scenarios were possible. First, questionnaires were administered in group (± 10 people) in a secluded room in the facility. During the time of completing the survey, prisoners did not discuss the questionnaires with each other, but could ask the researcher questions about the survey. Second, questionnaires and a sealable envelope were handed to the participants in their cells. In this case, for reasons of anonymity and to provide prisoners the chance to ask additional questions about the survey, instructions stated that the questionnaire, after completion, should not be returned to anyone of the prison staff. Rather, surveys were personally collected (in their sealed envelopes) by the researcher one or two days later. To enhance privacy and assure confidentiality during data collection, prison staff was not present during either the group or individual administration of the surveys. The choice of survey administration largely depended on the prisons' characteristics. Generally, in facilities housing primarily prisoners on remand, the first scenario was preferred because multiple prisoners are then frequently housed in the same cell. In prisons where the vast majority of prisoners are housed in single cell accommodation, which is generally the case for facilities detaining convicted people serving fairly long sentences, the second scenario was preferred. There were, however, several exceptions. For example, some prisoners initially declined participation because the survey was group-administered; the second scenario was then proposed and, if positive, a questionnaire was then handed out on cell and collected at a later point (scenario two). This was also the case for those who were on a disciplinary measure at the time of recruitment, who could therefore not leave their cells. Completion of the questionnaire took on average 35 minutes, depending on the language proficiency of participants. For prisoners who identified themselves as illiterate, or those who could not comprehend (some of) the survey's contents, data were collected by interviewing prisoners in Dutch, French or English.

Prior to handing out the questionnaire, either in group or individually, prisoners were informed that (1) they had been selected at random; (2) participation was completely voluntary; (3) there was no obligation to answer any questions deemed intrusive; (4) they could withdraw their participation at any given time, without giving any reason and without any adverse consequences; (5) information would be treated with the utmost confidentiality and only the researcher would see their individual responses; (6) their names would not be recorded on any of the survey materials; and (7) anything written down in the survey would in no way affect their chances of parole, standard of care or rights, or privileges. All questionnaires had a coversheet repeating each of these features, and participants were instructed to read this before providing informed consent.

In addition to an informal debriefing, to ensure a clinical response was available for individuals who expressed discomfort, distress or suicidal ideation after participation, all prisoners were informed about the possibility for counselling which was directly available, in all confidentiality, by addressing the researcher or a member of the staff. This was also written on the last page of the survey, together with the message that “those who have questions about suicide can always (24/7) contact the Suicide Hotline anonymously on the number 1813 (free of charge).”

Measures

A questionnaire was developed based on a review of the international literature to cover a broad range of well-established risk factors from multiple domains (i.e., both importation and deprivation variables; see CHAPTER 1). The survey was first pilot-tested in a convenience sample of 12 prisoners (6 men and 6 women) from the target population in order to evaluate clarity and comprehensibility. The pilot study was conducted in September 2015 in the prison of Gent, and feedback was incorporated into the final questionnaire, prior to actual implementation of the study.

Background characteristics. The survey included sociodemographic details on sex (male/female), age (continuous), nationality (Belgian/other), and partnership (dichotomised in single/divorced/widowed vs. married/partner). Criminological variables included prior incarceration as an adult (no/yes), current custodial status (remand/sentenced), length of current incarceration (< 1 month, 1–6 months, 6–12 months, 1–3 years, 3–5 years, 5 years), sentence length (applies to sentenced prisoners only: < 1 year, 1–3 years, 3–5 years, 5–10 years, > 10 years, life sentence), and offence type. This latter variable was recoded into non-violent (e.g., drug offences, theft, and fraud) vs. violent (e.g., murder, manslaughter, and rape) offences. Prisoners were asked an additional two questions about their current employment status in prison (working vs. not working) and cell accommodation (single vs. shared cell).

Substance use and medication. Substance use was inquired about by asking whether participants have used illicit drugs before and/or during their incarceration. A non-limitative list of drugs was provided⁷ and for each of these categories, participants were asked to indicate what drug(s) they have used ever in their lives, in the 12 months prior to their incarceration, and during their incarceration (Indig *et al.*, 2010). Participants were queried regarding their current use of prescribed psychotropic medication. Six wide categories (antipsychotics, benzodiazepines, antidepressants, opioid substitution medication, ADHD medication, anti-epileptics, and lithium) were presented, each with some common examples of specific medications—both their generic and brand names—to facilitate recognition, and participants were asked to indicate, if any, what prescribed medications they were currently taken in prison.

Mental disorders. A self-reported diagnosis of a mental disorder was assessed by asking participants “Have you ever been told by a mental health professional, such as a psychiatrist or psychologist, that you had one or more of the following mental disorders?” followed by a comprehensive list of diagnostic labels. The conditions specified were depressive, bipolar, psychotic, substance use, anxiety, eating, and personality disorders. Developmental disorders (e.g., autism spectrum disorder) were also assessed. Participants were provided space to write further information or other diagnoses. A history of a mental disorder diagnosis was dichotomously recoded (no diagnosis vs. at least one diagnosis). The wording of this question and choice of a self-report measure of lifetime psychiatric diagnoses is consistent with previous prison studies (Binswanger *et al.*, 2010; Dean & Korobanova, 2018; Ford *et al.*, 2020; Stoliker, 2018). Research that examined the accuracy of self-reported mental health diagnoses in prison surveys has documented high concordance between self-reported and administrative data (Wolff *et al.*, 2004).

Suicidal thoughts and behaviour. Suicidal outcomes were assessed using the five-item questionnaire developed by Paykel (1974). The *Paykel Suicidal Scale* (PSS), frequently adopted in studies investigating (the pathways of) suicidal thoughts and behaviour in the general population (Bebbington *et al.*, 2010; De Leo *et al.*, 2005; Gunnell *et al.*, 2004; Kelleher *et al.*, 2013; Wasserman *et al.*, 2015) and in prisoners (e.g., Hales *et al.*, 2015; Jenkins *et al.*, 2005; Lekka *et al.*, 2006; Roy *et al.*, 2014; Völlm & Dolan, 2009), fits well with the conceptualisation of the suicidal process. The PSS comprises four items that assess the continuum of suicidal cognitions and one item inquiring about suicide attempt. The questions were presented in a logical sequence that outlines the suicidal process. Responses to each question were made separately and were not mutually exclusive. A sixth item for non-suicidal self-injury was included in the survey (Jenkins *et al.*, 2005). The six questions were formulated as follows:

⁷ Cannabis, marijuana, hashish; heroin; other opiates (morphine, fentanyl) without prescription; cocaine, crack; amphetamines, speed; ecstasy (XTC), MDMA, designer drugs; LSD, acid; tranquillisers, benzodiazepines without prescription; methadone, Subutex (buprenorphine), Suboxone without prescription; steroids; other illicit drugs.

1. Have you ever felt that life was not worth living? (*tiredness of life*)
2. Have you ever wished you were dead, for instance, that you could go to sleep and not wake up? (*death wish*)
3. Have you ever thought of taking your life, even if you would not really do it? (*suicidal thoughts*)
4. Have you ever reached the point where you seriously considered taking your life, and even made plans for how you would go about doing it? (*suicide plan*)
5. Have you ever made an attempt to take your life? (*suicide attempt*)
6. Have you ever deliberately harmed yourself in any way, but not with the intention of killing yourself? (*non-suicidal self-injury*)

Endorsement of *suicidal thoughts* (item 3) was taken as indicative of suicidal ideation. The timing of outcomes was explicitly taken into account, distinguishing between the period before and during the current incarceration (Dye & Aday, 2013). Suicidal ideation was scored twice by the participants, once with reference to the period *before* their incarceration (no/yes) and once with reference to the period *during* the current incarceration (“no, never during my imprisonment”, “yes, in the past year” and “yes, at another time, longer than one year ago”). Past-year suicidal ideation is referred to as “recent” and survey instructions explicitly stated that, if participants were currently imprisoned for less than a year, the response option “in the past year” should reflect the period since the beginning of their current imprisonment.

Two additional questions were included to assess exposure to suicidal behaviour of prisoners (“Have you ever been confronted with or witnessed a suicide or suicide attempt by a fellow prisoner during your incarceration?”) and family history of suicidal behaviour, asking participants whether there was anyone in their family (i.e., partner, parent, grandparent, sibling, or child) who had ever attempted or died by suicide.

Social support. The *Social Support Scale* (SSS) is a 7-item instrument measuring self-perceived social support. It has been adopted for use in the general community (Singleton *et al.*, 2001) and in prisons too (Harvey, 2005; Jenkins *et al.*, 2005; Marzano *et al.*, 2011b; Rivlin *et al.*, 2013b). Examples of items are “There are people I know who can be relied on, no matter what happens” and “There are people I know who make me feel loved.” For use in prisons, the frame of reference was broadened from “family and friends” to “everyone you know (including those here at prison as well as those elsewhere)” in order to reflect the fact that, for many, the most important sources of support might be people within the prison system who might not have been regarded as family and friends (Jenkins *et al.*, 2005). Each item has three response categories (not true, partly true, certainly true), respectively scored between 1 and 3. Overall scores range from 7 to 21, with higher scores suggesting higher levels of social support.

Composite scores of 17 or less indicate that respondents perceive a severe lack of social support, scores between 18 and 20 reflect a moderate lack of social support, and an overall score of 21 is indicative for no lack of support (Rivlin *et al.*, 2013b). The variable was then dichotomised in “poor social support” (no/yes) based on the proposed cut-off value of 17.

Quality of prison life. Prisoners’ perceptions of their quality of life in prisons were gathered using the *Measuring the Quality of Prison Life* (MQPL) survey, a self-report instrument asking prisoners directly about the prison regime and relationships within it (Liebling, 2004; Liebling *et al.*, 2012). The MQPL has previously been modified to the Belgian correctional context and was translated in Dutch and French (Devresse *et al.*, 2011); the adapted version was used for this dissertation. Five prison dimensions were assessed through 23 statements which participants (dis)agreed with on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree): *personal autonomy* (4 items; e.g., “I have no control over my day-to-day life in here”), *physical safety* (5 items; e.g., “I feel safe from being injured, bullied, or threatened by other prisoners in here”), *decency* (4 items; e.g., “Prisoners spend too long locked up in their cells in this prison”), *outside contact* (3 items; e.g., “I am able to receive visits often enough in this prison”), and *staff relationships* (7 items; e.g., “Overall, I am treated fairly by staff in this prison”). The answers were recoded so that all items were scored in a positive direction. Dimension scores were then calculated by summing the individual items, divided by the number of items per dimension. Lower scores indicate a more negative judgement of that particular dimension.

Statistical analysis

Contingency tables were used to describe the characteristics of the sample. Bivariate associations were examined for all independent variables by comparing prisoners who reported recent suicidal ideation while incarcerated (SI group) and those who did not (NSI group) using χ^2 -tests for categorical variables and independent-sample *t*-tests for continuous ones. A multivariate logistic regression analysis was then performed to assess the independent effects of the predictor variables on the outcome of interest (recent suicidal ideation), while simultaneously controlling for potential confounders. Sentence length was not included in the analysis since this variable was only applicable to sentenced prisoners. All other independent variables were entered unconditionally into the multivariate logistic regression model (i.e., irrespective of their significance at the 0.05 level in the bivariate analyses) because this averts the omission of potentially significantly associated independent variables within a multivariate context. All analyses were conducted using SPSS version 26. Results for all tests were considered to be statistically significant for *p* values less than 0.05. Crude (OR) and adjusted (aOR) odds ratios, as well as their 95% confidence intervals (CI), are reported as estimates of the strength of associations.

RESULTS

Participants

Across 15 Flemish prisons, a total of 1550 randomly selected prisoners were approached to participate in the study, of whom 1326 (85.5%) completed the survey and were included in the analyses. Response rates by prisoners' sex were 85.1% in men and 90.4% in women. By facility, response rates were in the range of 81–95%. The study sample thus accounted for 34.3% of eligible prisoners (33.1% of men and 54.4% of women) who were physically residing in the 15 selected prisons in Flanders during the data collection period (TABLE 16).

Table 16. Eligible study population, sample, and response rate in 15 Flemish prisons.

| Prison | Eligible population ^a N | Sample n (%) | Response n (%) | % of eligible population |
|------------------------|---------------------------------------|-----------------|-------------------|-----------------------------|
| Antwerpen ^b | 517 | 180 (34.8) | 149 (82.8) | 28.8 |
| Beveren | 287 | 150 (52.3) | 127 (84.7) | 44.3 |
| Brugge ^b | 644 | 250 (38.3) | 226 (90.4) | 35.1 |
| Dendermonde | 167 | 90 (53.9) | 77 (85.6) | 46.1 |
| Gent ^b | 290 | 110 (37.9) | 89 (80.9) | 20.7 |
| Hasselt ^b | 532 | 210 (39.5) | 179 (85.2) | 33.6 |
| Hoogstraten | 147 | 50 (34.0) | 42 (84.0) | 28.6 |
| Ieper | 72 | 35 (48.6) | 29 (82.9) | 40.3 |
| Leuven-Centraal | 301 | 100 (33.2) | 82 (82.0) | 27.2 |
| Leuven-Hulp | 166 | 55 (33.1) | 45 (81.8) | 27.1 |
| Mechelen | 102 | 40 (39.2) | 38 (95.0) | 37.3 |
| Oudenaarde | 132 | 80 (60.6) | 66 (82.5) | 50.0 |
| Ruiselede | 57 | 40 (70.2) | 38 (95.0) | 66.7 |
| Turnhout | 171 | 60 (35.1) | 51 (85.0) | 29.8 |
| Wortel | 277 | 100 (36.1) | 88 (88.0) | 31.8 |
| Total | 3862 | 1550 (40.1) | 1326 (85.5) | 34.3 |

^a Eligible prisoners residing in the respective prison (after exclusion of ODCI) at the time of data collection. ^b Facilities that also house female prisoners.

Participants' characteristics are summarised in TABLE 17. Of the total 1326 prisoners participating in the study, 1203 (90.7%) were men and 123 (9.3%) were women. The majority of all participants had the Belgian nationality (73.5%) and their mean age was 37.7 years ($SD = 11.8$, range 18–77). One-third (34.9%) of the sample was aged 25–34 years. One in three (34.6%) was currently on remand, while the remaining 867 (65.4%) participants were sentenced. One in four (26.3) was charged with, or convicted of, a violent offence. The modal length of time in prison was 1–6 months (28.6%), and half (50.3%) had been incarcerated for more than one year at the time of assessment. 589 (44.4%, 95% CI 41.7–47.1) prisoners reported a lifetime history of suicidal ideation; 43.1% (95% CI 40.3–45.9) of men and 57.7% (95% CI 48.9–66.6) of women. Further details on participants' characteristics are presented in TABLE 17, stratified by the presence (SI group) or absence (NSI group) of recent suicidal ideation while in prison.

Bivariate analyses

As shown in TABLE 17, bivariate analyses indicate that all but four (age, partnership, prior incarceration, and single cell) variables were significantly associated with recent suicidal ideation while incarcerated. Of those significant, odds ratios ranged from 1.46 (violent offence) to 2.96 (history of NSSI) for positive associations, and from 0.77 (custodial status) to 0.47 (perceived autonomy) for negative associations. Results for men and women separately are provided in APPENDIX B and C, respectively.

Multivariate analysis

Results of the multivariate analysis are shown in TABLE 18. Overall, the model was statistically significant ($\chi^2_{(26)} = 233.94$, $p < 0.0001$) and correctly classified 78% of all cases. None of the demographic variables remained significant in the multivariate analysis (all $p \geq 0.144$). A previous incarceration (aOR = 0.69) and being employed in prison (aOR = 0.68) were both significantly associated with decreased odds of recent suicidal ideation while incarcerated. Likewise, higher levels of perceived autonomy (aOR = 0.64), safety (aOR = 0.74) and contact (aOR = 0.84) as measured by the MQPL were inversely associated with suicidal ideation. A lack of social support (aOR = 1.54) and violent offending (aOR = 1.53) were equally and positively associated to suicidal ideation, as was in-prison exposure (aOR = 2.08). Clinically, prior NSSI, a mental disorder diagnosis, and current use of psychotropic medication were all independently associated with higher odds of suicidal ideation in prison (aOR range 1.46–1.87). Suicidal ideation also showed a robust relationship across length of incarceration, with similar ORs found for prisoners who were incarcerated for less than one month (aOR = 3.29), one to six months (aOR = 2.68) and more than six months to one year or less (aOR = 4.10) relative to the reference category (> 5 years). The two other categories (capturing a duration of 1–5 years) did not significantly differ from the reference category.

Table 17. Sample characteristics and bivariate associations with recent suicidal ideation in prison.

| | All prisoners (<i>n</i> = 1326) | NSI (<i>n</i> = 996) | SI (<i>n</i> = 330) | OR (95% CI) | <i>p</i> |
|--------------------------|-------------------------------------|--------------------------|-------------------------|------------------|----------|
| Female sex | 9.3 | 7.8 | 13.6 | 1.86 (1.26–2.75) | 0.002 |
| Age, years | 37.7 (11.8) | 37.7 (12.0) | 37.7 (11.2) | 1.00 (0.99–1.01) | 0.964 |
| Belgian nationality | 73.5 | 70.9 | 81.4 | 1.79 (1.32–2.45) | < 0.001 |
| Partnership | 40.9 | 40.6 | 41.8 | 1.05 (0.82–1.36) | 0.688 |
| Prior incarceration | 57.1 | 57.8 | 54.8 | 0.89 (0.69–1.14) | 0.343 |
| Sentenced status | 65.4 | 66.9 | 60.9 | 0.77 (0.60–0.99) | 0.049 |
| Duration incarceration | | | | | 0.036 |
| < 1 month | 10.0 | 9.2 | 12.4 | 1.85 (1.12–3.04) | 0.016 |
| 1–6 months | 28.6 | 27.9 | 30.6 | 1.51 (1.00–2.26) | 0.049 |
| 6–12 months | 11.0 | 10.5 | 12.7 | 1.67 (1.02–2.74) | 0.040 |
| 1–3 years | 21.1 | 22.4 | 17.0 | 1.04 (0.66–1.63) | 0.862 |
| 3–5 years | 13.0 | 12.5 | 14.5 | 1.60 (0.99–2.58) | 0.051 |
| > 5 years | 16.3 | 17.5 | 12.7 | 1.00 (reference) | — |
| Violent offence | 26.3 | 24.3 | 32.0 | 1.46 (1.11–1.93) | 0.007 |
| Drug use in prison | 34.8 | 31.2 | 45.8 | 1.86 (1.44–2.40) | < 0.0001 |
| Psychiatric diagnosis | 46.3 | 40.8 | 63.0 | 2.48 (1.92–3.20) | < 0.0001 |
| Psychotropic medication | 36.4 | 31.1 | 52.4 | 2.44 (1.89–3.14) | < 0.0001 |
| History of NSSI | 17.3 | 13.0 | 30.6 | 2.96 (2.20–4.00) | < 0.0001 |
| Family history | 25.6 | 22.2 | 36.1 | 1.98 (1.51–2.59) | < 0.0001 |
| Suicide exposure | 48.5 | 44.6 | 60.3 | 1.89 (1.47–2.43) | < 0.0001 |
| Single cell | 49.6 | 50.0 | 48.5 | 0.94 (0.73–1.21) | 0.633 |
| Prison work | 54.3 | 57.8 | 43.9 | 0.57 (0.45–0.74) | < 0.0001 |
| MQPL autonomy | 2.76 (0.76) | 2.87 (0.74) | 2.46 (0.73) | 0.47 (0.39–0.56) | < 0.0001 |
| MQPL outside contact | 2.99 (0.97) | 3.07 (0.96) | 2.73 (0.98) | 0.70 (0.61–0.79) | < 0.0001 |
| MQPL staff relationships | 2.85 (0.88) | 2.91 (0.87) | 2.66 (0.86) | 0.72 (0.62–0.83) | < 0.0001 |
| MQPL physical safety | 3.19 (0.82) | 3.29 (0.79) | 2.90 (0.82) | 0.55 (0.47–0.64) | < 0.0001 |
| MQPL decency | 2.64 (0.76) | 2.71 (0.75) | 2.45 (0.77) | 0.64 (0.54–0.76) | < 0.0001 |
| Poor social support | 46.2 | 43.5 | 54.3 | 1.54 (1.20–1.98) | 0.001 |

Note. Data are presented as percentages for categorical variables and as mean (standard deviation) for continuous variables. NSI, no recent suicidal ideation while incarcerated; SI, recent suicidal ideation while incarcerated.

Table 18. Multivariate regression analysis for recent suicidal ideation while incarcerated.

| | B | SE | Wald | aOR (95% CI) | p |
|-------------------------------------|--------|-------|--------|------------------|----------|
| Female sex | 0.192 | 0.241 | 0.636 | 1.21 (0.76–1.95) | 0.425 |
| Age | 0.011 | 0.008 | 2.029 | 1.01 (0.99–1.03) | 0.154 |
| Belgian nationality | 0.292 | 0.200 | 2.133 | 1.34 (0.91–1.98) | 0.144 |
| Partnership | 0.119 | 0.161 | 0.551 | 1.13 (0.82–1.55) | 0.458 |
| Prior incarceration | –0.375 | 0.175 | 4.619 | 0.69 (0.49–0.97) | 0.032 |
| Sentenced status | –0.303 | 0.205 | 2.177 | 0.74 (0.49–1.11) | 0.140 |
| Duration incarceration ^a | | | 20.130 | | 0.001 |
| < 1 month | 1.189 | 0.407 | 8.552 | 3.29 (1.48–7.29) | 0.003 |
| 1–6 months | 0.987 | 0.326 | 9.165 | 2.68 (1.42–5.08) | 0.002 |
| 6–12 months | 1.411 | 0.340 | 17.215 | 4.10 (2.11–7.98) | < 0.0001 |
| 1–3 years | 0.387 | 0.292 | 1.755 | 1.47 (0.83–2.61) | 0.185 |
| 3–5 years | 0.584 | 0.303 | 3.709 | 1.79 (0.99–3.25) | 0.054 |
| Violent offence | 0.425 | 0.198 | 4.625 | 1.53 (1.04–2.25) | 0.032 |
| Drug use in prison | 0.291 | 0.185 | 2.474 | 1.34 (0.93–1.92) | 0.116 |
| Psychiatric diagnosis | 0.473 | 0.183 | 6.666 | 1.60 (1.12–2.30) | 0.010 |
| Psychotropic medication | 0.381 | 0.177 | 4.644 | 1.46 (1.04–2.07) | 0.031 |
| History of NSSI | 0.625 | 0.190 | 10.822 | 1.87 (1.29–2.71) | 0.001 |
| Family history | 0.223 | 0.170 | 1.716 | 1.25 (0.90–1.75) | 0.190 |
| Suicide exposure | 0.733 | 0.170 | 18.496 | 2.08 (1.49–2.91) | < 0.0001 |
| Single cell | 0.143 | 0.172 | 0.690 | 1.15 (0.82–1.61) | 0.406 |
| Prison work | –0.379 | 0.162 | 5.472 | 0.68 (0.50–0.94) | 0.019 |
| MQPL autonomy | –0.446 | 0.128 | 12.154 | 0.64 (0.50–0.82) | < 0.001 |
| MQPL outside contact | –0.177 | 0.090 | 3.854 | 0.84 (0.70–0.99) | 0.049 |
| MQPL staff relationships | 0.009 | 0.123 | 0.006 | 1.01 (0.79–1.28) | 0.939 |
| MQPL physical safety | –0.305 | 0.107 | 8.126 | 0.74 (0.60–0.91) | 0.004 |
| MQPL decency | 0.023 | 0.141 | 0.026 | 1.02 (0.78–1.35) | 0.871 |
| Poor social support | 0.429 | 0.160 | 7.241 | 1.54 (1.12–2.10) | 0.007 |

^a Reference category: more than 5 years. aOR, odds ratio adjusted for all factors in the multivariate model.

DISCUSSION

Main findings

This study provides a fine-grained examination of risk factors for suicidal thoughts in a representative sample of more than a thousand prisoners in Belgium. Four out of ten (44%) participants experienced suicidal thoughts in their lifetime—of whom 56% did so recently during their incarceration (25% of the total sample). Prior large-scale studies conducted in Australia (Larney *et al.*, 2012), England and Wales (Jenkins *et al.*, 2005), and Italy (Sarchiapone *et al.*, 2009) reported highly similar prevalence estimates, where 33–44% of adults from the mainstream prison population experienced suicidal thoughts during the course of their lifetime.

Several predisposing (importation) and precipitating (deprivation) factors were independently associated with the likelihood of experiencing thoughts about suicide while incarcerated. Replicating findings among community-residing adults (Batterham *et al.*, 2018; Nock *et al.*, 2009) and incarcerated offenders (Jenkins *et al.*, 2005; Sarchiapone *et al.*, 2009), results confirm the established finding that psychiatric morbidity—both current (psychotropic medication) and historical (mental disorders)—is an important risk factor for suicidal ideation. In contrast, illicit drug use was not independently associated with suicidal ideation; a finding supported by some (Jenkins *et al.*, 2005; Larney *et al.*, 2012) but not all (Sarchiapone *et al.*, 2009) related prison studies. Other individual-level factors associated with a higher risk of suicidal ideation were NSSI and violent offending. Converging evidence in the general population supports a robust relationship between NSSI and suicidal ideation (Benjet *et al.*, 2017; Coppersmith *et al.*, 2017; Kiekens *et al.*, 2018; Liu, 2021; Turner *et al.*, 2019). Similarly, Larney *et al.* (2012) found NSSI to be the strongest independent correlate of suicidal ideation among 996 Australian prisoners. Suicidal thoughts and NSSI might exhibit a strong overlap to the degree that they share a genetic predisposition (Maciejewski *et al.*, 2014; Richmond-Rakerd *et al.*, 2019b), and reflect common manifestations of the same underlying cause that precedes suicidal behaviour—psychological distress (Hamza *et al.*, 2012). The increased risk of suicidal ideation in violent offenders compared with their non-violent peers aligns with the results of an Australian study (Larney *et al.*, 2012). As discussed in CHAPTER 2, feelings of shame and regret over the alleged offences, in combination with the narrowing of future perspectives in the face of long sentences, might drive violent offenders towards considering suicide while incarcerated.

In addition to the individual-level risk factors outlined above, environmental variables related to the prison context and prisoners' experiences of incarceration were found to be highly explanatory of suicidal thoughts. For example, participants reporting low levels of perceived safety were more likely to have experienced suicidal ideation in prison. A study in the UK which also used the MPQL found that one of the measures of the prison environment that contributed most directly to psychological distress

was prisoners' rating of perceived physical safety (Liebling *et al.*, 2005). One specific element of safety includes bullying, for which a dose-response relationship has been reported between prisoners' suicide risk and the nature of bullying experiences during their incarceration (Blaauw *et al.*, 2001). This finding was confirmed by more recent qualitative studies on suicide attempt in prisons, lending support to the impact of bullying victimisation on the suicidal process (Marzano *et al.*, 2016). Another adverse event positively associated with suicidal ideation was exposure to suicidal behaviour by incarcerated peers. This is in accordance with findings by Hales and colleagues (2015), who documented that young men who witnessed another's suicide (attempt) in prison were more likely than their non-exposed peers to have experienced thoughts of suicide during the past year.

Furthermore, participants in this study who were working in prisons were less likely to report suicidal thoughts compared with their unemployed peers. The availability of, and access to, purposeful (out-of-cell) activities exerts a protective effect on prisoners' risk of suicide (Stephenson *et al.*, 2021). Inversely, boredom or inactivity likely increases the chance to ruminate on negative thoughts, including suicidal ones. Therefore, active prison regimes are capable of ameliorating the pains of imprisonment, which is consistent with the findings on prisoners' perceived autonomy in custody. Participants in this study stating, for example, that they had little or no control over their day-to-day life in prisons were more likely to report suicidal ideation than those who perceived more autonomy. In their qualitative study, Kerkhof and Bernasco (1990) found that the feeling of total dependency on others, and having no control over or influence on decisions imposed on them, was a central theme in the narratives of prisoners who attempted suicide in prison. Facility characteristics, such as security level and restricted regimes, affect the prison climate and prisoners' personal sense of autonomy (Woodall *et al.*, 2014), which, in turn, can lead to the contemplation of suicide.

Participants who experienced suicidal thoughts were more likely than their non-suicidal peers to report poor social support, which is consistent with prior research in prisoners (Jenkins *et al.*, 2005; Pratt & Foster, 2020; Richie *et al.*, 2021; Zhang *et al.*, 2010) and suggest that one's social environment can contribute to suicidal thoughts. Feelings of connectedness may be particularly salient to prisoners due to the isolated nature of incarceration. This protective effect of social support also resonates with the current finding that the ability to maintain meaningful contact with family and friends is associated with a reduced likelihood of suicidal ideation. Although significant at the bivariate level, relationships with prison staff were not independently associated with recent suicidal thoughts once other factors were controlled for. A potential explanation is that staff-prisoner relationships may have considerable overlap with social support, accounting for the variance in suicidal thoughts to be explained by social support, as its frame of reference also included prison staff.

With regard to criminological variables, the current study clearly shows a negative relationship between length of incarceration and recent suicidal ideation; a three-fold higher odds of experiencing

suicidal ideation was observed in participants imprisoned for less than one year. The above-mentioned stressors and deprivations inherent to imprisonment are arguably more pronounced in the early phase of incarceration (Harvey, 2005), which may explain why offenders who have been incarcerated for up to one year exhibit a significant higher risk of suicidal ideation than their peers who have been in prison for longer periods of time. This finding corroborates prior studies identifying the early phase of custody (O'Driscoll *et al.*, 2007; Shaw *et al.*, 2004) and the pre-trial period (Duthé *et al.*, 2013; Humber *et al.*, 2013; Zhong *et al.*, 2021) as high-risk periods for suicide; strengthening calls for improved screening at reception into prison (Marzano *et al.*, 2016; see CHAPTER 2). Regarding this latter group—those detained on remand—the current analyses did not show an independent association between custodial status and suicidal ideation (see also Larney *et al.*, 2012). However, relative to sentenced prisoners, overall time spent in custody is generally shorter for pre-trial and unsentenced offenders, which could explain why length of incarceration was a significant risk factor, rather than custodial status *per se*. Irrespective of custodial status, one can assume that the negative experience of (early) imprisonment is especially true for first-time prisoners. As people who are imprisoned for the very first time are forced to adapt to a harsh and novel environment, the ‘shock of imprisonment’ is likely more pronounced for first-time prisoners compared to offenders with a prior history of imprisonment. Indeed, a first incarceration has been shown to be a particular stressful event, producing intense mental distress (Maccio *et al.*, 2015). These data suggest that being incarcerated for the very first time increases the likelihood of prisoners experiencing suicidal thoughts compared with those who have a history of being in prison.

Methodological limitations

This study has several important strengths. First, the study sample—recruited from all Flemish prisons but one—accounted for 13% of the national prison population in Belgium (25% in Flanders), which was broadly representative of the annual census during the study period (Aebi *et al.*, 2019; DG EPI, 2017). Second, rather than examining a *lifetime history* of suicidal ideation as the outcome variable, this study differentiated between suicidal ideation before and during imprisonment. Whereas a lifetime history of suicidal ideation can be linked to imported vulnerabilities (e.g., childhood adversity), it is not feasible to examine its relation with proximal events and factors specific to the context of incarceration as they could not be temporally related with a lifetime history of suicidal thoughts (which might have occurred before, but not during, a period of detention). When examining a lifetime history of suicidal thoughts, associations with prison-specific variables would therefore be spurious and misleading. Instead, in this study, the proximity of the outcome and the certainty that this occurred while being detained made it possible to examine prison-specific and modifiable factors, which has received relatively little attention in prior research (TABLE 15). Together, the strength of this study is that this is one of the few to examine

a wide range of variables—both prison-specific stressors and pre-existing vulnerabilities—presumably associated with suicidal ideation, and this in a large random sample of more than a thousand prisoners. Five limitations should, nonetheless, be considered when interpreting the study findings.

A first limitation relates to the cross-sectional study design. The temporal relationship between risk factors and suicidal thoughts could not be determined, which inherently limits the ability to draw causal inferences and conclusions regarding the directionality of associations. Although cross-sectional data can yield insights into associations between variables, they cannot determine whether these are causal or coincidental, nor whether the outcome (suicidal ideation) might *itself* be causative of a factor, since associations might be due to reverse causality. For example, not working in prison and low levels of safety could result from, rather than cause, suicidal ideation while incarcerated. Therefore, it will be important to evaluate the consistency of these associations in future prospective studies that carefully document the time of onset of each predictor and outcome.

Second, data were entirely based on retrospective self-report and thus may be subject to social desirability and biased recall. For example, participants in this study may have underreported sensitive information due to stigma (psychiatric morbidity) or fear of disciplinary sanctions (drug use in prison), despite the anonymous nature of the survey. This might particularly apply to questions about suicidal thoughts and behaviour (Borschmann *et al.*, 2017b; Hom *et al.*, 2017; Way *et al.*, 2013). To the extent that this was the case, prevalence rates may be lower bound estimates. Furthermore, it is also possible that participants could have presented their prison experiences (such as relationships with prison staff) overly positive for fear of negative consequences. Inversely, the possibility that participants' responses were distorted due to a tendency to convey a general sense of dissatisfaction with being incarcerated cannot be ruled out. However, research suggests that prisoners do in fact accurately report health and incarceration-related information (e.g., Kroner *et al.*, 2007; Schofield *et al.*, 2011; Wolff *et al.*, 2004).

Third, it is possible that eligible *non-participants* (i.e., prisoners who were eligible to participate but declined to do so) may have differed significantly from those who chose to participate, which may have impacted on the results obtained. Since no information was collected on non-participants, it was not possible to examine differences between non-participants and the study sample, and to evaluate any potential selection bias. For instance, population-representative studies in the community suggest that mental health is associated with one's propensity to take part in surveys—in that non-participants have higher patterns of substance use (Studer *et al.*, 2013), psychiatric morbidity (Bergman *et al.*, 2010; Haapea *et al.*, 2008; Knudsen *et al.*, 2010), and suicide risk (Svensson *et al.*, 2015) than do participants. The extent to which this is generalisable to prisoner populations is uncertain; however, selective non-response from high-risk groups cannot be ruled out—although the high participation rate (85.5%) likely minimised such selection bias. With regard to prisoners who were *a priori* excluded, an additional bias may apply. Individuals who were, for any reason, hospitalised or residing in solitary confinement at the

time of recruitment were ineligible to participate (because of safety and logistical reasons). Given the association between placement in solitary confinement and risk of suicide (see CHAPTER 2), exclusion of this specific group may have impacted on the results. Hospitalisation may be a consequence of violence or even suicidal behaviour. Consequently, these high-risk groups were underrepresented in the current sample, possibly rendering the estimates conservative. Future studies should therefore try to include those who are hospitalised or residing in solitary confinement, irrespective of the reason thereof.

Fourth, although many predictors of suicidal ideation were included as questions in the survey, data on other well-established risk factors for suicidal ideation (such as adverse life events, childhood maltreatment, hopelessness, and certain personality traits) were not collected. These omitted factors, amongst others, may have confounded the association between predictors and suicidal ideation in the multivariate analysis. This was, however, an *a priori* decision to minimise the questionnaire burden for participants. Any one study cannot assess *all* relevant factors, and choices had to be made.

Fifth, no analyses were conducted at the level of the facility. The study was done at the regional level, which could mask variation in suicide risk between prisons within the sample that might provide clues towards suicide prevention. Including institutional and macro-level factors in multi-level analyses (Stoliker, 2018; Stoliker *et al.*, 2020) might prove useful in further identifying sources of variation that could be targeted in more structural prevention interventions, such as population size, prison regimes, security levels, and the proportion of remand prisoners. However, a study among 4538 Dutch prisoners suggests that most variance for psychological wellbeing is found at the individual rather than the prison unit level (van Ginneken *et al.*, 2019). At least for mental health outcomes, this implies that it does not make much of a difference in which prison unit one resides, but more research is needed to determine whether this finding holds true for suicidal outcomes while in prison.

Despite these methodological limitations, the current study makes a solid contribution to the literature as it provides a rigorous exploration of risk factors for suicidal ideation while incarcerated in a large and unselected sample of prisoners in Belgium, representing 13% of the population nationwide.

Implications and future directions

Suicidal thoughts are prevalent among incarcerated offenders in Belgium. The current study highlights the contribution of both individual-level (pre-existing vulnerabilities that are imported into prison) and environmental-level (stressors inherent to the experience of incarceration) variables in explaining the likelihood of prisoners considering suicide while incarcerated. By focusing primarily on demographic, historical, and clinical risk factors for (a lifetime history of) suicidal ideation among prisoners, previous work has largely neglected the influence of prison-specific variables in explaining such risk. This study clearly extends this extant body of research by underscoring the contribution of general aspects of the

prison regime (such as the loss of personal autonomy and social support) as well as specific experiences (such as low levels of perceived safety and exposure to suicide) as risk factors for suicidal thoughts in prison, even when imported risk factors were controlled for.

Given the well-established link between psychiatric morbidity and risk of suicide, as reflected in this analysis, adequate treatment and management of mental disorders is a key approach to suicide prevention (Birmingham, 2003; Bolton *et al.*, 2015; Marzano *et al.*, 2016; Wasserman *et al.*, 2012). Yet, while meta-analyses suggest positive—albeit modest—benefits of treatment for prisoners with mental health problems (Martin *et al.*, 2012; Morgan *et al.*, 2012; Yoon *et al.*, 2017), low detection rates and treatment uptake have been consistently reported, with upward of half of prisoners having apparently unmet needs for mental health treatment (Hassan *et al.*, 2012; Jakobowitz *et al.*, 2017; Senior *et al.*, 2013). In light of these challenges, screening has been recommended to improve detection rates and the provision of evidence-based treatment (Forrester *et al.*, 2018; NICE, 2017; Simpson & Jones, 2018).

Whilst measures that target the detection and management of at-risk individuals constitute a fundamental component of any comprehensive prevention strategy, these alone are not sufficient. As underlined by the present study, such indicated interventions should be complemented by population strategies that help to mitigate the adverse effects of ongoing environmental stressors inherent to the prison setting. As Liebling (1998) already postulated 20 years ago, “whilst a number of risk factors are, to a large degree, set on arrival within the institution, the effects of additional stress presented by the prison environment can be manipulated by staff and managers to decrease the risk of suicide” (p. 62). Based on the current data, such environmental interventions and changes to the general prison regime should address concerns of safety, social support, and opportunities for purposeful activities (Daigle *et al.*, 2007; Liebling, 2007; Marzano *et al.*, 2016). Anti-bullying programmes might impact the wider correctional climate, and prisoners’ perceived safety more specifically (Ireland, 2002, 2006). Prisons should also promote purposeful activity by providing sufficient opportunities for employment while incarcerated, as well as other activities (such as sports, education, and behavioural programmes) that are meaningful and provide prisoners not only with ‘something to do’, but also with an opportunity for personal improvement. Furthermore, acknowledging the protective role of social support, it appears reasonable to suggest that meaningful social interaction and social connectedness in prison should be fostered and mobilised. Encouraging access to specially trained “buddies” or “listeners” through peer-based support schemes (Bagnall *et al.*, 2015; Griffiths & Bailey, 2015; Scowcroft *et al.*, 2019; Snow & Biggar, 2006) and enabling frontline staff to have regular contacts with prisoners (Ludlow *et al.*, 2015) might be beneficial to integrate social support in suicide prevention strategies. To help facilitate family contact, increasing the frequency of social visits should be considered, and it might be worth exploring ways to overcome logistical prison challenges, for example by means of video conferencing.

The prevention of suicidal ideation will require a comprehensive strategy comprising multilevel interventions, rather than singular strategies that aim to tackle one specific importation or deprivation risk factors (Dear, 2006). Overall, prevention efforts that target both high-risk individuals and aspects of the prison environment should be embedded within a multi-agency approach across mental health, social care, and criminal justice—in which suicide is everyone’s concern.

CONCLUSION

This study is one of the few to examine a broad range of risk factors for suicidal thoughts in prison. The current data extend prior research findings by highlighting the importance of both vulnerability factors and prison-specific stressors in explaining suicidal ideation while incarcerated, and support a combined importation-deprivation model of suicide risk. Accordingly, prevention efforts should target both high-risk individuals and modifiable aspects of the prison environment. In addition to providing appropriate mental health care, the current findings demonstrate the need to consider population-based strategies which address environmental risk factors, and emphasise the importance for prevention interventions to include a focus upon protective factors that may offer resilience against suicidal ideation in this high-risk population. Together, a whole-of-institution approach is required to create a humane environment that promotes the safety and wellbeing of all people who are incarcerated. This would include ensuring purposeful activity, adequate time out of cells, and psychosocial support for those experiencing mental distress, including peer-based programmes.

Key points

- Suicidal ideation is common in prisoners and represents an important target for suicide prevention.
- Few studies have examined custody-specific influences related to suicidal ideation while in prison.
- A broad range of both importation and deprivation variables were investigated in relation to recent suicidal ideation while incarcerated among a random sample of 1326 prisoners in Belgium.
- A quarter of prisoners reported having experienced suicidal ideation during their incarceration, with a higher prevalence found among women (37%) compared with men (24%).
- Markers of psychiatric morbidity and violent offending were clear risk factors for suicidal thoughts.
- Prison-related factors were independently associated with suicidal ideation, including employment, social support, and perceptions of autonomy and safety. A first-ever period of imprisonment and a shorter length of incarceration (up to one year) increased the odds of suicidal thoughts in prison.
- Findings underline the importance of both individual-level vulnerability factors and prison-specific stressors for suicidal ideation, and hence the need for a multilevel approach to suicide prevention.



CHAPTER 4

Review of risk factors for suicide attempt

Although extant research has identified a wide range of risk factors for suicide attempt (SA) in prisoners, this evidence is inconclusive and has not been quantitatively synthesised to date. This systematic review and meta-analysis sought to provide a state-of-the-art summary of what is currently known about risk of SA in prisons. Online bibliographic databases (Web of Science, PubMed, Embase, and PsycINFO) were searched for observational studies, published up to January 31, 2021, reporting on risk factors for SA in prisoners. Unpublished data were also collected through correspondence with authors. Primary studies involving adults sampled from general prison populations who attempted suicide inside prison, equally reporting on an appropriate comparison group of prisoners without SA in prisons, were included in this PRISMA-compliant meta-analysis. A total of 17 unique studies comprising 12,515 prisoners (4% women) across 19 high-income countries were included for quantitative synthesis. A random-effects model was used to calculate pooled odds ratios for each variable examined in at least three unique study samples. Across all 36 risk factors identified, the strongest associations with SA in prisons were found for suicide-related antecedents and markers of psychiatric morbidity. Prison-specific risk factors included solitary confinement, victimisation, and poor social support. Overall, strong effects were found for clinical and custodial factors, but smaller ones for sociodemographic, criminological, and historical variables. Meta-regression analyses showed that most risk estimates were not moderated by sample characteristics or methodological differences. No evidence for publication bias was found. Beyond providing a statistical summary of the scientific evidence published in the past 50 years, this systematic review also highlights several important limitations of the extant literature, which provide clear directions for future research.

Portions of this chapter are based on Favril, L., Yu, R., Hawton, K., & Fazel, S. (2020). Risk factors for self-harm in prison: a systematic review and meta-analysis. [*Lancet Psychiatry*](#), 7(8), 682-691. Louis Favril conceived and designed the study, extracted and analysed the data, interpreted the results, drafted and revised the article. This chapter represents a thorough update of the previously published paper.

INTRODUCTION

One recognised approach to preventing suicide involves improving the identification and treatment of individuals at high risk, such as those who attempted suicide. Around 9–13% of prisoners report having made a suicide attempt (SA) while incarcerated (Dudeck *et al.*, 2011; Encrenaz *et al.*, 2014; Ford *et al.*, 2020; Sánchez *et al.*, 2020), with a lifetime prevalence at 20% (Jenkins *et al.*, 2005; Larney *et al.*, 2012). According to a recent meta-analysis (Zhong *et al.*, 2021), about half of all prisoners who die by suicide have a documented history of a SA, which increases the odds of suicide in prison by factor 4 to 15. This finding is not unique to prisoners but clearly extends to non-incarcerated people as well—a compelling body of evidence points out that a previous SA is among the strongest risk factors for future attempts and death by suicide (Beghi *et al.*, 2013; Borges *et al.*, 2006; Bostwick *et al.*, 2016; Franklin *et al.*, 2017; Garcia de la Garza *et al.*, 2021; Harris & Barraclough, 1997; Olfson *et al.*, 2017; Yoshimasu *et al.*, 2008).⁸

In addition to being a clear predictor of subsequent suicide, a SA presents an important health concern in its own right—indicative of profound distress and associated with protracted psychosocial impairment (Goldman-Mellor *et al.*, 2014). Understanding and modifying risk factors for SA therefore remains a promising approach to improve screening and prevention efforts in this high-risk population. As summarised in two systematic reviews (Lohner & Konrad, 2007; Marzano *et al.*, 2016), research has outlined a wide range of clinical, psychosocial, and environmental factors that heighten the risks of SA in prisons, although findings are inconsistent across primary studies (see TABLE 19). These reviews are, however, limited by being narrative syntheses of the extant literature, which lack quantitative methods to evaluate the strength and consistency of the available evidence. Meta-analysis can overcome these limitations by reconciling contradictory findings, accounting for methodological variations across the literature, and ascertain overall magnitudes of risk factors under investigation (Gurevitch *et al.*, 2018). One meta-analysis has examined the association between childhood maltreatment and SA in offenders (Angelakis *et al.*, 2020), but this included juvenile offenders, non-prisoners, and outcomes of SA in the community. To the best of my knowledge, not a single study has used meta-analysis to investigate the best evidence concerning risk factors for SA inside prison. The current study sought to address this gap by taking stock of the existing literature and meta-analytically pooling findings to estimate the strength and consistency of any increased risk of SA. Findings could identify appropriate targets for intervention and future treatment trials, and might assist decision-makers in allocating scarce prison resources.

⁸ Although risk of suicide is especially pronounced within the first year following an attempt (Carroll *et al.*, 2014; Liu *et al.*, 2020a), long-term follow-up studies stretching from 10 up to 37 years indicate that suicide risk among attempters persists for many years after the index episode (Bjornaas *et al.*, 2009; De Moore & Robertson, 1996; Gibb *et al.*, 2005; Jenkins *et al.*, 2002; Kuo & Gallo, 2005; Owens *et al.*, 2005; Probert-Lindström *et al.*, 2020; Suokas *et al.*, 2001; Suominen *et al.*, 2004; Tejedor *et al.*, 1999; Tidemalm *et al.*, 2008), suggesting a vulnerability to suicide that tends to endure over time.

Table 19. Overview of previous systematic reviews on risk factors for suicide attempt in prison.

| | Lohner and Konrad (2007) | Marzano <i>et al.</i> (2016) |
|-------------------------------|--|---|
| Methodology | Three databases were searched for studies on risk factors for self-injurious behaviour (SA and self-harm) among, for the most part, male prisoners, published between 1962 and 2005. The authors identified 51 eligible studies. Results were summarised narratively; no quantitative synthesis was perused. | Two bibliographic indexes were searched for studies on near-lethal SA in prisoners over the period 2000–2014. Information on risk factors was extracted descriptively; data were not meta-analysed. Eight eligible studies (reported in 13 articles) were identified, with sample sizes ranging from 74 to 274 prisoners. |
| Sociodemographic risk factors | No clear associations between sociodemographic risk factors and SA were identified; these risk factors all mirror the prison population as a whole, and would only—if at all—have predictive value in combination with other factors. | Where sociodemographic factors were reported, the majority of prisoners involved in near-lethal SA were similar to the wider prison population. Aside from poorer educational qualifications, sociodemographic factors were not clearly associated with SA. |
| Criminological risk factors | Being on remand, violent offending, and a prior incarceration were possible factors, although conflicting evidence was found. | There were inconsistencies in the literature regarding the role of a prisoner’s prior conviction or specific index offences. |
| Clinical risk factors | Mental disorders and psychiatric treatment were clear risk factors for SA in prison, as was a history of self-harm or SA. Abuse of alcohol or other psychotropic substances showed highly inconsistent associations with SA in prison. | Mental health problems, both current and historical, were identified as factors associated with near-lethal SA in all studies included. A history of prior self-harm and psychiatric hospital treatment were more common in prisoners making a SA. |
| Custodial risk factors | Disciplinary infractions, solitary confinement, and bullying were univocally associated with increased risk of SA in prisoners. The early phase of custody seems to be a period of increased risk, although results were inconsistent across studies, and type of custody appears to be of interest. | Findings about prisoners’ current experiences of incarceration were fairly consistent. Typically, these appeared to be more negative than those of control prisoners. Those making a near-lethal SA were also found to have spent less time in prison than control prisoners, and have lower levels of social support. |
| Historical risk factors | Abuse histories (both physical and sexual) and adverse life events were more common in prisoners engaging in SA. | Historical factors related to adverse life events, including childhood trauma and a family history of suicide. |
| Conclusion | Findings on potential risk factors for self-injurious behaviour are largely contradictory because of the differences in sample selection and definitional issues. | Factors associated with prisoners’ near-lethal SA include a range of potentially modifiable clinical, psychosocial, and environmental factors. |

METHODS

Search strategy

This systematic review and meta-analysis was done following the PRISMA guidelines (Page *et al.*, 2021). Four electronic databases (Web of Science, PubMed, Embase, and PsycINFO) were searched to identify primary studies published from inception to October 31, 2019. Title, abstract, and keyword searches were conducted using terms that were inclusive of *suicide* (self-harm* OR suicid* OR attempt* OR NSSI OR self-injur* OR self-mutilat* OR self-destruct* OR poison* OR overdose) AND *prison* (inmate* OR penal OR correction* OR sentence* OR remand OR detainee* OR felon* OR incarcerat* OR prison*). No language restrictions were set. The initial search was updated to include new studies published up to January 31, 2021. One additional eligible article was identified in the update (Ford *et al.*, 2020) and another one reported on a sample that was already included in the initial search (Sánchez *et al.*, 2020).

Electronic database searches were supplemented by hand-searching citations and reference lists of relevant studies and previous systematic reviews (Angelakis *et al.*, 2020; Lohner & Konrad, 2007; Marzano *et al.*, 2016). Targeted searches were conducted to further identify additional studies by first author names, and experts in the field were contacted for any unpublished or on-going studies.

Study eligibility

Publications were included if they met six eligibility criteria, which required that the study (1) had an observational (cross-sectional, case-control or cohort) study design, (2) collected data in general prison populations (remand and/or sentenced prisoners), (3) included predominantly (> 90%) adult prisoners, (4) the outcome was *suicide attempt in prison*, (5) data was provided on an appropriate comparison or control group of prisoners who did not attempt suicide while in prison, and (6) established at least one effect size for the association between a risk factor and outcome. I excluded studies (1) which provided no original data (such as reviews and editorials), (2) with qualitative or ecological designs, (3) reporting on *lifetime* measures of SA or outcomes other than SA (e.g., suicide, suicidal ideation, self-harm, NSSI), (4) targeting specific (sub)groups of prisoners based on predetermined sample characteristics (e.g., sex offenders, those in contact with mental health services, or other high-risk groups), and (5) without an appropriate comparison group (e.g., hospitalised prisoners or those who died by suicide) or not based on a general prison population. I further contacted authors of potentially eligible studies that did not report data necessary for meta-analysis. These studies included those that only reported on prevalence estimates (Dudeck *et al.*, 2011), analysed a lifetime history as outcome measure (Larney *et al.*, 2012), or adopted a cluster analytical approach (Bani *et al.*, 2019). These three studies, with a pooled sample of 3457 prisoners, were retained after the required unpublished data were obtained from the authors.

Data extraction

A standardised form was used to extract data, including information on study characteristics (year of publication, country, design, and sample size). When reported methodological details were unclear or ambiguous, corresponding authors were contacted for clarification. When multiple publications from the same study population were available, information on risk factors was extracted from the most comprehensive article. Data from overlapping publications were only extracted when a new risk factor was reported.

As the reporting of effect sizes varied between studies, data were converted into a common metric for the purposes of pooling and to enable comparisons across risk factors. Because all studies reported a dichotomous outcome, odds ratios (ORs) were selected as the preferred effect size across all analyses—that is, the odds that an outcome (SA) would occur given a particular exposure (risk factor) compared with the odds of the outcome occurring in the absence of that exposure. ORs and their 95% confidence intervals (CI) were extracted when reported or calculated from available data in the paper using standard formulae (Fazel *et al.*, 2018; Witt *et al.*, 2013). Data were extracted from the least adjusted model in order to obtain a consistent measure across studies. When an OR was < 1 , this was converted to $1/\text{OR}$ in order to place all effects in a common frame for ease of interpretation.

Categorisation of risk factors and outcomes

Risk factors and outcomes were qualitatively analysed after the search. Five distinct categories of risk factors were identified: sociodemographic, criminological, custodial, clinical, and historical life events. For outcomes, four studies reported in seven articles (Marzano *et al.*, 2010, 2011b; Rivlin *et al.*, 2010, 2013b; Sánchez *et al.*, 2018, 2019, 2020) examined *near-lethal* SA, defined as acts that could have been lethal had it not been for intervention or chance, and/or involved methods that are associated with a reasonably high chance of death (Rivlin *et al.*, 2012a). This outcome was included since other studies did not differentiate according to severity or lethality of SA, and could thus also include near-lethal SA. Sensitivity and meta-regression analyses were conducted to examine potential effects by SA outcome.

Quality assessment

The *Newcastle-Ottawa Scale* (NOS) was used to evaluate the risk of bias and quality of all studies (Wells *et al.*, 2014). The NOS assesses quality in terms of selection of study groups (representativeness and sample size), comparability between groups, and ascertainment of exposure or outcome. A summary score (sum of items divided by total possible sum) ranging from 0 to 100 was calculated and each study was then categorised as low (≤ 49), moderate (50–74), or high (≥ 75) quality.

Statistical analyses

In order to obtain a reliable estimate of pooled effect sizes, analyses were conducted only for the risk factors examined in at least three distinct samples (Witt *et al.*, 2013). Where possible, risk factors were examined separately for men and women. Meta-analysis was conducted in STATA-IC (version 13) using the *metan* command. This generated pooled odds ratios (ORs) and 95% confidence intervals (CIs) for each risk factor. In line with previous meta-analyses (Fazel *et al.*, 2018; Witt *et al.*, 2013), the following qualitative descriptions were used to categorise the strength of effect sizes: weak (OR range 1.0–1.5), moderate (1.6–2.5), strong (2.6–9.9), and very strong (≥ 10.0).

For all analyses, random-effects models were generated in preference to fixed-effects models, to account for the high expected heterogeneity across studies resulting from differences in samples, measures, and design. Random-effects models are more appropriate than fixed-effects models in cases where there is high heterogeneity, in that they account for heterogeneity by including both sampling and study-level errors, with a pooled effect size representing the mean of a distribution of true effect sizes instead of a single true effect size. In contrast, fixed-effects models approximate only within-study variance, as it assumes that a single true effect size exists across all studies and any variance detected is due strictly to sampling error. Between-study heterogeneity is conventionally estimated using the I^2 statistic, which quantifies the percentage of variance across studies attributable to true variation in effect sizes rather than sampling error. Following Cochrane guidelines (Higgins *et al.*, 2019), I^2 values were considered to indicate low (0–40%), moderate (30–60%), substantial (50–90%), and considerable (75–100%) heterogeneity. Considerable heterogeneity ($I^2 \geq 75\%$) indicates differences in study samples and methodology, suggesting that the observed between-study heterogeneity is more than would be expected with random error.

The extent to which methodological variations across studies affected the association between risk factors and SA was examined by applying meta-regression models (using the *metareg* command), which explores whether a relationship exists between effect sizes and a between-study characteristic. Specifically, univariate meta-regression analyses were conducted to explore four possible sources of between-study heterogeneity for all risk factors: sample size ($n < \text{median} = 0$, $n \geq \text{median} = 1$), outcome definition (SA = 0, near-lethal SA = 1), the inclusion of female prisoners in the sample (no = 0, yes = 1), and study design (case-control and cohort = 0, cross-sectional = 1). Because all cross-sectional studies used self-report measures, the latter analysis is also applicable to examine the effect of SA assessment on risk estimates (incident and record-based = 0, self-report = 1).

The presence of publication bias was examined by visual inspection of funnel plots (Duval & Tweedie, 2000) and by applying Egger's (1997) test for variables examined in at least nine independent studies (Angelakis *et al.*, 2020; Saveleva & Selinski, 2008).

RESULTS

Study characteristics

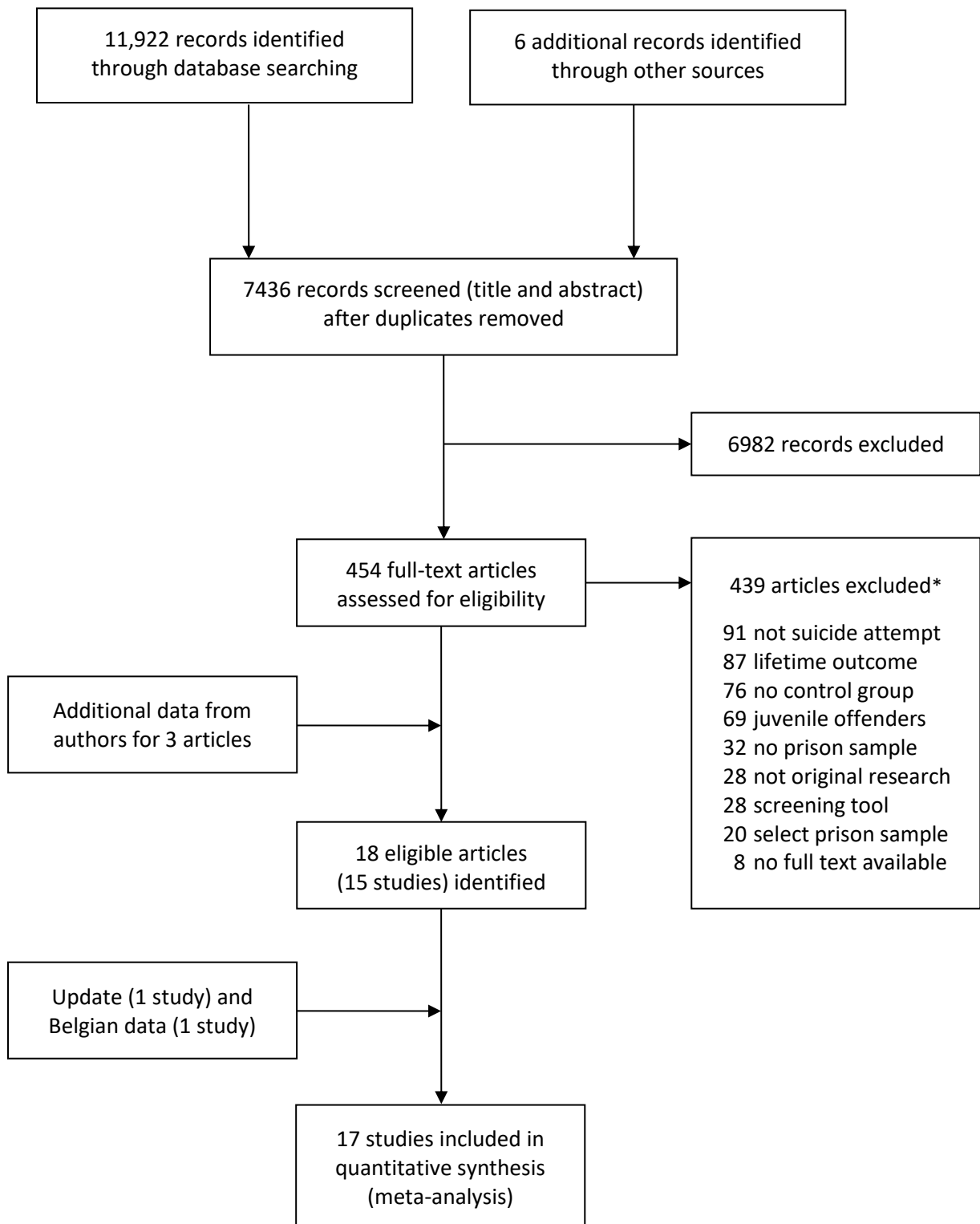
The systematic literature search yielded 7436 unique records to be screened on the basis of their titles and abstracts, of which 454 (6%) full-text reports were examined for eligibility. 15 studies reported in 18 articles met the inclusion criteria. One study from the update and data of the current dissertation⁹ were additionally included, giving a total of 17 studies that were included for meta-analysis (FIGURE 10), comprising 12,515 prisoners (516 [4.1%] women), of whom 2528 (20.2%) attempted suicide in prison.

Key characteristics of the included studies are detailed in TABLE 20. Studies (published between 1972 and 2020) were conducted across 19 high-income countries (one international study covered 11 European countries). The countries were Australia, Belgium ($k = 2$), Canada, Croatia, Denmark, England ($k = 4$), Finland, France ($k = 3$), Germany, Greece, Italy, Lithuania, Netherlands, Poland, Spain ($k = 3$), Sweden, Switzerland, United States, and Wales ($k = 3$). Median sample size of the 17 studies was 468 (IQR 138–1191, range 60–2270). Eleven (65%) studies included only men and one single study included only women. The other five (29%) studies included both male and female prisoners (mean proportion of women = 13%, range 3–20%) although none provided analyses stratified by sex. Most studies had a case-control ($k = 8$) or a cross-sectional ($k = 8$) design; there was only one cohort study. Outcomes were assessed by retrospective self-report in eight studies. Only one prospective study was identified, which had a case-control design (Lekka *et al.*, 2006). The remaining case-control studies either retrospectively examined official records (mostly medical files) of prisoners who attempted suicide ($k = 4$) or identified cases following an incident of SA who were interviewed within a month following the attempt ($k = 3$).

Quality assessment

Each primary study was evaluated using the NOS quality assessment criteria. Of nine possible points, the median score for cohort and case-control studies was 6 (IQR 5–8). Risk of bias (less than 7 points) was found in two-thirds (62.5%) of case-control studies, with main limitations including case definition without independent validation and ascertainment of exposure. Of eight possible points, the median score for cross-sectional studies was 6 (IQR 5–6). None of the cross-sectional studies met full criteria (range 3–6). Overall, most studies (regardless of design) were judged to be of moderate (47%) and high (41%) quality, with two studies (12%) categorised as being of low methodological quality (TABLE 20).

⁹ The sample consisted of 1326 adults (1203 men) incarcerated across 15 Flemish prisons, representing 13.5% of the national prison population in Belgium (excluding ODCI) at the time of recruitment. The outcome measure for the current analysis was *suicide attempt in prison*, which was self-reported by 9.5% of participants (9.1% of men and 13.8% of women). Full methodological details and limitations are outlined in CHAPTER 3. Results from bivariate analyses are provided in APPENDICES D to F for the overall sample as well as those stratified by sex.

Figure 10. PRISMA flowchart of study selection.

* Articles can be excluded for multiple reasons; numbers listed are based on the major reasons for exclusion.

Table 20. Key characteristics of the 17 studies included in this meta-analytical review.

| Study | Country | Study design | Mean age, years | Sample size (<i>n</i> women) | SA cases | Assessment | Quality ^a |
|---|---------------------------|-----------------|--|----------------------------------|----------|--------------------------|----------------------|
| Bani <i>et al.</i> (2019) | Italy | Cohort | 37.8 (range 18–64) | 1406 (0) | 28 | Incident | Moderate |
| Beigel and Russell (1972) | United States | Case-control | 22.6 (<i>ca</i>), 28.6 (<i>co</i>) | 60 (4) | 30 | Records | Low |
| Dudeck <i>et al.</i> (2011) | 11 countries ^b | Cross-sectional | 39.9 | 1055 (0) | 170 | Self-report | Low |
| Encrenaz <i>et al.</i> (2014) | France | Cross-sectional | 36 (range 18–75) | 365 (0) | 37 | Self-report | High |
| Ford <i>et al.</i> (2020) | Wales | Cross-sectional | 33.2 (range 18–69) | 468 (0) | 50 | Self-report | Moderate |
| Godet-Mardirossian <i>et al.</i> (2011) | France | Cross-sectional | 37 (range 19–84) | 899 (0) | 43 | Self-report | High |
| Kerkhof and Bernasco (1990) | Netherlands | Case-control | 26.9 (<i>ca</i>), 29.5 (<i>co</i>) | 408 (14) | 198 | Records | Moderate |
| Larney <i>et al.</i> (2012) | Australia | Cross-sectional | 35.5 (range 19–84) | 996 (199) | 58 | Self-report | High |
| Lekka <i>et al.</i> (2006) | Greece | Case-control | 33.9 (<i>ca</i>), 33.7 (<i>co</i>) | 134 (0) | 5 | Incident | High |
| Liebling and Krarup (1993) | England | Case-control | Range 16–54 | 142 (0) | 62 | Incident | Moderate |
| Marzano <i>et al.</i> (2010, 2011b) | England, Wales | Case-control | 25.5 (<i>ca</i>), 26.0 (<i>co</i>) | 120 (120) | 60 | Incident ^c | High |
| Rivlin <i>et al.</i> (2010, 2013b) | England, Wales | Case-control | 27 (range 18–57) | 120 (0) | 60 | Incident ^c | High |
| Sánchez <i>et al.</i> (2018) | Spain | Cross-sectional | 36.8 (<i>ca</i>), 36.7 (<i>co</i>) | 2270 (0) | 616 | Self-report ^c | Moderate |
| Sánchez <i>et al.</i> (2019, 2020) | Spain | Cross-sectional | 37.2 (range 19–83) | 943 (0) | 82 | Self-report ^c | Moderate |
| Schaller <i>et al.</i> (1996) | Switzerland | Case-control | NR | 341 (56) | 172 | Records | Moderate |
| Wichmann <i>et al.</i> (2000) | Canada | Case-control | 26.0 (<i>ca</i>), 29.9 (<i>co</i>) | 1462 (0) | 731 | Records | Moderate |
| Current dissertation | Belgium | Cross-sectional | 37.7 (range 18–77) | 1326 (123) | 126 | Self-report | High |

Note. NR, not reported; *ca*, cases; *co*, controls. ^a Study quality assessed by the *Newcastle-Ottawa Scale*. ^b Belgium, Croatia, Denmark, Finland, France, Germany, Lithuania, Poland, Spain, Sweden, and England. ^c Near-lethal suicide attempt.

Meta-analysis: pooled risk estimates across 17 studies

A summary of the 36 variables (categorised by risk factor domain) that were identified in at least three independent study samples is presented in TABLES 21 to 26, ranked in order of effect sizes. There were large variations in the sample sizes contributing to risk estimates, ranging from 382 to 10,917 prisoners, with only three risk factors that were calculated based on a pooled sample of less than 1000 prisoners.

Demographic factors showed overall weak associations with SA, with ORs ranging from 1.32 to 1.58 (TABLE 21). Unemployment before prison, white ethnicity, low educational attainment, and single marital status were risk factors. Female sex was not significantly associated with SA inside prison.

Criminological factors, including violent offending (OR = 1.59; FIGURE 11) and having a previous incarceration (OR = 1.65), were moderately associated with SA (TABLE 22). Regarding sentence length, serving a life sentence (*vs.* a determinate sentence) and a sentence of five years and over (*vs.* less than five years) were both associated with a 2.3-fold increased odds of SA while incarcerated.

Clinical factors (TABLE 23) and suicidal antecedents (TABLE 24) showed the strongest associations with SA in prison. Suicidal ideation was the strongest risk factor across all domains, increasing the odds of SA by factor 26. Having attempted suicide previously (OR = 5.78) and NSSI engagement (OR = 6.09) were both strongly related to SA (FIGURE 12). Combining SA and NSSI history into a composite measure (a history of self-harm) showed a strong association with SA (OR = 5.67). Clinically, similar strong effects were found for mental disorders (OR = 5.34) and psychological distress (OR = 5.65). Treatment-related factors were also strongly associated with SA in prison—including current prescription of psychotropic medication (OR = 4.73) and receiving psychiatric treatment, both before imprisonment (OR = 4.63) and in prisons (OR = 8.03). Other risk factors for SA within this domain were impulsivity (OR = 3.42), physical health problems (OR = 2.19), and drug abuse (OR = 1.95; FIGURE 13), but not alcohol abuse.

Several custodial factors were significantly associated with SA (OR range 1.82–5.00; TABLE 25). Strong associations were found for residing in solitary confinement (OR = 5.00), victimisation of abuse while in prison (OR = 3.59), and poor social support (OR = 2.94). Being threatened with violence (OR = 2.21), disciplinary infractions (OR = 2.02), not working in prison (OR = 1.86), and a lack of social contacts or visits (OR = 1.82) were all moderately associated with SA in prison, with ORs clustered around 2.

All historical life events investigated were significant risk factors for SA, with ORs between 1.87 and 3.57 (TABLE 26). Childhood sexual (OR = 3.57), physical (OR = 3.02) and emotional (OR = 3.00) abuse had strong associations with SA (FIGURE 14). Any childhood abuse was moderately associated with SA in prison (OR = 2.18), whereas a family history of suicide showed a strong association (OR = 3.04).

Sensitivity analyses show that risk factor estimates did not materially change when low-quality studies were excluded. Because only one study provided data for women, it was not possible (although initially intended) to investigate SA risk factors for male and female prisoners separately.

Table 21. Sociodemographic risk factors for suicide attempt in prison.

| | <i>k</i> | <i>N</i> | <i>n</i> | OR (95% CI) | <i>z</i> | <i>p</i> | <i>I</i> ² |
|--------------------------------|----------|----------|----------|------------------|----------|----------|-----------------------|
| Unemployed before prison | 7 | 4300 | 1211 | 1.58 (1.23–2.03) | 3.60 | < 0.0001 | 36.7 |
| White ethnicity/Caucasian | 6 | 2372 | 993 | 1.43 (0.81–2.53) | 1.22 | 0.221 | 60.3* |
| Low educational attainment | 7 | 5185 | 948 | 1.35 (1.07–1.71) | 2.57 | 0.010 | 26.0 |
| Single marital status | 14 | 10,917 | 2415 | 1.32 (1.12–1.55) | 3.35 | 0.001 | 38.7 |
| Having children | 6 | 3208 | 417 | 1.25 (0.83–1.87) | 1.07 | 0.285 | 57.5* |
| Nationality (country of study) | 6 | 6694 | 1222 | 1.20 (0.58–2.49) | 0.48 | 0.631 | 92.1* |
| Female sex | 5 | 3131 | 584 | 1.15 (0.83–1.59) | 0.83 | 0.407 | 0.0 |
| Age (< 25 years) | 5 | 2642 | 447 | 1.10 (0.45–2.68) | 0.22 | 0.829 | 88.5* |

Note. *k*, number of studies analysed; *N*, total number of prisoners in pooled analyses; *n*, number of prisoners with SA in prison; OR, pooled odds ratio; *I*², heterogeneity (%). * *p* < 0.05.

Table 22. Criminological risk factors for suicide attempt in prison.

| | <i>k</i> | <i>N</i> | <i>n</i> | OR (95% CI) | <i>z</i> | <i>p</i> | <i>I</i> ² |
|---------------------|----------|----------|----------|------------------|----------|----------|-----------------------|
| Sentence length | | | | | | | |
| > 1 year | 7 | 6549 | 1131 | 1.41 (0.72–2.77) | 1.01 | 0.314 | 81.9* |
| > 4 years | 3 | 2510 | 736 | 1.24 (0.82–1.86) | 1.01 | 0.311 | 36.4 |
| > 5 years | 4 | 5093 | 928 | 2.35 (1.91–2.88) | 8.11 | < 0.0001 | 0.0 |
| Life sentence | 4 | 3028 | 977 | 2.32 (1.23–4.38) | 2.59 | 0.010 | 68.5* |
| Prior incarceration | 9 | 6935 | 1249 | 1.65 (1.14–2.38) | 2.66 | 0.008 | 80.0* |
| Violent offence | 12 | 10,106 | 2243 | 1.59 (1.22–2.07) | 3.47 | 0.001 | 69.9* |
| Sentenced status | 10 | 8587 | 1172 | 1.14 (0.76–1.72) | 0.62 | 0.534 | 77.9* |

Note. *k*, number of studies analysed; *N*, total number of prisoners in pooled analyses; *n*, number of prisoners with SA in prison; OR, pooled odds ratio; *I*², heterogeneity (%). * *p* < 0.05.

Table 23. Clinical risk factors for suicide attempt in prison.

| | <i>k</i> | <i>N</i> | <i>n</i> | OR (95% CI) | <i>z</i> | <i>p</i> | <i>I</i> ² |
|---------------------------------|----------|----------|----------|-------------------|----------|----------|-----------------------|
| Psychiatric treatment | | | | | | | |
| In prison | 4 | 2652 | 798 | 8.03 (3.20–20.18) | 4.43 | < 0.0001 | 82.5* |
| Before prison | 7 | 4507 | 1269 | 4.63 (2.81–7.63) | 6.03 | < 0.0001 | 66.2* |
| Severe psychological distress | 7 | 5388 | 539 | 5.65 (2.79–11.46) | 4.80 | < 0.0001 | 90.9* |
| Mental disorder diagnosis | 4 | 2034 | 296 | 5.34 (3.67–7.79) | 8.72 | < 0.0001 | 22.3 |
| Current psychotropic medication | 6 | 3112 | 564 | 4.73 (3.05–7.33) | 6.94 | < 0.0001 | 68.4* |
| High impulsivity | 4 | 2011 | 185 | 3.42 (1.96–5.96) | 4.33 | < 0.0001 | 57.3 |
| Physical health problems | 6 | 4212 | 1003 | 2.19 (1.53–3.13) | 4.29 | < 0.0001 | 42.7 |
| Drug abuse/dependence | 8 | 4816 | 603 | 1.95 (1.31–2.90) | 3.29 | 0.001 | 66.1* |
| Alcohol abuse/dependence | 6 | 3072 | 464 | 1.03 (0.69–1.54) | 0.14 | 0.889 | 50.3 |

Note. *k*, number of studies analysed; *N*, total number of prisoners in pooled analyses; *n*, number of prisoners with SA in prison; OR, pooled odds ratio; *I*², heterogeneity (%). * *p* < 0.05.

Table 24. History of suicidal ideation and self-harm (suicide attempt and non-suicidal self-injury) as risk factors for suicide attempt in prison.

| | <i>k</i> | <i>N</i> | <i>n</i> | OR (95% CI) | <i>z</i> | <i>p</i> | <i>I</i> ² |
|--------------------------|----------|----------|----------|---------------------|----------|----------|-----------------------|
| Suicidal ideation | 5 | 3497 | 294 | 26.18 (13.92–49.24) | 10.13 | < 0.0001 | 43.9 |
| Non-suicidal self-injury | 5 | 3639 | 476 | 6.09 (4.89–7.59) | 16.09 | < 0.0001 | 0.0 |
| Suicide attempt | 7 | 4302 | 1243 | 5.78 (2.60–12.82) | 4.31 | < 0.0001 | 85.7* |

Note. *k*, number of studies analysed; *N*, total number of prisoners in pooled analyses; *n*, number of prisoners with SA in prison; OR, pooled odds ratio; *I*², heterogeneity (%). * *p* < 0.05.

Table 25. Custodial risk factors for suicide attempt in prison.

| | <i>k</i> | <i>N</i> | <i>n</i> | OR (95% CI) | <i>z</i> | <i>p</i> | <i>I</i> ² |
|-------------------------------|----------|----------|----------|-------------------|----------|----------|-----------------------|
| Solitary confinement | 4 | 2652 | 798 | 5.00 (1.76–14.21) | 3.02 | 0.002 | 85.1* |
| Physical/sexual victimisation | 3 | 605 | 157 | 3.59 (1.57–8.21) | 3.03 | 0.002 | 59.4 |
| Poor social support | 3 | 2852 | 214 | 2.94 (1.47–5.90) | 3.04 | 0.002 | 75.4* |
| Threatened with violence | 3 | 2510 | 736 | 2.21 (1.84–2.65) | 8.49 | < 0.0001 | 0.0 |
| Disciplinary infractions | 5 | 3796 | 818 | 2.02 (1.67–2.46) | 7.11 | < 0.0001 | 4.6 |
| Not working in prison | 4 | 4637 | 847 | 1.86 (1.57–2.19) | 7.33 | < 0.0001 | 0.0 |
| No social contact/visits | 6 | 4423 | 863 | 1.82 (1.25–2.65) | 3.14 | 0.002 | 53.2 |
| Single cell accommodation | 3 | 382 | 182 | 1.54 (0.36–6.62) | 0.58 | 0.560 | 87.1* |
| Exposure to self-harm | 4 | 1708 | 308 | 1.32 (0.51–3.41) | 0.57 | 0.570 | 87.5* |

Note. *k*, number of studies analysed; *N*, total number of prisoners in pooled analyses; *n*, number of prisoners with SA in prison; OR, pooled odds ratio; *I*², heterogeneity (%). * *p* < 0.05.

Table 26. Historical risk factors for suicide attempt in prison.

| | <i>k</i> | <i>N</i> | <i>n</i> | OR (95% CI) | <i>z</i> | <i>p</i> | <i>I</i> ² |
|--------------------------|----------|----------|----------|------------------|----------|----------|-----------------------|
| Childhood abuse | | | | | | | |
| Sexual abuse | 5 | 1793 | 314 | 3.57 (2.19–5.82) | 5.11 | < 0.0001 | 46.3 |
| Physical abuse | 4 | 1651 | 252 | 3.02 (1.77–5.17) | 4.04 | < 0.0001 | 62.5* |
| Emotional abuse | 4 | 3453 | 818 | 3.00 (1.85–4.86) | 4.48 | < 0.0001 | 70.7* |
| Any abuse | 4 | 4232 | 801 | 2.18 (1.68–2.83) | 5.91 | < 0.0001 | 32.3 |
| Family history suicide | 3 | 382 | 182 | 3.04 (1.42–6.49) | 2.87 | 0.004 | 0.0 |
| Local authority care | 3 | 1161 | 165 | 2.37 (1.59–3.53) | 4.22 | < 0.0001 | 0.0 |
| Family history self-harm | 4 | 1708 | 308 | 1.87 (1.38–2.54) | 4.01 | < 0.0001 | 0.0 |

Note. *k*, number of studies analysed; *N*, total number of prisoners in pooled analyses; *n*, number of prisoners with SA in prison; OR, pooled odds ratio; *I*², heterogeneity (%). * *p* < 0.05.

Figure 11. Forest plot of violent offending as a risk factor for suicide attempt.

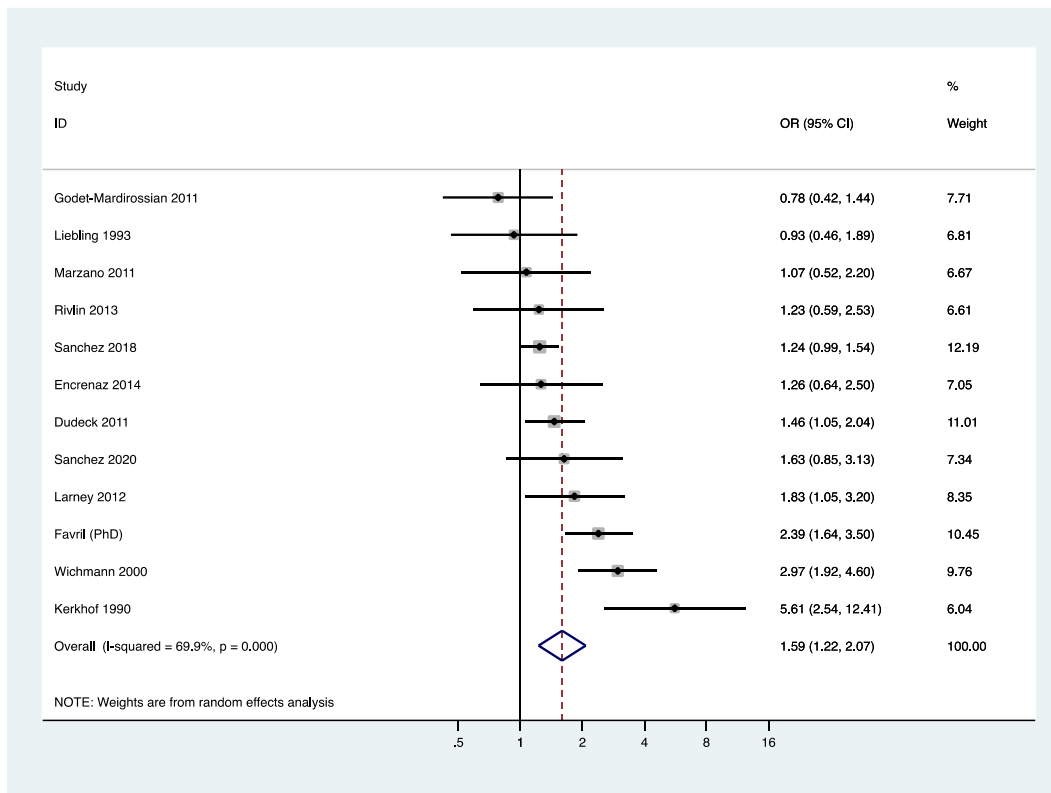


Figure 12. Forest plot of the (overall) association between self-harm history (type) and suicide attempt.

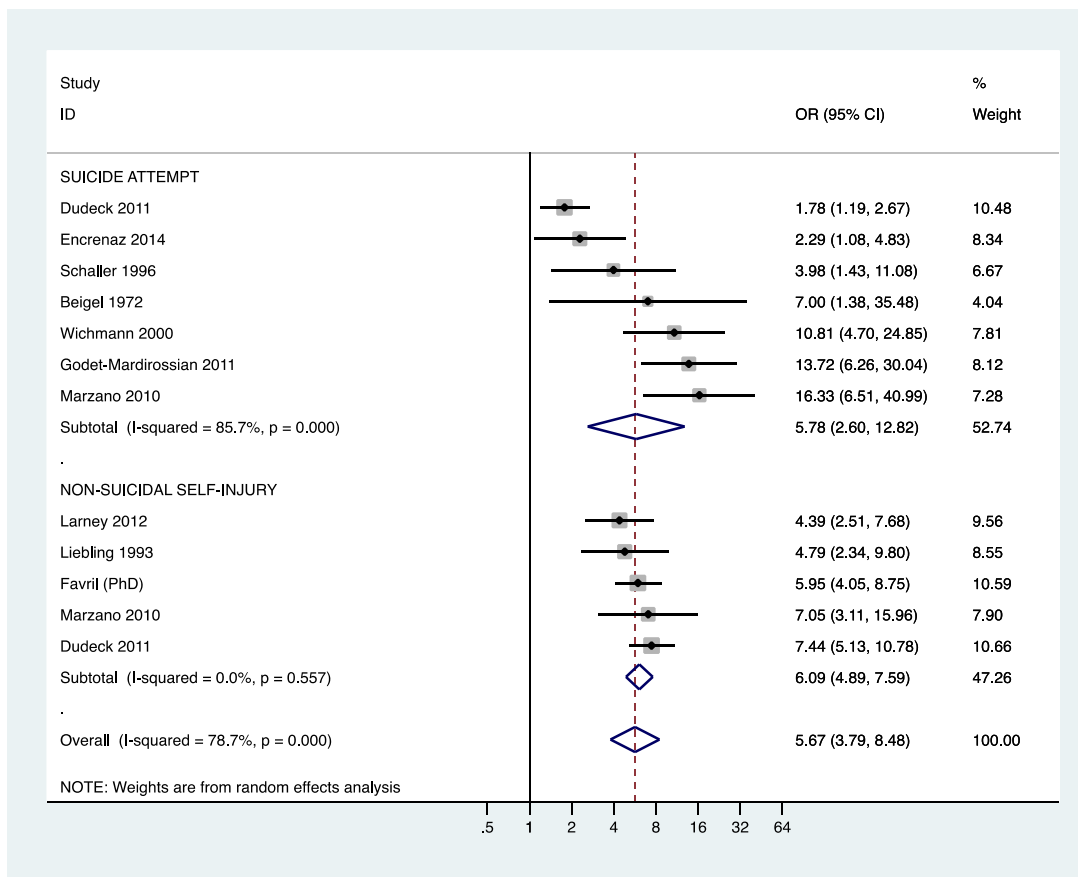


Figure 13. Forest plot of drug abuse as a risk factor for suicide attempt.

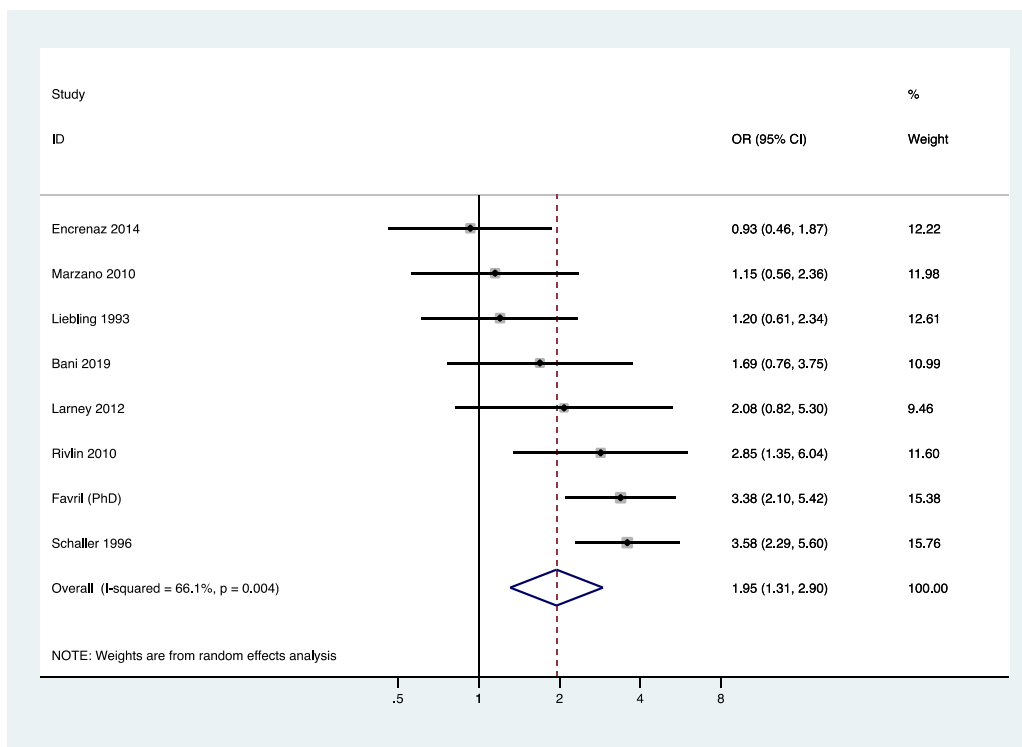
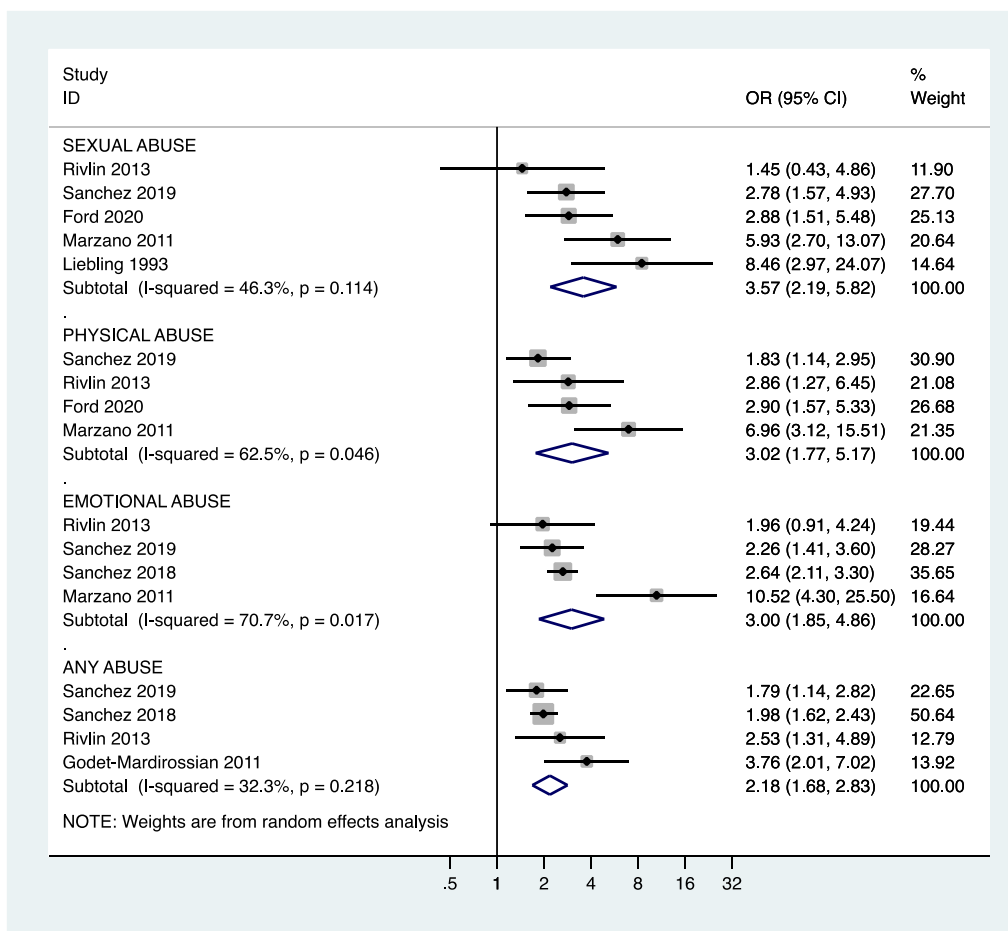


Figure 14. Forest plot of childhood abuse types as risk factors for suicide attempt.



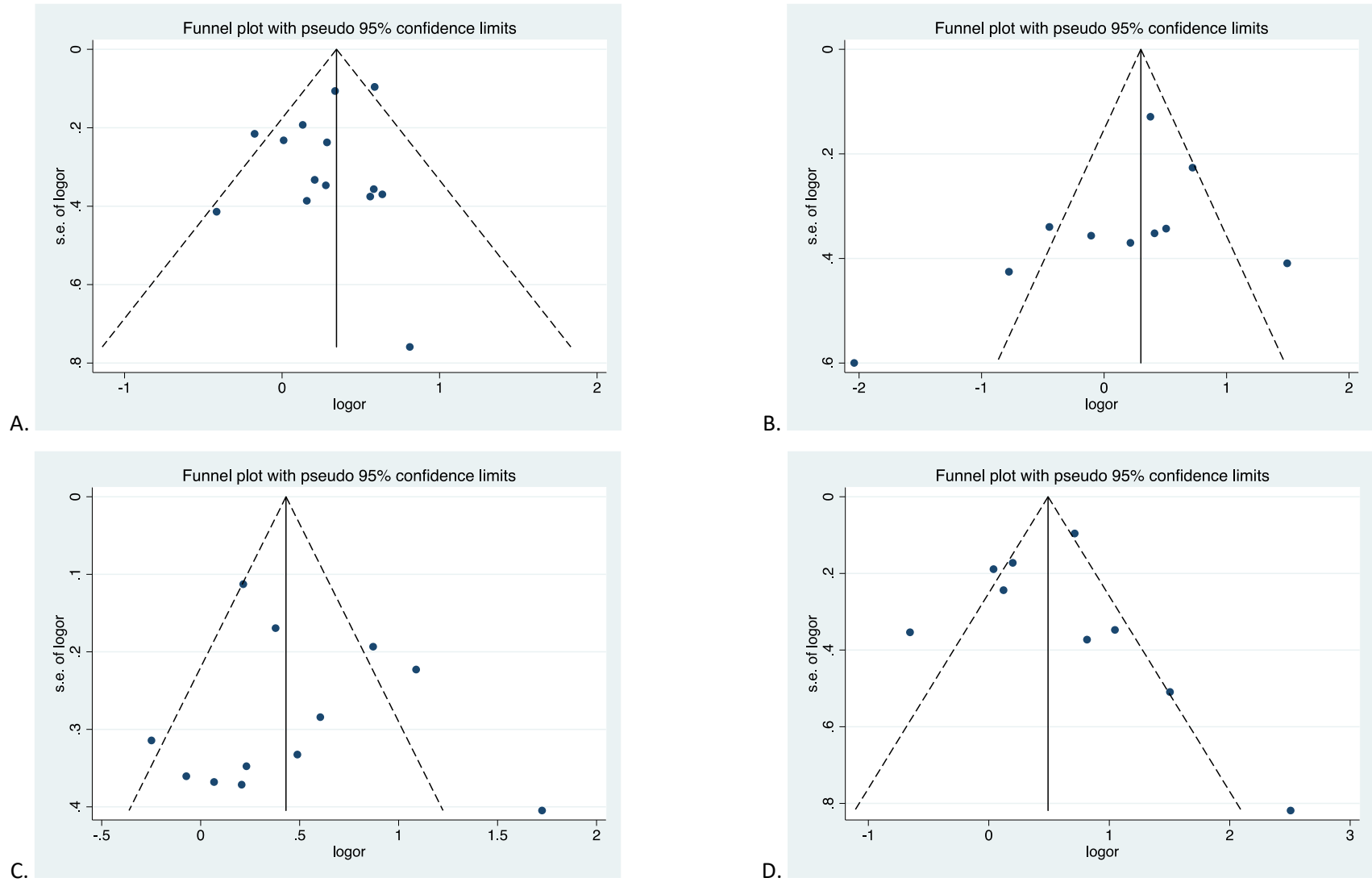
Publication bias

Publication bias was examined for risk factors where the analyses were based on at least nine unique samples. There were four such factors. Inspection of funnel plots (FIGURE 15) showed no clear indication for possible publication bias for the predictor variables under investigation. Furthermore, Egger's test for publication bias was not significant for each of the four variables examined: single status ($p = 0.415$), sentenced status ($p = 0.321$), violent offending ($p = 0.769$), and prior incarceration ($p = 0.927$). Overall, neither visual inspection of asymmetry in funnel plots nor Egger's bias test provided clear evidence of publication bias. Post hoc analyses were additionally conducted for the leading risk factors within each domain (i.e., unemployment, sentenced for 5 years or more, suicidal ideation, psychiatric treatment in prison, solitary confinement, and childhood sexual abuse), which again indicated no clear evidence for publication bias (all $p \geq 0.062$).

Meta-regression analyses

Four methodological characteristics—sample size, outcome definition, the inclusion of women in the sample, and study design—were examined as possible sources of between-study heterogeneity in risk estimates (APPENDIX G). Sample size was significantly associated with heterogeneity in meta-regression for custodial status ($B = 1.09, p = 0.044$) and severe psychological distress ($B = -1.51, p = 0.033$), in that larger studies ($n \geq 468$) found a stronger effect for sentenced status, but a weaker effect for distress, relative to studies with smaller samples ($n < 468$). Regarding outcome definition, psychological distress ($B = 1.71, p = 0.036$) and psychotropic medication ($B = 1.42, p = 0.020$) had stronger associations with near-lethal SA compared with SA. The inclusion of women was a moderator only for the relationship between SA and a sentence of one year and over ($B = 1.29, p = 0.018$), with samples including female prisoners producing a larger effect than male-only samples. For study design, meta-regression analyses suggest that case-control and cohort studies found larger effect sizes for lack of social contacts or visits ($B = -0.70, p = 0.039$) and psychological distress ($B = -1.51, p = 0.032$) compared with cross-sectional studies. Put otherwise, studies relying on a self-report measure for SA (cross-sectional designs) found weaker associations for psychological distress and lack of social contacts compared with those relying on incident or record-based SA assessments (case-control and cohort designs). Overall, though, meta-regression analyses suggest that these four methodological variables did not moderate the association between most risk factors and SA in prison.

Figure 15. Funnel plots for risk factors examined in at least nine studies: (A) single status, (B) sentenced status, (C) violent offence, and (D) prior incarceration.



Similarities in risk factor estimates by outcome

Sensitivity analyses were conducted to examine potential differences in risk factors for near-lethal SA and SA. Only 10 (out of 36) risk factors had three or more effect sizes for both outcomes (APPENDIX H). Risk estimates were comparable to those found in the main analyses (TABLES 21 to 26) and were largely similar for near-lethal suicide attempt (OR range 1.26–2.76) and suicide attempt (OR range 1.29–1.85), with overlapping confidence intervals. These results should however be interpreted with caution since it was not possible to include data on many informative risk factors (especially for those in the clinical, custodial, and historical domain) as they were examined in fewer than three studies for each outcome.

Narrative synthesis of results not eligible for quantitative analysis

The quantitative analysis of the literature pooled effect sizes of risk factors if reported in at least three independent samples to improve the validity of risk estimates. However, several other risk factors were identified in the 17 included studies that were reported infrequently ($k < 3$), which were more suitable for narrative synthesis of findings rather than a meta-analytical approach.

Personality traits

By using the *Temperament and Character Inventory* (TCI) scale, Godet-Mardirossian *et al.* (2011) found that lower levels of self-directedness, cooperativeness, transcendence, and affective stability were all associated with SA among 899 male prisoners in France. Regarding temperament variables, high scores for novelty seeking and harm avoidance were both associated with increased odds of SA. Similarly, two case-control studies (Marzano *et al.*, 2011b; Rivlin *et al.*, 2013b) found higher levels of aggression and hostility, and lower levels of self-esteem, among cases compared with matched controls. Hopelessness is also associated with SA in prison (Liebling & Krarup, 1993; Marzano *et al.*, 2011b; Rivlin *et al.*, 2013b).

Previous self-harm

Two case-control studies examined previous self-harm—irrespective of suicidal intent—as a risk factor for SA in custody. In male prisoners (Rivlin *et al.*, 2010), SA was significantly associated with prior self-harm, both in prison (OR = 23.7) and outside prison (OR = 3.3). Similarly, among incarcerated women (Marzano *et al.*, 2010), cases were more likely than controls to have self-harmed in prison (OR = 48.1) and outside prison (OR = 21.7). Taken together, findings from these two studies suggest that self-harm regardless of intent occurring *inside* prison is a stronger risk factor for SA than self-harm *prior* to prison, and such risk is especially pronounced among female prisoners compared to their male counterparts.

Prison-related factors

Current experiences of incarceration appear to be significantly more negative—such as difficulties with staff and incarcerated peers—among prisoners who attempted suicide than those of control prisoners, particularly bullying (Liebling & Krarup, 1993; Marzano *et al.*, 2011b; Rivlin *et al.*, 2013b). They are less likely to be engaged in activities and have more problems with living conditions (Encrenaz *et al.*, 2014; Liebling & Krarup, 1993). In the Oxford studies, cases were found to have spent less time in prison than controls (Marzano *et al.*, 2011b; Rivlin *et al.*, 2013b). In contrast, cross-sectional studies yielded a non-significant (Sánchez *et al.*, 2018) or positive (Encrenaz *et al.*, 2014) association between time spent in prison and risk of SA in prisons. This inconsistency could be attributable to differences in study design, sample characteristics (e.g., remand prisoners only), and varying cut-offs (e.g., 30 days vs. 12 months).

Among 1462 men in Canada, placement in higher security facilities at intake (vs. lower security) increased the risk of SA (Wichmann *et al.*, 2000). In this study, violence perpetration inside prison was associated with having attempted suicide (Wichmann *et al.*, 2000) though a French study suggests that this relationship may be confounded by in-prison victimisation (Encrenaz *et al.*, 2014).

Psychiatric disorders

Although the current meta-analysis identified psychiatric diagnoses *overall* (current or historical) as a risk factor for SA in prisoners, there were insufficient studies to examine differential effects of *specific* disorders. Case-control studies in male (Rivlin *et al.*, 2010) and female (Marzano *et al.*, 2010) prisoners assessed psychiatric disorders with the Mini International Neuropsychiatric Interview (MINI). Findings show that most current psychiatric disorders are associated with SA—especially depression, psychosis, and anxiety disorders (most notably PTSD). Drug use disorders were associated with SA in men but not in women. Across sexes, comorbidity of disorders was a clear marker for increased risk of SA. Although cases were more likely than controls to meet diagnostic criteria for alcohol use disorder and antisocial personality disorder, this difference was not statistically significant in both incarcerated men (Rivlin *et al.*, 2010) and women (Marzano *et al.*, 2010).

Furthermore, SA was found to be significantly more common among prisoners suffering from sleep disorders (Encrenaz *et al.*, 2014) and sleep problems (Liebling & Krarup, 1993) compared to those without such sleep disturbances.

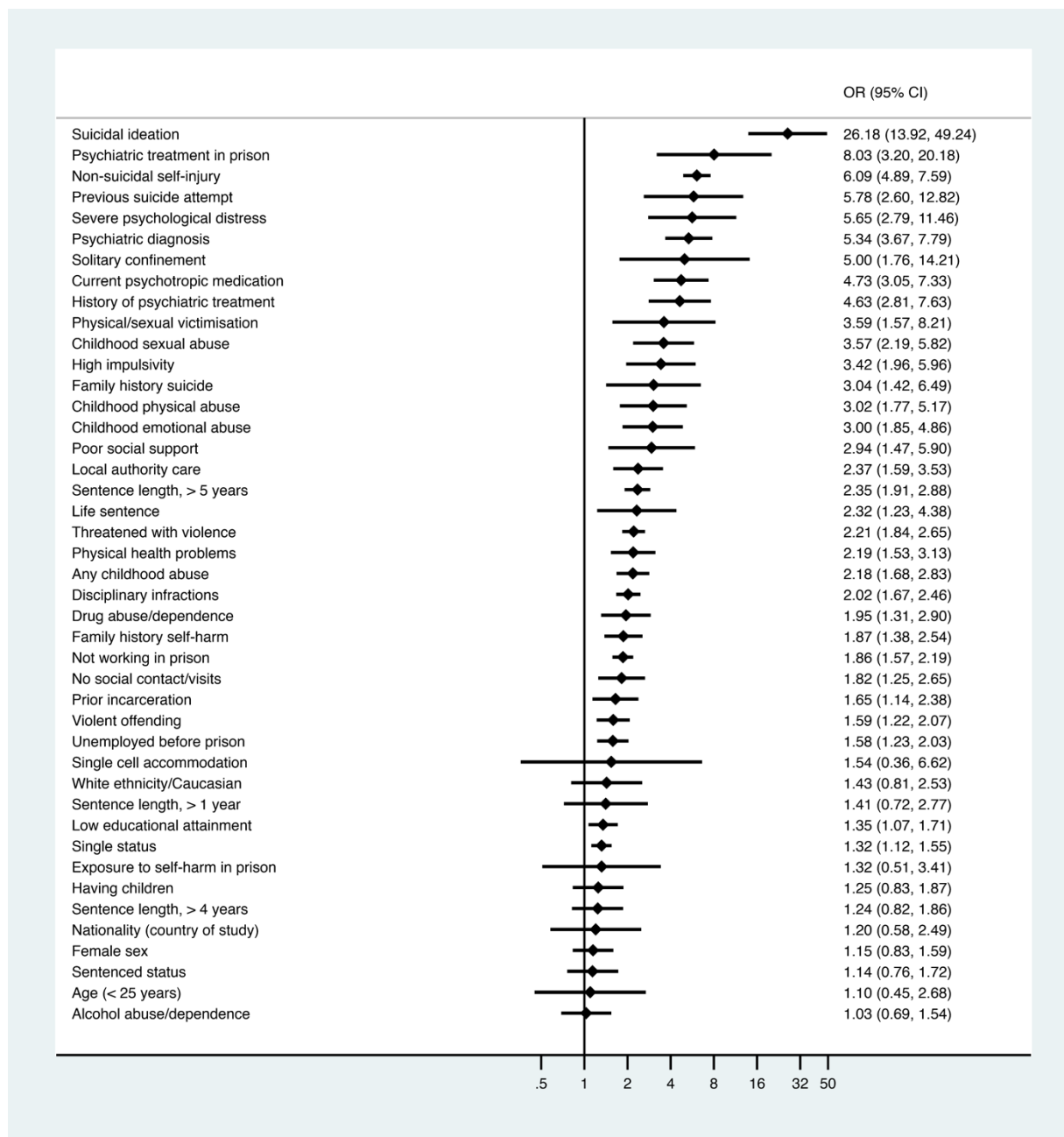
DISCUSSION

Main findings and implications

Drawing on evidence published in the past 50 years, this study is the first to statistically synthesise the literature on risk factors for SA, including data of 12,515 prisoners from 19 countries. Across 36 factors examined, the strongest associations with SA in prisons were found for modifiable clinical and custodial variables, relative to smaller effects for static sociodemographic, criminological, and historical factors.

Many of the risk factors identified in this review mirror those for suicidal behaviour in the wider community (Richardson *et al.*, 2021; Turecki *et al.*, 2019). Of all risk factors, suicide-related antecedents (suicidal thoughts, NSSI, and SA) and markers of psychiatric morbidity (mental disorders, psychological distress, and psychiatric treatment) showed the strongest associations with SA in prisons (see TABLE 16 for an overview). This aligns with findings from a review synthesising 50 years of research in the general population, showing that the strongest risk factors fall within the clinical domain (Franklin *et al.*, 2017). Other meta-analyses of longitudinal research focusing on specific predictors highlight mental disorders (Gili *et al.*, 2019), suicidal ideation and previous self-harm (Castellví *et al.*, 2017; Ribeiro *et al.*, 2016) as replicated SA risk factors in the general population, although the strength of associations was typically stronger in this review. There were, however, two important differences. First, sex was not significantly associated with SA inside prison, which contrasts findings from the general population (Fox *et al.*, 2018) and research examining prisoners' attempts on a *lifetime* basis (Jenkins *et al.*, 2005; Larney *et al.*, 2012; see also CHAPTERS 5 and 6), where women have an increased risk of SA compared with their male peers. This discrepancy between lifetime and in-prison outcomes may be due to self-report biases (Fox *et al.*, 2018). Alternatively, differences in culture, prison conditions, and availability of mental health services between wings that house male vs. female prisoners may possibly account for this unexpected finding. Second, alcohol abuse, despite being associated with SA in the community (Darvishi *et al.*, 2015), was not a risk factor for SA in prisoners (Jenkins *et al.*, 2005). However, a recent meta-analysis found alcohol use disorder, but not abuse or dependence, to be a risk factor for SA (Witte *et al.*, 2018). Future studies should investigate whether a dose-response relationship exists between severity of alcohol use and SA in prison. Despite these two discrepancies, most risk factors identified in this review reflect those found for SA among non-incarcerated adults, with clinical risk factors having the strongest associations.

In addition to risk factors shared with the general population, the current data clearly support the role of environmental and custody-specific variables as risk factors for SA in prisoners. Specifically, both general aspects of the prison regime (e.g., removal of one's social environment) and more specific aspects of life in prisons (solitary confinement, victimisation, not working, and disciplinary infractions) were all strong risk factors, highlighting the importance of the prison context in relation to suicide risk.

Figure 16. Summary of risk factors for suicide attempt in prison.

Note. Risk factors ranked in order of effect size (OR, odds ratio with 95% confidence interval).

Although both identified as risk factors for *suicide* in prisoners (Humber *et al.*, 2013; Zhong *et al.*, 2021), no clear associations were identified between SA and single cell occupancy or custodial status. Such a discrepancy might reflect differences in risk factors for fatal and non-fatal suicidal behaviours (Dejong *et al.*, 2010; Giner *et al.*, 2013). For instance, a recent study found that prisoners who attempted suicide were less likely to be housed in a single-occupant cell and be on remand compared with prisoners who died by suicide (Boren *et al.*, 2018), suggesting differences in (prison-related) risk factors by outcome.

Together, there are three major implications arising from this meta-analysis. First, differences in (the magnitude of) risk factors for SA between prisoners and non-incarcerated adults, together with the unique custodial influences prisoners are faced with, underscore the need for prevention strategies in prisons to be based on appropriate evidence. Furthermore, whilst several risk factors appear similar compared with the general population, the background prevalence of these risk factors is much higher among prisoners than in the general population and, therefore, interventions focusing on them might have the potential for a greater impact. Second, although the results of this meta-analysis do not allow causality to be inferred, the leading risk factors from each domain suggest that prisoners might import a pre-existing vulnerability to suicide into prison (characterised by social disadvantage, trauma, abuse, violence, and poor health) which becomes heightened under the influence of prison-specific stressors (e.g., isolation and victimisation), thereby increasing the likelihood of SA in prisons. This overall finding aligns with theoretical models to understand risk of suicide in prisoners, which emphasise that suicidal behaviour is the result of a complex interplay between both predisposing (imported factors that make a person vulnerable for suicide) and precipitating (environmental stressors, including influences in the prison setting) risk factors (Dye, 2010; Liebling & Ludlow, 2016; Marzano, 2010; Rivlin *et al.*, 2013b). A third implication of this analysis is that the strongest effects were observed for modifiable (clinical and environmental) risk factors relative to static (sociodemographic, criminological, and historical) factors, the latter ones typically being not amendable through intervention.

The current findings highlight modifiable risk factors that can be targeted by interventions and improve suicide prevention in prisons. The importance of treating mental health problems in prisoners (Fazel *et al.*, 2016) is underscored by this review—which should be considered in prison policy. Mental health services need to be adequately resourced and linked to evidence-based interventions (Yoon *et al.*, 2017) in order to address the high unmet needs in prisoners (Jakobowitz *et al.*, 2017). Such targeted strategies aimed at high-risk prisoners will rely on accurate risk assessment (Ryland *et al.*, 2020), which should be supplemented by organisational and establishment-wide interventions being part of a whole population approach. These include measures that aim to promote purposeful activity and meaningful social support, as well as those to reduce victimisation in prisons (Marzano *et al.*, 2016). In view of the myriad factors associated with suicidal risk in prisoners, a multilevel approach incorporating stressors related to the prison environment alongside clinical vulnerabilities is likely to have the largest potential to prevent suicidal behaviour (Barker *et al.*, 2014). As no singular approach will likely be able to impact on an issue as complex as suicide, prevention efforts should be integrated and synergistic. Overall, as highlighted by the data from CHAPTER 3, this will require multi-agency collaboration across services for health, social care, and criminal justice.

Strengths and limitations

The results of the current meta-analysis build on those of prior systematic reviews in several important aspects. Rather than narratively reviewing the literature (Lohner & Konrad, 2007; Marzano *et al.*, 2016) or focusing only on one single risk factor (Angelakis *et al.*, 2020), this review is the first to quantitatively synthesise all the available evidence on a wide range of risk factors for SA in prisoners, and provides a statistical summary of the existing literature. Across 17 studies published over half a century, including previously unpublished data, more than 12,000 prisoners from 19 countries were included for analysis. There are, however, six limitations that should be borne in mind when interpreting the current results.

First, despite a rigorous search strategy, which covered four databases and scanning reference lists from relevant systematic reviews, it is possible that some studies were not captured in this meta-analysis. Adding global health bibliographic indexes might have identified additional work. Second, the strength of risk factor estimates is likely to be overestimated because confounding was not accounted for; however, it was not the objective to identify *independent* associations. Future work could provide more precise estimates by analysing individual participant data, which would allow for the calculation of effect sizes adjusted in the same way (Riley *et al.*, 2010). Third, considerable heterogeneity ($I^2 \geq 75\%$) was found for 27.9% of all risk factor estimates, so pooled effect sizes must be interpreted with caution, and ranges should be also considered. Although meta-regression analyses were conducted to examine methodological characteristics as possible sources of between-study heterogeneity, other moderators were not considered—including national differences in prison regimes, environments, and sentencing policies. Fourth, it is likely that there are additional risk factors for suicide attempt in prison which were not studied in the eligible articles, and those outlined in the narrative review need replication. Further, examination of institutional variables such as prison size, overcrowding, and the availability of mental health care relies on ecological studies that were not included in this systematic review. Fifth, although the current findings provide evidence that aligns with leading theories of suicide in the field, this meta-analysis did not directly test the mechanisms underpinning the associations between risk factors and SA in prison. Sixth and most importantly, the central limitation of this meta-analysis reflects the overall methodological constraints of the literature that is available to date on risk factors for SA in prisoners, which are discussed below.

Future research directions

It is important to note that this review summarises and reflects the current state of the literature and is therefore constrained by the limitations of the available evidence. Several important methodological constraints were identified across the 17 studies, which provide clear directions for future research.

First, a sizable number of studies—more than those retained—were excluded from the analysis because they examined a *lifetime history* of SA as outcome measure (Sarchiapone *et al.*, 2009; Stoliker, 2018) or did not distinguish between SA occurring before or during the current period of incarceration (Jenkins *et al.*, 2005). Moreover, of the studies that did examine SA in prison, every single one reported on a dichotomous SA outcome, so it was not possible to consider the frequency of SA (Roy *et al.*, 2014). Future research should therefore examine whether risk factors might differ between a first and repeat episode of SA in prisoners (Larkin *et al.*, 2014; Rahman *et al.*, 2021). In addition, all eight cross-sectional studies included in this review relied on retrospective self-report using a single-item assessment, which is biased for several reasons (e.g., Borschmann *et al.*, 2017b; Millner *et al.*, 2015). Regarding scope, the majority (65%) of studies solely focused on historical (e.g., trauma) and clinical (e.g., mental disorders) risk factors, whereas only six (35%) investigated the role of environmental and custody-specific factors.

A second important finding was the lack research examining *longitudinal* risk factors for SA in prisoners. Only one study had a longitudinal design, which was (small) case-control study that focused on suicidal ideation only (Lekka *et al.*, 2006). Relatedly, the temporal sequence between exposure and SA was rarely specified in both cross-sectional and retrospective record-based case-control studies, so it remains unclear whether the outcome occurred *after* exposure to a risk factor.¹⁰ It is hence possible that reported associations might be due to reverse causality (e.g., victimisation or solitary confinement as a consequence of having attempted suicide). Carefully designed longitudinal studies are needed to verify whether or not the identified risk factors actually *predict* SA during the course of imprisonment.

Third, few studies examined risk factors for SA in female prisoners. Only one study specifically focused on women and none of the five studies that included both male and female prisoners provided data disaggregated by sex (apart from the current PhD study). Therefore, it was not possible to conduct subanalyses stratified by sex, hence it remains uncertain whether the identified risk factors—based on predominantly male samples—equally pertain to incarcerated women. A particular risk factor for men may not be a risk factor for women, and vice versa. For example, studies suggest that childhood sexual abuse amongst men is not as important a risk factor for SA in prison as it is for women (Marzano *et al.*, 2011b; Rivlin *et al.*, 2013b). Thus, with much of the extant literature being dominated by male samples, risk factors for SA in female prisoners are little understood, and more sex-specific research is needed. This could assist in more tailored assessment of risk, treatment allocation, and delivery of services.

¹⁰ Consider the relationship between custodial status and SA for example. In the case of cross-sectional studies, it is possible that prisoners were on remand when they attempted suicide, but were sentenced at the time when the assessment took place. As studies featuring a single time-point assessment of both the predictor (in this case, custodial status) and the outcome of interest (SA) cannot identify time-varying associations, it is not unlikely that some participants were included in the analyses as sentenced prisoners, despite being on remand when the SA occurred, which may distort the association between custodial status and SA. The same (chrono)logic applies to other time-varying variables, such age, time served in prison, and cell accommodation.

Taken together, major constraints of the extant literature relate to *what* has been studied (SA as a binary outcome with a dominant focus on imported vulnerabilities as risk factors), *how* it has been studied (the lack of longitudinal data), and *who* has been studied (an underrepresentation of women). Therefore, the results of this meta-analysis should be interpreted with the caveat that these findings only apply to SA risk factors within the methodological limits in which they have been studied to date. The limitations outlined above offer clear directions for future research on risk factors for SA in prison. Population-based studies examining the longitudinal relationship between a broad range of risk factors (including prison-specific ones) and subsequent SA inside prison among male and female prisoners are required to facilitate much-needed advances in our understanding and prevention of SA in prisoners.

CONCLUSION

The current meta-analysis synthesised data from five decades of research examining risk factors for SA in more than 12,000 prisoners across 19 countries. Findings provide support for a model of suicide risk in prisoners that incorporates both imported vulnerabilities and environmental stressors, and highlight modifiable risk factors that can be targeted by intervention strategies. In view of the myriad risk factors associated with suicidal behaviour in prisons, a multilevel approach incorporating both population and targeted prevention strategies is likely required, with multi-agency collaboration having a central role. Given that suicidal ideation is the strongest of all risk factors, future work should focus on how suicidal thoughts are translated into attempts in order to disrupt this trajectory of risk during imprisonment.

Key points

- A previous non-fatal suicide attempt is one of the strongest predictors of future suicidal behaviour.
- Although many risk factors for suicide attempt in prisons have been identified in the literature, the available evidence remains inconclusive and has not yet been quantitatively synthesised to date.
- In this meta-analysis of 17 studies comprising 12,515 prisoners, a broad range of sociodemographic, criminological, clinical, custodial, and historical risk factors increased the odds of suicide attempt.
- Across 36 risk factors investigated, the strongest associations with suicide attempt were found for markers of psychiatric morbidity and suicide-related antecedents, especially for suicidal ideation.
- Overall, modifiable (clinical and custodial) factors appeared to be more strongly associated with SA in prisons relative to static (sociodemographic, criminological, and historical) factors.
- Sensitivity and meta-regression analyses confirmed the robustness of findings.
- Several gaps in the current state of the literature were identified, including the lack of longitudinal studies and the limited data on female prisoners, which offer clear directions for future research.

CHAPTER 5

The transition from ideation to action

Most people who think about suicide do not engage in suicidal behaviour. Identifying what factors may precipitate the transition from ideation to action can elucidate points at which to disrupt this trajectory of risk. Participants were 1326 adult offenders (1203 men) randomly selected from 15 Belgian prisons, representing 13% of the prison population nationwide. Multivariate analysis compared prisoners who made a suicide attempt inside prison (n = 121) to those who thought about suicide but did not attempt suicide (n = 331) on a range of putative risk factors, in order to identify independent associations with the transition from suicidal ideation to action in prison. A sizeable proportion of prisoners with suicidal thoughts reported having made a suicide attempt—in prison (27%) and in their lifetime (47%). Among participants with suicidal ideation, factors associated with the progression to suicide attempt in prison were exposure to suicidal behaviour, the presence of a suicide plan, and behaviours characterised by disinhibition (violent offending, NSSI, and drug use). Interestingly, markers of psychiatric morbidity and prison-related deprivations were not independently associated with a suicide attempt in the context of suicidal thoughts. Collectively, this study provides novel (yet preliminary) evidence that suicide-related factors and dysregulated behaviours are implicated in the transition from ideation to action in prisons.

Portions of this chapter are based on Favril, L., O'Connor, R.C., Hawton, K., & Vander Laenen, F. (2020). Factors associated with the transition from suicidal ideation to suicide attempt in prison. [*European Psychiatry*](#), 63(1): e101. Louis Favril conceived and designed the study, collected and analysed the data, interpreted the results, drafted and revised the article. This chapter represents a thorough update of the previously published paper.

INTRODUCTION

Thoughts of suicide are prevalent in prisoners and are prospectively associated with suicidal behaviour. As highlighted in CHAPTER 4, suicidal ideation is the strongest of all risk factors for suicide attempt inside prisons. Another meta-analysis reported a 15-fold increased odds of suicide in prisoners who recently thought about suicide (Zhong *et al.*, 2021). Yet, most individuals who *think* about suicide do not engage in suicidal *behaviour* (Nock *et al.*, 2008a). This implies that suicidal ideation is not a sufficient cause nor a sensitive risk marker for future suicidal behaviour, and that people who *do* go on to attempt suicide may constitute a discrete class of suicidal individuals. It is therefore vital to improve prediction of who is likely to act upon their suicidal thoughts. Accordingly, research attention is now increasingly focused on identifying what factors precipitate the transition from thoughts to acts of suicide. Comprehensive reviews of the literature (Klonsky *et al.*, 2016, 2017), meta-analytical evidence (May & Klonsky, 2016), and population-based studies (Mars *et al.*, 2019b; Nock *et al.*, 2012; Wetherall *et al.*, 2018) emphasise two key findings in this respect. First, most known risk factors for suicide are in actuality predictors of suicidal ideation, whereas only few predict the progression from ideation to action. Second, replicated risk factors for suicide attempt among individuals with suicidal ideation include (but are not limited to) impulsivity, exposure to suicide in others, NSSI, certain mental disorders, substance abuse, and trauma.

Despite this growing recognition that factors associated with suicidal ideation are distinct from those that govern the transition from thoughts to acts of suicide in the general population, comparable research is limited among prisoners. Three decades ago, Bonner and Rich (1990) suggested that studies should focus on how psychosocial and environmental influences transform initial stages of the suicidal process into suicidal behaviour for some prisoners, but not others. However, few researchers followed this recommendation, and little progress has been made since then. The systematic review outlined in CHAPTER 4 identified only one single study that investigated which factors predict suicide attempt above and beyond their association with suicidal thoughts. In a random sample of 996 prisoners in Australia, traumatic brain injury, current depressive symptomatology, and indicators of childhood adversity were associated with *lifetime* suicide attempt among those with suicidal thoughts in bivariate analyses; none of which retained statistical significance once other covariates were controlled for (Larney *et al.*, 2012). Given the limited research in this specific area, further examination of differences between prisoners who attempt suicide and those who consider suicide but do not act on those thoughts could shed light on factors that act as catalysts in the transition towards suicidal behaviour. This has critical implications for clinicians working with suicidal prisoners, whose practice is often concerned with identifying which individuals presenting with suicidal ideation are at greatest risk of acting on such thoughts. Against this background, the aim of this study was to advance knowledge of factors associated with the progression from suicidal ideation to suicide attempt in a sample of more than a thousand prisoners in Belgium.

METHODS

Sampling procedures and data collection

A detailed discussion of sampling and recruitment procedures is described in CHAPTER 3. Briefly, eligible study participants were all offenders (deemed criminally responsible) residing in 15 out of all 36 prisons in Belgium. During the study period (October 2015 to May 2016), a total of 3636 men and 226 women were incarcerated across the 15 selected prisons, of whom 1550 (1414 men) were randomly selected by computer to participate in this study. Each individual included in this random sample was personally approached by the researcher. After providing informed consent, participants completed a self-report questionnaire, either in small groups or individually.

A total of 1326 prisoners (1203 men and 123 women) were included in the analysis, equating to an 85.5% response rate—which is similar to other large-scale prison studies (Binswanger *et al.*, 2010; Larney *et al.*, 2012; CHAPTER 6). The analytical sample accounted for 34.3% of all individuals in the 15 selected prisons in Flanders who were eligible to participate during the period of data collection, and represents approximately 13% of the national prison population in Belgium at that time (DG EPI, 2020).

Measures

Predictor variables. The independent variables included in this study are sociodemographic (sex, age, nationality, partnership), criminological (prior incarceration, custodial status, offence type, duration of incarceration), clinical (drug use, mental disorder, psychotropic medication, NSSI, family history), and prison-specific (suicide exposure, cell accommodation, employment). The survey also included details on participants' perceptions about the quality of prison life (assessed by the *Measuring the Quality of Prison Life* scale) and self-perceived social support (assessed by the *Social Support Scale*). For a detailed description on study measures and scales, the reader is referred to CHAPTER 3.

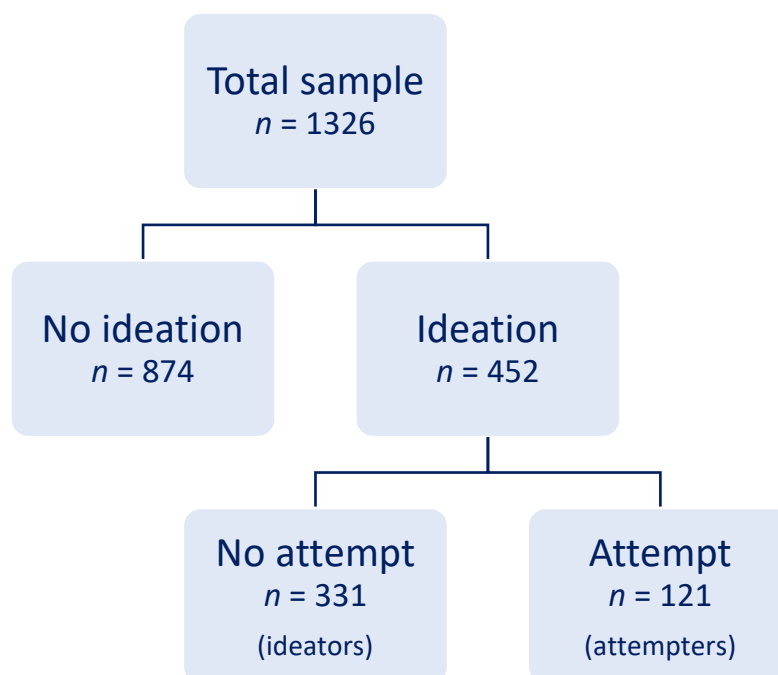
Suicide variables. The *Paykel Suicide Scale* (Paykel *et al.*, 1974) was used to assess suicidal ideation and suicide plan while in prison. For this study, the timing of both outcomes refers to the occurrence during their incarceration (not necessarily in the past year). Regardless of the answer to these two questions, participants were also asked whether they had attempted suicide while in prison. The items for suicidal ideation (no/yes) and attempt (no/yes) while incarcerated were used to categorise prisoners in three mutually exclusive groups: those without any suicidal history (*controls*), those who had thought about suicide but never made a suicide attempt (*ideators*), and those who had experienced suicidal thoughts and also attempted suicide (*attempters*).

Statistical analysis

A key difficulty in identifying risk factors for suicide *attempt* is that this rarely occurs in the absence of suicidal *ideation*. In examining risk factors for suicide attempt, most studies have neglected to account for the shared variance between suicidal thoughts and attempts; a methodological design which allows predictors of ideation to masquerade as predictors of attempts. Comparing prisoners who attempted suicide to those who did not, irrespective of suicidal thoughts, may artifactually magnify the effects of risk factors on suicide attempt. By instead assessing risk factors for suicide attempt *among those with suicidal ideation*, the independent contribution of a risk factor can be more rigorously established, as this potential confounding is accounted for by excluding non-suicidal controls (Batterham *et al.*, 2018).

The analytical sample was therefore restricted to those participants who experienced suicidal ideation while in prison, irrespective of whether they attempted suicide in prison ($n = 452$; FIGURE 17). Bivariate analyses tested which factors were associated with suicide attempt among those with suicidal ideation by comparing ideators ($n = 331$) with attempters ($n = 121$) on all study measures. All variables were then entered into a multivariate logistic regression analysis (regardless whether they significantly distinguished between ideators and attempters at the bivariate level) to determine their independent contributions. Crude (OR) and adjusted (aOR) odds ratios are reported as estimates of the likelihood that prisoners who experienced suicidal ideation engaged in a suicide attempt while incarcerated.

Figure 17. Flow diagram of study participants based on in-prison outcomes.



RESULTS

Prevalence estimates

The estimated *lifetime* prevalence of suicidal ideation and suicide attempt among prisoners was 44.4% (95% CI 41.7–47.1) and 21.8% (95% CI 19.6–24.0), respectively (TABLE 27). Women were more likely to report a lifetime history of suicidal ideation (57.7% vs. 43.1%; OR = 1.81, $p = 0.002$) and suicide attempt (36.6% vs. 20.3%; OR = 2.27, $p < 0.0001$) than men. Of the overall sample of 1326 prisoners, 725 (54.7%) had no suicidal history, 312 (23.5%) reported suicidal ideation only, and 289 (21.8%) attempted suicide in their lifetime. Of those endorsing a suicide attempt, 12 participants (4.2%) did not report a history of suicidal ideation. After exclusion of these 12 cases (0.9% of the total sample), the findings show that half (47%) of all participants with suicidal ideation ($n = 589$) also report having made a suicide attempt; significantly more women than men (62.0% vs. 45.0%; OR = 1.99, $p = 0.007$).

Table 27. Lifetime prevalence (%) of suicidal ideation and suicide attempt, by sex.

| | All prisoners | Women | Men | OR (95% CI) |
|---------------------------|------------------|------------------|------------------|------------------|
| In the total sample | | | | |
| Suicidal ideation | 44.4 (41.7–47.1) | 57.7 (48.9–66.6) | 43.1 (40.3–45.9) | 1.81 (1.24–2.63) |
| Suicide attempt | 21.8 (19.6–24.0) | 36.6 (28.0–45.2) | 20.3 (18.0–22.6) | 2.27 (1.53–3.36) |
| Base (n) | 1326 | 123 | 1203 | |
| Among those with ideation | | | | |
| Suicide attempt | 47.0 (43.0–51.1) | 62.0 (50.4–73.5) | 45.0 (40.7–49.3) | 1.99 (1.20–3.32) |
| Base (n) | 589 | 71 | 518 | |

The prevalence of suicidal ideation and suicide attempt *while in prison* was 34.1% (95% CI 31.5–36.6) and 9.5% (95% CI 7.9–11.1), respectively (TABLE 28). Female prisoners had higher prevalence rates than their male counterparts. Whereas women were significantly more likely than men to have experienced suicidal ideation while incarcerated (43.1% vs. 33.2%; OR = 1.53, $p = 0.027$) no significant sex difference was noted for suicide attempt in prison (13.8% vs. 9.1%; OR = 1.61, $p = 0.086$). A small minority ($n = 5$) of participants who had attempted suicide in prison did not report suicidal ideation while incarcerated, who were subsequently excluded from the analyses (0.6% of the overall sample). A quarter (26.8%) of all 452 participants with suicidal thoughts had attempted suicide in prison ($n = 121$; FIGURE 17). Women (32.1%, 95% CI 19.1–45.1) and men (26.1%, 95% CI 21.7–30.4) were equally likely to have transitioned from suicidal ideation to suicide attempt while incarcerated (OR = 1.34, 95% CI 0.72–2.49).

Table 28. Prevalence (%) of suicidal ideation and suicide attempt in prison, by sex.

| | All prisoners | Women | Men | OR (95% CI) |
|---------------------------|------------------|------------------|------------------|------------------|
| In the total sample | | | | |
| Suicidal ideation | 34.1 (31.5–36.6) | 43.1 (34.2–52.0) | 33.2 (30.5–35.8) | 1.53 (1.05–2.22) |
| Suicide attempt | 9.5 (7.9–11.1) | 13.8 (7.6–20.0) | 9.1 (7.4–10.7) | 1.61 (0.93–2.79) |
| <i>Base (n)</i> | 1326 | 123 | 1203 | |
| Among those with ideation | | | | |
| Suicide attempt | 26.8 (22.7–30.9) | 32.1 (19.1–45.1) | 26.1 (21.7–30.4) | 1.34 (0.72–2.49) |
| <i>Base (n)</i> | 452 | 53 | 399 | |

Bivariate and multivariate analyses

Prisoners who *only* experienced suicidal ideation in prison (ideators; $n = 331$) were compared to those who *also* attempted suicide in prison (attempters; $n = 121$). Descriptive statistics by group membership (attempters vs. ideators) and bivariate differences between groups are detailed in TABLE 29 (results for men and women separately are provided in APPENDIX I and J, respectively). Age was the only significant demographic factor (OR = 0.98). Relative to ideators, attempters were more likely to be sentenced (OR = 2.21) and violent offenders (OR = 1.70). Length of incarceration showed a positive association with suicide attempt. Significantly more attempters reported drug use in prison (OR = 2.70), a psychiatric diagnosis (OR = 2.23), psychotropic medication (OR = 2.36), and a history of NSSI (OR = 2.58) compared with ideators. Virtually all (94.2%) attempters had made a plan, contrasting the much lower proportion (49.5%) found among ideators—which indicates a very strong effect size (OR = 16.58). Last, attempters more frequently endorsed exposure to suicidal behaviour in prison (OR = 1.95) but were less frequently employed in prison (OR = 0.62) than ideators.

Results of the multivariate analysis are shown in TABLE 30. This model containing all predictor variables was statistically significant ($\chi^2_{(27)} = 140.38, p < 0.0001$) and correctly classified 79% of all cases; indicating that it was able to distinguish between ideators and attempters given these study variables. Although custodial status, duration of incarceration, psychiatric diagnosis, psychotropic medication, and prison work were all bivariate correlates of a suicide attempt among those with suicidal ideation, none of these remained significant in the multivariate model (all $p \geq 0.093$). Controlling for all variables in the model, the factors that independently distinguished between attempters and ideators were age (aOR = 0.95), violent offending (aOR = 2.45), drug use (aOR = 2.53), NSSI history (aOR = 1.96), suicide exposure (aOR = 2.24), and suicide plan (aOR = 21.88). Sensitivity analyses excluding suicide plan from the model did not meaningfully alter the results—only resulting in small adjustments to risk estimates, with all of the initial variables remaining significantly associated with suicide attempt (APPENDIX K).

Table 29. Risk factors for suicide attempt among prisoners with suicidal ideation.

| | All prisoners (n = 452) | Ideators (n = 331) | Attempters (n = 121) | OR (95% CI) | p |
|--------------------------|----------------------------|-----------------------|-------------------------|--------------------|----------|
| Female sex | 11.7 | 10.9 | 14.0 | 1.34 (0.72–2.49) | 0.353 |
| Age, years | 38.5 (11.4) | 39.3 (11.7) | 36.3 (10.3) | 0.98 (0.96–1.00) | 0.014 |
| Belgian nationality | 83.6 | 82.4 | 86.8 | 1.41 (0.77–2.55) | 0.264 |
| Partnership | 37.4 | 37.2 | 38.0 | 1.04 (0.68–1.59) | 0.868 |
| Prior incarceration | 57.3 | 57.4 | 57.0 | 0.99 (0.65–1.50) | 0.943 |
| Sentenced status | 69.9 | 65.9 | 81.0 | 2.21 (1.33–3.67) | 0.002 |
| Duration incarceration | | | | | 0.011 |
| < 1 month | 9.7 | 10.9 | 6.6 | 0.35 (0.14–0.83) | 0.017 |
| 1–6 months | 24.8 | 27.2 | 18.2 | 0.38 (0.20–0.71) | 0.002 |
| 6–12 months | 10.2 | 10.3 | 9.9 | 0.55 (0.25–1.20) | 0.132 |
| 1–3 years | 18.8 | 20.2 | 14.9 | 0.42 (0.21–0.82) | 0.010 |
| 3–5 years | 16.2 | 14.5 | 20.7 | 0.81 (0.43–1.54) | 0.519 |
| > 5 years | 20.4 | 16.9 | 29.8 | 1.00 (reference) | — |
| Violent offence | 35.5 | 32.1 | 44.5 | 1.70 (1.11–2.62) | 0.015 |
| Drug use in prison | 48.5 | 42.0 | 66.1 | 2.70 (1.74–4.17) | < 0.0001 |
| Psychiatric diagnosis | 64.4 | 59.8 | 76.9 | 2.23 (1.39–3.59) | 0.001 |
| Psychotropic medication | 53.5 | 48.0 | 68.6 | 2.36 (1.52–3.67) | < 0.001 |
| History of NSSI | 32.1 | 26.3 | 47.9 | 2.58 (1.68–3.98) | < 0.0001 |
| Suicide plan | 61.5 | 49.5 | 94.2 | 16.58 (7.50–36.65) | < 0.0001 |
| Family history | 36.5 | 36.0 | 38.0 | 1.09 (0.71–1.68) | 0.686 |
| Suicide exposure | 63.7 | 59.8 | 74.4 | 1.95 (1.23–3.10) | 0.004 |
| Single cell | 54.4 | 52.6 | 59.5 | 1.33 (0.87–2.02) | 0.191 |
| Prison work | 47.3 | 50.5 | 38.8 | 0.62 (0.41–0.95) | 0.029 |
| MQPL autonomy | 2.5 (0.78) | 2.5 (0.77) | 2.56 (0.80) | 1.03 (0.78–1.35) | 0.843 |
| MQPL outside contact | 2.8 (0.97) | 2.85 (0.93) | 2.74 (1.07) | 0.89 (0.72–1.10) | 0.282 |
| MQPL staff relationships | 2.7 (0.84) | 2.71 (0.83) | 2.69 (0.84) | 0.97 (0.76–1.24) | 0.821 |
| MQPL physical safety | 2.9 (0.82) | 2.97 (0.82) | 2.83 (0.83) | 0.82 (0.63–1.06) | 0.129 |
| MQPL decency | 2.5 (0.76) | 2.56 (0.76) | 2.43 (0.76) | 0.81 (0.61–1.06) | 0.127 |
| Lack of social support | 51.7 | 50.0 | 56.2 | 1.28 (0.84–1.95) | 0.244 |

Note. Data are presented as percentages for categorical variables and as mean (standard deviation) for continuous variables. OR, odds ratio; MQPL, Measuring the Quality of Prison Life.

Table 30. Multivariate regression analysis for suicide attempt among prisoners with suicidal ideation.

| | B | SE | Wald | aOR (95% CI) | p |
|-------------------------------------|--------|-------|--------|--------------------|----------|
| Female sex | 0.216 | 0.438 | 0.244 | 1.24 (0.53–2.93) | 0.621 |
| Age | −0.056 | 0.017 | 10.607 | 0.95 (0.91–0.98) | 0.001 |
| Belgian nationality | −0.040 | 0.475 | 0.007 | 0.96 (0.38–2.44) | 0.933 |
| Partnership | 0.471 | 0.343 | 1.888 | 1.60 (0.82–3.14) | 0.169 |
| Prior incarceration | −0.298 | 0.354 | 0.710 | 0.74 (0.37–1.49) | 0.399 |
| Sentenced status | 0.770 | 0.459 | 2.816 | 2.16 (0.88–5.31) | 0.093 |
| Duration incarceration ^a | | | 5.141 | | 0.399 |
| < 1 month | −0.906 | 0.845 | 1.148 | 0.40 (0.08–2.12) | 0.284 |
| 1–6 months | −0.139 | 0.558 | 0.062 | 0.87 (0.29–2.60) | 0.803 |
| 6–12 months | 0.168 | 0.594 | 0.080 | 1.18 (0.37–3.79) | 0.778 |
| 1–3 years | −0.903 | 0.500 | 3.259 | 0.41 (0.15–1.08) | 0.071 |
| 3–5 years | −0.103 | 0.469 | 0.048 | 0.90 (0.36–2.27) | 0.827 |
| Violent offence | 0.894 | 0.403 | 4.912 | 2.45 (1.11–5.39) | 0.027 |
| Drug use in prison | 0.928 | 0.347 | 7.140 | 2.53 (1.28–5.00) | 0.008 |
| Psychiatric diagnosis | 0.343 | 0.365 | 0.881 | 1.41 (0.69–2.88) | 0.348 |
| Psychotropic medication | −0.016 | 0.345 | 0.002 | 0.98 (0.50–1.94) | 0.962 |
| History of NSSI | 0.674 | 0.328 | 4.217 | 1.96 (1.03–3.73) | 0.040 |
| Suicide plan | 3.086 | 0.559 | 30.445 | 21.88 (7.31–65.47) | < 0.0001 |
| Family history | −0.099 | 0.325 | 0.094 | 0.91 (0.48–1.71) | 0.759 |
| Suicide exposure | 0.807 | 0.368 | 4.815 | 2.24 (1.09–4.61) | 0.028 |
| Single cell | 0.317 | 0.350 | 0.822 | 1.37 (0.69–2.73) | 0.365 |
| Prison work | −0.507 | 0.329 | 2.379 | 0.60 (0.32–1.15) | 0.123 |
| MQPL autonomy | 0.256 | 0.240 | 1.138 | 1.29 (0.81–2.07) | 0.286 |
| MQPL outside contact | −0.034 | 0.178 | 0.036 | 0.97 (0.68–1.37) | 0.849 |
| MQPL staff relationships | −0.181 | 0.268 | 0.453 | 0.84 (0.49–1.41) | 0.501 |
| MQPL physical safety | 0.083 | 0.211 | 0.153 | 1.09 (0.72–1.64) | 0.695 |
| MQPL decency | −0.166 | 0.293 | 0.323 | 0.85 (0.48–1.50) | 0.570 |
| Poor social support | 0.393 | 0.333 | 1.395 | 1.48 (0.77–2.84) | 0.238 |

^a Reference category: more than 5 years. aOR, odds ratio adjusted for all factors in the multivariate model.

DISCUSSION

Main findings

To my knowledge, this study is only the second (Larney *et al.*, 2012) to specifically examine the extent to which suicide risk factors distinguish between prisoners who had attempted suicide and those who had only thought about suicide. The current results advance scientific knowledge in six important ways.

First, one-fifth (22%) of participants attempted suicide in their lifetime, of whom 43% did so in prison (10% of the total sample). Of the 452 participants who thought about suicide while incarcerated, a quarter (27%) also attempted suicide in prison. On a lifetime basis, 47% of those with suicidal ideation progressed to a suicide attempt at some point. Similarly, more than half (58%) of prisoners in Australia with suicidal thoughts attempted suicide, albeit not necessarily in prison (Larney *et al.*, 2012). This ratio of suicide attempt to ideation in prisoners is nearly twice as high compared with the 29% documented among non-incarcerated adults in the general population—both nationally (Bruffaerts *et al.*, 2015) and globally (Nock *et al.*, 2008a). This is an important finding that requires further exploration to determine whether prisoners are more susceptible in making the transition from ideation to action, and why.

Second, none of the deprivation variables (such as autonomy, safety, and social support) were associated with suicide attempts within the context of suicidal thoughts. Although aspects of the prison regime have been shown to be associated with prisoners' mental health and suicide risk more generally (Goomany & Dickinson, 2015; Liebling & Ludlow, 2016), including suicidal thoughts in this very sample (CHAPTER 3), the current data indicate, for the first time, that these factors may not be implicated in the transition from ideation to action. Pending replication, this suggests that variables related to the prison experience are best conceptualised as risk factors for suicidal ideation rather than for suicide attempt.

Third, the presence of a suicide plan was identified as the strongest independent risk factor for behavioural enactment among prisoners who experienced suicidal thoughts while in prison. This finding is highly consistent with epidemiological data in the general population (Borges *et al.*, 2006; Han *et al.*, 2015; Martin *et al.*, 2016; Nock *et al.*, 2018; Stack, 2014). For example, in a nationally representative sample of 6646 Dutch adults, the strongest risk factor for the transition from ideation to attempt was a suicide plan (ten Have *et al.*, 2013). Among people with suicidal ideation included in the World Mental Health Surveys, the conditional probability of making a suicide attempt was 56% in those with a suicide plan but only 15% in those without such a plan (Nock *et al.*, 2008a). Thus, risk of suicide attempt among those with suicidal ideation appears to be substantially higher in the presence (*vs.* absence) of a suicide plan, which aligns with a continuum approach to suicide risk. Sensitivity analysis showed that omitting suicide plan from the multivariate model did not impact on the associations of other predictors, which might point to a possible moderation effect of planning in the translation of thoughts to acts of suicide.

Fourth, NSSI conferred a two-fold increased risk of attempted suicide in prisoners with suicidal ideation, which adds to an emerging body of literature documenting that NSSI predicts the progression from ideation to attempt (Georgiades *et al.*, 2019; Kiekens *et al.*, 2018; Mars *et al.*, 2019a). Four in ten (40%) prisoners who reported both suicidal thoughts and NSSI had attempted suicide while in prison, which compares with less than 1% of participants who did not report either of these. In a similar vein, violent offenders were twice as likely to act on their suicidal thoughts compared with their non-violent peers. Little other research has provided insight into the potential role that violent crime might play in the translation of suicidal thoughts into behaviour. Indirect evidence comes from an Italian study with 903 male prisoners, which found that violent index offences were associated with suicide attempt, but not with suicidal ideation (Sarchiapone *et al.*, 2009). Aggression directed towards others (violence) and oneself (NSSI) are highly comorbid behaviours which share multiple risk factors, including victimisation, impulsivity, emotion dysregulation, serotonergic dysfunction, and prefrontal deficits (McMahon *et al.*, 2018; O'Donnell *et al.*, 2015; Sahlin *et al.*, 2017; Shafti *et al.*, 2021; Vaughn *et al.*, 2015). These findings might point to a common underlying vulnerability, with poor impulse control being a likely mechanism.

Fifth, in-prison drug use was clearly associated with increased odds of suicide attempt. Use of illicit substances may lower inhibition and impair decision-making, making it more likely that prisoners will act on their suicidal thoughts. Conversely, having a formal psychiatric diagnosis did not distinguish between ideators and attempters, nor did the use of psychotropic medication (as an index for current psychiatric morbidity). Epidemiological (Nock *et al.*, 2009) and meta-analytical (May & Klonsky, 2016) evidence suggests that most mental disorders do not predict a suicide attempt above and beyond their association with suicidal thoughts. Depression, for example, is strongly related to the development of suicidal thoughts, but does not predict the transition from ideation to action—a finding which has been replicated in numerous samples (Batterham *et al.*, 2018; Borges *et al.*, 2010a; Nock *et al.*, 2010, 2016; ten Have *et al.*, 2013). Instead, the few mental disorders that *do* predict the transition from thoughts to acts of suicide appear to be characterised by anxiety (e.g., posttraumatic stress disorder) and poor impulse control (e.g., substance use disorders). In this chapter, however, individual disorders were not examined, limiting a more fine-grained analysis to determine their unique contributions. Given the lack of such research in prisoners, future work should investigate how specific disorders differentially relate to distinct stages of the suicidal process in this group characterised by poor mental health (CHAPTER 6).

Sixth, consistent with mounting evidence that exposure to suicidal behaviour of others reliably distinguishes between youth who consider *vs.* attempt suicide (Dhingra *et al.*, 2015; Mars *et al.*, 2019b; O'Connor *et al.*, 2012; Wetherall *et al.*, 2018), prisoners exposed to suicidal behaviour by incarcerated peers were two times more likely to act upon their suicidal thoughts than those without such exposure. This is important given the evidence of spatiotemporal clustering of suicidal behaviour within prisons (Hawton *et al.*, 2014; McKenzie & Keane, 2007). Potential mechanisms underlying this relationship may

include genetic influences, imitation, and social learning (Haw *et al.*, 2013). For example, exposure to suicidal behaviour of others could provide a behavioural model for susceptible prisoners and increase the likelihood that thoughts of suicide are acted upon. Suicide exposure may also increase the salience and acceptability of suicidal behaviour through increased awareness of suicide as a feasible option and knowledge of suicide means. Alternatively, assortative relating (Hawton *et al.*, 2020) might be imposed in a sense that prisoners with similar vulnerability profiles (e.g., violent offenders and drug users) are likely to be housed in the same prison or wing. Although more research is needed to better understand the psychological processes at play, this study strengthens the evidence of exposure as a risk factor for suicidal behaviour (Hales *et al.*, 2015; Hill *et al.*, 2020; Slade *et al.*, 2019).

In sum, an important finding of this study is that none of the deprivation variables distinguished attempters from ideators. In a similar vein, markers of psychiatric morbidity were not independently associated with suicide attempt once suicidal thoughts were taken into account. Instead, the presence of a suicide plan was the most important risk factor for behavioural enactment in prisoners with suicidal ideation. Factors which might be labelled as *dysregulated behaviours* (drug use, interpersonal violence, and non-suicidal self-injury; Bresin, 2020) doubled the odds of suicide attempt in the context of suicidal thoughts. Deficits in executive functioning may be a shared diathesis underlying these associations, in that people with reduced inhibition might have difficulty resisting the urge to act on suicidal thoughts (Bredemeier & Miller, 2015; Saffer & Klonsky, 2018). Indeed, research suggests that prisoners who are violent (towards others or oneself) and abuse drugs have lower impulse control than their incarcerated counterparts (Bernstein *et al.*, 2015; Carli *et al.*, 2010; Meijers *et al.*, 2017), which might explain their heightened propensity to behavioural enactment evidenced by this study. Reinforcing this assumption, studies indicate that impulsivity is one of the distinguishing factors between youth who had attempted suicide and those who had thought about suicide without making an attempt (e.g., Dhingra *et al.*, 2015; Mars *et al.*, 2019b; Wetherall *et al.*, 2018). In sum, the current data lend support to the hypothesis that behavioural disinhibition might act as a catalyst in the progression from thought to enactment (Mann *et al.*, 1999; Turecki *et al.*, 2019). Exposure to suicidal behaviour of others appears to be an additional important factor that might govern the transition to suicidal behaviour in the face of suicidal thoughts.

Methodological limitations

This study is one of the few to delineate risk factors associated with a suicide attempt among prisoners with suicidal thoughts, thereby helping us to better understand the transition from suicidal ideation to action in a vulnerable population at increased risk of suicide. A noteworthy strength of this study is its large random sample—accounting for 13% of the average daily prisoner population in Belgium—which was broadly representative of the annual census data during the study period (DG EPI, 2017, 2020).

The results of this study should be interpreted in the context of the methodological limitations outlined in CHAPTER 3—the most obvious of which being the use of cross-sectional data. Although cross-sectional studies are appropriate to identify potential factors distinguishing ideators from attempters, *longitudinal* research is required to examine transitions from ideation to action over time. Moreover, several variables in this study had different timestamps (i.e., current, while incarcerated, and lifetime), which further limits assertions about the temporality of observed associations. It will be important to evaluate the consistency of these findings in future prospective research that carefully documents the time of onset of each predictor and outcome. Furthermore, the analyses relied upon retrospective self-report data, which may be vulnerable to biased recall and social desirability (Borschmann *et al.*, 2017b).

In addition to these general limitations (CHAPTER 3), there are four methodological caveats that specifically apply to this study. A first concern relates to the use of a single-item assessment for suicidal outcomes. Such an approach, although commonly used in similar ideation-to-action studies (Larney *et al.*, 2012; Mars *et al.*, 2019b; Wetherall *et al.*, 2018), may bias results towards an inflation of prevalence estimates due to misclassification (Hom *et al.*, 2016; Millner *et al.*, 2015; Ploderl *et al.*, 2011). In doing so, establishing the chronicity and frequency of the outcomes was not possible. Both the ideators and attempters therefore reflect a heterogeneous composition of suicidal prisoners. Future studies should assess characteristics (e.g., persistence, frequency, uncontrollability, recency, and severity) of suicidal thinking, since these facets have been shown to facilitate the transition to suicide attempts (Borges *et al.*, 2006; Brezo *et al.*, 2007; Miranda *et al.*, 2014; Naifeh *et al.*, 2020; Nock *et al.*, 2018; ten Have *et al.*, 2013). Second and relatedly, most clinical variables in this study were measured using a single-item, as opposed to more fine-grained and psychometrically validated scales. Self-report approaches to clinical diagnosis are not without problems, and clinician-administered diagnostic interviews would be a more accurate approach (Stuart *et al.*, 2014; CHAPTER 6). Third, this study was limited in the number of risk factors that were considered; future studies could examine the extent to which impulsivity, aggression, childhood maltreatment, and traumatic brain injury may be implicated in the transition from thoughts to behaviour. Fourth, the data examined non-fatal outcomes but not suicide. Because differences exist between risk factors for fatal and non-fatal suicidal behaviours (Boren *et al.*, 2018), the current findings may not be generalisable to prisoners who die by suicide (CHAPTER 2).

Implications and future directions

Although previous research has been influential in highlighting a wide range of risk factors for suicidal behaviour in prisoners (CHAPTER 4; Zhong *et al.*, 2021), it does not establish who is most likely to act on their suicidal thoughts. This is of particular interest since only a minority of people who think of suicide will engage in suicidal behaviour (e.g., Borges *et al.*, 2010a; Bruffaerts *et al.*, 2015; Hubers *et al.*, 2018;

Nock *et al.*, 2008a; Sunderland *et al.*, 2021; ten Have *et al.*, 2009, 2013). Three quarters (73%) of people in this study who considered suicide while incarcerated did not make a suicide attempt, implying that progression along the suicidal continuum can be halted. Therefore, timely strategies aimed at reducing the likelihood of prisoners acting on their suicidal thoughts should be implemented. A critical first step includes the identification of prisoners at risk for behavioural enactment—a challenge faced by clinicians working with a population marked by high rates of suicidal ideation. The current data provide guidance on the types of questions and issues that clinicians might wish to address if a prisoner discloses having thoughts of suicide. Asking about the presence of a suicide plan, drug use, NSSI, and violent behaviour could be beneficial, as could a closer inspection of the individual's propensity to be impulsive. However tentative, the current data further suggest that externalising and impulsive behaviours might present actionable targets for intervention. Dialectical behaviour therapy could be one promising approach in this respect (Bresin, 2020; DeCou *et al.*, 2019), but evidence of effectiveness in prisoners remains weak (Winicov, 2019). Given the association between exposure and suicide attempt, interventions following suicidal behaviour in prisons should extend beyond the individual prisoner to others in the same wing or prison who could be at risk of suicide (Hales *et al.*, 2014; Hawton *et al.*, 2014; Slade *et al.*, 2019).

An important finding of this study is that factors relating to prisoners' mental health and their perceptions about the prison regime were not uniquely associated with a suicide attempt. This finding, however, does not suggest that these factors are unimportant in the aetiology or prediction of suicidal behaviour, but merely that they are not especially useful in determining who is likely to act upon their suicidal thoughts. From a preventive point of view, interventions should be targeted at addressing the development of suicidal ideation as well (CHAPTER 3). Accordingly, mental health care remains a central component of any prevention strategy in prisons (Fazel *et al.*, 2016), which should be complemented by environmental interventions and changes to the correctional regime, including measures aiming to promote autonomy, purposeful activity, and social support (Marzano *et al.*, 2016). This latter approach is supported by neuropsychological evidence suggesting that the restricted and impoverished custodial environment may exert a negative effect on prisoners' self-control (Meijers *et al.*, 2018).

Not only do the current findings add to the growing literature supporting an ideation-to-action framework, they further expand its applicability to an understudied population in which factors related to behavioural enactment—such as violent offending—might hold particular relevance. Further research is needed to better understand the mechanisms through which prisoners come to think about suicide and subsequently decide (not) to act on suicidal thoughts. Prospective studies should build upon these findings and explore whether the identified factors indeed *predict* suicidal outcomes during the course of imprisonment, with particular focus on impulse control as a possible intervention target. A more in-depth appreciation of the suicidal process during incarceration has the potential to improve detection, management, and prevention of suicide risk within this high-risk population of prisoners.

CONCLUSION

Factors associated with suicidal thoughts are different from those that govern the transition to suicidal behaviour. Markers of psychiatric morbidity and aspects of the prison regime might affect the cognitive (ideation) rather than the behavioural (attempt) spectrum of the suicidal process. Instead, behaviours characterised by disinhibition were independently associated with the transition to suicide attempt in prison. Although the current study did not directly test this hypothesis, these associations might reflect impulse control deficiencies, and supports further investigation of executive functions as a moderator in the thought–behaviour relationship among prisoners. Exposure to suicidal behaviour of incarcerated peers and the presence of a suicide plan were additional suicide-related factors that increased the risk of suicide attempt in the face of suicidal ideation while incarcerated.

Key points

- Two-thirds of adults who think about suicide do not engage in suicidal behaviour in their lifetime.
- Identifying what factors may precipitate the transition from thoughts to enactment could elucidate points at which to disrupt this trajectory of risk during the period of incarceration.
- Multivariate analysis compared prisoners who attempted suicide in prison ($n = 121$) with those who thought about suicide but did not attempt suicide ($n = 331$) on a range of established risk factors to identify independent associations with the transition from suicidal ideation to action inside prison.
- Three-quarters of participants who thought about suicide in prison did not make a suicide attempt.
- The odds of behavioural enactment among prisoners with suicidal ideation was 22 times higher in the presence of a suicide plan relative to their incarcerated counterparts without a suicide plan.
- Among prisoners with suicidal ideation, risk factors for the transition to suicide attempt were NSSI, violent offending, drug use, and exposure to suicidal behaviour—regardless of having a suicide plan.
- Aspects of the prison regime and markers of poor mental health were not independently associated with the progression from suicidal ideation to suicide attempt while incarcerated.
- Longitudinal data are needed to confirm whether these factors predict behavioural enactment during the course of imprisonment.

CHAPTER 6

Mental disorders and the suicidal process

Despite mounting evidence in the general population, to date, not a single study has sought to examine whether and which mental disorders may be differentially associated with distinct stages of the suicidal process among prisoners. Advancing our understanding of how specific mental disorders relate to the transition from suicidal ideation to action can provide valuable information for clinical risk assessment in this population characterised by poor mental health. A representative national sample of 1212 New Zealand prisoners were face-to-face interviewed with the Composite International Diagnostic Interview 3.0 to assess DSM-IV mental disorders based on validated diagnostic criteria. Three mutually exclusive groups of participants were compared on the presence vs. absence of mental disorders: those without a suicidal history (n = 778), those who experienced suicidal ideation but never made a suicide attempt (n = 187), and those who had suicidal thoughts and also attempted suicide (n = 247). One-third (35%) of participants reported a lifetime history of suicidal thoughts, of whom 56% had attempted suicide at some point in their lives. Suicidal outcomes in the absence of mental disorders were rare. Whilst each mental disorder assessed increased the risk of suicidal ideation and suicide attempt in the total sample, only a select subset of disorders was associated with the transition to suicide attempt among prisoners with suicidal ideation. Disorders characterised by poor impulse control (drug and alcohol dependence) and anxiety (posttraumatic stress disorder) were risk factors for the transition from ideation to action. These results are consistent with epidemiological data in the general population and suggest that most mental disorders are in fact best conceptualised as risk factors for the development of suicidal ideation rather than for the transition to suicide attempt. Once prisoners consider suicide, other factors beyond the mere presence of mental disorders may account for the progression towards behavioural enactment.

Portions of this chapter are based on Favril, L., Indig, D., Gear, C., & Wilhelm, K. (2020). Mental disorders and risk of suicide attempt in prisoners. [*Social Psychiatry and Psychiatric Epidemiology*](#), 55(9), 1145-1155. Louis Favril conceived the idea for the secondary analysis, designed the methodological plan, interpreted the results, drafted and revised the article. This chapter represents a thorough update of the previously published paper.

INTRODUCTION

Although recent meta-analyses clearly established that mental disorders increase risk of suicide overall (Conner *et al.*, 2019; Gili *et al.*, 2019; Moitra *et al.*, 2021; Too *et al.*, 2019), converging evidence suggests that most mental disorders might actually predict *thoughts* of suicide rather than suicidal *behaviour* in people who already consider suicide (Nock *et al.*, 2009, 2010, 2012, 2016). Large-scale epidemiological research has examined which specific disorders predict suicide attempt beyond their association with suicidal ideation (TABLE 31). There are three important findings from these studies. First, anxiety, mood, impulse-control, and substance use disorders all significantly predict suicidal thoughts and attempts in the population. Second, disaggregation of the observed effects reveals that the associations between most disorders and suicide attempts are largely attributable to these disorders predicting the onset of suicidal ideation. When limiting analyses only to those with suicidal ideation, mental disorders become very weak—and mostly non-significant—predictors of suicide attempt. For example, whilst depression is a strong predictor of suicidal ideation, it does not predict suicide attempt among those with ideation. Third, in the few instances where mental disorders *do* predict the progression from ideation to action, these are characterised by anxiety (e.g., posttraumatic stress disorder) and poor impulse control (e.g., substance use disorders and conduct disorder). These results have been replicated among population-representative samples of adolescents (Borges *et al.*, 2008b; Georgiades *et al.*, 2019; Gould *et al.*, 1998; Nock *et al.*, 2013) and US Army soldiers (Millner *et al.*, 2019; Naifeh *et al.*, 2019; Nock *et al.*, 2015), and collectively highlight the unique associations between specific mental disorders and distinct stages of the suicidal process across different populations. In support of this, a recent meta-analysis of 27 studies further concluded that only anxiety disorders (posttraumatic stress disorder in particular) and drug use disorder, but not major depression, distinguished attempters from ideators (May & Klonsky, 2016).

To date, little is known about how specific mental disorders differentially relate to suicide risk among prisoners. One study found that depression increased the risk of suicide attempt in Australian prisoners with suicidal ideation (Larney *et al.*, 2012). Results from CHAPTER 5 indicate that drug use, but not mental disorders, distinguished attempters from ideators in a sample of 1326 prisoners. However, while yielding important insights, these two studies are limited in that they solely relied on a screening instrument for depressive symptomatology (Larney *et al.*, 2012) or on self-reported diagnoses overall (CHAPTER 5), rather than assessing a range of mental disorders through validated diagnostic measures. Delineating which mental disorders may govern behavioural enactment among those considering suicide could guide risk assessment procedures and enable clinicians to better target interventions, especially in this high-risk population where many experience thoughts of suicide. This study sought to examine the extent to which specific DSM-IV mental disorders are associated with suicide attempt beyond their association with suicidal thoughts among a nationally representative sample of New Zealand prisoners.

Table 31. Associations of mental disorders with suicidal outcomes in population-representative studies.

| Study and sample | In the total population | | Suicide attempt ^a among those with suicidal ideation |
|--|---|--|---|
| | Suicidal ideation | Suicide attempt | |
| Kessler <i>et al.</i> (1999) <i>n</i> = 5877 United States | Every single anxiety, mood, substance, and impulse disorder ^{c-f} | Every single anxiety, mood, substance, and impulse disorder ^{c-f} | Drug abuse, bipolar disorder, PD, MDD ^h |
| Borges <i>et al.</i> (2008a) <i>n</i> = 5001 United States | Every single disorder ^{c-f} (except agoraphobia and bipolar disorder) | Not examined | None of the disorders |
| Scocco <i>et al.</i> (2008) <i>n</i> = 4712 Italy | Every single disorder ^{c-f} (except PD) | Every single disorder ^{c-f} (except PD and PTSD) | None of the disorders |
| Nock <i>et al.</i> (2009) <i>n</i> = 108,664 21 countries ^b | Every single anxiety, mood, substance, and impulse disorder ^{c-f} | Every single anxiety, mood, substance, and impulse disorder ^{c-f} | PTSD, GAD, bipolar disorder, ODD, alcohol dependence ⁱ |
| Borges <i>et al.</i> (2010b) <i>n</i> = 5782 Mexico | 10 out of all 15 disorders (specific phobia, social phobia, PTSD, SAD, MDD, bipolar disorder, ODD, conduct disorder, alcohol dependence, drug dependence) | 8 out of all 15 disorders (specific phobia, social phobia, PTSD, SAD, agoraphobia, ODD, conduct disorder, alcohol dependence) | Conduct disorder ^j |
| Nock <i>et al.</i> (2010) <i>n</i> = 9282 United States | 11 out of all 16 disorders (PD, social phobia, PTSD, SAD, agoraphobia, MDD, bipolar disorder, ODD, conduct disorder, IED, alcohol dependence) | 10 out of all 16 disorders (PD, social phobia, PTSD, MDD, bipolar disorder, alcohol dependence, all 4 impulse disorders ^f) | Conduct disorder ^k |
| ten Have <i>et al.</i> (2013) <i>n</i> = 6646 The Netherlands | Every single anxiety, mood, substance, and impulse disorder ^{c-f} | Every single anxiety, mood, substance, and impulse disorder ^{c-f} | None of the disorders |
| Batterham <i>et al.</i> (2018) <i>n</i> = 3175 Australia | Every single disorder ^g | Every single disorder ^g | PTSD, OCD |

Note. MDD, major depression disorder; GAD, generalised anxiety disorder; SAD, separation anxiety disorder; PD, panic disorder; PTSD, posttraumatic stress disorder; ODD, oppositional defiant disorder; IED, intermittent explosive disorder; ADHD, attention deficit hyperactivity disorder; OCD, obsessive-compulsive disorder. ^a When the study distinguished between planned and unplanned suicide attempts, results are shown for mental disorders predicting both (rather than only planned or only unplanned attempts). ^b Results shown for developed countries only. ^c *Mood disorders* include MDD, dysthymia, and mania/bipolar disorder. ^d *Anxiety disorders* include PD, GAD, specific/simple phobia, social phobia, PTSD, SAD, agoraphobia. ^e *Substance use disorders* include drug abuse/dependence and alcohol abuse/dependence. ^f *Impulse-control disorders* include conduct disorder, ODD, IED, and ADHD. ^g MDD, GAD, SAD, PD, OCD, PTSD, ADHD, alcohol use disorder, drug use disorder. ^h For unplanned attempts, also GAD, PTSD, and conduct disorder. ⁱ For unplanned attempts, also PD and conduct disorder. For planned attempts, also specific phobia, MDD, and IED. ^j For unplanned attempts, also GAD. ^k For unplanned attempts, also PTSD, ODD, alcohol dependence. For planned attempts, also IED, GAD, social phobia, bipolar disorder.

METHODS

Participants and procedures

This study is a secondary analysis of the 2015 *New Zealand Prisoner Mental Health Comorbidity Study* that was conducted between March and July 2015 across 13 prisons (Indig *et al.*, 2016).¹¹ All prisoners aged 18 years and over—who were newly sentenced or in custody for less than three months—were invited to participate. Eligible participants were identified by New Zealand Department of Corrections staff and were provided with a brief overview of the study. Those interested in participating were taken to an interview room where members of the National Research Bureau informed all participants about the study, obtained signed consent forms, and conducted the face-to-face interviews using computer-assisted personal interviewing. Trained interviewers were independent of the prison system to ensure objectivity, and study procedures adhered to rigorous protocols to ensure participants' confidentiality and safety. Prisoners were excluded if they did not speak proficient English or if they were determined by correctional staff to be too mentally or physically unwell to participate safely. The average time to complete the interview was 105 minutes, with a median duration of 93 minutes.

Of the 1557 eligible prisoners invited to participate in the study, 189 refused to participate and a further 156 were excluded because they did not complete the survey instruments. The final sample of 1212 prisoners (119 women) equates to a 77.8% response rate. The study sample represents 13.8% of all New Zealand prisoners nationwide, and was found not to be significantly different by age, sex, or ethnicity (Indig *et al.*, 2016). For example, the by sex distribution of the study sample (90% men) largely reflects that of the national prisoner population (96% men) at the time of recruitment (NZDC, 2015).

Measures

Five background characteristics were recorded: sex, age, ethnicity, country of birth, marital status, and education level. Criminological variables included history of incarceration, custodial status (remand vs. sentenced), security classification (high vs. other), and offence type (violent vs. non-violent).

Mental disorders. The *Composite International Diagnostic Interview* (CIDI) 3.0 is a fully structured and validated diagnostic interview (Kessler & Ustun, 2008) which was previously adopted in prison settings (Brinded *et al.*, 2001; Butler *et al.*, 2011). The CIDI is structured in diagnostic modules, each addressing one specific mental disorder. Diagnostic modules were completed for eight different mental disorders:

¹¹ This study was funded by the New Zealand Department of Corrections. Ethical approval was obtained from the Central Health and Disability Ethics Committee of the Ministry of Health. Both the funding agency and the original study authors gave approval to analyse the data for this PhD study and to include the results in this dissertation.

- *Anxiety disorders*: generalised anxiety disorder, panic disorder, posttraumatic stress disorder
- *Mood disorders*: bipolar disorder, dysthymia, major depressive disorder
- *Substance use disorders*: alcohol dependence, drug dependence

All of the above mental disorders are reported on using DSM-IV diagnoses. The survey did not utilise a diagnostic instrument for the assessment of psychotic disorders but used the CIDI questions related to whether a participant indicated that they ever had symptoms of psychosis, such as seeing visions and hearing voices. Personality disorders were assessed using the *Personality Diagnostic Questionnaire 4+* (PDQ-4), including the use of the clinical significance scale to improve sensitivity and specificity among prisoner populations (Davison *et al.*, 2001). All mental disorders were assessed on a lifetime basis.

Suicidal ideation and attempt. Consistent with previous ideation-to-action studies (Larney *et al.*, 2012; Mars *et al.*, 2019b; Wetherall *et al.*, 2018) the two outcome measures were a lifetime history of suicidal ideation and suicide attempt. Suicidal ideation was assessed by the question “Have you ever seriously thought about committing suicide?” (coded as no/yes). Regardless of the answer to the question about suicidal ideation, respondents were also asked whether they ever attempted suicide (coded as no/yes). Consistent with the approach described in CHAPTER 5, both dichotomous items were used to categorise participants in three mutually exclusive groups: prisoners without any suicidal history (*controls*), those who had thought about suicide but had never made a suicide attempt (*ideators*), and those who had suicidal thoughts and had also attempted suicide (*attempters*). None of the participants were found to have attempted suicide without suicidal ideation.

Statistical analysis

Contingency tables were used to describe characteristics of the total sample, further stratified by their suicidal histories. A series of logistic regressions were conducted to examine the relationship of mental disorders with suicide-related outcomes. First, bivariate analyses examined the effects of each disorder separately on suicidal ideation (ideators and attempters vs. controls) and suicide attempt (attempters vs. controls and ideators) in the full sample. For subsequent analyses, the sample was restricted to the subgroup of prisoners who reported suicidal ideation (irrespective of whether they attempted suicide), hence excluding non-suicidal controls (CHAPTER 5), to test whether and which disorders were associated with suicide attempt among those with suicidal thoughts (attempters vs. ideators). Both bivariate (i.e., considering only one disorder at a time) and multivariate (i.e., considering all disorders simultaneously) analyses were conducted. Odds ratios are presented as estimates of the associations between mental disorders and suicidal outcomes, with *p* values < 0.05 considered as statistically significant.

RESULTS

Sample characteristics

A total of 1212 offenders incarcerated across 13 New Zealand prisons were included in this study. The characteristics of the sample are detailed in TABLE 32, further stratified by participants' suicidal history. The large majority were men (94.2%) and born in New Zealand (85.6%). Their modal age was 25 years (range 17–85), with a mean of 32.6 ($SD = 11.5$). Three quarters (75.2%) were sentenced at the time of assessment, with two-thirds (65.3%) having a history of a previous custody. Around one-third (30.7%) of participants was charged with, or convicted of, a violent offence.

Table 32. Background characteristics of participants, by suicidal history.

| | Full sample (<i>n</i> = 1212) | Suicidal history | | | χ^2 |
|--------------------------------|-----------------------------------|-------------------------------|-------------------------------|---------------------------------|----------|
| | | Controls (<i>n</i> = 778) | Ideators (<i>n</i> = 187) | Attempters (<i>n</i> = 247) | |
| Male sex | 1093 (94.2) | 714 (94.9) | 169 (94.5) | 210 (91.4) | 6.30* |
| Age group | | | | | 4.05 |
| 17–24 years | 320 (18.9) | 214 (19.8) | 38 (13.9) | 68 (19.8) | |
| 25–44 years | 691 (55.7) | 436 (54.8) | 112 (57.6) | 143 (57.2) | |
| 45+ years | 201 (25.4) | 128 (25.4) | 37 (28.4) | 36 (23.0) | |
| Ethnicity | | | | | 25.63* |
| European | 431 (33.9) | 241 (29.8) | 85 (42.5) | 105 (40.9) | |
| Maori | 623 (49.1) | 414 (49.5) | 86 (47.4) | 123 (49.0) | |
| Pacific/other | 158 (17.0) | 123 (20.7) | 16 (10.1) | 19 (10.1) | |
| Country of birth (New Zealand) | 1058 (85.6) | 674 (84.0) | 163 (87.2) | 221 (89.9) | 5.28 |
| Marital status (married) | 606 (51.7) | 392 (52.1) | 97 (54.2) | 117 (48.5) | 1.35 |
| Secondary school qualification | 463 (38.1) | 305 (39.4) | 65 (34.3) | 93 (36.6) | 1.81 |
| Any previous custody | 778 (65.3) | 487 (63.7) | 128 (69.9) | 163 (67.0) | 2.72 |
| Sentenced status | 894 (75.2) | 589 (76.9) | 136 (74.9) | 169 (69.3) | 5.23 |
| High security classification | 222 (18.6) | 146 (19.0) | 38 (20.7) | 38 (15.5) | 2.00 |
| Violent offence | 384 (30.7) | 245 (29.9) | 56 (30.5) | 83 (33.5) | 1.02 |

Note. Data are presented as *n* (%). All percentages are presented weighted and bases unweighted. * $p < 0.05$.

Prevalence estimates of suicidal outcomes

The lifetime prevalence of suicidal thoughts and suicide attempt was 34.6% (95% CI 31.8–37.3) and 19.2% (95% CI 16.9–21.5), respectively (TABLE 33). Whereas women were significantly more likely than their male peers to report a suicide attempt (28.3 vs. 18.7; OR = 1.72, 95% CI 1.13–2.63), no significant sex difference was observed for suicidal ideation—despite higher rates in women compared with men (42.8 vs. 34.0; OR = 1.45, 95% CI 0.98–2.14). Of the 1212 participants in this study, 778 (64.2%) had no suicidal history (controls), 187 (15.4%) reported suicidal ideation only (ideators), and 247 (20.4%) had also attempted suicide (attempters). All (100%) participants who made a suicide attempt also reported suicidal ideation. Inversely, more than half (55.6%, 95% CI 50.7–60.6) of participants reporting suicidal thoughts had attempted suicide; 66.1% (95% CI 52.1–80.1) of women and 54.8% (95% CI 49.6–60.1) of men (OR = 1.61, 95% CI 0.84–3.07).

Table 33. Lifetime prevalence (%) of suicidal ideation and attempt, by sex.

| | All prisoners | Women | Men | OR (95% CI) |
|---------------------------|------------------|------------------|------------------|------------------|
| In the total sample | | | | |
| Suicidal ideation | 34.6 (31.8–37.3) | 42.8 (33.8–51.8) | 34.0 (31.2–36.9) | 1.45 (0.98–2.14) |
| Suicide attempt | 19.2 (16.9–21.5) | 28.3 (20.2–36.4) | 18.7 (16.3–21.0) | 1.72 (1.13–2.63) |
| <i>Base (n)</i> | 1212 | 119 | 1093 | |
| Among those with ideation | | | | |
| Suicide attempt | 55.6 (50.7–60.6) | 66.1 (52.1–80.1) | 54.8 (49.6–60.1) | 1.61 (0.84–3.07) |
| <i>Base (n)</i> | 434 | 55 | 379 | |

Prevalence estimates of mental disorders

Lifetime prevalence estimates of mental disorders range from a high of 37.4% for drug dependence to a low of 4.9% for dysthymia (see TABLE 34). A quarter (23.9%) of participants met criteria for PTSD, with other anxiety disorders being less common (8.7% for GAD and 5.6% for panic disorder). MDD was the most prevalent mood disorder—identified in 20.6% of the study sample. Proportions for any anxiety disorder (29.9%) and any mood disorder (32.0%) were comparable, each found in approximately three out of ten prisoners. Any substance use disorder was identified in 87% of the total sample. According to screening instruments, 33.1% of prisoners had a personality disorder and 12.6% reported symptoms of psychosis. In all, nine out of ten (90.7%) participants met diagnostic criteria for at least one mental disorder in their lifetime, with 63.6% of the sample having two or more disorders. Prevalence estimates of mental disorders stratified by participants' sex are detailed in APPENDIX L (men) and M (women).

Table 34. Clinical characteristics of participants, by suicidal history.

| | Full sample (<i>n</i> = 1212) | Suicidal history | | | χ^2 |
|-----------------------------------|-----------------------------------|-------------------------------|-------------------------------|---------------------------------|----------|
| | | Controls (<i>n</i> = 778) | Ideators (<i>n</i> = 187) | Attempters (<i>n</i> = 247) | |
| Anxiety disorders | | | | | |
| GAD | 108 (8.7) | 35 (4.6) | 32 (16.5) | 41 (16.5) | 45.81* |
| Panic disorder | 65 (5.6) | 26 (3.5) | 14 (8.1) | 25 (10.9) | 18.10* |
| PTSD | 292 (23.9) | 122 (15.5) | 59 (30.3) | 111 (47.5) | 97.31* |
| <i>Any anxiety disorder</i> | 372 (29.9) | 158 (19.6) | 79 (41.4) | 135 (55.7) | 116.83* |
| Mood disorders | | | | | |
| Bipolar disorder | 146 (11.1) | 70 (8.1) | 32 (15.9) | 44 (17.5) | 20.57* |
| Dysthymia | 60 (4.9) | 20 (2.5) | 15 (7.9) | 25 (10.5) | 25.64* |
| MDD | 254 (20.6) | 110 (14.2) | 60 (32.5) | 84 (33.2) | 53.18* |
| <i>Any mood disorder</i> | 403 (32.0) | 181 (22.4) | 93 (49.0) | 129 (51.1) | 89.01* |
| Substance use disorders | | | | | |
| Alcohol dependence | 449 (36.3) | 230 (29.1) | 79 (41.1) | 140 (56.9) | 56.81* |
| Drug dependence | 479 (37.4) | 265 (31.5) | 78 (41.6) | 136 (54.0) | 36.71* |
| <i>Any substance use disorder</i> | 1058 (87.0) | 662 (84.7) | 172 (91.3) | 224 (91.7) | 9.68* |
| Other disorders | | | | | |
| Any personality disorder | 376 (33.1) | 207 (28.8) | 65 (37.4) | 104 (44.3) | 18.27* |
| Psychosis symptoms | 151 (12.6) | 50 (6.9) | 33 (18.8) | 68 (27.0) | 64.57* |
| Any mental disorder | 1106 (90.7) | 687 (87.7) | 181 (96.1) | 238 (96.5) | 21.12* |
| Two or more disorders | 794 (63.6) | 438 (53.8) | 146 (78.5) | 210 (85.2) | 91.01* |

Note. Data are presented as *n* (%). All percentages are presented weighted and bases unweighted. GAD, generalised anxiety disorder; PTSD, posttraumatic stress disorder; MDD, major depressive disorder. * $p < 0.05$.

Bivariate and multivariate analyses

Nearly all (96.4%) participants reporting suicidal ideation met diagnostic criteria for at least one of the disorders assessed, with an identical proportion (96.4%) found among those who attempted suicide. Among prisoners without any lifetime mental disorder, only 3.6% reported suicidal thoughts and 1.9% had made a suicide attempt.

The associations of each mental disorder with suicidal ideation and attempt in the total sample (*n* = 1212) are presented in TABLE 35. Bivariate analyses show that every single disorder examined was significantly (all $p < 0.001$) associated with increased odds of suicidal ideation, with ORs ranging from 1.73 (personality disorders) to 4.13 (GAD). A similar pattern of results was observed for suicide attempt

as the outcome (all $p < 0.001$), with comparable effect sizes. The highest OR for attempted suicide was noted for PTSD (OR = 4.05), with other disorder-specific ORs in the range of 1.82 (personality disorders) to 3.68 (psychosis). Together, bivariate ORs for the associations between individual mental disorders and suicide-related outcomes were all consistently elevated and significant in the total sample of 1212 prisoners. As a group, anxiety disorders showed the strongest associations with suicidal thoughts (OR = 3.99) and suicide attempt (OR = 4.03), followed by mood disorders (ORs 3.49 and 2.77) and substance use disorders (ORs 1.95 and 1.81). As a whole, the presence of at least one mental disorder conferred a three-fold increase in the odds of both suicidal ideation (OR = 3.71) and suicide attempt (OR = 3.33), with similar (yet slightly higher) ORs (3.97 and 4.09 respectively) among prisoners having two or more disorders. Results for men and women separately are provided in APPENDIX N and O, respectively.

Table 35. Bivariate associations between mental disorders and suicidal outcomes.

| | In the total sample ($n = 1212$) | | Among those with ideation ($n = 434$) |
|-----------------------------------|------------------------------------|-------------------|---|
| | Suicidal ideation ^a | Suicide attempt | Suicide attempt |
| Anxiety disorders | | | |
| GAD | 4.13 (2.66–6.43)* | 2.70 (1.75–4.18)* | 1.00 (0.59–1.71) |
| Panic disorder | 2.91 (1.72–4.95)* | 2.65 (1.53–4.58)* | 1.38 (0.67–2.85) |
| PTSD | 3.63 (2.71–4.85)* | 4.05 (2.94–5.58)* | 2.09 (1.37–3.17)* |
| <i>Any anxiety disorder</i> | 3.99 (3.04–5.23)* | 4.03 (2.97–5.48)* | 1.78 (1.19–2.66)* |
| Mood disorders | | | |
| Bipolar disorder | 2.28 (1.58–3.28)* | 2.00 (1.34–2.99)* | 1.12 (0.66–1.91) |
| Dysthymia | 3.93 (2.19–7.06)* | 3.17 (1.79–5.60)* | 1.36 (0.67–2.80) |
| MDD | 2.97 (2.20–4.02)* | 2.32 (1.66–3.23)* | 1.03 (0.67–1.58) |
| <i>Any mood disorder</i> | 3.49 (2.68–4.55)* | 2.77 (2.04–3.75)* | 1.09 (0.73–1.63) |
| Substance use disorders | | | |
| Alcohol dependence | 2.42 (1.87–3.13)* | 2.88 (2.13–3.91)* | 1.89 (1.26–2.85)* |
| Drug dependence | 2.04 (1.58–2.63)* | 2.33 (1.72–3.16)* | 1.65 (1.10–2.48)* |
| <i>Any substance use disorder</i> | 1.95 (1.27–3.00)* | 1.81 (1.04–3.12)* | 1.05 (0.50–2.20) |
| Other disorders | | | |
| Any personality disorder | 1.73 (1.32–2.27)* | 1.82 (1.33–2.48)* | 1.33 (0.87–2.03) |
| Psychosis symptoms | 4.12 (2.80–6.07)* | 3.68 (2.51–5.39)* | 1.60 (0.97–2.62) |
| Any mental disorder | 3.71 (2.05–6.73)* | 3.33 (1.56–7.09)* | 1.11 (0.37–3.38) |
| Two or more disorders | 3.97 (2.95–5.35)* | 4.09 (2.75–6.06)* | 1.58 (0.93–2.67) |

Note. Data are presented as odds ratios (OR) and their 95% confidence intervals (CI). GAD, generalised anxiety disorder; PTSD, posttraumatic stress disorder; MDD, major depressive disorder. * $p < 0.05$. ^a Irrespective of suicide attempt status.

Although every disorder examined was associated with significantly increased odds of suicide attempt within the total sample ($n = 1212$), only three disorders were bivariately associated with suicide attempt when limiting analyses to prisoners with suicidal ideation ($n = 434$). As shown in TABLE 35, drug dependence (OR = 1.65, 95% CI 1.10–2.48), alcohol dependence (OR = 1.89, 95% CI 1.26–2.85), and posttraumatic stress disorder (OR = 2.09, 95% CI 1.37–3.17) conferred a two-fold increase in the odds of suicide attempt in prisoners with suicidal ideation. These ORs represent individual-level associations between specific disorders and suicide attempt without taking into account the overlap (comorbidity) of multiple disorders. Therefore, a multivariate analysis was further conducted to identify *independent* associations between all mental disorders and suicide attempt in the subsample of prisoners reporting suicidal thoughts; the results of which are shown in TABLE 36. Only PTSD (aOR = 1.17, 95% CI 1.03–1.32) and alcohol dependence (aOR = 1.12, 95% CI 1.00–1.26) were associated with increased odds of suicide attempt among those reporting suicidal ideation—independently of other disorders. Drug dependence (aOR = 1.05, 95% CI 0.94–1.19; $p = 0.323$) was no longer significantly related to behavioural enactment after adjusting for the presence of other mental disorders (TABLE 36).

Table 36. Multivariate model for suicide attempt among those with suicidal ideation ($n = 434$).

| | B | SE | aOR (95% CI) |
|--------------------------|--------|-------|-------------------|
| GAD | −0.046 | 0.078 | 0.96 (0.82–1.11) |
| Panic disorder | 0.047 | 0.103 | 1.05 (0.86–1.28) |
| PTSD | 0.155 | 0.064 | 1.17 (1.03–1.32)* |
| Bipolar disorder | 0.324 | 0.328 | 1.38 (0.73–2.63) |
| Dysthymia | 0.014 | 0.108 | 1.01 (0.82–1.25) |
| MDD | −0.049 | 0.071 | 0.95 (0.83–1.09) |
| Alcohol dependence | 0.115 | 0.060 | 1.12 (1.00–1.26)* |
| Drug dependence | 0.052 | 0.060 | 1.05 (0.94–1.19) |
| Any personality disorder | 0.260 | 0.231 | 1.30 (0.82–2.04) |
| Psychosis symptoms | 0.233 | 0.258 | 1.26 (0.75–2.14) |

Note. Odds ratios are adjusted for sex, age, ethnicity, and all other mental disorders in the model. GAD, generalised anxiety disorder; PTSD, posttraumatic stress disorder; MDD, major depressive disorder. * $p < 0.05$.

In sum, whilst every single disorder examined consistently increased the odds of suicide attempt in the total sample (with effect sizes clustered around 2.5), these associations were substantively attenuated once suicidal thoughts were accounted for. Most disorders had very weak (and mostly non-significant) associations with suicide attempt among prisoners with suicidal ideation.

DISCUSSION

Main findings

To date, little is known regarding which mental disorders differentiate between prisoners who attempt suicide and those who experience suicidal ideation but do not act on these thoughts. Yet, delineating diagnostic differences between ideators and attempters could shed light on risk factors that contribute to the translation of suicidal thoughts into behaviour. There are several novel findings from this study, based on data of a nationally representative sample of more than a thousand New Zealand prisoners.

Suicidal outcomes in the absence of mental disorders were rare—which is consistent with the national UK study by Jenkins *et al.* (2005). Prisoners who met diagnostic criteria for at least one mental disorder were three times more likely to report suicidal ideation and attempt than those with no such disorders. Specifically, every single mental disorder was associated with increased odds of both suicidal ideation and attempt, supporting the long-held notion that mental disorders are important predictors of suicidal outcomes—in prisons (Baillargeon *et al.*, 2009; Fazel *et al.*, 2013; Gates *et al.*, 2017; Jenkins *et al.*, 2005; Rivlin *et al.*, 2010; Sarchiapone *et al.*, 2009; Zhong *et al.*, 2021) and the general population (Chesney *et al.*, 2014; Conner *et al.*, 2019; Crump *et al.*, 2014; Gili *et al.*, 2019; Harris & Barraclough, 1997; Hoertel *et al.*, 2015; Moitra *et al.*, 2021; Too *et al.*, 2019). This strengthens the evidence reported in the meta-analysis of risk factors for suicide attempt among more than 12,000 prisoners (CHAPTER 4).

Importantly, these associations were substantially attenuated—and became non-significant in most cases—when examining suicide attempt among prisoners who experienced suicidal ideation. For example, dysthymia conferred a three-fold increased odds of suicide attempt in the total sample, but failed to distinguish attempters from ideators once the shared variance between suicide attempt and suicidal ideation was accounted for. These data suggest that few disorders are associated with suicide attempt above and beyond their association with suicidal ideation. While novel among prisoners, these findings mirror those from more than a dozen large-scale epidemiological studies in non-incarcerated populations (Batterham *et al.*, 2018; Borges *et al.*, 2006, 2008a, 2008b, 2010a, 2010b; Georgiades *et al.*, 2019; Gould *et al.*, 1998; Kessler *et al.*, 1999; Millner *et al.*, 2019; Naifeh *et al.*, 2019; Nock *et al.*, 2009, 2010, 2013, 2015; Scocco *et al.*, 2008; ten Have *et al.*, 2013)—collectively concluding that mental disorders are in fact important in the development of suicidal thoughts, but less relevant in predicting which individuals with suicidal thoughts will act on them and engage in suicidal behaviour. In a similar vein, among prisoners in Belgium, self-reported diagnoses of mental disorders overall were associated with increased odds of experiencing suicidal thoughts (CHAPTER 3) but not with the transition to suicide attempt (CHAPTER 5). A similar pattern of findings in this sample was also found for use of psychoactive medication on prescription, as a proxy measure for current psychiatric morbidity.

Results further indicated that only PTSD and substance use disorders differentiated attempters from ideators. Once again, this finding dovetails with an established body of literature, suggesting that disorders characterised by increased distress (anxiety) and decreased restraint (poor impulse control) are especially pertinent in predicting the transition from suicidal ideation to attempt (Batterham *et al.*, 2018; Borges *et al.*, 2006, 2010a, 2010b; Gould *et al.*, 1998; Kessler *et al.*, 1999; May & Klonsky, 2016; Millner *et al.*, 2019; Naifeh *et al.*, 2019; Nock *et al.*, 2009, 2010, 2013, 2015). More broadly, the findings from CHAPTER 5 similarly show that illicit drug use (as a proxy to substance use disorders) independently distinguished attempters from ideators in a sample of 1326 prisoners in Belgium. This contributes to a growing body of literature documenting that drug use—even in the absence of a psychiatric diagnosis thereof—is a risk factor for the transition from ideation to action (Kim *et al.*, 2015; Mars *et al.*, 2019a; May *et al.*, 2020; Stack, 2014). Studies also suggest that exposure to interpersonal trauma, regardless of PTSD diagnosis, is associated with an increased risk of suicide attempt in those with suicidal thoughts (Afzali *et al.*, 2017). Data of 102,245 adults in 21 countries further show that the association between trauma and risk of suicide holds irrespective of whether or not PTSD was diagnosed (Stein *et al.*, 2010).

Despite this consistent pattern of findings, however, few studies have sought to examine *why* these specific mental disorders might govern behavioural enactment among those who consider suicide. With regard to substance use disorders, one plausible explanation is that the effects of alcohol and/or drug abuse—either acute or because of long-term sequelae of use—might lower behavioural inhibition and impair decision-making (de Wit, 2009; Kozak *et al.*, 2019), consequently making it more likely that one will act on their thoughts. Such alterations in executive functioning have equally been documented in people diagnosed with PTSD (Polak *et al.*, 2012) and is evidenced by inclusion of the novel “reckless and self-destructive behaviour” symptom in DSM-5 (APA, 2013). In support of this assumption, a recent systematic review concluded that suicide attempters are largely similar to ideators on a wide range of neurocognitive abilities, with the exception of two subdomains of executive functioning: inhibition and decision-making (Saffer & Klonsky, 2018). Altered executive control could thus reflect a transdiagnostic mechanism implicated in the transition from thought to enactment (Bredemeier & Miller, 2015), which has been posited by the diathesis-stress model of suicidal behaviour (Mann & Rizk, 2020).

Methodological limitations

This study represents the most comprehensive investigation to date to examine which specific mental disorders are related to suicide attempt beyond their association with suicidal ideation in prisoners. A key strength of this study is its large and representative sample, which accounts for 14% of the national prison population in New Zealand—all of whom were assessed using validated diagnostic instruments. Four important limitations should nonetheless be borne in mind when interpreting the current results.

First and most importantly, the cross-sectional nature of this study did not afford opportunities to verify the central assumption proposed—that mental disorders occurred temporally prior to suicidal outcomes. Since both were assessed on a lifetime basis, the lack of precise temporal ordering—that is, the relative timing between the onset of disorders and suicidal outcomes—limits the interpretation of the nature of these associations. As such, a number of alternative interpretations cannot be ruled out, including the possibility that PTSD is a *consequence* of having attempted suicide (Stanley *et al.*, 2019) or that substance abuse reflects a maladaptive coping strategy which emerged *after* a suicide attempt. Another related consequence of assessing disorders and outcomes on a lifetime basis is that it was not possible to examine associations between mental disorders and suicidal outcomes occurring before or during the current period of incarceration. The extent to which specific mental disorders impact upon one's risk of behavioural enactment *while in prison* thus remains unclear. Prospective studies are needed to explore whether (and which) mental disorders are longitudinally associated with suicidal behaviour during the course of imprisonment. Second, the severity or chronicity of each mental disorder was not considered, nor was the full range of mental disorders assessed. Studies in the general population have shown that obsessive-compulsive disorder and impulse-control disorders (including conduct disorder, oppositional defiant disorder, intermittent explosive disorder, attention deficit hyperactivity disorder) are associated with suicide attempt among those with suicidal thoughts (see TABLE 31). These disorders were not included in the study protocol so it was not possible to examine their association with suicidal outcomes. Third, DSM-IV criteria were used to establish psychiatric diagnoses despite DSM-5 being the most recent version (APA, 2013). For example, in DSM-5, diagnostic criteria for substance use disorders were revised to combine dependence and abuse criteria into a single disorder, which may have had an impact on the current results. Fourth, other limitations relate to those described in CHAPTER 5, including the reliance on retrospective self-report and the use of a single-item assessment for suicidal outcomes, both of which are prone to bias, as well as the omission of suicide deaths from the analysis.

Implications and future directions

Even within the context of these methodological constraints, this study makes a solid contribution to the nascent literature as it advances our understanding of the differential associations between mental disorders and distinct stages of the suicidal process among prisoners. A central finding of this study is that the strong relationship observed between most investigated mental disorders and suicide attempt substantively diminished once suicidal ideation was taken into account. Pending replication, the results suggest that only a select subset of mental disorders—those characterised by anxiety and poor impulse control—might play a role in governing the translation of suicidal thoughts into action. There are, from an empirical, methodological, and clinical point of view, three key implications arising from this study.

Despite the fact that prisoners constitute a particularly vulnerable population when it comes to mental health, the current data replicate and extend previous community-based findings that most mental disorders might actually predict suicidal thoughts rather than the transition to suicide attempt (TABLE 31). Moreover, in the few instances where disorders did differentiate attempters from ideators, effect sizes were modest (OR range 1.65–2.09) but nonetheless consistent with recent meta-analytical evidence (May & Klonsky, 2016). This recurring pattern of findings across populations and settings thus highlights that most mental disorders might be important in the development of suicidal thoughts, but once individuals consider suicide, other factors beyond the mere presence of a mental disorder might account for the progression towards suicidal behaviour (CHAPTER 5). This is in keeping with the currently dominant discourse which emphasises that suicidal behaviour is a multi-determined phenomenon and a complex web of synergistically interacting variables is implicated in its aetiology. Accordingly, in view of the clinical importance of being able to make predictions about the transition from suicidal thoughts to action, further delineating factors that facilitate as well as impede behavioural enactment in prisoners who have suicidal thoughts represents a key avenue for future research in this vulnerable population.

A methodological implication of this study concerns research design. Almost every single study that seeks to identify which mental disorders—and risk factors in general—are associated with suicidal behaviour among prisoners tends to compare those who have attempted (or died by) suicide with their non-suicidal peers, irrespective of suicidal thoughts (e.g., Fazel *et al.*, 2013; Gates *et al.*, 2017; Jenkins *et al.*, 2005; Sarchiapone *et al.*, 2009; Stoliker, 2018). The current findings clearly illustrate that such a design—which neglects to account for the shared variance with suicidal thoughts when examining risk factors for suicidal behaviour—has major consequences for what clinical implications the results might have. If this study would not have adjusted for suicidal thoughts, the conclusion would have been that every single mental disorder is a risk factor for suicide attempt among prisoners. This is a very different take-home message than the one that is advocated now, thereby highlighting the non-trivial nature of this methodological decision. Because most disorders appear to predict suicide attempt solely through their association with suicidal ideation, it is crucial for future studies to adopt a similar practice in order to establish the independent contributions of specific mental disorders in relation to distinct stages of the suicidal process—the development of suicidal thoughts and the progression to suicidal behaviour.

Clinically, it is clear that mental health services need to be adequately resourced and linked to effective interventions (Fazel *et al.*, 2016; Givens *et al.*, 2021; Johnson *et al.*, 2019; Yoon *et al.*, 2017). The findings underscore the need to tailor treatments not only to specific mental disorders but equally to suicidal outcomes. Treatments designed for suicidal behaviour do not have an appreciable effect on suicidal thinking (Kleiman, 2020). Trauma-focused therapy and psychological treatments for substance use (Wolff *et al.*, 2015) may prevent suicidal behaviour, whereas treatments targeting depression may address suicidal thinking in the first place, which can have downstream effects on suicidal behaviour.

CONCLUSION

Mental disorders are overrepresented in prisons. Prisoners who met diagnostic criteria for at least one mental disorder were three times more likely to have considered or attempted suicide compared with those having no mental disorder. Disaggregation of the associations between specific mental disorders and suicidal outcomes in prisoners confirmed the growing recognition that mental disorders associated with the development of suicidal thoughts are distinct from those that govern the transition to suicidal behaviour. Most mental disorders appear to affect the cognitive (ideation) rather than the behavioural (attempt) spectrum of the suicidal process. Deficits in behavioural inhibition and decision-making may be transdiagnostic mechanisms that facilitate the progression from thought to enactment. Trauma and substance use present promising targets for clinical intervention to prevent suicide among prisoners.

Key points

- Despite mounting evidence in the general population, not a single study has yet sought to examine whether and which specific mental disorders are differentially associated with distinct stages of the suicidal process among prisoners.
- Diagnostic interviews were conducted in a representative national sample of 1212 adults who were incarcerated in 13 New Zealand prisons, accounting for 14% of the prison population nationwide.
- Guided by an ideation-to-action framework, analyses compared three mutually exclusive groups of participants on the presence of mental disorders assessed by validated DSM-IV diagnostic criteria: those without a suicidal history ($n = 778$), those who had experienced suicidal ideation but did not make a suicide attempt ($n = 187$), and those who acted on their suicidal thoughts ($n = 247$).
- Prisoners who met diagnostic criteria for at least one mental disorder were three times more likely to report suicidal ideation and suicide attempt than those with no such diagnosed disorders.
- Disaggregation of the observed effects shows that the risk of suicide attempt attributable to mental disorders was largely explained by the association between mental disorders and suicidal thoughts; most disorders were not related to attempt above and beyond their association with ideation.
- Only mental disorders characterised by poor impulse-control (substance use disorders) and anxiety (PTSD) were risk factors for the transition from ideation to action, albeit effect sizes were moderate.
- Mental disorders are best conceptualised as risk factors for suicidal thoughts. Once people consider suicide, other biopsychosocial factors beyond the mere presence of mental disorders might account for the progression towards suicidal behaviour.
- Clinical interventions should target substance use and posttraumatic symptoms among prisoners.

CHAPTER 7

Staff perspectives on suicide prevention

The prevention of prison suicide is an international priority. Many countries worldwide have established standards and guidelines for suicide prevention—Belgium not being one of them. Current best practices in the prevention and management of suicide risk in Belgian prisons remain unexplored to date, as do the barriers to implementation and the needs experienced by professionals who are working in prisons. Thirteen interviews and three focus groups were undertaken with a total of 35 professionals working in 15 Flemish prisons to explore their perspectives about needs, barriers, and ways forward in suicide prevention. Qualitative data were thematically coded and analysed. Findings suggest that the currently imposed prevention measures in Belgian prisons are mainly restrictive in nature—aimed at the physical prevention of suicide. Most of the needs and recommendations formulated by participants were not necessarily suicide-specific in nature, but rather reflected generic improvements to the prison regime and service delivery, including sufficient and consistent staffing on wings, opportunities for purposeful activity, and mental health care provision. However, enduring concerns of overcrowding and shortages in staffing exacerbate existing problems in prisoner-staff ratios, and compromise these improvements. Clear leadership, staff training, and multi-disciplinary collaboration were seen as the backdrop against which more targeted interventions would prosper. Increased resource allocation for overcrowded and understaffed prisons is required to effectuate a comprehensive approach towards suicide prevention.

INTRODUCTION

The disproportionate high risk of suicide in prisoners clearly necessitates the need for evidence-based prevention which, according to the WHO (2007), is an international priority. Many countries worldwide have established national standards and guidelines for suicide prevention in prisons, although there is substantial international variation (Barker *et al.*, 2014; Daigle *et al.*, 2007). Whilst the specifics of these strategies to prevent prison suicide markedly differ in response to local needs and resources, the WHO (2007) recommends that all prisons—regardless of size and population—should have a comprehensive prevention policy in place that outlines best practice and, at minimum, contains several key elements:

- A training programme (including refreshers) for staff to help them recognise suicidal prisoners and appropriately respond to prisoners in suicidal crises.
- Attention needs to be paid to the general prison environment (levels of activity, safety, culture, and staff-prisoner relationships).
- Procedures to systematically screen prisoners upon their arrival at the facility and throughout their stay in order to identify those who may be at high risk.
- A mechanism to maintain communication between staff regarding high-risk prisoners.
- Written procedures outlining requirements for housing high-risk prisoners, provision of social support, and routine visual checks and constant observation for acutely suicidal prisoners.
- Prisoners with mental disorders in need of treatment should receive this—pharmacological or psychosocial interventions—and be kept under strict observation.
- Development of sufficient internal resources or linkage to external community-based mental health services to ensure access to mental health staff.

Many national guidelines have included these elements (Daigle *et al.*, 2007; NCCHC, 2019; NICE, 2018; Westendorp *et al.*, 2016). Although prisoners were identified as a high-risk group in the Flemish Suicide Prevention Action Plan (2012–2020), at present, there is no regional policy or guidelines for preventing suicide in Flemish prisons—let alone a *national* policy, by reason of suicide prevention being a regional competence in Belgium. There are also marked regional differences in how prisons approach this issue of suicide, with prevention strategies—for the most part—being highly fragmented (Burton, 2017; De Bruyn, 2016). Key aspects of service provision that might be most effective in preventing suicide remain unexplored, as well as the potential barriers and needs experienced by staff working in Belgian prisons. Yet, knowledge of perspectives of those who work with prisoners is key to maximising the opportunity to prevent suicidal behaviour. This study, therefore, aimed to investigate the needs, barriers, and ways forward in suicide prevention as perceived by professionals employed within the Belgian prison estate. Findings could inform policy makers in their efforts to prevent suicide risk among prisoners in Belgium.

METHODS

Interviews

Semi-structured interviews were planned with prison governors from prisons in Flanders. All 15 prisons that participated in the survey study (CHAPTERS 2 and 5) were contacted. A total of 13 (87%) governors (nine women) from 13 prisons agreed to participate in the study. A semi-structured approach was most appropriate to maintain focus and increase comparability across interviews, whilst retaining flexibility. An open questioning style was used to allow space for development and participants were encouraged to introduce issues of importance beyond those covered by the topic guide. The interview guide was designed based on previous research in this area (e.g., Liebling, 1992; Ludlow *et al.*, 2015) and covered mostly broad themes (e.g., the barriers, needs, and ways forwards in suicide prevention within prison). Governors were asked to respond with the facility in mind where they were employed at the time of the interview. All participants provided written consent and were interviewed (on a face-to-face basis) at a time and place of their choosing. All interviews were conducted in 2017 by a Master's student with close guidance by the researcher. After the first two interviews were completed, a feedback moment was organised to discuss progress, difficulties, and content. All 13 interviews were audio-recorded and lasted on average 32 minutes (range 18–57), totalling 416 minutes (7 hours).

Focus groups

Three focus groups were conducted in 2019. Purposive sampling was used to select prisons that varied across key dimensions such as population (remand and sentenced; men and women) and size in order to maximise variation. The policy coordinator of each prison contacted possible participants. Staff from all relevant disciplines and services active in the prisons were selected without any exclusion criteria. Each focus group ranged between 6 and 9 participants, including prison officers ($n = 5$), nurses ($n = 2$), the psychosocial service (*Psychosociale Dienst* [PSD], $n = 3$), mental health in-reach teams (*Centra voor Geestelijke Gezondheid* [CGG], $n = 4$), social welfare services (*Justitieel Welzijnswerk* [JWW], $n = 3$), one chaplain, policy coordinators ($n = 2$), and prison governors ($n = 2$). Individual focus groups reflected a representation of staff involved in suicide prevention. A flexible topic guide, based on qualitative work on this topic (e.g., Liebling, 1992; Ludlow *et al.*, 2015), was adopted to explore staff perspectives about current practices, barriers, needs, and ways forwards in suicide prevention (similar to that used for the interviews with governors). Participants were encouraged to share views about themes that were not included in the topic guide. All focus groups were conducted by the researcher, lasted between 74 and 97 minutes (246 minutes or 4 hours in total), and were audio-recorded with participants' consent.

Data analysis

Qualitative data generated from the interviews ($n = 13$) and focus groups ($n = 22$) were analysed using thematic analysis to identify common themes and discrepancies across the views of participants (Braun & Clarke, 2006). Initial familiarisation with the data was achieved by reading and re-reading transcripts. Transcripts were read at least three times, summarised, and major themes noted. The transcripts were then coded using NVivo (version 11) software, and a hierarchical structure of themes was produced which was cross-referenced to salient topics from the literature. Data were analysed by the researcher, with a selection of transcripts being coded by two other researchers to provide differing perspectives on the data. All quotes used were translated in English and edited for readability (e.g., removing speech fillers) without touching participants' vernacular or tone. All the data have been anonymised, such that names of people or places are changed and potentially identifying information removed. Apart from method (interview or focus group) and profession, no further information is provided with the quotes as it could possibly identify participants and could compromise confidentiality. Original quotes in Dutch are provided in APPENDIX P.

Limitations

The sample comprised staff from a range of disciplines, within which different perspectives prevailed. Despite the inclusion of participants from different prisons with different professional backgrounds, it is possible that they represent a relatively homogeneous group of stakeholders. Staff were purposively sampled, and it is plausible that those who chose to participate have an interest in suicide prevention. Consequently, the views expressed by these participants may not necessarily reflect those of all staff. For example, no psychiatrists or physicians were able to participate in the focus groups—despite being invited to do so. Relatedly, the limited number of participants in specific professional groups prohibited any analysis of differences in experiences and perceptions between professions and roles, which would be an area requiring further investigation. Whilst it is unlikely that this research is representative of all prison staff in Flanders, it does provide a better understanding of the needs, barriers, and ways forward in suicide prevention. However, like all qualitative research, there remain issues with generalisability, and results should be interpreted with this limitation in mind. Furthermore, only professionals working in Flemish prisons were included in this study and their views may not reflect the situation in the other regions of Belgium, which is an important point because suicide prevention is a regional (not a national) competence in Belgium. A final caveat is that qualitative data may be interpreted in multiple ways, and the analysis presented here reflects only one possible explanation—that of a single researcher.

RESULTS

Identification of risk

Suicide prevention starts at arrival in prison. Overall, participants were fairly positive about the intake procedure, during which every incoming prisoner is seen by the prison governor and the PSD within 24 hours. Participants stated that screening for suicide risk can be part of a wider intake assessment, albeit not systematically. Risk assessment is often informal and intuitively; screening tools and guidelines are not structurally imbedded in the reception process in most of the prisons. This holds true for the period beyond reception. Many staff stated that they did not directly assess risk or thoughts of suicide. In light of this, participants (including clinical staff) signalled the need for more objective tools and criteria to assess suicide risk. Governors further valued and emphasised the importance of receiving information about potential suicide risk from the police and investigating judges before arrival in prison; for which they noticed an increasing trend.

I think that it is vital to talk about it, to dare to ask “do you have plans?”. However, it’s not easy to broach the subject in a direct way, but I think it’s crucial to raise the subject without beating around the bush... Guidelines would be very useful in this case.

— Psychosocial service, focus group

No, new prisoners aren’t screened as standard. Although there is the first conversation with the governor upon arrival which serves as an initial screening and gives us clues as to who we are dealing with and what we need to pay attention to. Needless to say that we will not launch into an “are you suicidal?” scenario, but most of the time, we have a clear indication as to whether a person is depressed or not.

— Governor, interview

Sometimes the police inform us that certain new prisoners may be at risk of suicide, upon their arrival. Sometimes we even have it in writing from the investigating judge, but otherwise... We do however meet with them the next day, as does the PSD, which are relatively intensive conversations. During those conversations, we do not ask them directly [about suicide] but we do get the impression that they actually bring it up themselves.

— Governor, interview

Prison officers: the backbone of prevention

Prison officers were perceived by participants across disciplines as the backbone of suicide prevention. They are “on the frontline” and are best placed to identify and manage risk of suicide among prisoners. There was strong consensus among staff about the importance of work experience to their ability to identify and manage suicide risk. Prison officers specifically identified risk through knowledge that was acquired “on the job” rather than through specialised training. Staff mentioned “a couple of hours” in their initial training. Most participants felt it imperative that frontline staff were better equipped with the necessary skills to address mental health issues and suicide risk, and welcomed more and improved training. Participants (including prison officers) felt that this would give staff greater confidence in their professional practice, and increase their skills to detect risk factors and warning signs that might point to possible risk. It was perceived to be important to ensure that new employees are trained adequately in suicide prevention, and for continuing staff to have ongoing training through refresher courses.

For officers, it's a skill acquired 'on the job' as we haven't received any proper training.

— Prison officer, focus group

I think more should happen on that front. It is included in officers' initial training but that is too basic and this knowledge gets forgotten over the years, hence refresher courses would be a good idea. They can sign up for this training, but in reality, they have to be motivated...

— Governor, interview

However, training is voluntary and participation relies on officers' personal motivation. It was deemed difficult to organise mandatory training in suicide prevention—or *any* training for that matter—for all prison staff, largely as a result of staffing shortages and a lack of resources. Despite the high need and being desirable, suicide training appeared not to be feasible under the current circumstances.

What is lacking is proper training for prison officers. Because not everybody... Some will detect risk of suicide faster than others. We have already tried to implement such training but it was rather expensive and also time intensive. Because if you are already faced with staff shortages, then things are very difficult. But I do think it would be appropriate as it would provide prison officers with adequate training to recognise suicide risk signals.

— Governor, interview

I think the main obstacle for training is the lack of personnel. Training levels have been very low over the years because it is impossible to have too many officers leave their post all at once for training. The staffing levels of officers have to be adequately increased so people are able to go and take a course. Because these courses indeed do exist, but...

— Policy coordinator, focus group

Apart from training, participants universally identified staff-prisoner relationships as key to identifying and managing risk. Fostering good relationships between prison officers and prisoners were seen as crucial. The need for more interaction with prisoners to build a rapport with them was underlined.

Having the time for one-on-one conversations. Social contact between prison officers and prisoners. The more contact between the two, the fewer the chances of someone slipping through the net.

— Governor, interview

The prison officer is the key point of call for prisoners; it's so much more than merely locking doors and maintaining security.

— Prison officer, focus group

Fostering positive day-to-day staff-prisoner relationships was strained under current working patterns. Prison staff, including officers, expressed frustration at having too little time to interact and build high-quality relationships with prisoners. Overcrowding and staff shortages were seen as the key causes for these time constraints. As a result, security and discipline remains officers' principal concern, and care and support comes second—when there is time left. This raises difficulties for staff to pick up on subtle changes in prisoners' mood, whereby risk may go undetected. This was especially true for staff working in remand prisons, where overcrowding was seen as more challenging.

It's difficult to free up 15 minutes for a prisoner, even though this could make all the difference.

— Prison officer, focus group

The workload prevents us from making time to have a conversation.

— Prison officer, focus group

Prison officers do not have the time to have a chat with someone, whereas making time and talking to prisoners are key elements in prevention. This is very important. At the moment, we are lacking in this, simply because we are overcrowded.

— Governor, interview

A related issue mentioned by prison governors was a lack of continuity of prison officers on the wings. Inconsistent deployment and too few staff meant that prison officers are unable to form relationships with prisoners that enabled them to identify and manage suicide risk and unable to devote sufficient time to supporting vulnerable prisoners. A permanent team of prison officers on each prison wing was seen by most participants, including officers, as a key component in suicide prevention.

Restrictive measures for physical prevention

Few participants stated that the current range of prevention efforts is sufficient. Most rely on physical prevention—including monitoring, means restriction, and segregation. The most common intervention formulated by participants during the interviews and focus groups was subjecting prisoners identified as being at high risk to a measure of increased supervision ('bijzondere bewaking'). This entails a visual check by prison staff every 15 or 30 minutes when prisoners are residing in their regular cell.

If and when a person is at risk of suicide, then he is placed under a special regime, whereby he is checked upon every 15 minutes. This is actually our main approach to suicide prevention.

— Governor, interview

One of the health care staff mentioned that this measure of increased observation is often experienced as punitive and intrusive by prisoners and, as a result, suicidal thoughts may be kept hidden from staff to avoid being subjected to such a measure. In cases of imminent and acute risk of suicide, segregation (placement in solitary confinement) was seen as the "last resort" measure by governors to ensure the safety of prisoners. At the same time, some acknowledged that this might, in fact, increase their risk of suicide due to the isolated nature—both physical and social—inherent to solitary confinement.

This is more of an exception; a measure we seldom use since security cells often aggravate risk. We want to keep people in their normal environment. If you place them in segregation, then you remove their social contacts, you actually take everything away from them.

— Governor, interview

Only when a person represents an acute risk of suicide, will we place them in segregation. But is this a solution? Yes, it's a solution to reduce the acute risk of suicide, but it's not help.

Prisons are not the place for treatment.

— Governor, interview

Another strategy commonly mentioned by participants was accommodating a suicidal prisoner with a cellmate. By placing a prisoner at risk of suicide in a multi-occupant cell, social support and control can be provided by cellmates. Although some perceived this as a silver lining to the issue of overcrowding, it remains difficult to match prisoners with a suitable cellmate when the population exceeds capacity.

The other thing we often do, and we have a problem of overcrowding here, is to place the person in a duo cell through which we create a type of social control whereby we involve the other cellmate. Not in a direct manner, but just by being present.

— Governor, interview

The impact on, and implied responsibility for, the cellmate was also acknowledged. Being housed with a suicidal prisoner could be stressful and even traumatic for some prisoners, according to most prison governors. Furthermore, cellmates cannot be expected to serve as a therapist.

A duo cell offers social protection. But there is a very clear flip side to the coin: what exactly do you expect from the cellmate? You have to be careful not to place a moral responsibility upon them and they have to be able to cope. You can hardly say to them: "now it is up to you to make sure he stays alive."

— Governor, interview

It's not straightforward to place someone who is on increased observation in a duo cell because you not only place a responsibility on the cellmate, it is also possible that this person gets traumatised by the fact that he is with someone who could potentially end his life.

— Governor, interview

Overall, prison governors were fairly unanimous that physical prevention is not an adequate nor long-term solution, even though it remains the most important intervention available in their assortment of measures, as evidenced by this quote: "we can only work with the tools we have at our disposal; at present, we can't offer much more than security" (focus group, governor).

You do notice the limited arsenal of interventions that are available to governors, which essentially relates to taking everything away, removing sharp objects, and placing the person under increased supervision. Thus you remove risk, but in fact, it is our arsenal of protective measures that should be increased when we are faced with risk of suicide.

— Governor, interview

Our main reflex in a prison environment is to remove things, to take away risks rather than to add things. We may take away the risks, but what do we actually add?

— Governor, interview

We have very limited options for therapeutic intervention in prisons. Security is often the only thing we can achieve.

— Governor, focus group

We are very limited here. We have restrictive prevention to protect someone, for their own safety. But as to care and treatment, that's less obvious...

— Governor, interview

Participants from all disciplines recommended that alternatives to physical prevention should be in place, including changes to the prison regime and more (mental health) care and treatment. However, they equally stated that these are insufficiently available in Belgian prisons today.

Clinical intervention

During the interviews and focus groups, there was consensus among participants that clinical care and treatment is insufficiently available for (suicidal) prisoners—despite a high need thereof. The provision of mental health care was seen as primarily the responsibility of mental health in-reach teams (CGG) who are therapeutically trained and, to a lesser extent, of PSD and JWW. Therapeutic care is primarily provided by CGG, but they are not permanently present in prisons. In most prisons, depending on the size of their population, CGG was only available one or two days a week. Overall, participants asserted that the demand of mental health care greatly exceeds the supply in most of the included prisons, with substantial waiting lists as a result.

What we need is a broader availability of specialised treatment. We only have a colleague from CGG for one day a week who holds consultations here, for which there is a waiting list.

— Governor, interview

The reality is that we have long waiting lists. We can't exactly ask prisoners to change their mindset for a few weeks, until it's their turn. As a result, swift intervention becomes difficult.

— Governor, interview

This was widely confirmed by the psychologists of the in-reach teams themselves.

The therapeutic care offer is very limited, which narrows our operation, similar to other services. This is not in proportion with the number of prisoners that are housed here, nor with the extent of mental health problems.

— Mental health in-reach, focus group

I am here only one day a week together with a colleague, and this makes us unable to act swiftly. We cannot guarantee crisis intervention simply due to practical reasons and lack of resources.

— Mental health in-reach, focus group

Given this lack of specialised staff, prison staff other than CGG (such as PSD) mentioned that they also provide some psychosocial care, although they did not receive any formal training to work with suicidal prisoners. If they were to provide such care, more training is needed. However, some participants said that prisoners might view PSD to have a role conflict regarding confidentiality because they have the duty to report to prison authorities (governors), whereas CGG does not. This potential issue, however, was not a key theme during the interviews and focus groups, and was only cited by a small minority of participants.

This sometimes becomes the responsibility of JWW and PSD, who have less time and are too much in demand... and who actually aren't therapeutically trained for this kind of work.

Whereas CGG, they are therapists with proper training and they know exactly what they're doing. They are the ones who should be doing this.

— Psychosocial service, focus group

Guidelines would be beneficial—even though I have studied for this, how do you have a conversation with someone who is suicidal? I would welcome more training and guidelines. I could really use that. [...] At present, it feels like I have to trust my gut feeling.

— Psychosocial service, focus group

Psychiatrists were rarely mentioned as a source of clinical care in general, and suicide prevention more specifically. Psychiatrists were only occasionally present in most prisons and, according to participants, their task primarily focuses on pharmacotherapeutic interventions.

We have a psychiatrist who visits once every fortnight. Everybody can have a consultation with the psychiatrist, but let's not kid ourselves... We are talking about 10 minutes per patient and most just go there for their medications. Because psychiatrists can write prescriptions that others cannot.

— Governor, interview

We lack adequate treatment here. We only have a psychiatrist once every fortnight, which is far too little. We do not have the framework for people with mental health problems, so unfortunately, I cannot say too many positive things about this...

— Governor, interview

Changes to the prison regime

There was wide acknowledgement that providing adequate purposeful activities is crucial not only for suicide prevention, but equally for prisoners' wellbeing and rehabilitation more generally. Education, physical exercise, employment, and culture were viewed as particularly important.

I do think that, from day one, we should try to offer prisoners a regime in which they have as many opportunities as possible for 'normal' social interaction. We should provide them the chance to develop through work, social contacts, courses, education, sports, creativity, or the likes. Anything that resembles social activities in which they can develop. Sadly, the prison system fails spectacularly in this aspect—let's not kid ourselves.

— Governor, interview

At the same time, participants discussed how staff shortages and overcrowding meant that prisoners are spending longer in their cells and less time meaningfully occupied. Waiting lists (of several months) were very common in most prisons, consequently leading to frustration among prisoners. At the same time, boredom and inactivity likely increase prisoners' risk to ruminate on negative thoughts, including suicidal ones. Distraction and constructive activity were seen as essential yet inadequately provided to those in need. In all three focus groups, increasing prisoners' sense of autonomy, independence, and responsibility was spontaneously emphasised as crucial.

Overcrowding is another factor which is difficult to deal with and which we cannot seem to solve at the moment. You can only have a limited number of people to take part in activities, with further enormous waiting lists for jobs. This is a difficult situation. People have to wait a very long time to get a job. As a result, they don't earn, which means they cannot order extras from the canteen, they cannot afford tobacco, and this in turn causes all sorts of additional frustrations.

— Governor, interview

There are truly long waiting lists. Some people can only take part in sports once or twice a week, sometimes even less. [...] Being able to occupy themselves creates a certain wellbeing as opposed to having to stay in their cells with nothing to do—neither work nor exercise. This makes life in prison a lot more difficult.

— Governor, interview

Apart from overcrowding, understaffing is another cause of the lack of these extras. Security is the priority. There is neither time nor budget for the additional services and treatment, so these are the first things to be cancelled. We can only start to improve these points once we first have resolved the issues of overcrowding, staffing shortages, and lack of resources. We can outline policies, but this should go hand in hand with sufficient resources and personnel. If these aren't available, then we have wasted our time and energy.

— Governor, interview

If people can practise sports straight away, this can often be an alternative to medication. And the same applies to jobs. People have to wait 2 to 2.5 months on average before they get a job, and only seldom do we or the psychiatrist prioritise people with certain indications. But in the end, there are more exceptions than anything else, which of course isn't correct...

— Governor, interview

Collaboration and communication

Cutting across themes was the need for close multi-disciplinary collaboration and clear communication between services. There were large differences between prisons, each of which had their own specific system for communication and information-flow; most commonly by means of a mailing group. Whilst participants were generally positive about their way of working, some mentioned a lack of efficiency due to little coordination between services. Results indicate some room for improvement in the extent of information sharing and feedback between various services. For example, prisoners who are suicidal are commonly referred by prison governors or officers to the mental health in-reach teams (CGG) who provide psychosocial treatment. However, staff other than those of CGG mentioned that they receive little to no feedback afterwards; for example, whether the person they referred to CGG was still at risk. During the focus groups, where CGG staff were also present, this was a topic that spontaneously arose. Professional confidentiality was the main reason for not providing feedback and follow-up information.

There are clear agreements as to professional confidentiality. We provide very little feedback. Apart from the fact that we have scheduled a consultation with the person. Full stop. So they know we are following up on things. But no content can be revealed either to the governors or officers, and it seems that all parties are okay with this.

— Mental health in-reach, focus group

Beyond the concern of confidentiality, participants frequently reflected on the need for collaborative working between all relevant agencies. Keywords in this respect were coordination and clarity. Several participants, mostly prison governors, mentioned the “Meldpunt Suïcidepreventie” as a good practice, most of them who had no such management process implemented in the respective prison they were employed. This Meldpunt was first implemented in the Ghent prison in 2010, and has ever since been labelled as good practice by many, despite it has never been evaluated properly. Briefly, the Meldpunt is a multi-disciplinary management process that promotes the case management of prisoners who are at increased risk of suicide, with clearly articulated procedures outlining responsibilities for placement, monitoring, and follow-up care. The team consists of volunteers from all relevant disciplines (including prison officers, governors, mental health and social care, and nurses) who received specialised training in suicide prevention.¹² The key advantage of the Meldpunt, according to participants, is that it enables a streamlined and coordinated approach to managing suicide risk. A permanent team of trained staff and systematic standardised risk assessments were also perceived to be important advantages.

¹² For more information on the Meldpunt Suïcidepreventie, see van Laake and van den Aamele (2012).

The blueprint of the script was to work towards a multi-disciplinary Meldpunt, which means that any staff who detects signs of suicide could report these to a group of volunteers from the Meldpunt who have received proper training by the CGG. In turn, these volunteers will immediately go and have an in-depth conversation with the respective prisoner as soon as they are notified about possible suicide risk. They will then make a risk assessment based on a validated questionnaire and the training they have received. [...] We are not talking about a one-time risk assessment. Once the Meldpunt has opened a dossier, it is followed up and will only be closed when deemed appropriate.

— Governor, interview

I support the fact that there is a system in place, that there is a proper process, a standard procedure. [...] In the past, these assessments did not take place whereas now we do have a standard procedure of reporting, which is always followed up by a risk assessment.

— Governor, interview

Despite such perceived advantages, some questioned its feasibility. Prison governors feared resistance and lack of support among wing staff. Implementing additional (suicide prevention) interventions may put additional strain on an already difficult situation characterised by staff shortages.

At present, we do not have the resources to implement this. We do not have the manpower. There are still far too many other things to do before we can add yet another set of tasks.

— Governor, focus group

I think that this strategy represents utopia. It is a very intensive project for which you have to train a lot of people and with whom you have to have very regular discussions. You need an awful lot of personnel to keep this going—which inevitably brings too great a case load.

— Governor, interview

Regardless of a specific management process, participants valued interdisciplinary collaboration.

This is something for which we make far too little time, just to sit around the table and listen to each other. There is far too little time for strategy and policy.

— Governor, focus group

Culture

Participants discussed how prison culture impacts suicide prevention. Regarding staff, some governors mentioned a negative attitude and overall mindset of prison officers that is not conducive for suicide prevention. A change of mindset was advocated by many governors.

For prison officers to have a change of mindset. To be more open for initiatives, for change, for treatment. It wouldn't be the first time that you hear about the particular way prison officers act and think.

— Governor, interview

Of course it is much easier for professionals than for prison officer to detect signals. They [prison officers] are not really concerned with this sort of stuff.

— Psychosocial service, focus group

More broadly, several participants stated that suicide prevention and specific interventions are often left to the choice of local prisons and their governors, in which “leadership from above” (the central administration DG EPI) was perceived to be lacking. Central governance, leadership, and guidance were seen as desirable—which should be reinforced by governors on the ground.

What is really needed is better leadership from above. Because now I hear on the grapevine that other prisons are also in the process of starting up similar initiatives. [...] Unfortunately, our central governance leaves us to plod on. If there were better management, then it would be far easier to implement such strategies within the organisation.

— Governor, interview

One size does not fit all

Although there were many commonalities and recurring themes in the views and experiences of staff across different prisons, there were several important differences. Participants mentioned the need for a distinct approach to suicide prevention in prisons housing remand prisoners compared to prisons with a more stable population (sentenced prisoners). Risk of suicide is more common and more acute in prisons that primarily house remand prisoners, according to participants. Among sentenced, longer-term prisoners, risk appears to be less explicit and hence more difficult to detect.

I do believe that we have to differentiate in populations. We mainly deal with prisoners who are serving long sentences here, most of whom have already been incarcerated for some time before arriving here. Their initial crisis has passed. As for other prisons... In my experience, people on remand enter prison and experience great insecurity as to their sentence, what is going to happen, what they are going to lose or win. This inevitably creates a lot of stress and increases the risk of suicide. This is something we experience far less in this prison.

— Governor, interview

This difference between prisons not only relates to suicide risk but also to aspects of overcrowding and prison regimes. Prisons that house remand prisoners are more burdened by systemic pressures due to overcrowding. This translates into fewer activities, waiting lists, and time constraints for prison officers to engage with prisoners.

We are an overcrowded remand prison, which impacts on everybody but mainly on the prisoners. [...] In addition, the availability of jobs and activities in remand prisons is far more limited than in prisons where people are serving their sentences, where far more attention is paid to education, recreation, and sports.

— Governor, interview

Inversely, in prisons with primarily sentenced prisoners, the population is more stable and prison staff “know their people better” compared with a constantly changing population of remand prisoners. This makes it more easy for prisoners to approach staff, because the “threshold is lower.”

Even within the same prison, participants acknowledged differences between certain wings. In prisons that also detain female prisoners, governors mentioned several important differences. In wings where women are housed, there appear to be more opportunities for purposeful activity and services. Staff mentioned a “different culture” in female compared with male wings. Moreover, the smaller scale was seen an advantage, as well as a permanent team of prison officers. These aspects, in combination with less time constraints, would allow for better relationships between staff and prisoners.

Inversely, staff stated that, on male wings, there is a culture of “not showing weakness” and hence a higher threshold to seek help. This makes it, according to participants, more difficult to detect risk and intervene. Many participants, from all disciplines, referred to this as a “macho” or “hypermasculine” culture where help-seeking behaviours are limited.

I do believe that life in the women's section is less hard than that in the men's sections. There is a better framework. Women live in a separate wing where they are allowed to wear their own clothes, where there are more activities, and there is a permanent team of staff. [...] They also live in smaller groups which brings them closer together and they are able to support each other. Perhaps the officers also have more time to have a chat than in the very busy men's sections. I do think that it is possible that men who first arrive in prison can get lost in the crowd and are far more difficult to detect. There are also far more opportunities in the women's sections to be in contact with their children—which is important for mothers. More provision is made for this in the women's section and they also have more opportunities for activities. For example, they are allowed two walks during the summer months. I believe that imprisonment is somewhat easier for women. And that it may be more visible when something is not right with someone—because of the smaller scale.

— Prison officer, focus group

DISCUSSION

Suicide is preventable. In prisons, certain aspects of the custodial environment can make suicide more easily preventable than in the community (such as allowing greater monitoring of prisoners at risk and limiting access to suicide means), whilst institutional stressors and deprivations (such as social isolation and lack of purposeful activity) might increase risk of suicide in an already high-risk population by virtue of their compounding health and social care needs (Marzano *et al.*, 2016). This qualitative study aimed to explore perspectives of prison staff on their needs, barriers, and ways forward in suicide prevention.

The currently imposed prevention measures in Flemish prisons are mainly restrictive in nature, aimed at the physical prevention of suicide—including means restriction, monitoring, and placement. Prisoners identified as being at risk of suicide are subject to visual checks by officers at regular intervals and, in case of imminent risk, might be segregated to a safe cell to assure their safety. The use of shared accommodation is also frequently adopted as a method of simultaneously providing social interaction and support by cellmates, and of reducing opportunities for suicide. Prison governors stated that these restrictive measures comprise the most important ones in their limited array of available interventions. However, although physical prevention has the potential to save lives, it does not address the reasons why prisoners are suicidal, and does not necessarily reduce the longer-term risk of suicide. Recognising that isolation may in fact *increase* risk of suicide (Haney, 2018; Kaba *et al.*, 2014), caution is warranted, and prisoners should be placed in the least restrictive accommodation that also maximises their safety. Furthermore, the harsh conditions of restrictive measures may dissuade suicidal prisoners from asking staff for help when they perceive this to be punitive (Way *et al.*, 2013). In an already ‘hypermasculine’ environment where help-seeking is low (Howerton *et al.*, 2007; Kupers, 2005), we must avoid creating additional barriers that discourage prisoners from accessing appropriate care should they feel suicidal.

In contrast, opportunities for psychosocial support and treatment in prison are limited, despite the high need thereof. The supply does not match the demand, not even close. Mental health in-reach teams, who were seen as the key provider of mental health treatment for prisoners, are, at best, only present in prisons several days a week. Waiting lists are common. The resources available for in-reach services in Flemish prisons have been described as representing only a quarter of the amount required to meet the treatment needs of prisoners (Zorgnet-Icuro, 2019). Psychiatrists were perceived by most staff as being primarily responsible for prescribing psychotropic medication, and the PSD has a duty to report to prison authorities which may breach confidentiality. The recommendation to scale-up mental health care provision in Belgian prisons reiterates previous calls (Mistiaen *et al.*, 2017) and is reinforced by abundant evidence of its effectiveness in preventing suicide (Bolton *et al.*, 2015; Mann *et al.*, 2021; Meerwijk *et al.*, 2016; Turecki *et al.*, 2019; Zalsman *et al.*, 2016). In prisons, it is essential that evidence-based interventions are provided by clinically independent staff (Enggist *et al.*, 2014; Pont *et al.*, 2018).

Prison officers were seen as the backbone of suicide prevention in prison. Positive relationships between officers and prisoners are crucial to reducing prisoners' distress and maximising the likelihood of prisoners' notifying staff about periods of increased risk. Previous research suggests that promoting good interactions between staff and prisoners has a key role in identifying and managing risk of suicide (Liebling & Tait, 2006; Ludlow *et al.*, 2015). In this study, there was wide consensus among participants that sufficient *and* consistent staffing on wings are a prerequisite to form and sustain such high-quality relationships. This is important given that qualitative research indicates that being able to talk to staff, and being listened to, is a suggestion for prevention frequently cited by prisoners who have attempted suicide (Borrill *et al.*, 2005; Marzano *et al.*, 2011a; Rivlin *et al.*, 2013a; Suto & Arnaut, 2010). Together, this supports the importance of adequate training for prison officers involved in the care of prisoners, which, according to participants, is too limited in its current form. Training for prison officers has been shown to improve their attitudes, knowledge, and confidence in suicide prevention (Hayes *et al.*, 2008) and is advocated by the WHO (2000, 2007, 2019a) as a key component of suicide prevention in prisons. It has been recommended that *all* staff should receive at least eight hours of initial training and a two-hour refresher course annually (Cramer *et al.*, 2017). Trainings should be live and interactive, and must enable staff to have a thorough understanding of suicide dynamics, the relevant factors involved, why prisons are conducive to suicide risk, the importance of attitudes towards suicide, warning signs, high-risk periods, and how to observe and recognise risk in prisoners (despite the denial of risk). The Flemish Centre of Expertise in Suicide Prevention would be the ideal partner to organise such trainings. It would be beneficial to debunk persistent myths about suicide (BOX 4) and to reduce unhelpful attitudes. For example, studies have shown that prison officers frequently attribute prisoners' *motives* for self-harm to manipulation and attention-seeking (e.g., Kenning *et al.*, 2010; Short *et al.*, 2009; Smith *et al.*, 2019), whereby negative attitudes adversely impact prisoners' help-seeking behaviours (Marzano *et al.*, 2012) and influence service provision to prisoners who are perceived as non-deserving (Kenning *et al.*, 2010). In addition, research has shown that prison staff who locate the *causes* of suicide within the individual (an imported vulnerability) tend to harbour more fatalistic and pessimistic views on suicide prevention (e.g., suicides cannot be averted because these factors are beyond their control) compared with prison staff who recognise the stressors generated by the custodial environment as possible causes and hence feel more empowered regarding their capability to prevent suicide (Liebling, 1992; Ludlow *et al.*, 2015). A better understanding of the motives and causes of suicide by prison staff can improve staff-prisoner relationships and, in turn, increase help-seeking behaviour and service provision (Kenning *et al.*, 2010). Although formal training has the ability to improve staff's attitudes and proficiency to identify, manage, and prevent suicide, study participants stated that training was insufficiently provided—yet welcomed. Staff across disciplines identified institutional issues (such as poor staffing levels) and lack of resources as the reasons why trainings were not organised or accessed; barriers that would need to be overcome.

Box 4. Common myths about suicide—debunked (WHO, 2014).

- *Myth:* Once someone is suicidal, he or she will always remain suicidal.
Fact: Heightened suicide risk is often short-term and situation-specific. While suicidal thoughts may return, they are not permanent and an individual with previous suicidal thoughts and attempts can go on to live a long life.
- *Myth:* Talking about suicide is a bad idea and can be interpreted as encouragement.
Fact: Given the widespread stigma around suicide, most people who are contemplating suicide do not know who to speak to. Rather than encouraging suicidal behaviour, talking openly can give an individual other options or the time to rethink his/her decision, thereby preventing suicide.
- *Myth:* Only people with mental disorders are suicidal.
Fact: Risk of suicide indicates deep unhappiness but not necessarily mental disorder. Many people living with mental disorders are not affected by suicidal behaviour and not all people who take their own lives have a mental disorder.
- *Myth:* Most suicides happen suddenly without warning.
Fact: The majority of suicides have been preceded by warning signs, whether verbal or behavioural. Of course there are suicides that occur without warning, but it is important to understand what the warning signs are and look out for them.
- *Myth:* Someone who is suicidal is determined to die.
Fact: On the contrary, suicidal people are often ambivalent about living or dying. Someone may act impulsively and die, even though they would have liked to live on. Access to emotional support at the right time can prevent suicide.
- *Myth:* People who talk about suicide do not mean to do it.
Fact: People who talk about suicide may be reaching out for help or support. A significant number of people contemplating suicide are experiencing anxiety, depression, and hopelessness and may feel that there is no other option.

An overarching theme that emerged during the interviews and focus groups was a negative impact of overcrowding and staffing shortages. Overcrowding places a substantial strain upon the prison system and exacerbates existing problems in terms of prisoner-staff ratios. The problems of understaffing and overcrowding negatively impact on relations between prisoners and staff because of time constraints. Inconsistent deployment and too few staff means that prison officers are unable to form relationships with prisoners that enable them to identify and manage risk of suicide, and unable to devote sufficient time to supporting vulnerable prisoners (Ludlow *et al.*, 2015). A second consequence of overcrowding

and shortages in staffing is that prisoners are spending more time locked up and less time meaningfully occupied. Access to work, education, recreation, and physical exercise is limited in many prisons—with long waiting lists. Staffing shortages commonly resulted in reduced or even cancelled activities, leading to frustration and boredom among prisoners. Providing more opportunities for prisoners to take part in constructive and meaningful out-of-cell activities was seen by many participants in this study as the number one priority. These improvements to the prison regime would benefit *all* prisoners, and could contribute to reducing risk of suicide (Borrill *et al.*, 2005; Leese *et al.*, 2006; Stephenson *et al.*, 2021).

Not all Belgian prisons, however, were equally affected by these structural barriers. There was considerable variability across prisons with respect to both the characteristics and size of the custodial population housed—which influences service provision. Remand prisons were more severely affected by these problems compared with prisons that house a more stable population of sentenced prisoners. Regardless of such systemic constraints, different types of prisons further require different approaches to suicide prevention. Indeed, suicides among remand prisoners have been shown to differ from those by their sentenced counterparts in terms of timing and precipitating stressors (Fruehwald *et al.*, 2004; Konrad *et al.*, 2007). Even within a single facility, staff recognised crucial differences between wings—especially those for female prisoners. In prison wings that house women, there were several perceived aspects that might benefit suicide prevention, including more opportunities for purposeful activity and services, and more consistent staffing that allows for better and sustained relationships between staff and (female) prisoners. This variability across prisons (and wings) clearly necessitates that programmes and policies must be flexible and tailored to local needs. The specificity and uniqueness of every prison (wing) regarding its population, size, infrastructure, and culture should explicitly be taken into account when developing and implementing strategies to prevent suicidal thoughts and behaviour in prisons.

Nonetheless, there were certain common recognised elements to suicide prevention that were shared by participants across prisons. The principle of multi-disciplinary working and collaborative care was perceived to be imperative. By working across different agencies and disciplines in a collaborative manner, drawing upon different expertise of different professional groups, it is possible to assure that suicidal prisoners receive adequate care and support (Daniel, 2006; Marzano *et al.*, 2016; NICE, 2018). A multi-disciplinary management process outlining clearly articulated procedures and responsibilities for placement, monitoring, and support should be in place (Humber *et al.*, 2011a; WHO, 2007). Success of such collaboration will be contingent upon good communication and information-flow between all stakeholders involved. Issues relating to professional confidentiality between different services—what information can be shared under which circumstances—should be explicitated in protocols to increase the safety of prisoners at risk of suicide (Elger & Shaw, 2017; Senior *et al.*, 2007). Failure to do so might create tensions between actors and consequently form a barrier to joint care. Such a collaboration and protocols should be embedded within a comprehensive policy which is supported by local leadership.

Implications and future directions

There are several implications for policy and practice that arise from this qualitative study. It is striking that most of the recommendations formulated by participants were not necessarily suicide-specific in nature, but rather reflected generic improvements to the prison regime. These included both sufficient and consistent staffing on wings, which may foster and sustain positive staff-prisoner relationships and consequently increase help-seeking behaviours of prisoners within a ‘hypermasculine’ environment. A second recommendation was to provide prisoners with more opportunities to take part in constructive and meaningful out-of-cell activities, including work, education, recreation, and physical exercise. In a similar vein, participants expressed the high need for more efforts to ensure that prisoners with mental health and substance use problems receive appropriate care—irrespective of whether they are suicidal or not. Such general improvements to the prison regime and service delivery would not only contribute to the prevention of suicide, as undeniably recognised by principal literature (Liebling & Ludlow, 2016; Marzano *et al.*, 2016; WHO, 2007), but would equally benefit every single offender who is incarcerated. The 2020 European Prison Rules and its United Nations counterpart, the 2015 Mandela Rules, both set out the minimum standards for good prison management, and recommend that all people deprived of their liberty should have access to a balanced programme of meaningful day-to-day activities, including work, exercise, recreation, and education, and that health care must be provided in prisons at the same level of care as in the community (Council of Europe, 2020; UN, 2015). Such standards of *normalisation* (that prison life should approximate as closely as possible the positive aspects of life in the community) and *equivalence* (that health care in prisons should be equivalent to those available in the community) comprise fundamental principles enshrined within Belgian legislation (the 2005 Basic Law on Prisons) and policy (Demir, 2020; Van Quickenborne, 2020), and were widely advocated by staff in this study.

However, such—seemingly utopian—principles of normalisation and equivalence appear to be severely compromised by overcrowding and shortages in staffing. These enduring concerns exacerbate existing problems in prisoner-staff ratios, and is likely to fuel tension and restrict access to services and activities. The Council of Europe’s Committee for the Prevention of Torture and Inhuman or Degrading Treatment or Punishment (CPT) has repeatedly criticised the prevailing overcrowding, lack of minimum service provision (particularly during industrial actions by prison staff), and limited organised activities in Belgian prisons, whilst simultaneously calling for improving treatment and detention conditions for prisoners (Council of Europe, 2017; Daems, 2018; Daems & Robert, 2018; Snacken, 2017). Concerning suicide prevention in prisons, then, increased resources to ensure improvements to the prison regime and service delivery are urgently required. However, given infamously finite resources, Belgian prisons will need to be strategic in how budgets are distributed. Staff asserted that support for any additional, suicide-specific interventions would be fairly limited before such basic conditions were to be fulfilled.

In addition to generic improvements to the prison regime and service provision, staff included in this study emphasised the need for better training. This aligns with best practices (NICE, 2018; WHO, 2007) and would equip prison staff from all disciplines with the necessary skills and resources to create a supportive culture and climate, recognise and respond to risk of suicide, and employ evidence-based prevention interventions (Cramer *et al.*, 2017). As a general principle, optimisation of multi-disciplinary working and collaborative care with respect for confidentiality was perceived to be fundamental in the context of suicide prevention. This would entail consolidating existing, but now fragmented, expertise of staff into multi-disciplinary teams, which has the advantage to improve care and treatment options in prisons (Humber *et al.*, 2011a; WHO, 2007) without any major additional financial investments. This will, however, require clear leadership. The prioritisation of suicide prevention—through management support for staff and its integration within wider decision-making—can assist in improving staff clarity regarding their work priorities within a complex environment (Slade & Forrester, 2015). A coordinated response to preventing suicide in prisons demands staff training, collaboration, and promoting suicide awareness within a system-wide approach that is supported by executive leadership. These elements were perceived as—and are—the backdrop against which more targeted interventions would prosper.

The perspectives of staff have provided valuable insights into the needs and barriers regarding suicide prevention in Belgian prisons. A next step would be to include views of *prisoners* when planning and implementing prevention strategies. Consistent with best practices on the inclusion of ‘users’ and ‘consumers’ in the development and delivery of services (Crawford *et al.*, 2003; Luchenski *et al.*, 2018), people with lived experience are now increasingly included in suicide research (Watling *et al.*, 2020) as (active) collaborators rather than (passive) participants. Involvement of prisoners with lived experience in suicide research has been shown to be feasible (Awenat *et al.*, 2018) and is vital to ensure ecological validity and acceptability of prevention interventions and service delivery (O'Connor & Portzky, 2018). Therefore, future efforts to develop, implement, and evaluate suicide prevention interventions should not only be informed by evidence and ‘professional’ perspectives, but also by the views of people with lived experience. To support the engagement of those with lived experience in suicide prevention, the National Action Alliance for Suicide Prevention (NAASP, 2014) has developed a useful resource which discusses the value and importance of leveraging first-person insights, and provides recommendations on how to do so. It is my recommendation that such an approach is to be considered in future research within prison settings in order to ensure meaningful input from those people who are directly involved. This could complement epidemiological data to provide better evidence for policy makers. After all, no policy, in prisons or elsewhere, should be decided without the full and direct participation of members of groups who are affected by that policy.

CONCLUSION

This qualitative study aimed to explore perspectives of prison staff on their needs, barriers, and ways forward in suicide prevention. The majority of recommendations formulated by participants were not suicide-specific in nature, but rather reflected generic improvements to the prison regime and service delivery, including sufficient and consistent staffing on wings, opportunities for purposeful activity, and mental health care provision. Overcrowding and shortages in staffing were perceived as major barriers to achieve a comprehensive approach to suicide prevention. Clear leadership, staff training, and multi-agency collaboration form the backdrop against which more targeted interventions would prosper. A multi-disciplinary management process outlining clearly articulated procedures and responsibilities for placement, monitoring, and support should be in place. There were, however, considerable differences across prisons and wings, which necessitates that policies must be flexible and tailored to local needs.

Key points

- Interviews and focus groups were undertaken with a total of 35 professionals working in 13 Flemish prisons to explore their perspectives on the needs, barriers, and ways forward in suicide prevention.
- Currently imposed prevention measures in Belgian prisons are primarily restrictive in nature, aimed at the physical prevention of suicide through placement, monitoring, and means restriction.
- Most of the recommendations made by staff reflected generic improvements to the prison regime, especially regarding opportunities for purposeful activity.
- Mental health services should be adequately resourced to address the high level of unmet needs.
- Adequately trained staff in sufficient numbers can improve identification and management of risk.
- Multi-disciplinary working and collaborative care are essential elements within any comprehensive approach to suicide.
- Prevention standards and guidelines that summarise best practice should be developed as a starting point, and specific implementation should be tailored to the local prison context.



CHAPTER 8

General discussion and implications

Suicidal thoughts and behaviour represent a public health concern—unfortunately prevalent in prisons and associated with high levels of morbidity and mortality. One in every three deaths in Belgian prisons is attributable to suicide, with a rate four times that of the general population. Many more consider or attempt suicide without a fatal outcome. Risk factors for suicidal thoughts and behaviour are manifold. The current data underscore that prisoners import a vulnerability to suicide into prisons (characterised by entrenched disadvantage, psychiatric morbidity, and violence) which is exacerbated by deprivations of the prison environment (including physical and social isolation, victimisation, and lack of meaningful activity and autonomy), whilst highlighting differential associations between particular risk factors and theoretically distinct points along the suicidal process. As risk of suicide is a complex and multi-factorial issue that does not lend itself to a single solution, there is a need for a comprehensive and multi-agency approach towards suicide prevention that incorporates targeted strategies aimed at high-risk prisoners in combination with population strategies that address systemic and environmental stressors in prison. This includes ongoing risk assessments based on clinical judgement, a multi-disciplinary care planning process, well-resourced mental health services, psychosocial treatment, and prison-wide interventions that promote safety, autonomy, purposeful activity, and social support within a healthy prison regime. Effective prevention will be contingent on commensurate coordinated policy and practice efforts that accentuate collaboration between trained staff across health, social care, and criminal justice sectors. This dissertation concludes with 28 take-home messages that may inform suicide prevention in prisons.

BACKGROUND

Despite being preventable, suicide remains a leading cause of death worldwide. An estimated 800,000 people across the globe die by suicide annually, with millions more considering or attempting to do so. International studies have shown that prisoners are at a disproportionate high risk of suicide compared with adults in the wider community, which represents a substantial burden of morbidity and mortality. The prevention of prison suicides has been highlighted as an international priority by the World Health Organization, which necessitates fine-grained evidence of its epidemiology and modifiable risk factors. The objective of this dissertation was to extend previous research, advance theory, and inform policy. By focusing on the epidemiology, risk factors, and prevention of suicidal thoughts and behaviour using a mixed-methods design, as outlined in the previous six chapters, the overarching goal was to generate actionable findings that could be translated to ‘the field’ and support decision makers—in Belgium and elsewhere—in allocating scarce resources and prioritising interventions in areas with the greatest need for preventing and managing risk of suicide among people who at some point experience incarceration.

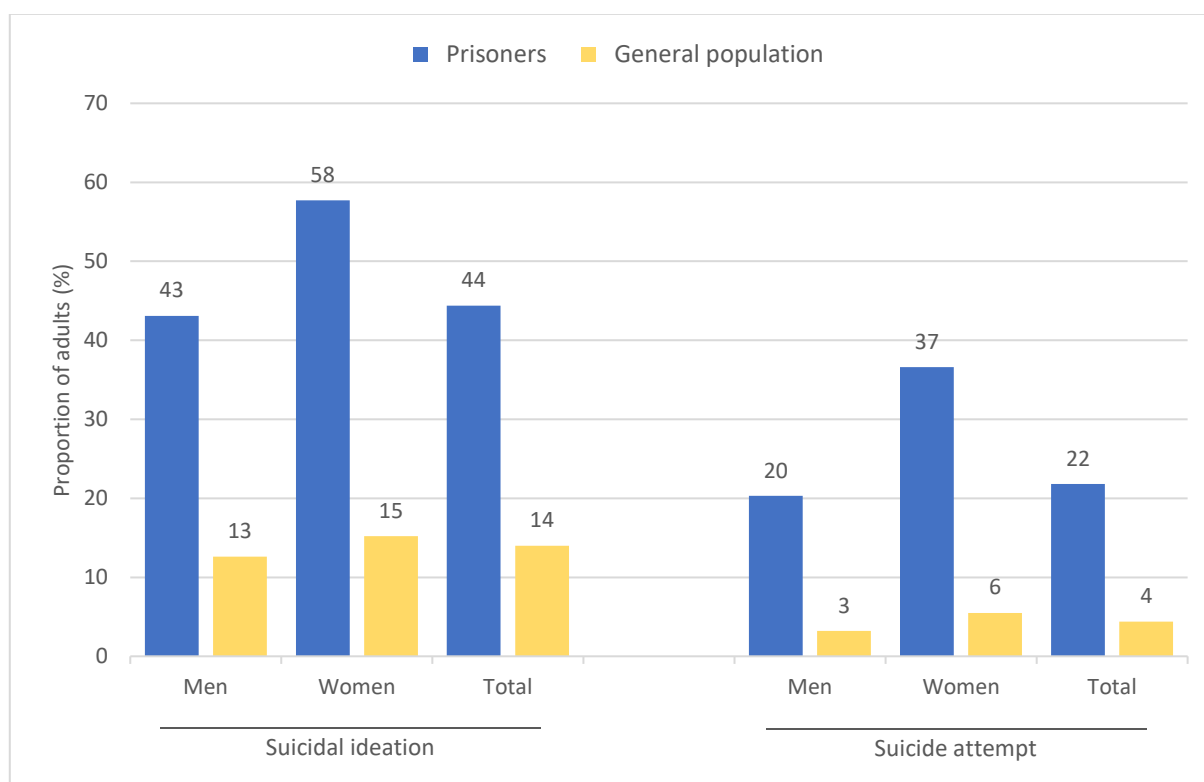
EPIDEMIOLOGY

One-third of all deaths in Belgian prisons is attributable to suicide, which translates to one fatal incident every month. Although the suicide rate in prisons has been declining over the past 20 years, it remains four-fold that of the general population in Belgium. Prisoners who die by suicide only represent the tip of the iceberg; many more consider or attempt suicide without a fatal outcome. In Belgium, four in ten prisoners have ever considered suicide, and 20% has made a suicide attempt throughout their lifespan. These estimates were replicated among prisoners in New Zealand and strongly align with findings from previous large-scale studies (TABLE 37). Around half of prisoners with suicidal thoughts go on to attempt suicide at some point in their life. These statistics are highly elevated relative to those observed among non-incarcerated adults in the general population (Castillejos *et al.*, 2020; Nock *et al.*, 2008a; TABLE 37). In comparison, 14% and 4% of Belgian adults included in the Health Interview Survey (Gisle *et al.*, 2020) reported a lifetime history of suicidal thoughts and suicide attempts, respectively (FIGURE 18). Together, the current data show that, on a lifetime basis, prisoners in Belgium are approximately four times more likely to consider, attempt, or die by suicide compared with adults living in the surrounding community. In addition, 10% of prisoners in Belgium has attempted suicide while incarcerated; a figure in the range of previous estimates (9–13%) found in European countries (Dudeck *et al.*, 2011; Encrenaz *et al.*, 2014; Ford *et al.*, 2020; Sánchez *et al.*, 2020). It is clear that incarcerated offenders are at a disproportionate high risk to develop suicidal ideation and to engage in suicidal behaviour—both globally and nationally. Identifying modifiable risk factors for suicidal thoughts and behaviour might inform prevention efforts.

Table 37. Lifetime prevalence (%) of suicidal ideation and attempt in adults by population and sex.

| | Prisoners | | | General population | | |
|--------------------------|-----------|-------|-------|--------------------|-------|-------|
| | Men | Women | Total | Men | Women | Total |
| <i>Suicidal ideation</i> | | | | | | |
| Australia | 33 | 39 | 34 | 12 | 15 | 13 |
| England & Wales | 38 | 54 | 39 | 12 | 17 | 15 |
| New Zealand | 34 | 43 | 35 | 14 | 17 | 16 |
| United States | 20 | 37 | 24 | 10 | 16 | 14 |
| <i>Suicide attempt</i> | | | | | | |
| Australia | 20 | 29 | 21 | 2 | 4 | 3 |
| England & Wales | 22 | 40 | 22 | 4 | 5 | 4 |
| New Zealand | 19 | 28 | 19 | 3 | 6 | 5 |
| United States | 11 | 26 | 14 | 3 | 6 | 5 |

Data sources: Australia (Johnston *et al.*, 2009; Larney *et al.*, 2012), England and Wales (Bebbington *et al.*, 2010; Jenkins *et al.*, 2005), New Zealand (Beautrais *et al.*, 2006; CHAPTER 6); United States (Kessler *et al.*, 1999; Stoliker *et al.*, 2020).

Figure 18. Lifetime prevalence of suicidal ideation and attempt in Belgian adults by population and sex.

Note. Data for the general Belgian population come from the 2018 Health Interview Survey (Gisle *et al.*, 2020) for individuals aged 18 years and over (whereas the original publication reports findings for all participants aged ≥ 15 years).

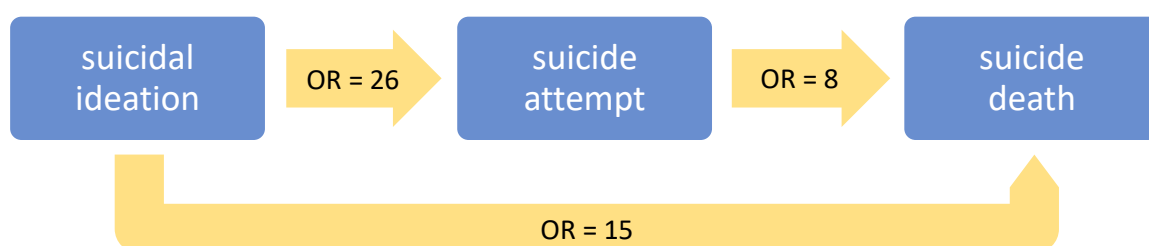
RISK FACTORS

A central aim of this dissertation was to examine the contribution of both individual-level (importation) and prison-specific (deprivation) factors in relation to theoretically distinct points along the trajectory from suicidal ideation to behaviour in a manner consistent with the ideation-to-action framework. The current findings have different implications depending on the comparison group. First, compared with non-suicidal prisoners, the data provide novel information on the independent role of importation and deprivation risk factors for suicidal ideation and behaviour in prisoners. This has implications for suicide prevention strategies and developing an evidence-based model of suicide risk in prisoners. Second, an alternative comparison is with non-incarcerated adults, and interpreting findings in this way provides insight into the similarity and specificity of risk of suicidal outcomes in prisoners relative to the general population. Although a broad range of risk factors for suicidal thoughts and behaviour were identified, as thoroughly discussed in CHAPTERS 2 to 6, a selection of the most salient ones (based on their strength, consistency, theoretical relevance, and ability to be modified by intervention) is highlighted below.

Suicidal antecedents

Consistent with a process-oriented approach to suicide risk, meta-analyses show that suicidal ideation and attempt are among the strongest risk factors for future suicidal behaviour in prisoners (FIGURE 19). This is consistent with data from the general population (Franklin *et al.*, 2017) and highlights the robust associations between suicide-related outcomes. Despite high relative risks, the absolute risk of suicidal behaviour is substantially lower (Hubers *et al.*, 2018), which indicates points along the suicidal process at which discontinuity exists. For example, the majority of prisoners who have attempted suicide while in custody will not die by suicide (Hawton *et al.*, 2014). Similarly, circa 75% of prisoners in Belgium who had thought about suicide during their incarceration did not attempt suicide (50% on a lifetime basis). In all, these findings imply that, despite strong interrelations, progression along the suicidal continuum can be halted. Nevertheless, it should be clear that suicidal antecedents are robust predictors of future suicidal behaviour, as well as important in their own right as markers of extreme psychological distress.

Figure 19. Associations between suicidal thoughts and behaviour (CHAPTER 4; Zhong *et al.*, 2021).



Non-suicidal self-injury

Whilst NSSI is—by definition—not enacted with an intent to die, its association with suicidal outcomes has been clearly established across populations and settings (Castellví *et al.*, 2017; Ribeiro *et al.*, 2016). Various psychological models have been proposed in an effort to clarify this relationship between NSSI and suicide risk (Hamza *et al.*, 2012). For example, general tendencies toward harmful behaviours and emotion dysregulation may represent mechanisms that underlie this association (Klonsky *et al.*, 2013), with recent twin cohort studies providing evidence for a shared genetic predisposition (Lim *et al.*, 2021; Maciejewski *et al.*, 2014; Richmond-Rakerd *et al.*, 2019b). Data from this dissertation not only confirm that NSSI heightens risk of suicide among prisoners (Larney *et al.*, 2012), but, more importantly, extend previous literature by establishing that NSSI facilitates the progression from thoughts to acts of suicide. This is a novel finding in prisoners for which several explanations are possible; most likely a direct effect of NSSI on reducing the inhibition to attempt suicide in the face of suicidal ideation (Mars *et al.*, 2019a). These findings suggest that NSSI should not be regarded as being of limited seriousness because of the absence of suicidal intent, but rather as a health concern by and of itself which merits clinical attention.

Violence

Numerous population-based studies suggest that violent and suicidal behaviours comprise intersecting health outcomes (e.g., Goldman-Mellor *et al.*, 2014; Olfson *et al.*, 2017; Richmond-Rakerd *et al.*, 2019a; Sahlin *et al.*, 2017; Steeg *et al.*, 2019; Van Dulmen *et al.*, 2013). Data from this dissertation corroborate previous literature (Zhong *et al.*, 2021) that prisoners who are incarcerated for a violent crime may be prone to suicide. It appears that these two risks coalesce in certain people, suggesting that suicidal and violent behaviour may both have roots in a common underlying vulnerability to aggressive acts. Several shared risk factors and neurobiological underpinnings have been proposed for both, such as childhood abuse, impulsivity, emotion dysregulation, serotonergic dysfunction, and prefrontal deficits (Hillbrand, 2014; McMahon *et al.*, 2018; O'Donnell *et al.*, 2015; Plutchik, 1995; Shafti *et al.*, 2021)—with decreased behavioural control being a likely mechanism. This might explain this dissertation's finding that violent offending was one of the few factors to explain the transition from suicidal thoughts to action in prison. Research suggests that violent offenders have lower impulse control than those incarcerated for other, non-violent crimes (Carli *et al.*, 2010; Meijers *et al.*, 2017), which may possibly explain their heightened propensity for behavioural enactment in prison. Community-based studies identified similar associations between violence perpetration and the transition to suicide attempt (Rooney *et al.*, 2019; Stack, 2014), which points to a generic link across populations rather than one being specific for criminal offenders.

Mental disorders

The presence of a mental disorder is widely considered as one of the most robust and clinically relevant predictors of suicidal thoughts and behaviour (Fazel & Runeson, 2020; Turecki *et al.*, 2019). The current data strengthen this notion, albeit with one major caveat. Overall, across samples, results showed that markers of psychiatric morbidity and substance abuse were strong risk factors for suicidal ideation and behaviour. Disaggregation of these associations, however, uncovered a more nuanced picture—in that most mental disorders were not associated with suicide attempts above and beyond their relationship with suicidal thoughts. Whilst novel in prisoners, this conclusion is highly consistent with an established body of epidemiological research (Borges *et al.*, 2006, 2008a, 2010a; Nock *et al.*, 2009, 2010), indicating that virtually all mental disorders increase the risk of subsequent suicidal ideation but only a select few predict the transition to suicide attempt. This suggests that most mental disorders affect the cognitive (ideation) rather than the behavioural (attempt) spectrum of the suicidal process. There were however two notable exceptions. Disorders characterised by anxiety (PTSD) and poor impulse control (drug and alcohol dependence) were found to be the only ones to distinguish attempters from ideators. Although the precise behavioural or psychological mechanisms whereby specific disorders may contribute to the progression from ideation to attempt are currently unknown, a plausible explanation is that the use of substances might impair decision-making and lower behavioural inhibition, which makes it more likely that one will act on suicidal thoughts (Saffer & Klonsky, 2018). Similar deficits in executive functioning have also been documented in individuals diagnosed with PTSD (Polak *et al.*, 2012). This lends support to the hypothesis that behavioural disinhibition might act as a transdiagnostic catalyst in the transition from ideation to action, and shows that this pattern of associations holds true across different samples.

Prison-specific stressors and deprivations

Many of the risk factors identified in this dissertation mirror those found within the general population (Carrasco-Barríos *et al.*, 2020; Franklin *et al.*, 2017; Richardson *et al.*, 2021; Turecki *et al.*, 2019), which underscores their classification as imported vulnerabilities. In addition, the current results clearly show that environmental stressors and deprivations specific to imprisonment—including a lack of autonomy and purposeful activity, solitary confinement, victimisation, and poor social support—were associated with an increased risk of suicide while incarcerated. This is consistent with research documenting that prisoners' negative perceptions of the correctional climate (relating to autonomy, safety, meaningful activities, and relationships) increase their risk of psychological distress (Goomany & Dickinson, 2015; Liebling & Ludlow, 2016; van Ginneken *et al.*, 2019). The relatively few studies that examined whether environmental factors specific to incarceration influence prisoners' risk of suicide support this finding.

For example, as observed in this dissertation, there is evidence that a lack of autonomy and purposeful activity heighten the likelihood of suicide in prison; albeit this body of research is largely dominated by ecological (Leese *et al.*, 2006) and qualitative (Rivlin *et al.*, 2013a; Suto & Arnaut, 2010) investigations. Furthermore, social isolation was a clear risk factor for suicidal ideation and attempt in this dissertation (Jenkins *et al.*, 2005; Rivlin *et al.*, 2013b). Interestingly, it was found that subjective measures of social networks (perceived social support) had a stronger association with suicidal outcomes than did more objective measures (number of visits). Social support, or even just the *belief* that this is available, may be particularly salient to suicide risk in prison due to the inherently isolated nature of incarceration. In a similar vein, physical isolation due to single-cell housing is associated with suicide (Zhong *et al.*, 2021). It may be that occupying a single cell confers an increase in risk due to the isolated environment within which prisoners are placed, in that they have the time and privacy to attempt suicide. This may increase the likelihood that suicidal thoughts will be acted on, just like access to lethal means can be seen as an environmental factor facilitating behavioural enactment, rather than being directly causative. This brings us to another important result. The data suggest that prison experiences and institutional factors were differentially associated with theoretically distinct points along the suicidal process. Specifically, whilst related to suicidal thoughts, the vast majority of prison-specific deprivations were not associated with the transition to suicide attempt. This finding makes a solid contribution to the literature as it advances understanding of the differential associations between aspects of the prison regime and distinct stages of the suicidal process. Pending replication, the current data suggest that factors relating to the prison environment contribute to the development of suicidal thoughts but do not impact the progression to suicidal behaviour. A notable exception was exposure to suicidal behaviour engaged in by peers, which was the only prison-specific factor that was associated with the transition from ideation to attempt. It seems rather unlikely that merely witnessing a suicide (attempt) of a fellow prisoner directly increases one's risk of suicidal ideation. Rather, exposure might increase the salience and acceptability of suicidal behaviour through increased awareness of suicide as an option or knowledge of specific methods.

In summary, the highly deprivating nature of the prison environment and its inherent stressors may lead prisoners to think about suicide. Being physically and socially isolated from family and friends, feeling alienated, perceiving poor social support, lacking a sense of autonomy and control, having little meaningful activities to engage in, and fearing one's safety all represent highly distressing experiences that might result in the contemplation of suicide. Although important, from a theoretical point of view, these factors did not appear to be implicated in prisoners' propensity to act on these suicidal thoughts. Whilst prison-specific deprivations may cause someone to consider suicide in custody, it appears to be the presence of an imported vulnerability—characterised by behavioural disinhibition—that primarily affects one's tendency to translate suicidal thoughts into action.

Summary of risk factors within a theoretical framework

Vulnerability and stress

This dissertation is one of the few efforts to bridge importation and deprivation theories of suicide risk in prisoners. A major contribution to the extant literature is that the current data extend prior research by examining the relative contributions of both background vulnerabilities and prison-specific stressors in explaining the occurrence of suicidal thoughts and behaviour while incarcerated. The key risk factors identified throughout this dissertation suggest that prisoners import a certain vulnerability for suicide in prison (characterised by social disenfranchisement, trauma, violence, and poor health) that becomes heightened under the influence of prison-specific stressors (such as lack of meaningful activities, social and physical isolation, and victimisation), thereby increasing the risk of suicidal thoughts and behaviour while incarcerated. This empirical conclusion aligns with theoretical models to understand suicide risk in prisons, recognising that suicide results from an interaction between predisposing (importation) and precipitating (deprivation) risk factors (Liebling & Ludlow, 2016; Marzano, 2010). This inference is also in keeping with a diathesis-stress model more generally, in which risk of suicide is determined not only by environmental stressors but also in combination with a pre-existing diathesis (van Heeringen, 2012). The analogy between both models (importation-deprivation and diathesis-stress) is evident. Together, the current data provide empirical support for a dual framework where an imported diathesis interacts with prison-specific stressors, ultimately leading to an increased risk of suicidal thoughts and behaviour while incarcerated. An additional important theoretical advancement of this dissertation is its attempt to reconcile this vulnerability-stress model within an ideation-to-action framework; an integration that has received little to no scientific attention to date when it comes to individuals who are incarcerated.

Ideation versus action

Most people who consider suicide do not go on to engage in suicidal behaviour. Contemporary theories of suicide embedded within an ideation-to-action framework propose that the development of suicidal ideation and the progression to suicidal behaviour should be viewed as distinct processes with distinct predictors (Klonsky & May, 2015; O'Connor & Kirtley, 2018; Van Orden *et al.*, 2010). Findings from this dissertation are consistent with this assumption, in that risk factors for suicidal ideation were different from those that govern the transition to suicide attempt—suggesting unique underlying mechanisms.

A *desire* for suicide, according to ideation-to-action models, results from the interplay between several interpersonal constructs: thwarted belongingness and perceived burdensomeness, defeat and entrapment, and connectedness. Across varying terms and models, the key premise is that there is an interpersonal element driving the development of suicidal thoughts. The two main components of the

interpersonal theory pertaining to a desire for suicide—thwarted belongingness (feeling disconnected) and perceived burdensomeness (feeling a burden on others)—seem to be highly relevant to prisoners. Prisons, by their very nature, are environments where people are experiencing an enforced separation from their support systems in the community, hence thwarting their sense of belongingness. The effect of incarceration on prisoners' perceived burdensomeness also seems apparent. Imprisonment may be interpreted as an indication of incompetence, and prisoners may no longer be able to provide financial and emotional support to their loved ones—which may promote their sense of being a burden. One of the few empirical studies that has specifically examined this hypothesis among 399 prisoners in the US found support for an interaction between thwarted belongingness and perceived burdensomeness in explaining suicidal thoughts while incarcerated (Mandracchia & Smith, 2015). This is largely in keeping with the current findings that poor social support independently increased the risk of suicidal thoughts. More indirectly, the 'pains of imprisonment' are arguably associated with interpersonal and emotional distress (Liebling & Ludlow, 2016; Suto & Arnaut, 2010), which might explain the finding that a lack of autonomy and safety were clear risk factors for suicidal ideation. Importantly, in this dissertation, these aspects of the prison environment, including social support, were not associated with the transition to suicide attempt. This brings us to the second theoretical premise of the ideation-to-action framework.

Ideation-to-action models also posit that a suicide *capability* is a key determinant for someone to act on their suicidal thoughts. Individuals who consider suicide will not engage in suicidal behaviour unless they have the capability to do so. Essentially, a capability for suicide is thought to be developed through exposure to painful and provocative experiences that decrease fearlessness about death and increase habituation to pain, which, in turn, might serve to promote one's propensity for behavioural enactment when suicidal ideation is present (May & Victor, 2018). The current data support this idea, as the factors that most strongly distinguished attempters from ideators each include features associated with exposure to adverse events. In particular, NSSI has been shown to raise this capability by allowing individuals to habituate to self-inflicted pain and violence (Joiner *et al.*, 2012; Willoughby *et al.*, 2015). Similarly, enacting physical violence on others may build one's capability for suicide through increased pain tolerance and fearlessness about death (Bryan & Cukrowicz, 2011; Granato *et al.*, 2018; Rooney *et al.*, 2019; Stack, 2014; Swogger *et al.*, 2014; Van Orden *et al.*, 2010). The key differential associations observed between mental disorders and risk of suicide can also be viewed through this capability lens. Whereas mental disorders characterised by negative thinking (such as depression) may confer risk by increasing a desire for suicide, those marked by poor behavioural control and impulsiveness (such as substance use disorders) may exacerbate risk by increasing a capability for acting on suicidal thoughts (Nock *et al.*, 2009; Silva *et al.*, 2015). Substance use disorders might increase this capability by exposing users to painful and provocative events through proximal (intravenous administration, symptoms of withdrawal, or overdose) and distal (engaging in risk-taking and impulsive behaviour while intoxicated)

effects resulting from the use of psychoactive substances (Cheek *et al.*, 2016; Silva *et al.*, 2015). PTSD, by definition, involves experiencing and reliving traumatic and potentially life-threatening events. Such exposure may contribute to capability through mechanisms of desensitisation and habituation to pain. Together, the current data fit within the ideation-to-action framework in that factors characterised by *behavioural disinhibition* might be particularly important contributors to a suicide capability. Exposure to painful and provocative experiences—whether endured (trauma), self-inflicted (NSSI and substance abuse), or enacted on others (violent offending)—may build one’s suicide capability and, consequently, govern the translation of suicidal thoughts into action. Prisoners are more likely than their community counterparts to be exposed to such adverse life events, either prior to or during incarceration, and, as a result, may experience a greater suicide capability (Smith *et al.*, 2016). This could potentially explain the disproportionate high risk of suicide in prisoners. Factors not examined in the dissertation that may be linked to capability include impulsivity, aggression, childhood maltreatment, traumatic brain injury, and risk-taking—all of which are prevalent in this group. In addition to painful and provocative events that induce physical pain and fearlessness about death, there also seem to be *practical* contributors to one’s capability (Shahnaz *et al.*, 2020)—factors that make an attempt easier or more feasible. Specific to prison, as mentioned above, being accommodated in a single cell could heighten risk of suicide due to the isolated environment within which prisoners are placed, in that they have the time and privacy to engage in suicidal behaviour. Knowledge of and access to lethal means, especially hanging, can also facilitate the transition from thought to enactment. Relatedly, exposure to suicidal behaviour engaged in by others can also increase the salience and cognitive accessibility of suicide. Having knowledge that a fellow prisoner attempted or even died by suicide may not only expose an individual to details about certain methods, but may also make that specific action seem more feasible when one is already having suicidal thoughts. Exposure to suicidal behaviour may also activate habituation to one’s fear of suicidal behaviour, thus accounting for clustering of suicidal behaviour as a by-product of a suicide capability.

In sum, risk factors for suicidal thoughts were shown to be distinct from those that govern the transition to suicide attempt in prison (TABLE 38). Unlike most deprivations, which may confer increased risk for desire rather than capability, imported vulnerabilities may facilitate behavioural enaction when suicidal thoughts are present. This largely fits within the key premises of contemporary suicide models. Not only do the current findings bolster support for an ideation-to-action framework, they also expand its applicability to an understudied population (prisoners) in which interpersonal components (such as social isolation) and factors related to a capability (such as violent offending) hold particular relevance. Whilst the data, however tentative, provide evidence in line with this framework’s main tenets, it was not possible for this dissertation to directly test the theoretical claims proposed because it used proxies to, rather than explicit measures of, its central constructs (e.g., capability). Nonetheless, this report is one of the few to incorporate principles of this framework to examine risk of suicide among prisoners.

Table 38. Risk factors categorised within the vulnerability-stress and ideation-to-action framework.

| | Importation/diathesis | Deprivation/stress |
|----------|--|--|
| Ideation | Psychiatric morbidity, especially internalising disorders (e.g., depression), and hopelessness | Lack of autonomy and meaningful activity, victimisation, and poor social support |
| Action | Behavioural disinhibition (substance abuse, violent offending, and NSSI) and trauma | Single-cell housing, access to lethal means, and exposure to suicidal behaviour by peers |

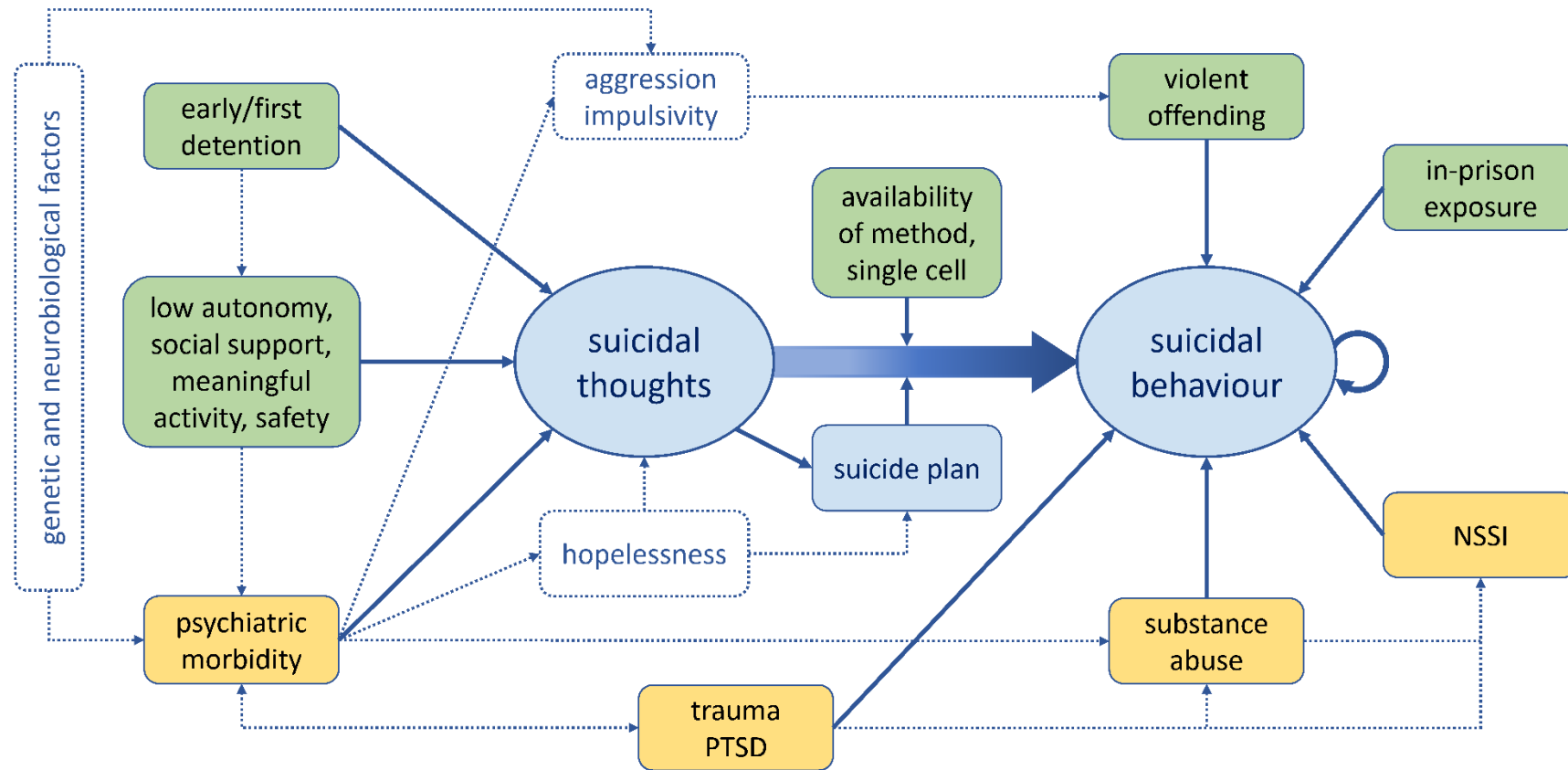
An integrated model of suicide risk in prison

Risk of suicide is influenced by a variety of historical, clinical, criminological, and environmental factors. Theoretical models to understand risk of suicide recognise that suicidal ideation and behaviour are the result of a complex interplay between a predisposing diathesis and precipitating stressors (e.g., Klonsky *et al.*, 2018; O'Connor & Nock, 2014; Selby *et al.*, 2014; van Heeringen, 2012). Overall, the current data indicate that prison-specific deprivations and environmental stressors (e.g., social isolation and lack of autonomy) increase the likelihood of suicidal thoughts, whereas imported vulnerabilities that relate to behavioural disinhibition and capability (such as violent offending and NSSI) facilitate the transition to suicidal behaviour when a desire is present. The empirical data of this dissertation, in combination with previously published work (Liebling, 1992; Rivlin *et al.*, 2013b), provide support for an integrated model of suicide risk in prisons (FIGURE 20) which incorporates prisoners' vulnerabilities that are imported into custody as well as the deprivating environment they find themselves in when imprisoned, and stresses differential associations between risk factors and theoretically distinct phases of the suicidal process. This model reflects an evidence-based synthesis of three—relatively isolated—theoretical frameworks (importation-deprivation, diathesis-stress, and ideation-to-action) and highlights complex interactions between risk factors and outcomes. The main hypotheses underlying this model are outlined in BOX 5.

Box 5. Main hypotheses underlying the integrated model of suicide risk in prisons.

- Suicide risk results from an interaction between a predisposing diathesis and precipitating stressors.
- The development of suicidal ideation and the transition to suicidal behaviour are distinct processes.
- Prison-specific stressors and deprivations increase the likelihood of experiencing suicidal thoughts.
- Suicidal ideation is necessary though not sufficient for an individual to engage in suicidal behaviour.
- Imported vulnerabilities characterised by behavioural disinhibition govern the transition to action.
- Practical facilitators include single-cell housing, availability of lethal means, and exposure to suicide.

Figure 20. The integrated model of suicide risk in prisons.



Note. PTSD, posttraumatic stress disorder; NSSI, non-suicidal self-injury. Green boxes denote factors that are related to imprisonment and yellow boxes indicate risk factors that are shared with the general population. White boxes and dotted lines indicate hypothesised variables and associations, respectively, based on previous research. Suicide-related outcomes are depicted in blue.

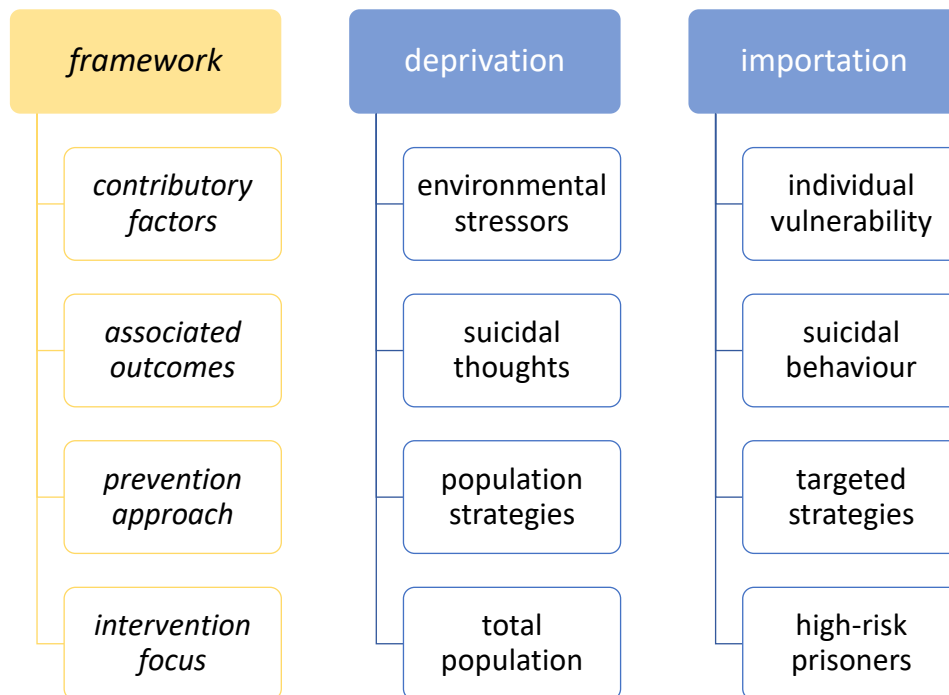
PREVENTION

The disproportionate high risk of suicidal ideation and behaviour in prisoners underscores the need for evidence-based prevention in order to alleviate distress and forestall negative outcomes in the future. The data arising from this dissertation have important implications for suicide prevention in prisons in Belgium and abroad, and also perhaps for other institutionalised populations. These results, combined with previous theoretical and empirical evidence, support an integrated model in which risk of suicide is conceptualised as the result of an interaction between a pre-existing vulnerability prisoners import from society into custody and the deprivating environment they find themselves in when incarcerated, and highlights differential relations between risk factors and distinct phases along the suicidal process. There are two key implications when using this model as a framework for suicide prevention in prisons. First, recognising the interaction between the vulnerable individual within a challenging environment, suicide prevention interventions should target both high-risk prisoners and appropriate aspects of the prison context. In accordance with this dichotomy, prevention efforts in prisons tend to be categorised into population and targeted strategies.¹³ Population strategies are designed to reach the entire prison population in addressing environmental and systemic factors that can have an effect on the overall risk of suicide in prisons, whereas targeted strategies focus on ways to intervene with prisoners considered to be at high risk of suicide (Pratt, 2016). Second, recognising that the development of suicidal thoughts and the transition to suicidal behaviour reflect distinct processes with distinct predictors, it is pertinent to distinguish which intervention targets address the onset of suicidal ideation in the overall population and which are meant to impede progression to suicidal behaviour in prisoners who are already thinking of suicide. Together, population strategies that focus on environmental stressors have the potential to prevent suicidal thoughts, whereas targeted strategies focusing on prisoners' individual vulnerabilities have the ability to prevent progression towards suicidal behaviour (FIGURE 21). Both approaches should be regarded as complementary and of equal importance, and hence implemented in combination with one another. Overall, it should be clear that suicide risk is a complex and multifaceted issue that does not lend itself to a single explanation nor to a simple solution. The focus on distinct outcomes (thoughts or behaviour) and their causes (individual or environmental) has vital implications for the ways in which risk is managed and prevented—not least in relation to the aims and targets of specific interventions.

¹³ Interventions for suicide prevention in the wider community are commonly organised in a tripartite framework that distinguishes between universal, selective, and indicated strategies (WHO, 2014). Because prisoners already represent a vulnerable group at high risk of suicide (i.e., the focus of selective interventions), a more appropriate categorisation of suicide prevention strategies in prisons includes a differentiation between approaches targeting the prison environment in general (population strategies) and the high-risk prisoners within (targeted strategies); a classification that is widely adopted in the literature on suicide prevention in prisons (e.g., Dear, 2006; Marzano *et al.*, 2016; Pratt, 2016).

Drawing on the empirical findings of this dissertation, combined with evidence summarised in previous reviews (e.g., Barker *et al.*, 2014; Borschmann *et al.*, 2020; Marzano *et al.*, 2016; Shelton *et al.*, 2017) and policy guidelines (NICE, 2018; WHO, 2007), strategies to improve the identification, management, and treatment of suicidal thoughts and behaviour amongst incarcerated offenders are outlined below. Guidelines by the Flemish Centre of Expertise in Suicide Prevention (Aerts *et al.*, 2017) were followed.

Figure 21. *Simplistic framework of suicide prevention in prisons.*



Identification of risk

Targeted suicide prevention rests on accurate identification of risk. Screening aims to identify prisoners who are at a high risk of suicide and link them with indicated interventions. Screening should be applied as standard practice at the point of arrival in prison (WHO, 2019a) and done by specialised clinical staff within the context of a wider intake assessment. Should suicide screening be a responsibility of prison officers, they should be adequately trained (Konrad *et al.*, 2007). Beyond reception, screening must be an ongoing and systematic process—at regular intervals throughout prisoners’ period of incarceration. Re-assessments are indicated when there are changes in prisoners’ circumstances (such as conviction, transfer or segregation) and when changes are observed which suggest a prisoner may be experiencing increased levels of distress. Screening should thus be a continuing process rather than a one-off event. Early identification of risk, based on both clinical judgement and validated screening tools, can lead to increased staff awareness and the initiation of appropriate preventative measures being put in place.

The WHO (2007) recommends the use of checklists when screening prisoners for risk of suicide. However, there have been very few scales validated specifically for use in screening prison populations (Brown *et al.*, 2017; Gould *et al.*, 2018; Perry *et al.*, 2010), and transferability of other existing screening instruments is problematic due to the unique environment in which prisoners are detained. Moreover, doubts have been raised about whether screening tools are any more effective than clinical judgement in picking up those at high risk. Reviews show that the evidence supporting the routine use of screening tools in clinical settings is weak (Carter *et al.*, 2017; Chan *et al.*, 2016; Runeson *et al.*, 2017). Opponents argue that no individual risk prediction instrument offers sufficient sensitivity and specificity to inform clinically useful decision-making and can result in the inappropriate allocation of scarce resources. The main issue associated with risk screening is that most instruments will produce large numbers of false positives—individuals identified as high risk who would not subsequently engage in suicidal behaviour. Such problems are aggravated in prison populations, where most individuals have multiple risk factors. For example, useful items for screening in prisons include questions about suicidal thoughts, violence, hopelessness, psychiatric disorder, a history of psychiatric treatment, previous self-harm or attempted suicide, a familial history of suicide, and poor social support (Marzano *et al.*, 2016; Ryland *et al.*, 2020). However, many of these risk factors are unlikely to be predictive because they are very common in the mainstream prison population. Owing to a lack of specificity, screening instruments incorporating such variables are likely to be overinclusive (Lohner & Konrad, 2007). Indeed, two recent prospective studies (Horton *et al.*, 2018; Ryland *et al.*, 2020) do not provide clear evidence to support the routine use of a screening tool for suicide risk in prison (Gould *et al.*, 2018). Nevertheless, the use of screening tools is generally considered to be a central component of any comprehensive prison suicide prevention policy because it can help identify high-risk groups whom might benefit from targeted interventions, allowing for a more informed decision-making (Marzano *et al.*, 2016; WHO, 2007). Although risk scales may not accurately *predict* future suicidal behaviour, and guidelines have discouraged the exclusive reliance on risk stratification to determine treatment allocation (Aerts *et al.*, 2017; Carter *et al.*, 2016; NICE, 2011), it does allow for the broad identification of high-risk prisoners and may be considered to help structure risk assessments and support prison staff in developing an integrated care and risk management plan. At best, structured risk scales should only be considered as *adjuncts* to clinical judgement, rather than being applied independently, alongside an in-depth assessment of needs to guide decision-making and risk management (Carter & Spittal, 2018; Large *et al.*, 2017).

It is important to ask about suicide in a direct but sensitive manner. Contrary to common myths around suicide, there is no empirical evidence to suggest that enquiring about suicidal ideation or plans entails an iatrogenic effect. In fact, the available evidence overwhelmingly suggests the exact opposite; screening for suicide can be *beneficial* in reducing distress and suicidal thoughts (Crawford *et al.*, 2011; Dazzi *et al.*, 2014; DeCou & Schumann, 2018; Gould *et al.*, 2005; Polihronis *et al.*, 2020).

Management of risk

Identification of those at high risk is a first step that needs to be accompanied with linkage to effective follow-up and care. A management process should be established with clearly articulated procedures and policies outlining responsibilities for placement, monitoring, and clinical intervention for prisoners who are flagged as being at risk of suicide (Humber *et al.*, 2011a; NICE, 2018; WHO, 2007). As a general principle, a prisoner should be placed in the least restrictive accommodation that maximises his safety. In case of imminent suicide risk, prisoners are commonly segregated to solitary confinement. However, whilst successful in the short-term, mounting evidence shows that solitary confinement is detrimental to prisoners' mental health (Brown, 2020; Haney, 2018; Luigi *et al.*, 2020) and could even increase their risk of suicide (CHAPTER 4), possibly because segregation inherently reduces protective factors, including social support and purposeful activities. This balance of potential adverse consequences of segregation should be carefully evaluated in light of prisoners' levels of distress. An alternative, and less restrictive, option is to accommodate prisoners who are identified as being at a high risk of suicide with a cellmate. Though placement in shared accommodation is recommended by the WHO (2007) and frequently used in Belgian prisons because it can reduce the feeling of isolation and constitutes a form of social support, there are several important caveats. For example, UK data have shown that circa half of all suicides in shared accommodations occurred at a time when prisoners were alone in their cell—even though they were technically sharing one (Shaw *et al.*, 2004). This was confirmed by this dissertation and may point to a false sense of security. Regardless of cell placement, adequate monitoring is important and should match the level of risk (e.g., every 15 or 30 minutes; WHO, 2007). Prisoners who are identified as being at risk should not be left alone, and observation and companionship should be provided. Management of risk through placement and monitoring is primarily the responsibility of both prison governors and officers, although a multi-disciplinary care planning system of risk management should to be installed.

An example of good practice is the Assessment, Care in Custody and Teamwork (ACCT) process, implemented throughout English and Welsh prisons (Humber *et al.*, 2011a; Pike & George, 2019). ACCT is a prisoner-centred, multi-disciplinary care planning process that promotes the case management of prisoners identified as being at risk of suicide. ACCT is to some extent similar to the Meldpunt Suïcide-preventie and requires that particular actions are taken within different timeframes in order to ensure that the risk of suicide is reduced—as outlined in BOX 6 (Pike & George, 2019). Both crisis interventions and multi-disciplinary care to those with longer-term problems are offered within the ACCT procedure. In short, an ACCT is said to be 'opened' for a prisoner when a risk becomes known to staff, and remains open while the risk persists, during which time fortnightly reviews are undertaken by correctional and health care staff. The ACCT is 'closed' by the multi-disciplinary team when the level of risk is considered to be safely reduced. The ACCT is then held in a post-closure state for 7 days, during which time it can

be re-opened if additional concerns arise. A post-closure interview with the prisoner is then conducted. ACCT has been subject to multiple evaluations (Harris, 2015; Humber *et al.*, 2011a; Ludlow *et al.*, 2015; Pike & George, 2019) and in general, appears to be a useful safeguarding approach to managing suicide risk. The benefit of creating a multi-disciplinary team of professionals from across the prison to manage risk of suicide through ACCT is that it enables a ‘whole person’ approach. There is, however, also room for improvement; it has especially been criticised for not focusing on the underlying causes of distress and suicide. ACCT has been characterised as merely a monitoring mechanism, with little consideration given to long-term or in-depth intervention for those who come under it (Harris, 2015). This conclusion largely aligns with the perspectives of staff in Belgian prisons, who emphasised that suicide prevention primarily relies upon placement and monitoring, rather than treatment. Although physical prevention has the potential to save lives, it does not address the reasons *why* prisoners are suicidal, and does not necessarily reduce the longer-term suicide risk. In order to target the psychosocial aetiology of suicide risk, clinical intervention—both mental health care and suicide-specific treatment—comprises a crucial component of suicide prevention in prisons, beyond management through placement and monitoring.

Box 6. The Assessment, Care in Custody and Teamwork (ACCT) process.

- Any staff member who receives information, including from family members or external agencies, or observes behaviour, which may indicate a risk of suicide, must consider opening an ACCT form.
- Within an hour of an ACCT being opened, staff must talk to the prisoner and complete an Immediate Action Plan (IAP) to ensure the prisoner is safe from harm.
- The trained ACCT Assessor must interview the at-risk prisoner within 24 hours of the ‘Concern and Keep Safe’ form being completed. Every effort must be made to engage with the individual prisoner. The outcome of this interview should be recorded in the ACCT plan.
- A first multi-disciplinary case review meeting must be held within 24 hours of an ACCT being opened ideally immediately after the assessment interview has been carried out.
- The frequency of conversations, observations, and support must be agreed on and recorded in the ACCT documents.
- Staff managing the ACCT must complete the CAREMAP—the ongoing action plan documenting how the care and support, to address the relevant issues, is to be delivered—giving detailed and time-bound actions aimed at reducing the risk posed by the prisoner.
- Multi-disciplinary case review meetings, to monitor progress with the CAREMAP actions and review the level of conversations and observation, must continue at a frequency that reflects the risk being managed.

Clinical intervention

Mental health care

The management and treatment of mental disorders is a key approach to suicide prevention, as clearly underscored by this dissertation, previous reviews (Fazel *et al.*, 2016; Marzano *et al.*, 2016), and policy guidelines (NICE, 2017, 2018; WHO, 2007, 2014, 2019a). Mental health services need to be adequately resourced and linked with evidence-based interventions (Bartlett *et al.*, 2015; de Andrade *et al.*, 2018; Fazel *et al.*, 2016; Givens *et al.*, 2021; Kouyoumdjian *et al.*, 2015; Leigh-Hunt & Perry, 2015; Martin *et al.*, 2012; Morgan *et al.*, 2012; Yoon *et al.*, 2017) to address the high levels of unmet needs in prisoners (Jakobowitz *et al.*, 2017). Cognitive behavioural therapy is currently the psychosocial intervention with the most consistent evidence in reducing substance use, depression, and anxiety, although high-quality trials are lacking. Even when suicide prevention is seen as a secondary gain, psychosocial interventions addressing mental health symptoms may have downstream effects on reducing risk of suicide (Johnson *et al.*, 2019; Meerwijk *et al.*, 2016). Mental health care services, therefore, need to incorporate suicide prevention as a key component (Bolton *et al.*, 2015). Pharmacological interventions to treat underlying mental health conditions should also be considered, including antidepressants, lithium, clozapine, and substitution treatments (Bolton *et al.*, 2015; Fazel *et al.*, 2016; Molero *et al.*, 2018; Turecki *et al.*, 2019).

Mental health care services in prisons should be *at least* equivalent to what is available for the general population (Till *et al.*, 2014). Despite international minimum standards (Forrester *et al.*, 2018), in reality, there remains a wide gap between the large demand for but limited supply of mental health care in prisons, including in Belgium (Mistiaen *et al.*, 2017). Consequently, mental health problems are frequently left undetected and untreated—with upward half of prisoners having unmet needs (Hassan *et al.*, 2012; Jakobowitz *et al.*, 2017; Senior *et al.*, 2013). Failure to meet health needs of prisoners not only hinders their rehabilitation, but is likely to contribute to suicide risk in prisons. Existing guidelines and quality standards that cover the assessment and treatment of mental health problems in prisoners (Georgiou *et al.*, 2018; NICE, 2017) provide a framework to improve the quality of health care services, and should therefore be implemented throughout all Belgian prisons. This would be the responsibility of both specialised (psychiatrists and psychologists) and general (physicians and nurses) clinical staff.

At the same time, it should be acknowledged that the provision of mental health care in prisons is challenging (Kolodziejczak & Sinclair, 2018). In addition to limited resources, the prison environment is primarily focused on security rather than therapeutic goals. The balance between custody and care clearly tips towards the former. Transfers and short sentences make health care engagement difficult. Another challenge relates to the complexity of clinical presentations, in which comorbidity is the norm rather than the exception (Hassan *et al.*, 2012). Last, issues of clinical independence and confidentiality might negatively affect the therapeutic alliance between prisoners and practitioners (Pont *et al.*, 2018).

Suicide-specific treatment

In recent years, efforts to develop psychosocial interventions for suicide prevention have moved away from the narrow view that treating mental disorders would resolve suicide risk, to the perspective that suicide-specific treatments are needed too (Turecki *et al.*, 2019). Meta-analytic evidence indicates that psychosocial interventions which *directly* target suicidal thoughts and behaviour have better outcomes in reducing risk of suicide than those addressing mental health symptoms (e.g., depression and anxiety) more broadly (Meerwijk *et al.*, 2016). There are around 350 randomised controlled trials of treatments where suicide-related outcomes were the primary intervention focus (Fox *et al.*, 2020). Comprehensive meta-analyses have found that, in general, psychosocial interventions are effective in reducing suicide attempt and self-harm in adults—with dialectical and cognitive behaviour therapy having the strongest evidence, albeit with moderate effects (Calati & Courtet, 2016; DeCou *et al.*, 2019; Hawton *et al.*, 2016; Hetrick *et al.*, 2016; O'Connor *et al.*, 2013; Tarrier *et al.*, 2008; Witt *et al.*, 2021). There is preliminary support for mindfulness-oriented interventions (Chesin *et al.*, 2016) and acceptance and commitment therapy (Tighe *et al.*, 2018) in reducing suicidal ideation, although these require replication. It is key to note that effective treatments for suicide attempt might have limited to no impact on suicidal thoughts (DeCou *et al.*, 2019; O'Connor *et al.*, 2013), and there is no evidence from randomised controlled trials to support that any of these have a marked effect on subsequent deaths by suicide (Riblet *et al.*, 2017). In addition to longer-term treatments, brief interventions have also been found to reduce subsequent suicidal behaviour in adults (Doupnik *et al.*, 2020; Nuij *et al.*, 2021). For example, the Attempted Suicide Short Intervention Program, a novel brief intervention following a suicide attempt, was both effective (Gysin-Maillart *et al.*, 2016) and cost-effective (Park *et al.*, 2018) in reducing future suicidal behaviour.

Psychosocial interventions developed in the community cannot be simply translated to prisons given the particular challenges of delivering treatment in prisons based on individual characteristics of prisoners and the unique nature of the prison environment (de Andrade *et al.*, 2018; Yoon *et al.*, 2017). The evidence base of psychosocial interventions that specifically target risk of suicide in adult prisoners is scarce and limited to small-scale and uncontrolled studies (Borschmann *et al.*, 2020; Winicov, 2019). There are two notable exceptions: recent randomised controlled trials of cognitive behavioural therapy (Pratt *et al.*, 2015) and psychodynamic interpersonal therapy (Walker *et al.*, 2017) modified for the use in English prisons have shown promising results in reducing the risk of suicide. Because this work is still only at the piloting stages, adequately powered trials are required to evaluate their efficacy. However, since these intensive one-on-one interventions are delivered by trained clinical staff on a weekly basis, consisting of up to 20 (one-hour) sessions over a four-month period, implementation and uptake might be curtailed by institutional demands and systemic constraints of the prison environment (Pratt, 2016), and might therefore not be feasible to implement on a large scale (Perry *et al.*, 2019).

These prison-specific obstacles necessitate the development of interventions that can be both (cost-)effective and practical in correctional settings. I can recommend two approaches in this respect. First, as brief interventions to prevent suicidal behaviour are generally inexpensive, easy to implement, and require limited staff resources (Doupnik *et al.*, 2020; Milner *et al.*, 2016), they may be a particularly feasible and scalable option for implementation in prisons. Their brevity and flexibility further enables them to accommodate the unpredictable demands of prisons, in contrast to longer-term interventions, which are prone to attrition and might exclude prisoners from accessing treatment if they are awaiting trial, serving short-term sentences, or being transferred to another prison. Second, an increasing range of self-guided digital interventions are emerging, at least in the general population. Although this body of evidence is still in its infancy, two recent meta-analyses suggest that self-guided digital interventions are generally effective in reducing suicidal thoughts (Buscher *et al.*, 2020; Torok *et al.*, 2020) and should therefore be considered as a viable low-threshold intervention option in prisons (Kip *et al.*, 2018). Their appeal is enhanced by being inexpensive and highly scalable. PrisonCloud, the digital platform recently introduced in new-built Belgian prisons (Maes *et al.*, 2019), offers exciting opportunities in this respect. One specific application would be to implement Think Life, a web-based intervention developed by the Flemish Centre of Expertise in Suicide Prevention which has been shown to effectively reduce thoughts of suicide in a randomised controlled trial (De Jaegere *et al.*, 2019), on this platform. However, because this and related (van Spijker *et al.*, 2014) trials have been conducted within community samples, it will be important to consider how digital interventions would translate to prisoner populations—requiring feasibility studies to guide their adaptation and implementation. Although such digital treatments have the potential to overcome barriers to service access, they should only be a complement to ‘traditional’ face-to-face therapy. For example, as digital interventions rely heavily upon manualised self-guidance, the ability of many prisoners to take part might be compromised—given their high levels of intellectual disability (Garcia-Largo *et al.*, 2020), attention deficit hyperactivity disorder (Young *et al.*, 2015), and functional illiteracy. Furthermore, given that the majority of Belgian prisons are currently not equipped with a digital platform needed to deliver these self-guided treatments, alternatives should be provided. Use of video consultations (telepsychiatry) could be another option to improve access, cost, and quality of evidence-based psychosocial intervention for prisoners in need (Edge *et al.*, 2019; Kaftarian, 2019).

In summary, psychosocial interventions, although not a panacea, appear effective in reducing suicide risk, and should be made available to prisoners in need. Current evidence largely relies on trials conducted within community settings, but recent pilots have found encouraging results that cognitive behavioural and interpersonal psychodynamic therapies might improve outcomes in suicidal prisoners. Mounting evidence shows that digital and brief interventions are promising to reduce suicidal ideation and behaviour in the general population, which present scalable options for treatment in prison. These should be tailored to the needs of prisoners and adapted to suite the demands of the prison context.

Environmental interventions and changes to the prison regime

While strategies that focus on detecting, managing, and treating at-risk prisoners comprise an essential pillar of any comprehensive policy, these alone will not be sufficient. Interventions should also address the onset of suicidal thoughts before they first emerge by favourably shifting risk and protective factors across the entire prison population, rather than in specific groups of prisoners considered to be at risk. Within a ‘healthy prison’ approach to suicide prevention, targeted strategies should be supplemented by population interventions that promote wellbeing and mitigate any adverse effects of imprisonment (Howard League, 2016). As Liebling (1998) argued many years ago, “whilst a number of risk factors are, to a large degree, set on arrival within the institution, the effects of additional stress presented by the prison environment can be manipulated by staff and managers to decrease the risk of suicide.” Based on the current findings and the wider literature, such environmental interventions and changes to the prison regime should address and improve aspects of safety, autonomy, purposeful activity, and social support, as well as the ‘moral performance’ of prisons in general (Liebling, 2006; Marzano *et al.*, 2016).

As too many prisoners are spending time locked in their cells with limited access to recreation, education, employment, and physical exercise, sufficient opportunities for purposeful activities should be provided. Taking part in healthy, constructive, and meaningful out-of-cell activities appears to exert a protective effect on risk of suicide in prisoners, as evidenced by this dissertation and related research (Stephenson *et al.*, 2021). Policy should therefore aim to provide all prisoners not only with ‘something to do’ but also with an opportunity for personal improvement. Recent neuropsychological data support this notion, in that active prison regimes might contribute to improved outcomes (Meijers *et al.*, 2018).

A ‘healthy prison’ should foster a sense of social connection through positive relationships with family, friends, peers, and staff. Prisoners must be able to maintain meaningful contact with their loved ones on the outside through social visits. It might be worth exploring ways to overcome logistical prison challenges for social contact by means of video conferencing. The COVID-19 pandemic has shown that digital alternatives are indeed feasible to implement—which should be sustained in the future. Within prisons, providing access to trained ‘buddies’ or ‘listeners’ through peer-based support schemes might be beneficial to integrate social support in suicide prevention efforts. Recent studies from the UK have found positive effects of peer support interventions (Griffiths *et al.*, 2020; Scowcroft *et al.*, 2019), and their potential for implementation in Belgian prisons should be explored. Last, enabling frontline staff to have positive contacts with prisoners, and build high-quality relationships, remains a central aspect of a prevention strategy (Liebling & Tait, 2006; Ludlow *et al.*, 2015). Staff-prisoner relationships should be grounded in dynamic security (Tournel & Kennes, 2011) and procedural justice (Jackson *et al.*, 2010) approaches. A procedural just treatment by staff has been shown to reduce prisoners’ suicide risk and to improve their mental health more generally (Beijersbergen *et al.*, 2014; Howard & Wakeling, 2020).

Interventions focusing on preventing victimisation, including anti-bullying programmes, might impact the wider correctional climate, and prisoners' perceived safety more specifically (Ireland, 2002, 2006), thereby having the potential to reduce the risk of suicidal thoughts and behaviour in prisoners.

Taken together, population strategies embedded within a 'healthy prison' approach to suicide prevention should focus on promoting wellbeing and mitigating systemic stressors within a supportive regime. Whilst prisons can never be stress-free environments, policy should emphasise the importance for prevention interventions to include a focus upon protective factors that may offer resilience against suicide risk in prisoners. A whole-of-institution approach is required to create a humane environment that promotes the health and wellbeing of all people who are incarcerated. This would include ensuring safety, autonomy, purposeful activity, and social support for every prisoner. Improving and sustaining these aspects of the prison regime has the potential to prevent the development of suicidal thoughts.

Multi-disciplinary collaboration between trained staff

A comprehensive approach to suicide prevention, incorporating population and targeted strategies, is contingent upon a multi-disciplinary collaboration between trained staff. The WHO (2019a) states that "all staff working in prisons should have a basic level of knowledge and understanding of health issues, including the management of suicide and self-harm risks." Initial training and refresher courses should be provided, and must enable staff to have a thorough understanding of suicide dynamics, the relevant factors involved, how to observe and recognise such factors in prisoners, and identify high-risk periods. For example, the Skills-Based Training on Risk Management Intervention (Gask *et al.*, 2006) has shown to improve attitudes, knowledge, and confidence in prison officers (Hayes *et al.*, 2008). Common myths surrounding risk of suicide and self-harm (WHO, 2014) should be debunked by training. Guidelines for prison officers regarding the prevention of suicide have been issued by the WHO (2000) and should be adopted in Belgium. Although webinar-based and e-learning training may be cost-effective alternatives to traditional classroom training, the topic of suicide prevention is one that is ideally provided in a live, interactive environment among correctional, mental health, and medical personnel—since preventing suicide is all about multi-disciplinary collaboration.

Policy guidelines emphasise the pivotal role of multi-disciplinary working in preventing suicide in prisons (NICE, 2018; WHO, 2007), rather than being the sole preserve of health care staff. Therefore, collaboration between all relevant agencies should be facilitated through implementation of a unified management process, tailored to local needs, which clearly articulates procedures and responsibilities for all actors involved, with respect for professional confidentiality. To harness this potential and avoid silo working, a distinct focus on effective joint systems and a widening of the scope of specialist training and supervision is highly recommended (Daniel, 2006; Forrester & Slade, 2014; Marzano *et al.*, 2016).

Postvention: support and review

A suicide prevention policy that incorporates population and targeted strategies tailored to local needs has the ability to reduce preventable mortality among prisoners. However, despite all efforts, suicides and suicide attempts in prisons—like in the community—will continue to occur. Therefore, procedures should be in place in the event of a death or attempted suicide in prison. This includes the provision of adequate support for both exposed staff and prisoners, as well as a thorough review of circumstances.

For all those involved, (attempted) suicides in prisons are highly traumatic events in an already stressful environment. It can have a profound effect on prison staff, both personally and professionally (Ludlow *et al.*, 2015; Slade *et al.*, 2019; Smith *et al.*, 2019; Wright *et al.*, 2006). The importance of, and need for, support provided by prison management and colleagues following traumatic incidents is well documented (Marzano & Adler, 2007). In the aftermath of suicide, provision of trauma debriefing and post-incident counselling that addresses distress resulting from the exposure has been recommended, especially when formalised and independent of the prison service (Marzano & Adler, 2007; Ruck *et al.*, 2013; Slade *et al.*, 2019). The independent nature of such interventions may satisfy staff concerns over confidentiality and their documented reluctance to speak to other staff about sensitive issues (Cassidy *et al.*, 2004). Formalising these support systems may also increase employees' feelings of support from management. Opportunities for staff to engage in peer support groups should also be encouraged.

Prison suicides also have substantive consequences for other prisoners who may witness or be in proximity to the victim (Hales *et al.*, 2015; Slade *et al.*, 2019). Given that exposure to suicide in peers increases risk of suicide, as documented in this dissertation, and evidence of spatiotemporal clustering of suicide (McKenzie & Keane, 2007) and self-harm (Hawton *et al.*, 2014) within prisons, interventions following suicidal behaviour should extend beyond the individual prisoner to others in the same wing or prison who might be at risk. The provision of post-incident support for prisoners exposed to suicidal behaviour could reduce the adverse effects of such exposure, including risk of suicide. This may include professional or peer support (Bagnall *et al.*, 2015) on an opt-out basis. Transparency in communication by staff and management is also recommended to help resolve confusion and prevent blaming.

In addition to post-incident support for both staff and prisoners, careful review of the incident is required to determine if the appropriate prevention and intervention procedures were taken and to identify any factors that may have indicated suicide risk. This review should result in recommendations for changes in policies or operational procedures to reduce the likelihood of a similar incident occurring in the future. The unfortunate occurrence of a suicide (attempt) in prison could provide an opportunity for reflection and revision to ensure that practices are as effective as possible.

Policy and guidelines, tailored to the local context

In order for population and targeted strategies to be maximally effective and ensure sustained impacts, these should be embedded within a comprehensive suicide prevention policy that is widely supported. Several countries have developed national standards and guidelines for suicide prevention in custodial settings (Daigle *et al.*, 2007), including the Netherlands (Westendorp *et al.*, 2016), UK (NICE, 2018), and US (NCCHC, 2019). Policies and procedures have the advantage to guide evidence-based interventions to detect, manage, and treat those at risk. Since implementation of guidelines in the wider community is associated with a reduction in rates of suicide (While *et al.*, 2012), it is recommended that guidelines for suicide prevention in Belgian prisons are to be developed. However, because suicide prevention is a regional competence in Belgium, developing *national* guidelines will not be possible. To support with achieving this objective, on a regional level, the multi-disciplinary guidelines developed by the Flemish Centre of Expertise in Suicide Prevention (Aerts *et al.*, 2017) might serve as an evidence-based starting point for developing a regional blueprint for suicide prevention, adapted for the use in Flemish prisons. Policies and procedures for the identification, management, and treatment of suicidal prisoners should be described in detail, alongside transparently articulated responsibilities for all stakeholders involved. Core components would include intake screening and ongoing assessment, monitoring and placement, (mental) health care, psychosocial treatment, multi-disciplinary collaboration and communication with respect for professional confidentiality, staff training and support, and postvention (Daigle *et al.*, 2007; NCCHC, 2019; NICE, 2018; Westendorp *et al.*, 2016). Successful implementation of (regional) guidelines will rely to a large extent on embedding these within a comprehensive policy and coordinated response to prevention which is integrated within wider decision-making and supported by executive leadership.

However, one size will not fit all. Although there are accepted elements to suicide prevention, there is large variability across prisons with respect to the size and characteristics of their populations. By virtue of their function, remand prisons invariably have a high turnover rate of prisoners, with many people staying for only short periods before they are either released or transferred to another prison. Furthermore, suicides among prisoners on remand have been shown to differ from those of sentenced prisoners in terms of timing and precipitating stressors (Konrad *et al.*, 2007), which requires a different approach to suicide prevention. Similarly, prevention strategies aimed at female prisoners will require a gender-sensitive and trauma-informed approach that is tailored to the specific needs of incarcerated women (Marzano *et al.*, 2011b; UNODC, 2014). Such a variability clearly necessitates that programmes and policies must be flexible and tailored to local needs. The specificity and uniqueness of every prison should be taken into account when designing, implementing, and evaluating local prevention policies. However, policies and procedures of each specific prison should comport with (national) standards and principles to ensure an evidence-based approach to the prevention of suicidal thoughts and behaviour.

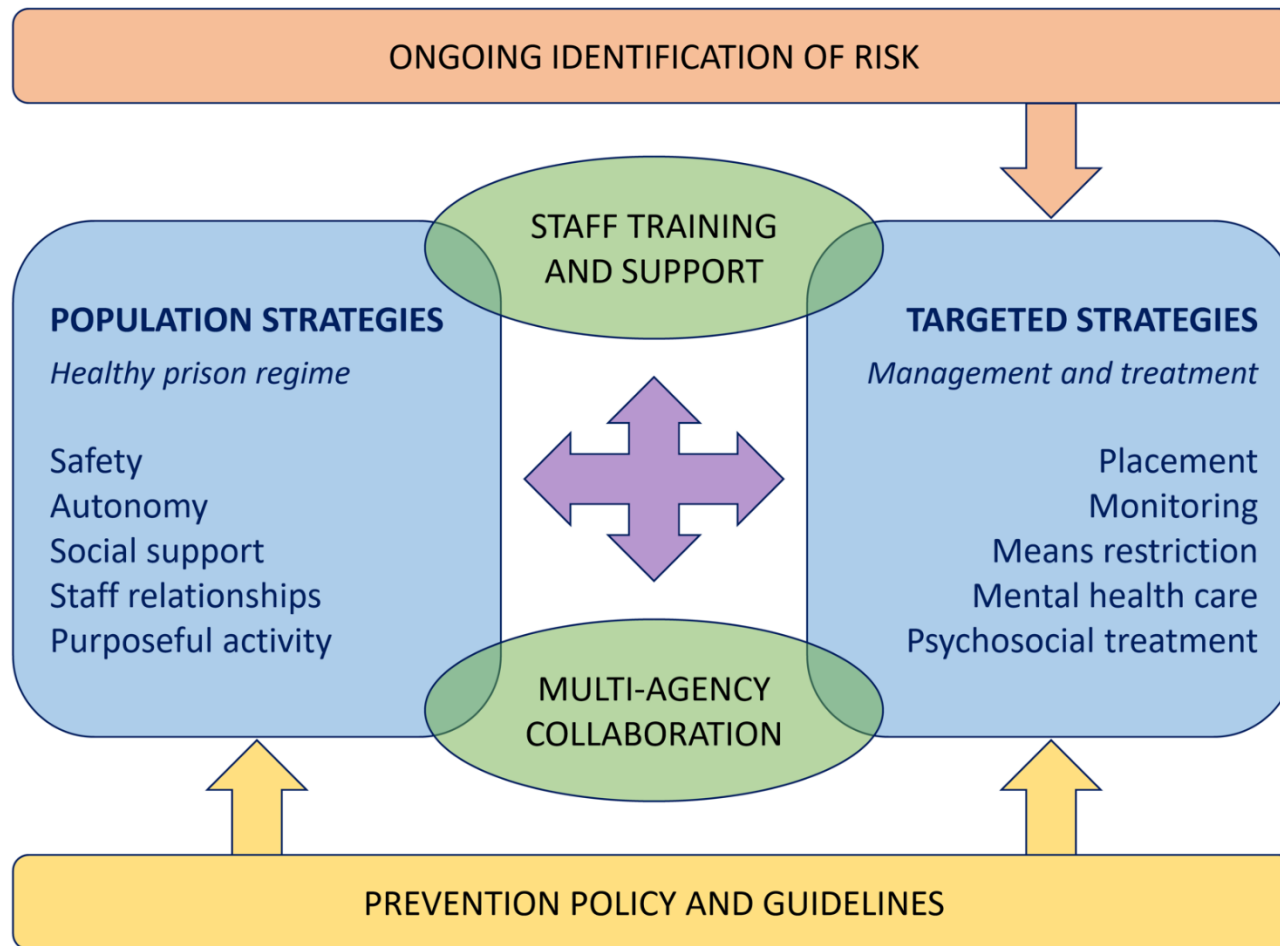
Key elements and recommendations for suicide prevention

In view of the myriad factors associated with suicide risk in prisons, a multilevel approach incorporating stressors related to the prison environment alongside clinical vulnerabilities is likely to have the largest potential to prevent suicidal ideation and behaviour in prisoners (Barker *et al.*, 2014). As reviews in the general population suggest, prevention efforts must be comprehensive, integrated, and synergistic, as no singular approach alone will likely be able to impact on an issue as complex as suicide (Baker *et al.*, 2018; Caine *et al.*, 2018; Hofstra *et al.*, 2020; van der Feltz-Cornelis *et al.*, 2011; Zalsman *et al.*, 2016). Approaches targeting different components of the integrated model could improve suicide prevention, and the current data clearly highlight the importance of combining population and targeted strategies. Population strategies should address and promote aspects of wellbeing, safety, autonomy, purposeful activity, and social support of all prisoners within a healthy and supportive regime. Targeted strategies rest upon accurate and ongoing risk assessment and should comprise a multi-disciplinary care planning process outlining clear procedures for placement and monitoring, in addition to well-resourced mental health services and evidence-based psychosocial treatment. Overall, a prison policy to prevent suicidal thoughts and behaviour should be tailored to local needs and requires collaborative working between adequately trained staff from all relevant disciplines—including health, social care, and criminal justice. Several recommendations arise from this dissertation, as described in BOX 7 and depicted in FIGURE 22. I believe these recommendations form the basis for a clinically-informed and empirically-based suicide prevention policy in Belgian prisons and abroad—which may be relevant to other institutional settings.

Box 7. Recommendations for suicide prevention in prisons.

- Screening and risk assessment based on clinical judgement and validated instruments should be an ongoing and systematic process at regular intervals throughout prisoners' period of incarceration.
- A multi-disciplinary management process should be established with clearly articulated procedures and policies outlining responsibilities for placement, monitoring, and support for at-risk prisoners.
- Mental health services should be adequately resourced and linked with evidence-based treatment; psychosocial interventions to reduce suicide risk should be made available to all prisoners in need.
- Environmental interventions should address and promote aspects of safety, autonomy, purposeful activity, and social support within a healthy and supportive regime to improve prisoners' wellbeing.
- Postvention should include support for all those involved and a thorough review of circumstances.
- A comprehensive suicide prevention policy requires both leadership and multi-agency collaboration between adequately trained staff across mental health, social welfare, and criminal justice sectors.
- National standards and guidelines that summarise best practices and guidance should be developed as a starting point, and specific implementation will need to be tailored to the local prison context.

Figure 22. Recommended model for suicide prevention in prisons.



Relevance to other institutional settings

Recommendations resulting from this dissertation may inform suicide prevention in other institutional and closed settings, including juvenile correctional facilities (Casiano *et al.*, 2013), psychiatric inpatient units (Madsen *et al.*, 2017), immigration detention centres (Hedrick *et al.*, 2019), and similar so-called “total institutions” (Goffman, 1961; Page, 1994) where authorities are required to protect those under their care. In secure settings, like prisons, certain aspects of the closed and restricted environment can make suicide more easily preventable than in the community (including greater monitoring and means restriction), whilst institutional stressors and deprivations (such as isolation) can increase risk of suicide in already high-risk populations by virtue of their background vulnerability (Sarkar, 2011). For example, the excess risk of suicide among asylum seekers in immigration detention centres (Hedrick *et al.*, 2019) can be understood not only by their increased exposure to pre- and peri-migration trauma and distress (Blackmore *et al.*, 2020; Henkelmann *et al.*, 2020) but also by the depriving conditions they are held in. Modelling their analysis on Sykes’ (1958) original prison-based formulation, several authors accentuate how detained asylum seekers, like prisoners, experience deprivations of liberty, autonomy, and goods and services (Gashi *et al.*, 2021; Longazel *et al.*, 2016; Peterie, 2018). Research has also established the deleterious health effects of immigration detention, and the mental health of asylum seekers has been found to deteriorate with longer periods of detention (Robjant *et al.*, 2009; von Werthern *et al.*, 2018). Although immigration detention facilities are not prisons, they resemble one another in both form and content (Peterie, 2018). Given these overlaps, prison-based suicide prevention interventions might be, with some caveats (Procter *et al.*, 2013), implemented within immigration detention centres. Likewise, similarities between prisons and psychiatric inpatient wards (Nawaz *et al.*, 2021; Pompili *et al.*, 2009) may inform implementation of evidence-based suicide prevention efforts across institutional settings.

AVENUES FOR FURTHER RESEARCH

The data underpinning this dissertation represent a first effort to investigate the epidemiology and risk factors for suicidal thoughts and behaviour in Belgian prisons by means of a mixed-methods approach. Although the findings resulting from this research are novel and may inform suicide prevention efforts, there are numerous ways in which further research on this topic may extend upon the current findings and address the limitations of the studies included in this dissertation, as discussed in CHAPTERS 2 to 7. Moreover, the systematic review reported in CHAPTER 4 identified several important gaps in the current state of the literature—all of which provide clear directions for future research. A selection of the many promising avenues for further research is summarised in BOX 8, which could facilitate timely advances in the empirical understanding and prevention of suicidal thoughts and behaviour among prisoners.

Box 8. Recommendations for future research.***Understanding and prediction***

- Consensus should be reached about terminology and phenomenology of suicide-related outcomes.
- Prospective research that carefully records the time of onset of each predictor and outcome should examine what factors longitudinally predict risk of suicide during the course of imprisonment.
- Studies should focus on including representative samples of incarcerated women to clarify potential sex differences in risk and protective factors for suicidal thoughts and behaviour.
- The frequency of suicidal behaviour should be considered to improve our understanding of possible factors that distinguish prisoners who attempt suicide from those who repeatedly attempt suicide.
- Studies should examine the extent to which suicide deaths have different predictors compared with non-fatal suicidal behaviour in prisoners.
- Institutional and macro-level factors should be included in multi-level modelling analyses to identify sources of variation that might point to differential risks of suicide across types of prisons and wings.
- Theory-driven research should test inferential hypotheses underpinning ideation-to-action theories to clarify the psychological mechanisms through which individuals come to think about suicide and subsequently decide (not) to act on suicidal thoughts while incarcerated.
- Studies should acknowledge the ebb and flow of suicide risk in prisoners, and focus on such dynamic fluctuations to better understand the mechanistic drivers of suicide risk as they unfold temporally.
- Research using real-time data collection should delineate which proximal factors predict imminent risk of suicide within the short term—that is, over the next minutes, hours, or days.
- Machine-learning risk algorithms that simultaneously consider complex combinations of suicide risk factors should be applied to existing datasets to improve predictive power and diagnostic accuracy.

Prevention and intervention

- More research is needed to test the reliability and predictive validity of risk assessment instruments specifically for use in screening prison populations.
- Adequately powered randomised controlled clinical trials are required to evaluate the effectiveness of prison-based psychosocial interventions to reduce future suicidal thoughts and behaviour.
- Feasibility studies should investigate how scalable (digital and brief) psychosocial interventions may be tailored to the needs of prisoners and adapted to suite the demands of the prison environment.
- Implementation of video consultations should be considered in prisons to improve access, cost, and quality of evidence-based clinical treatments.
- Prisoners with lived experiences should be involved in suicide research in order to ensure ecological validity and acceptability of prevention interventions and service delivery.

The list of recommendations outlined above is all but exhaustive, and abundant other areas for future suicide research have been proposed over recent years (Glenn & Nock, 2014; Millner *et al.*, 2020; Nock *et al.*, 2019; O'Connor & Portzky, 2018; Sareen *et al.*, 2014). These directions could markedly advance our knowledge of the temporal course of the suicidal process throughout incarceration, as well as the psychological underpinnings leading to the onset, persistence, and fluctuation of suicide risk over time. Such advances can guide assessment of suicide risk and enable clinicians to better target interventions. Adherence to these recommendations—some more feasible than others—for what, how, and who we should study provides us with a roadmap to achieve our ultimate objective: the prevention of suicide.

The opportunities for further scientific breakthrough are numerous—but so are the challenges. First, to understand how risk of suicide manifests ecologically, and how suicidal processes unfold, new technologies and real-time data collection (e.g., using ecological momentary assessment) are required (Allen *et al.*, 2019; Davidson *et al.*, 2017; Kleiman & Nock, 2018)—none of which are currently allowed in prisons. As these technological advancements present promising opportunities for suicide research and prevention (Berman & Carter, 2020; Oexle *et al.*, 2019) their use should be actively considered and allowed for both research and treatment purposes in prisons. In addition to equivalence of health care, prisons should also pursue the objective of “digital equivalence” (Edge *et al.*, 2020; Toreld *et al.*, 2018). Second, addressing these recommendations will require meaningful investment from funding bodies. However, because suicide (Fortgang & Nock, 2021; Woelbert *et al.*, 2021) and prison (Ahalt *et al.*, 2015; Kouyoumdjian *et al.*, 2017) research is notoriously underfunded relative to other academic disciplines, it will be important to establish key priorities for research in prison health and suicide prevention, and increased funding will be required to meet these research priorities. Third, despite the ample evidence to the contrary (Biddle *et al.*, 2013; Blades *et al.*, 2018; Littlewood *et al.*, 2021), ethics committees and institutional review boards often voice concerns that suicide research can entail an iatrogenic potential (Lakeman & Fitzgerald, 2009; Nugent *et al.*, 2019), and patients considered to be at risk of suicide are often excluded from clinical trials, which might hamper progress in the understanding and prevention of suicide. It does appear that taking part in suicide research, with the proper protocols and safeguards in place, is generally experienced positively by prisoners, and that it can even be beneficial in reducing distress for some people (Rivlin *et al.*, 2012b). Ethics committees should be aware that, beyond obvious benefits to scientific knowledge, there might also be potential therapeutic benefits to be gained from research participation, even when it involves examining a sensitive subject in a vulnerable population.

Although none of these issues is insurmountable, they represent barriers that may be difficult to overcome, particularly in prison settings. Nonetheless, given the lives at stake, it is crucial that policy and practice efforts are maximally underpinned by high-quality research evidence. Digital equivalence, funding, and ethical approval are necessary to facilitate timely advances in the empirical understanding of suicide risk, and achieve the public health objective of reducing preventable mortality in prisoners.

POLICY RECOMMENDATIONS

Addressing structural barriers

Overcrowding and staff shortages comprise intertwined structural barriers that place a substantial and chronic strain upon the Belgian prison system, which exacerbate existing concerns in terms of prisoner-staff ratios and service delivery. Inconsistent deployment and too few staff means that prison officers are unable to form relationships with prisoners that enable them to identify and manage risk of suicide. Prisoners, on the other hand, are spending more time locked up and less time meaningfully occupied, and mental health services are inadequately resourced to address the high levels of need in prisoners (Zorgnet-Icuro, 2019). Increased allocation of resources to improve service delivery and prison regimes will not only contribute to a whole-prison approach towards suicide prevention, but will equally benefit every single person who is incarcerated. Policy statements on both regional (Demir, 2020) and federal (Van Quickenborne, 2020) levels have recently attested commitment to pursue meeting the principles of normalisation and equivalence—as enshrined within Belgian legislation (the Basic Law on Prisons of 2005) as well as international standards (Council of Europe, 2020; UN, 2015). Given infamously limited resources, however, policy makers will need to be strategic in how scarce budgets will be distributed.

Prisoner health is public health

Prisoners should not be denied, by their incarceration, full access to any health care provision available to the general population. This principle of ‘equivalence of care’ states that all prisoners should receive the same quality standard and delivery of health care were they not in prison. Minimum standards for the treatment of prisoners were internationally accepted, and first adopted, by the United Nations in 1955, as revised in 2015—the Mandela Rules (UN, 2015). Another important international standard in this area are the Rules for the Treatment of Women Prisoners and Noncustodial Measures for Women (UN, 2010). At the European level, this principle is verbatim reinforced by Recommendation R(98)7 of the Council of Europe concerning the ethical and organisational aspects of health care in prison (1998), by the standards of the European Committee for the Prevention of Torture and Inhuman or Degrading Treatment or Punishment, and in the European Prison Rules (2020). Translated into Belgian legislation, the Basic Law of 2005 states in article 88 that prisoners are entitled to health care that is equivalent to the health care in the general population. Given the excess burden of health needs in prisoners, some have argued that health care equivalent to that in the community will likely be insufficient to achieve equitable health outcomes, and that we should move beyond equivalent provision of services and seek equivalence of *objectives* instead (for a discussion, see Charles & Draper, 2012; Forrester *et al.*, 2018; Lines, 2006; Niveau, 2007; Till *et al.*, 2014).

In England and Wales, this principle of equivalence was an important driver in transferring the service oversight and responsibility of prison health care from the ministry of justice to the ministry of health (Forrester *et al.*, 2018). The WHO (2013) also recommends that health care in prisons should be delivered by health ministries, rather than justice ministries, if health equity between prisons and the community is to be achieved. This model of prison health governance currently applies only to a limited number of countries—of which the UK has the longest experience (McLeod *et al.*, 2020; WHO, 2019a). A review (Leaman *et al.*, 2016) concluded that this transfer had positive effects on mental health care provision, continuity of care, and data sharing; all aspects likely to assist in suicide prevention. In recent years, there also has been growing debate in Belgium around whether some or all responsibilities and accountability for prison health care should be under the ministry of health than the ministry of justice. In 2017, the Belgian Health Care Knowledge Centre published a comprehensive report with actionable recommendations for policy makers to transfer the responsibility and governance of prison health care into the remit of the Minister for Social Affairs and Public Health (Mistiaen *et al.*, 2017). Following the 2019 federal elections, the Minister of Justice has included the initiation of transition of governance as one of the priorities in his policy plan (Van Quickenborne, 2020).

The key principles to be ensured are equivalence of care, clinical independence, and continuity of care. An argument in support of this transfer is a potential role conflict among health care providers employed by a correctional authority and the imperative for clinical independence (Pont *et al.*, 2018). Health care providers under the authority of correctional services (can) experience competing loyalties between their responsibilities to their patients and their obligations to their employer. Confidentiality should not be compromised. Another argument in support of making health ministries responsible and accountable for prison health care services is that it could facilitate continuity of care between prisons and the community. In this scenario, prisons can provide an opportunity to address health inequalities and initiate care for underserved persons who might be at increased risk of suicide—such that prisoner health is public health (Dumont *et al.*, 2012; Kinner *et al.*, 2018; McLeod *et al.*, 2020; WHO, 2003, 2010).

Data collection and monitoring

Supporting quality improvements in prison health care and addressing equivalence of care will require high-quality data collection and performance monitoring. Actively monitoring all elements of health in prison, including suicidal behaviour, using standardised data collection tools would not only contribute to better estimating the disease burden and health needs, but also create a basis for adequate resource allocation. Epidemiological data from the prison system may be integrated into national data collection and inform comprehensive public health policy and planning (Verdot *et al.*, 2015). Effective prevention of suicide, in prisons and elsewhere, is contingent on good data collection to inform policy and practice.

However, the Belgian prison estate has very poor national suicide data to assist with this aim. This lack of systematic and standardised data is problematic because it hinders informed policy making, and the development of suicide prevention interventions based on accurate information. National systems for surveillance and monitoring need to be instituted that collect granular data on suicidal behaviour, and health indicators more generally, across Belgian prisons—which is recommended by the WHO (2019a). A practice manual for establishing a surveillance system for suicide behaviour in the general population has been developed by the WHO (2016) and should be implemented in Belgian prisons. Sciensano, the national public health research institute in Belgium, would be ideally placed to manage such data; that is, in the scenario that prison health would be transferred to the responsibility of the ministry of health. This would provide vital epidemiological information that can inform allocation of resources, and assist in the development and evaluation of suicide prevention strategies within Belgian prisons. Data linkage across health care and criminal justice settings may further allow for identifying key points at which to target strategies along the spectrum of services offenders are engaged in, enabling the opportunity for a *truly* comprehensive approach to suicide prevention (Dawson *et al.*, 2021). Such linkage of data could further boost information sharing systems between prison and community services, thereby improving health outcomes for justice-involved individuals at risk of suicide through surveillance and monitoring.

Population-level policy

Policies intended to prevent suicide at the population level should be inclusive of vulnerable groups in society—including prisoners (WHO, 2014). Prisons, and criminal justice settings more generally, should be routinely included in all population-level (national) mental health policies (Borschmann *et al.*, 2020). This is important because it indicates a government’s commitment to prioritising and tackling suicide, and to push forward the implementation of suicide prevention strategies for the population as a whole, and vulnerable populations in particular (Arensman *et al.*, 2020; WHO, 2018). In Belgium, the successor of the second Flemish Suicide Prevention Action Plan (2012–2020) should include prisoners as a target group, and specify actionable objectives and clear indicators for suicide prevention in Flemish prisons. In addition, suicide prevention should be included in the *Strategisch Plan Hulp- en Dienstverlening aan Gedetineerden* as one of its focal points. Importantly, on account of suicide prevention constituting a regional competence in Belgium, *all* regions must include prisoners in their action plans and prevention policies. In general, inclusion of prisoners in population-wide policy—whether on a national or regional level—will provide guidance on evidence-based suicide prevention strategies, shape advocacy, outline a research agenda, and create a framework of monitoring and evaluation (WHO, 2012). Prisoners with lived experience should be involved in developing, implementing, and evaluating policy targets, which has proven to be paramount to ensure ecological validity and acceptability of prevention interventions.

Continuity of care

Prisoners' risk of suicide is not limited within the prison walls. After release into the community, former prisoners continue to be at excess risk of poor health outcomes, such as self-harm, overdose, and injury (Alan *et al.*, 2011; Borschmann *et al.*, 2017a; Cutcher *et al.*, 2014; Frank *et al.*, 2013; Young *et al.*, 2018). Compelling evidence shows that the risk of premature mortality for adults released from incarceration is considerably elevated relative to the general population (Binswanger *et al.*, 2007; Kinner *et al.*, 2013; Kouyoumdjian *et al.*, 2016b; Lim *et al.*, 2012; Zlodre & Fazel, 2012). More specifically, large-scale cohort studies found formerly incarcerated individuals to be at substantially increased risk of death by suicide, with the period shortly after release from prison posing an exceptionally high risk (Haglund *et al.*, 2014; Kariminia *et al.*, 2007; Spittal *et al.*, 2014). In England and Wales, men and women released from prison were found to be 8 and 36 times more likely, respectively, to die by suicide within 12 months of release than would be expected in the general population, with one in five suicides occurring within four weeks of release (Pratt *et al.*, 2006). Risk factors for suicide after release from prison include substance abuse, mental disorders, and a prior suicide attempt (Haglund *et al.*, 2014; Joukamaa, 1998; Pratt *et al.*, 2010). These findings underline the need to address psychiatric morbidity within a continuity of care pathway (Hopkin *et al.*, 2018; Kouyoumdjian *et al.*, 2015). Coordinated transitional care should commence prior to release from custody, with linkages between prisons and community health and social care services, in order to ensure providing integrated treatment upon release and thereby improve health outcomes. Allocating appropriate resources to facilitate transition from custody to community is based on human rights, public health, criminal justice, and economic grounds (Kinner & Wang, 2014; WHO, 2003, 2010).

GENERAL CONCLUSION

Suicidal thoughts and behaviour are around four times more prevalent in prisoners than in the general population, contributing to substantial morbidity and mortality, with a range of modifiable risk factors. Findings indicate that prison-specific deprivations and institutional stressors increase the likelihood of suicidal ideation, whereas imported vulnerabilities characterised by behavioural disinhibition facilitate the transition towards suicidal behaviour. Given that risk of suicide is determined by a complex web of synergistically interacting factors, there is a need for a comprehensive approach to suicide prevention that incorporates both targeted strategies aimed at high-risk individuals and population strategies that mitigate systemic stressors within prison. Best practice necessitates commensurate coordinated policy and practice efforts that emphasise multi-disciplinary collaboration between adequately trained staff across mental health, social care, and criminal justice sectors. Continued research should inform policy and practice to achieve the public health objective of reducing preventable mortality among prisoners.

Take-home messages

Key findings

- Over the past two decades, one in every three deaths in Belgian prisons was the result of a suicide.
- Suicidal thoughts and behaviour are four times more prevalent in prisoners than in the community.
- Suicide risk results from the interplay between a predisposing diathesis and precipitating stressors.
- The development of suicidal ideation and the transition to suicidal behaviour are distinct processes.
- Prison-specific deprivations and stressors increase the likelihood of experiencing suicidal thoughts.
- A diathesis characterised by behavioural disinhibition facilitates the transition to suicidal behaviour.
- Interventions to prevent suicide should target both high-risk individuals and institutional stressors.

Recommendations for practice

- Ongoing screening and risk assessment should be based on clinical judgement and validated tools.
- A risk management process should outline responsibilities for placement, monitoring, and support.
- Mental health care and psychosocial treatments should be made available for all prisoners in need.
- Population strategies should promote wellbeing and mitigate any adverse effects of imprisonment.
- Postvention should include support for all those involved and a thorough review of circumstances.
- A comprehensive policy should underline multi-agency collaboration supported by local leadership.
- National guidelines that summarise best practices should be developed and tailored to local needs.

Recommendations for research

- Prospective research should delineate sex-specific risk factors during the course of imprisonment.
- Theory-driven research should focus on temporal fluctuations in risk to chart short-term predictors.
- Studies should identify differences in risk factors for repeated non-fatal and fatal suicidal behaviour.
- Multi-level modelling analyses should assess the contribution of micro- and macro-level risk factors.
- Screening tools should be developed to identify suicide risk with sufficient sensitivity and specificity.
- Trials should evaluate the feasibility and effectiveness of prison-based psychosocial interventions.
- Digital equivalence, funding, and ethical approval should be afforded to advance scientific progress.

Recommendations for policy

- Minimum national and international standards for good prison management should be adhered to.
- Health care provision in prisons should be at least equivalent to what is available in the community.
- Governance of health care in prisons should be transferred into the remit of the ministry of health.
- National monitoring systems should be instituted that collect data on suicidal behaviour in prisons.
- Prison settings should be routinely included in all population-level (national) mental health policies.
- Enduring concerns of staffing shortages and overcrowding should be tackled by resource allocation.
- Continuity of care should be ensured to reduce morbidity and mortality after release from custody.

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APPENDICES

- Appendix A Suicide rates in prisons and the general population, Belgium (2000–2017).
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Appendix A. Suicide rates in prisons and the general population, Belgium (2000–2017).

| Year | Suicide rate (per 100,000) | | | Rate ratio ^b | |
|------|---------------------------------|--------|------------|-------------------------|------------|
| | General population ^a | Prison | | ADP | Receptions |
| | | ADP | Receptions | | |
| 2000 | 20.9 | 222.4 | 127.0 | 10,6 | 6,1 |
| 2001 | 21.0 | 269.4 | 159.2 | 12,8 | 7,6 |
| 2002 | 20.1 | 249.9 | 138.5 | 12,5 | 6,9 |
| 2003 | 20.2 | 121.6 | 69.2 | 6,0 | 3,4 |
| 2004 | 19.1 | 86.6 | 50.8 | 4,5 | 2,7 |
| 2005 | 19.4 | 139.9 | 82.4 | 7,2 | 4,3 |
| 2006 | 18.3 | 145.7 | 83.6 | 7,9 | 4,6 |
| 2007 | 17.5 | 141.8 | 81.1 | 8,1 | 4,6 |
| 2008 | 18.7 | 161.8 | 89.5 | 8,7 | 4,8 |
| 2009 | 18.6 | 127.0 | 70.3 | 6,8 | 3,8 |
| 2010 | 18.4 | 189.8 | 106.2 | 10,3 | 5,8 |
| 2011 | 19.0 | 109.4 | 65.6 | 5,8 | 3,5 |
| 2012 | 18.3 | 114.7 | 73.6 | 6,3 | 4,0 |
| 2013 | 17.0 | 128.8 | 83.8 | 7,6 | 4,9 |
| 2014 | 17.0 | 172.7 | 106.6 | 10,2 | 6,3 |
| 2015 | 16.6 | 144.9 | 85.7 | 8,7 | 5,2 |
| 2016 | 16.9 | 122.4 | 73.7 | 7,3 | 4,4 |
| 2017 | 15.2 | 124.2 | 72.8 | 8,2 | 4,8 |
| Mean | 18.4 | 154.1 | 90.0 | 8.3 | 4.9 |

Note. ADP, average daily population. Data on suicide rates for the general Belgian population were not yet available for the years 2018 and 2019. ^a Adjusted suicide rates per 100,000 men and women of all ages combined in the general population (source: Sciensano SPMA database). ^b Prison suicide rates compared with general population suicide rates for that same year.

Appendix B. Risk factors for recent (past-year) suicidal ideation among male prisoners.

| | All men (n = 1203) | NSI (n = 918) | SI (n = 285) | OR (95% CI) | p |
|--------------------------|-----------------------|------------------|-----------------|------------------|----------|
| Age, years | 37.7 (11.9) | 37.6 (12.1) | 37.7 (11.1) | 1.00 (0.99–1.01) | 0.963 |
| Belgian nationality | 72.1 | 69.4 | 80.9 | 1.87 (1.35–2.60) | < 0.001 |
| Partnership | 40.0 | 39.8 | 40.7 | 1.04 (0.79–1.36) | 0.777 |
| Prior incarceration | 58.9 | 59.8 | 56.1 | 0.86 (0.66–1.13) | 0.272 |
| Sentenced status | 65.7 | 67.1 | 61.1 | 0.77 (0.58–1.01) | 0.060 |
| Duration incarceration | | | | | 0.036 |
| < 1 month | 10.0 | 9.4 | 11.9 | 1.71 (1.00–2.90) | 0.049 |
| 1–6 months | 28.0 | 27.3 | 30.5 | 1.50 (0.98–2.31) | 0.063 |
| 6–12 months | 10.9 | 10.1 | 13.3 | 1.76 (1.05–2.96) | 0.031 |
| 1–3 years | 21.1 | 22.7 | 16.1 | 0.95 (0.59–1.54) | 0.848 |
| 3–5 years | 13.1 | 12.6 | 14.7 | 1.56 (0.95–2.57) | 0.080 |
| > 5 years | 16.8 | 17.9 | 13.3 | 1.00 (reference) | — |
| Violent offence | 25.5 | 23.7 | 31.4 | 1.48 (1.10–1.99) | 0.010 |
| Drug use in prison | 35.1 | 32.1 | 44.6 | 1.70 (1.29–2.23) | < 0.001 |
| Psychiatric diagnosis | 44.8 | 39.8 | 61.1 | 2.38 (1.81–3.12) | < 0.0001 |
| Psychoactive medication | 34.4 | 29.7 | 49.5 | 2.31 (1.76–3.04) | < 0.0001 |
| History of NSSI | 16.5 | 13.1 | 27.7 | 2.55 (1.85–3.52) | < 0.0001 |
| Family history | 24.7 | 21.4 | 35.4 | 2.02 (1.51–2.70) | < 0.0001 |
| Suicide exposure | 47.8 | 44.1 | 59.6 | 1.87 (1.43–2.45) | < 0.0001 |
| Single cell | 50.3 | 50.4 | 49.8 | 0.98 (0.75–1.27) | 0.856 |
| Prison work | 53.9 | 57.2 | 43.5 | 0.58 (0.44–0.75) | < 0.0001 |
| MQPL autonomy | 2.78 (0.76) | 2.88 (0.74) | 2.48 (0.75) | 0.48 (0.40–0.58) | < 0.0001 |
| MQPL outside contact | 3.00 (0.98) | 3.10 (0.96) | 2.72 (0.98) | 0.67 (0.58–0.77) | < 0.0001 |
| MQPL staff relationships | 2.84 (0.88) | 2.90 (0.88) | 2.65 (0.86) | 0.72 (0.62–0.84) | < 0.0001 |
| MQPL physical safety | 3.20 (0.82) | 3.31 (0.79) | 2.86 (0.82) | 0.51 (0.43–0.60) | < 0.0001 |
| MQPL decency | 2.64 (0.76) | 2.70 (0.75) | 2.44 (0.77) | 0.64 (0.53–0.77) | < 0.0001 |
| Poor social support | 47.4 | 44.4 | 56.9 | 1.65 (1.26–2.16) | < 0.001 |

Note. Data are presented as percentages for categorical variables and as mean (standard deviation) for continuous variables. NSI, no recent suicidal ideation while incarcerated; SI, recent (past-year) suicidal ideation while incarcerated; OR, odds ratio; MQPL, Measuring the Quality of Prison Life.

Appendix C. Risk factors for recent (past-year) suicidal ideation among female prisoners.

| | All women (n = 123) | NSI (n = 78) | SI (n = 45) | OR (95% CI) | p |
|--------------------------|------------------------|-----------------|----------------|-------------------|----------|
| Age, years | 38.0 (10.8) | 38.0 (10.2) | 37.9 (11.8) | 1.00 (0.97–1.03) | 0.946 |
| Belgian nationality | 87.6 | 89.5 | 84.4 | 0.64 (0.22–1.90) | 0.417 |
| Partnership | 49.6 | 50.0 | 48.9 | 0.96 (0.46–1.99) | 0.906 |
| Prior incarceration | 39.0 | 34.6 | 46.7 | 1.65 (0.78–3.49) | 0.187 |
| Sentenced status | 62.6 | 64.1 | 60.0 | 0.84 (0.40–1.79) | 0.651 |
| Duration incarceration | | | | | 0.675 |
| < 1 month | 10.6 | 7.7 | 15.6 | 2.92 (0.59–14.33) | 0.187 |
| 1–6 months | 34.1 | 35.9 | 31.1 | 1.25 (0.33–4.70) | 0.741 |
| 6–12 months | 12.2 | 14.1 | 8.9 | 0.91 (0.18–4.64) | 0.909 |
| 1–3 years | 20.3 | 19.2 | 22.2 | 1.67 (0.41–6.82) | 0.477 |
| 3–5 years | 11.4 | 10.3 | 13.3 | 1.88 (0.39–9.01) | 0.433 |
| > 5 years | 11.4 | 12.8 | 8.9 | 1.00 (reference) | — |
| Violent offence | 33.6 | 32.4 | 35.6 | 1.15 (0.53–2.51) | 0.727 |
| Drug use in prison | 32.5 | 20.5 | 53.3 | 4.43 (1.98–9.89) | < 0.001 |
| Psychiatric diagnosis | 61.0 | 52.6 | 75.6 | 2.79 (1.24–6.28) | 0.012 |
| Psychoactive medication | 56.1 | 47.4 | 71.7 | 2.73 (1.25–5.97) | 0.011 |
| History of NSSI | 25.2 | 11.5 | 48.9 | 7.33 (2.96–18.18) | < 0.0001 |
| Family history | 35.0 | 32.1 | 40.0 | 1.41 (0.66–3.03) | 0.373 |
| Suicide exposure | 55.3 | 50.0 | 64.4 | 1.81 (0.85–3.86) | 0.121 |
| Single cell | 43.0 | 44.7 | 40.0 | 0.82 (0.39–1.74) | 0.611 |
| Prison work | 58.2 | 64.9 | 46.7 | 0.47 (0.22–1.00) | 0.048 |
| MQPL autonomy | 2.59 (0.76) | 2.76 (0.79) | 2.31 (0.63) | 0.43 (0.25–0.75) | 0.003 |
| MQPL outside contact | 2.83 (0.93) | 2.81 (0.92) | 2.85 (0.95) | 1.05 (0.70–1.57) | 0.805 |
| MQPL staff relationships | 2.92 (0.86) | 3.03 (0.83) | 2.72 (0.88) | 0.65 (0.42–1.02) | 0.060 |
| MQPL physical safety | 3.12 (0.76) | 3.11 (0.78) | 3.14 (0.74) | 1.06 (0.65–1.73) | 0.818 |
| MQPL decency | 2.68 (0.76) | 2.77 (0.77) | 2.52 (0.73) | 0.64 (0.39–1.07) | 0.090 |
| Poor social support | 34.7 | 32.9 | 37.8 | 1.24 (0.57–2.67) | 0.586 |

Note. Data are presented as percentages for categorical variables and as mean (standard deviation) for continuous variables. NSI, no recent suicidal ideation while incarcerated; SI, recent (past-year) suicidal ideation while incarcerated; OR, odds ratio; MQPL, Measuring the Quality of Prison Life.

Appendix D. Risk factors for suicide attempt in prison.

| | Full sample (<i>n</i> = 1326) | NSA (<i>n</i> = 1200) | SA (<i>n</i> = 126) | OR (95% CI) | <i>p</i> |
|------------------------------|-----------------------------------|---------------------------|-------------------------|----------------------|----------|
| Female sex | 9.3 | 8.8 | 13.5 | 1.61 (0.93–2.79) | 0.086 |
| Age, years | 37.7 (11.8) | 37.8 (11.9) | 36.2 (10.2) | 0.99 (0.97–1.00) | 0.157 |
| Belgian nationality | 73.5 | 72.3 | 84.9 | 2.15 (1.30–3.57) | 0.002 |
| Partnership | 40.9 | 41.2 | 38.1 | 0.88 (0.60–1.28) | 0.505 |
| Prior incarceration | 57.1 | 57.0 | 57.9 | 1.04 (0.72–1.51) | 0.840 |
| Sentenced status | 65.4 | 64.0 | 78.6 | 2.06 (1.33–3.21) | 0.001 |
| Duration incarceration | | | | | < 0.0001 |
| < 1 month | 10.0 | 10.4 | 6.3 | 0.32 (0.14–0.71) | 0.005 |
| 1–6 months | 28.6 | 29.6 | 19.0 | 0.34 (0.20–0.58) | < 0.001 |
| 6–12 months | 11.0 | 11.2 | 9.5 | 0.45 (0.22–0.89) | 0.023 |
| 1–3 years | 21.1 | 21.7 | 15.1 | 0.37 (0.20–0.66) | 0.001 |
| 3–5 years | 13.0 | 12.1 | 21.4 | 0.93 (0.54–1.61) | 0.797 |
| > 5 years | 16.3 | 15.0 | 28.6 | 1.00 (reference) | — |
| Violent offence | 26.3 | 24.4 | 43.5 | 2.39 (1.64–3.50) | < 0.0001 |
| Drug use in prison | 34.8 | 31.8 | 63.5 | 3.72 (2.54–5.46) | < 0.0001 |
| Psychiatric diagnosis | 46.3 | 43.0 | 77.8 | 4.64 (3.00–7.17) | < 0.0001 |
| Psychoactive medication | 36.4 | 33.1 | 68.3 | 4.35 (2.93–6.45) | < 0.0001 |
| History of NSSI | 17.3 | 14.0 | 49.2 | 5.95 (4.05–8.75) | < 0.0001 |
| Prior suicide attempt | 17.1 | 13.6 | 50.8 | 6.57 (4.46–9.66) | < 0.0001 |
| History of suicidal ideation | 44.4 | 38.9 | 96.8 | 47.87 (17.57–130.48) | < 0.0001 |
| Suicidal ideation in prison | 34.1 | 27.6 | 96.0 | 63.53 (25.74–156.80) | < 0.0001 |
| Suicide plan in prison | 21.6 | 14.2 | 92.1 | 69.80 (35.87–135.86) | < 0.0001 |
| Family history | 25.6 | 24.3 | 38.1 | 1.91 (1.31–2.81) | 0.001 |
| Suicide exposure | 48.5 | 45.8 | 74.6 | 3.48 (2.30–5.29) | < 0.0001 |
| Single cell | 49.6 | 48.6 | 58.7 | 1.50 (1.04–2.18) | 0.031 |
| Prison work | 54.3 | 56.1 | 38.1 | 0.48 (0.33–0.70) | < 0.001 |
| MQPL autonomy | 2.76 (0.76) | 2.79 (0.76) | 2.56 (0.79) | 0.67 (0.52–0.86) | 0.001 |
| MQPL outside contact | 2.99 (0.97) | 3.01 (0.96) | 2.76 (1.06) | 0.77 (0.63–0.93) | 0.006 |
| MQPL staff relationships | 2.85 (0.88) | 2.88 (0.88) | 2.56 (0.82) | 0.66 (0.53–0.82) | < 0.001 |
| MQPL physical safety | 3.19 (0.82) | 3.23 (0.81) | 2.84 (0.82) | 0.55 (0.44–0.70) | < 0.0001 |
| MQPL decency | 2.64 (0.76) | 2.67 (0.76) | 2.41 (0.77) | 0.65 (0.51–0.82) | < 0.001 |
| Poor social support | 46.2 | 45.0 | 57.9 | 1.69 (1.16–2.45) | 0.006 |

Note. Data are presented as percentages for categorical variables and as mean (standard deviation) for continuous variables. NSA, no suicide attempt in prison; SA, suicide attempt in prison; OR, odds ratio; MQPL, Measuring the Quality of Prison Life.

Appendix E. Risk factors for suicide attempt in prison among men.

| | All men (<i>n</i> = 1203) | NSA (<i>n</i> = 1094) | SA (<i>n</i> = 109) | OR (95% CI) | <i>p</i> |
|------------------------------|-------------------------------|---------------------------|-------------------------|----------------------|----------|
| Age, years | 37.7 (11.9) | 37.8 (12.0) | 36.1 (10.2) | 0.99 (0.97–1.01) | 0.160 |
| Belgian nationality | 72.1 | 70.9 | 84.4 | 2.22 (1.30–3.79) | 0.003 |
| Partnership | 40.0 | 40.5 | 34.9 | 0.79 (0.52–1.19) | 0.252 |
| Prior incarceration | 58.9 | 58.9 | 59.6 | 1.03 (0.69–1.54) | 0.877 |
| Sentenced status | 65.7 | 64.4 | 78.9 | 2.07 (1.29–3.34) | 0.002 |
| Duration incarceration | | | | | < 0.001 |
| < 1 month | 10.0 | 10.4 | 5.5 | 0.27 (0.11–0.66) | 0.004 |
| 1–6 months | 28.0 | 29.0 | 18.3 | 0.32 (0.18–0.58) | < 0.001 |
| 6–12 months | 10.9 | 11.0 | 10.1 | 0.47 (0.23–0.97) | 0.040 |
| 1–3 years | 21.1 | 21.8 | 14.7 | 0.34 (0.18–0.65) | 0.001 |
| 3–5 years | 13.1 | 12.4 | 21.1 | 0.87 (0.49–1.56) | 0.644 |
| > 5 years | 16.8 | 15.5 | 30.3 | 1.00 (reference) | — |
| Violent offence | 25.5 | 23.7 | 43.0 | 2.43 (1.61–3.65) | < 0.0001 |
| Drug use in prison | 35.1 | 32.4 | 62.4 | 3.47 (2.31–5.21) | < 0.0001 |
| Psychiatric diagnosis | 44.8 | 41.7 | 76.1 | 4.47 (2.83–7.05) | < 0.0001 |
| Psychoactive medication | 34.4 | 31.4 | 65.1 | 4.09 (2.70–6.19) | < 0.0001 |
| History of NSSI | 16.5 | 13.4 | 47.7 | 5.88 (3.88–8.90) | < 0.0001 |
| Prior suicide attempt | 15.4 | 12.3 | 45.9 | 6.02 (3.97–9.14) | < 0.0001 |
| History of suicidal ideation | 43.1 | 37.8 | 96.3 | 43.28 (15.83–118.36) | < 0.0001 |
| Suicidal ideation in prison | 33.2 | 27.0 | 95.4 | 56.34 (22.74–139.57) | < 0.0001 |
| Suicide plan in prison | 21.2 | 14.0 | 93.6 | 89.62 (40.89–196.41) | < 0.0001 |
| Family history | 24.7 | 23.3 | 38.5 | 2.06 (1.37–3.11) | < 0.0001 |
| Suicide exposure | 47.8 | 45.2 | 47.3 | 3.51 (2.25–5.49) | < 0.0001 |
| Single cell | 50.3 | 49.4 | 58.7 | 1.45 (0.98–2.17) | 0.065 |
| Prison work | 53.9 | 55.4 | 39.4 | 0.53 (0.35–0.79) | 0.001 |
| MQPL autonomy | 2.78 (0.76) | 2.80 (0.75) | 2.56 (0.80) | 0.65 (0.50–0.85) | 0.002 |
| MQPL outside contact | 3.00 (0.98) | 3.03 (0.96) | 2.72 (1.07) | 0.72 (0.59–0.88) | 0.002 |
| MQPL staff relationships | 2.84 (0.88) | 2.87 (0.88) | 2.54 (0.84) | 0.65 (0.51–0.82) | < 0.001 |
| MQPL physical safety | 3.20 (0.82) | 3.25 (0.81) | 2.79 (0.83) | 0.51 (0.40–0.65) | < 0.0001 |
| MQPL decency | 2.64 (0.76) | 2.66 (0.76) | 2.39 (0.78) | 0.63 (0.49–0.82) | 0.001 |
| Poor social support | 47.4 | 46.1 | 60.6 | 1.80 (1.20–2.69) | 0.004 |

Note. Data are presented as percentages for categorical variables and as mean (standard deviation) for continuous variables. NSA, no suicide attempt in prison; SA, suicide attempt in prison; OR, odds ratio; MQPL, Measuring the Quality of Prison Life.

Appendix F. Risk factors for suicide attempt in prison among women.

| | All women (<i>n</i> = 123) | NSA (<i>n</i> = 104) | SA (<i>n</i> = 17) | OR (95% CI) | <i>p</i> |
|------------------------------|--------------------------------|--------------------------|------------------------|--------------------|----------|
| Age, years | 38.0 (10.8) | 38.1 (10.9) | 37.1 (10.1) | 0.99 (0.94–1.04) | 0.723 |
| Belgian nationality | 87.6 | 87.5 | 88.2 | 1.07 (0.22–5.23) | 0.932 |
| Partnership | 49.6 | 48.1 | 58.8 | 1.54 (0.55–4.35) | 0.412 |
| Prior incarceration | 39.0 | 37.7 | 47.1 | 1.47 (0.52–4.11) | 0.464 |
| Sentenced status | 62.6 | 60.4 | 76.5 | 2.13 (0.65–6.99) | 0.203 |
| Duration incarceration | | | | | 0.512 |
| < 1 month | 10.6 | 10.4 | 11.8 | 0.67 (0.09–4.80) | 0.687 |
| 1–6 months | 34.1 | 35.8 | 23.5 | 0.39 (0.08–1.99) | 0.255 |
| 6–12 months | 12.2 | 13.2 | 5.9 | 0.26 (0.02–2.88) | 0.273 |
| 1–3 years | 20.3 | 20.8 | 17.6 | 0.50 (0.09–2.90) | 0.439 |
| 3–5 years | 11.4 | 9.4 | 23.5 | 1.47 (0.26–8.23) | 0.663 |
| > 5 years | 11.4 | 10.4 | 17.6 | 1.00 (reference) | — |
| Violent offence | 33.6 | 31.4 | 47.1 | 1.94 (0.69–5.50) | 0.205 |
| Drug use in prison | 32.5 | 26.4 | 70.6 | 6.69 (2.16–20.68) | < 0.001 |
| Psychiatric diagnosis | 61.0 | 56.6 | 88.2 | 5.75 (1.25–26.41) | 0.013 |
| Psychoactive medication | 56.1 | 50.9 | 88.2 | 7.22 (1.57–33.15) | 0.004 |
| History of NSSI | 25.2 | 19.8 | 58.8 | 5.78 (1.97–16.99) | 0.001 |
| Prior suicide attempt | 34.1 | 26.4 | 82.4 | 13.00 (3.47–48.65) | < 0.0001 |
| History of suicidal ideation | 57.7 | 50.9 | 100 | — | < 0.0001 |
| Suicidal ideation in prison | 43.1 | 34.0 | 100 | — | < 0.0001 |
| Suicide plan in prison | 26.0 | 17.0 | 82.4 | 22.82 (5.94–87.66) | < 0.0001 |
| Family history | 35.0 | 34.9 | 35.3 | 1.02 (0.35–2.97) | 0.975 |
| Suicide exposure | 55.3 | 51.9 | 76.5 | 3.01 (0.92–9.84) | 0.058 |
| Single cell | 43.0 | 40.4 | 58.8 | 2.11 (0.74–5.98) | 0.155 |
| Prison work | 58.2 | 62.9 | 29.4 | 0.45 (0.08–0.75) | 0.009 |
| MQPL autonomy | 2.59 (0.76) | 2.60 (0.76) | 2.53 (0.76) | 0.88 (0.44–1.73) | 0.705 |
| MQPL outside contact | 2.83 (0.93) | 2.80 (0.93) | 3.00 (0.94) | 1.28 (0.72–2.25) | 0.401 |
| MQPL staff relationships | 2.92 (0.86) | 2.95 (0.88) | 2.69 (0.72) | 0.70 (0.38–1.27) | 0.240 |
| MQPL physical safety | 3.12 (0.76) | 3.12 (0.78) | 3.14 (0.65) | 1.04 (0.53–2.06) | 0.901 |
| MQPL decency | 2.68 (0.76) | 2.70 (0.77) | 2.53 (0.67) | 0.74 (0.37–1.48) | 0.392 |
| Poor social support | 34.7 | 33.7 | 41.2 | 1.38 (0.48–3.94) | 0.546 |

Note. Data are presented as percentages for categorical variables and as mean (standard deviation) for continuous variables. NSA, no suicide attempt in prison; SA, suicide attempt in prison; OR, odds ratio; MQPL, Measuring the Quality of Prison Life.

Appendix G. Meta-regression analyses.

| | Sample size | | Outcome definition | | Women | | Study design/assessment | |
|-------------------------------------|---------------|--------------|--------------------|--------------|--------------|--------------|-------------------------|--------------|
| | B | SE | B | SE | B | SE | B | SE |
| Unemployed before prison | 0.385 | 0.171 | 0.182 | 0.283 | -0.280 | 0.259 | 0.385 | 0.171 |
| Low educational attainment | -0.332 | 0.265 | 0.435 | 0.274 | 0.532 | 0.432 | -0.602 | 0.296 |
| Single marital status | 0.084 | 0.183 | 0.013 | 0.197 | -0.125 | 0.182 | 0.048 | 0.175 |
| Having children | -0.162 | 0.467 | 0.050 | 0.492 | 0.040 | 0.627 | 0.061 | 0.485 |
| White ethnicity/Caucasian | -0.021 | 0.707 | 0.432 | 0.683 | -0.838 | 0.665 | 0.939 | 0.877 |
| Age (< 25 years) | -0.628 | 0.935 | — | — | 0.959 | 0.838 | -1.454 | 0.536 |
| Nationality (country of study) | 1.207 | 0.620 | 0.582 | 0.801 | -0.676 | 0.744 | 0.956 | 0.656 |
| Female sex | 0.063 | 0.426 | — | — | — | — | 0.063 | 0.426 |
| Sentence length > 1 year | -0.479 | 0.677 | -0.718 | 0.657 | 1.286 | 0.370 | -0.585 | 0.642 |
| Sentence length > 4 years | -0.079 | 0.825 | — | — | 0.646 | 0.450 | -0.079 | 0.825 |
| Sentence length > 5 years | — | — | — | — | 0.004 | 0.343 | 0.245 | 0.234 |
| Life sentence | 0.908 | 0.468 | -0.908 | 0.468 | -0.031 | 0.764 | 0.079 | 0.880 |
| Prior incarceration | -0.395 | 0.575 | 0.334 | 0.553 | 0.356 | 0.615 | -0.395 | 0.575 |
| Violent offence | 0.089 | 0.328 | -0.329 | 0.314 | 0.477 | 0.296 | -0.243 | 0.314 |
| Sentenced status | 1.091 | 0.456 | -0.940 | 0.505 | -0.265 | 0.659 | 0.714 | 0.565 |
| Suicidal ideation | 1.149 | 0.483 | — | — | 0.836 | 0.615 | 1.149 | 0.483 |
| History of NSSI | 0.087 | 0.301 | 0.160 | 0.436 | -0.193 | 0.226 | 0.087 | 0.302 |
| Prior suicide attempt | 0.095 | 0.792 | 1.23 | 0.999 | 0.505 | 0.778 | -0.863 | 0.685 |
| Psychiatric treatment in prison | -0.839 | 1.547 | 1.488 | 1.304 | 2.067 | 0.731 | -0.839 | 1.547 |
| Psychiatric treatment before prison | -0.046 | 0.702 | 1.427 | 0.660 | -0.419 | 0.687 | -0.533 | 0.686 |
| Severe psychological distress | -1.513 | 0.517 | 1.707 | 0.601 | -0.004 | 0.837 | -1.512 | 0.511 |

Appendix G (continued).

| | | | | | | | | |
|---------------------------------|--------|-------|--------------|--------------|--------|-------|---------------|--------------|
| Mental disorder diagnosis | -0.087 | 0.511 | 0.087 | 0.511 | -0.605 | 0.350 | -0.087 | 0.511 |
| Current psychotropic medication | -0.450 | 0.654 | 1.416 | 0.379 | -0.257 | 0.730 | -0.450 | 0.654 |
| High impulsivity | -0.250 | 0.821 | 0.866 | 0.370 | 0.751 | 0.624 | -1.06 | 0.532 |
| Physical health problems | -0.233 | 0.416 | 0.429 | 0.347 | -0.684 | 0.261 | 0.091 | 0.419 |
| Drug abuse/dependence | 0.326 | 0.426 | -0.102 | 0.497 | 0.515 | 0.361 | 0.001 | 0.443 |
| Alcohol abuse/dependence | 0.110 | 0.492 | 0.331 | 0.448 | -0.326 | 0.488 | -0.329 | 0.556 |
| Solitary confinement | -1.26 | 0.776 | -1.500 | 0.773 | -0.638 | 1.290 | -1.256 | 0.776 |
| Physical/sexual victimisation | — | — | -1.154 | 0.520 | -0.646 | 1.036 | 1.154 | 0.520 |
| Poor social support | -0.353 | 0.907 | 0.353 | 0.907 | -0.908 | 0.322 | -0.908 | 0.322 |
| Threatened with violence | 0.011 | 0.302 | — | — | 0.118 | 0.428 | 0.011 | 0.302 |
| Disciplinary infractions | 0.381 | 0.253 | 0.063 | 0.324 | — | — | 0.624 | 0.316 |
| Not working in prison | -0.475 | 0.366 | -0.265 | 0.182 | 0.065 | 0.291 | -0.475 | 0.366 |
| No social contact/visits | -0.176 | 0.409 | 0.023 | 0.423 | 0.778 | 0.507 | -0.701 | 0.231 |
| Single cell accommodation | — | — | 1.908 | 1.829 | 2.576 | 0.940 | — | — |
| Exposure to self-harm | 1.362 | 0.573 | -0.076 | 1.028 | 1.192 | 0.619 | 1.362 | 0.573 |
| Childhood sexual abuse | -0.544 | 0.471 | -0.356 | 0.625 | 0.664 | 0.589 | -0.544 | 0.471 |
| Childhood physical abuse | -0.692 | 0.478 | 0.085 | 0.777 | 1.109 | 0.454 | -0.692 | 0.478 |
| Childhood emotional abuse | -0.581 | 0.793 | — | — | 1.429 | 0.465 | -0.581 | 0.793 |
| Any childhood abuse | -0.155 | 0.492 | -0.639 | 0.332 | — | — | -0.155 | 0.492 |
| Family history suicide | — | — | 0.941 | 0.945 | 0.858 | 0.787 | — | — |
| Local authority care | 0.225 | 0.470 | 0.340 | 0.481 | — | — | 0.225 | 0.470 |
| Family history self-harm | 0.059 | 0.326 | 0.168 | 0.389 | 0.112 | 0.341 | 0.059 | 0.326 |

Note. Significant effects ($p < 0.05$) are marked in bold.

Appendix H. Risk factors for suicide attempt and near-lethal suicide attempt.

| | Near-lethal suicide attempt | | | | Suicide attempt | | | |
|----------------------------|-----------------------------|----------|------------------|-----------------------|-----------------|----------|------------------|-----------------------|
| | <i>k</i> | <i>N</i> | OR (95% CI) | <i>I</i> ² | <i>k</i> | <i>N</i> | OR (95% CI) | <i>I</i> ² |
| <i>Sociodemographic</i> | | | | | | | | |
| Unemployed before prison | 3 | 2510 | 1.86 (1.54–2.24) | 0 | 4 | 1790 | 1.37 (0.85–2.21) | 54.2 |
| Low educational attainment | 4 | 3453 | 1.64 (1.15–2.34) | 48.1 | 3 | 1732 | 1.02 (0.70–1.49) | 0 |
| Single marital status | 4 | 3453 | 1.29 (0.82–2.01) | 70.2* | 10 | 7464 | 1.29 (1.12–1.49) | 0 |
| <i>Criminological</i> | | | | | | | | |
| Prior incarceration | 4 | 3453 | 1.95 (1.28–2.98) | 62.9* | 5 | 3482 | 1.44 (0.81–2.56) | 80.4* |
| Violent offence | 4 | 3453 | 1.26 (1.03–1.52) | 0 | 8 | 6653 | 1.77 (1.23–2.56) | 75.1* |
| Sentence length > 1 year | 3 | 2510 | 1.00 (0.78–1.27) | 0 | 4 | 4039 | 1.90 (0.66–5.42) | 82.7* |
| Sentenced status | 4 | 3453 | 0.60 (0.25–1.47) | 86.2* | 6 | 5134 | 1.61 (1.01–2.56) | 67.3* |
| <i>Clinical</i> | | | | | | | | |
| Physical health problems | 3 | 2510 | 2.76 (1.90–3.99) | 0 | 3 | 1702 | 1.84 (1.02–3.31) | 63.2 |
| Alcohol abuse/dependence | 3 | 1183 | 1.14 (0.64–2.02) | 53.4 | 3 | 1889 | 0.83 (0.42–1.63) | 60.9 |
| <i>Custodial</i> | | | | | | | | |
| No social contact/visits | 3 | 2510 | 1.92 (1.02–3.59) | 70.2* | 3 | 1913 | 1.83 (1.07–3.12) | 37.2 |

Note. *k*, number of studies analysed; *N*, total number of prisoners in pooled analyses; OR, pooled odds ratio; *I*², heterogeneity (%). * *p* < 0.05.

Appendix I. Risk factors for suicide attempt among male prisoners with suicidal ideation.

| | All men (<i>n</i> = 399) | Ideators (<i>n</i> = 295) | Attempters (<i>n</i> = 104) | OR (95% CI) | <i>p</i> |
|--------------------------|------------------------------|-------------------------------|---------------------------------|--------------------|----------|
| Age, years | 38.6 (11.4) | 39.5 (11.7) | 36.2 (10.3) | 0.97 (0.95–0.99) | 0.013 |
| Belgian nationality | 83.1 | 81.9 | 86.5 | 1.42 (0.75–2.68) | 0.279 |
| Partnership | 36.1 | 36.6 | 34.6 | 0.92 (0.57–1.46) | 0.716 |
| Prior incarceration | 58.6 | 58.6 | 58.7 | 1.00 (0.64–1.58) | 0.999 |
| Sentenced status | 70.4 | 66.4 | 81.7 | 2.26 (1.30–3.93) | 0.003 |
| Duration incarceration | | | | | 0.020 |
| < 1 month | 9.3 | 10.5 | 5.8 | 0.31 (0.12–0.83) | 0.019 |
| 1–6 months | 24.1 | 26.4 | 17.3 | 0.37 (0.19–0.73) | 0.004 |
| 6–12 months | 10.5 | 10.5 | 10.6 | 0.57 (0.25–1.29) | 0.176 |
| 1–3 years | 18.3 | 19.7 | 14.4 | 0.42 (0.20–0.85) | 0.016 |
| 3–5 years | 16.3 | 14.9 | 20.2 | 0.77 (0.39–1.51) | 0.442 |
| > 5 years | 21.6 | 18.0 | 31.7 | 1.00 (reference) | — |
| Violent offence | 34.9 | 31.6 | 44.1 | 1.71 (1.08–2.72) | 0.023 |
| Drug use in prison | 47.4 | 41.0 | 65.4 | 2.72 (1.71–4.33) | < 0.0001 |
| Psychiatric diagnosis | 62.9 | 58.6 | 75.0 | 2.12 (1.28–3.49) | 0.003 |
| Psychoactive medication | 50.9 | 45.8 | 65.4 | 2.24 (1.41–3.56) | 0.001 |
| History of NSSI | 29.8 | 24.1 | 46.2 | 2.70 (1.69–4.32) | < 0.0001 |
| Suicide plan | 61.7 | 49.5 | 96.2 | 25.51 (9.15–71.12) | < 0.0001 |
| Family history | 35.8 | 34.9 | 38.5 | 1.17 (0.73–1.85) | 0.517 |
| Suicide exposure | 63.7 | 60.0 | 74.0 | 1.90 (1.16–3.12) | 0.010 |
| Single cell | 55.4 | 53.9 | 59.6 | 1.26 (0.80–1.99) | 0.316 |
| Prison work | 47.1 | 49.5 | 40.4 | 0.69 (0.44–1.09) | 0.110 |
| MQPL autonomy | 2.57 (0.78) | 2.57 (0.77) | 2.56 (0.81) | 0.99 (0.74–1.32) | 0.944 |
| MQPL outside contact | 2.82 (0.97) | 2.86 (0.93) | 2.70 (1.08) | 0.85 (0.67–1.07) | 0.165 |
| MQPL staff relationships | 2.69 (0.83) | 2.70 (0.84) | 2.69 (0.83) | 0.98 (0.76–1.28) | 0.903 |
| MQPL physical safety | 2.90 (0.83) | 2.95 (0.82) | 2.78 (0.85) | 0.78 (0.60–1.03) | 0.084 |
| MQPL decency | 2.52 (0.76) | 2.56 (0.76) | 2.41 (0.77) | 0.78 (0.58–1.05) | 0.096 |
| Poor social support | 53.8 | 52.1 | 58.7 | 1.31 (0.83–2.06) | 0.246 |

Note. Data are presented as percentages for categorical variables and as mean (standard deviation) for continuous variables. OR, odds ratio; MQPL, Measuring the Quality of Prison Life.

Appendix J. Risk factors for suicide attempt among female prisoners with suicidal ideation.

| | All women (n = 53) | Ideators (n = 36) | Attempters (n = 17) | OR (95% CI) | p |
|--------------------------|-----------------------|----------------------|------------------------|-------------------|-------|
| Age, years | 37.9 (11.2) | 38.3 (11.8) | 37.1 (10.1) | 0.99 (0.94–1.05) | 0.722 |
| Belgian nationality | 86.8 | 86.1 | 88.2 | 1.21 (0.21–6.97) | 0.831 |
| Partnership | 47.2 | 41.7 | 58.8 | 2.00 (0.62–6.45) | 0.243 |
| Prior incarceration | 47.2 | 47.2 | 47.1 | 0.99 (0.31–3.16) | 0.991 |
| Sentenced status | 66.0 | 61.1 | 76.5 | 2.07 (0.56–7.63) | 0.270 |
| Duration incarceration | | | | | 0.742 |
| < 1 month | 13.2 | 13.9 | 11.8 | 0.40 (0.04–3.96) | 0.433 |
| 1–6 months | 30.2 | 33.3 | 23.5 | 0.33 (0.05–2.37) | 0.272 |
| 6–12 months | 7.5 | 8.3 | 5.9 | 0.33 (0.02–5.33) | 0.437 |
| 1–3 years | 22.6 | 25.0 | 17.6 | 0.33 (0.04–2.63) | 0.297 |
| 3–5 years | 15.1 | 11.1 | 23.5 | 1.00 (0.12–8.31) | 1.000 |
| > 5 years | 11.3 | 8.3 | 17.6 | 1.00 (reference) | — |
| Violent offence | 39.6 | 36.1 | 47.1 | 1.57 (0.49–5.07) | 0.447 |
| Drug use in prison | 56.6 | 50.0 | 70.6 | 2.40 (0.70–8.22) | 0.158 |
| Psychiatric diagnosis | 75.5 | 69.4 | 88.2 | 3.30 (0.64–16.96) | 0.138 |
| Psychoactive medication | 73.6 | 66.7 | 88.2 | 3.75 (0.74–19.14) | 0.096 |
| History of NSSI | 49.1 | 44.4 | 58.8 | 1.79 (0.56–5.74) | 0.328 |
| Suicide plan | 60.4 | 50.0 | 82.4 | 4.67 (1.12–19.07) | 0.025 |
| Family history | 41.5 | 44.4 | 35.3 | 0.68 (0.21–2.25) | 0.528 |
| Suicide exposure | 64.2 | 58.3 | 76.5 | 2.32 (0.63–8.53) | 0.199 |
| Single cell | 47.2 | 41.7 | 58.8 | 2.00 (0.62–6.45) | 0.243 |
| Prison work | 49.1 | 58.3 | 29.4 | 0.30 (0.09–1.02) | 0.049 |
| MQPL autonomy | 2.38 (0.71) | 2.31 (0.68) | 2.53 (0.76) | 1.55 (0.67–3.60) | 0.304 |
| MQPL outside contact | 2.89 (0.93) | 2.84 (0.93) | 3.00 (0.94) | 1.20 (0.64–2.26) | 0.563 |
| MQPL staff relationships | 2.75 (0.90) | 2.78 (0.98) | 2.69 (0.72) | 0.89 (0.46–1.72) | 0.731 |
| MQPL physical safety | 3.13 (0.74) | 3.13 (0.79) | 3.14 (0.65) | 1.02 (0.46–2.23) | 0.964 |
| MQPL decency | 2.51 (0.73) | 2.51 (0.76) | 2.53 (0.67) | 1.04 (0.47–2.33) | 0.915 |
| Poor social support | 35.8 | 33.3 | 41.2 | 1.40 (0.43–4.60) | 0.578 |

Note. Data are presented as percentages for categorical variables and as mean (standard deviation) for continuous variables. OR, odds ratio; MQPL, Measuring the Quality of Prison Life.

Appendix K. Sensitivity analysis (without plan) of suicide attempt in prisoners with suicidal ideation.

| | B | SE | Wald | aOR (95% CI) | p |
|-------------------------------------|--------|-------|-------|------------------|-------|
| Female sex | 0.107 | 0.395 | 0.074 | 1.11 (0.51–2.42) | 0.786 |
| Age | –0.042 | 0.016 | 7.339 | 0.96 (0.93–0.99) | 0.007 |
| Belgian nationality | –0.115 | 0.423 | 0.073 | 0.89 (0.39–2.04) | 0.786 |
| Partnership | 0.268 | 0.304 | 0.778 | 1.31 (0.72–2.37) | 0.378 |
| Prior incarceration | –0.250 | 0.318 | 0.617 | 0.78 (0.42–1.45) | 0.432 |
| Sentenced status | 0.737 | 0.424 | 3.017 | 2.09 (0.91–4.80) | 0.082 |
| Duration incarceration ^a | | | 6.521 | | 0.259 |
| < 1 month | –1.059 | 0.755 | 1.968 | 0.35 (0.08–1.52) | 0.161 |
| 1–6 months | –0.200 | 0.515 | 0.151 | 0.82 (0.30–2.25) | 0.698 |
| 6–12 months | 0.057 | 0.524 | 0.012 | 1.06 (0.38–2.96) | 0.914 |
| 1–3 years | –0.944 | 0.465 | 4.116 | 0.39 (0.16–0.97) | 0.042 |
| 3–5 years | –0.129 | 0.427 | 0.091 | 0.88 (0.38–2.03) | 0.763 |
| Violent offence | 0.987 | 0.357 | 7.642 | 2.68 (1.33–5.41) | 0.006 |
| Drug use in prison | 0.919 | 0.315 | 8.485 | 2.51 (1.35–4.65) | 0.004 |
| Psychiatric diagnosis | 0.390 | 0.342 | 1.303 | 1.48 (0.76–2.89) | 0.254 |
| Psychotropic medication | 0.120 | 0.319 | 0.142 | 1.13 (0.60–2.11) | 0.706 |
| History of NSSI | 0.712 | 0.296 | 5.806 | 2.04 (1.14–3.64) | 0.016 |
| Family history | –0.116 | 0.298 | 0.153 | 0.89 (0.50–1.60) | 0.696 |
| Suicide exposure | 0.661 | 0.329 | 4.033 | 1.94 (1.02–3.70) | 0.045 |
| Single cell | 0.163 | 0.320 | 0.261 | 1.18 (0.63–2.20) | 0.610 |
| Prison work | –0.402 | 0.297 | 1.835 | 0.67 (0.37–1.20) | 0.176 |
| MQPL autonomy | 0.245 | 0.220 | 1.247 | 1.28 (0.83–1.97) | 0.264 |
| MQPL outside contact | –0.127 | 0.167 | 0.576 | 0.88 (0.64–1.22) | 0.448 |
| MQPL staff relationships | –0.244 | 0.251 | 0.943 | 0.78 (0.48–1.28) | 0.331 |
| MQPL physical safety | 0.017 | 0.195 | 0.008 | 1.02 (0.69–1.49) | 0.930 |
| MQPL decency | –0.156 | 0.267 | 0.340 | 0.86 (0.51–1.44) | 0.560 |
| Poor social support | 0.281 | 0.296 | 0.904 | 1.32 (0.74–2.36) | 0.342 |

Appendix L. Clinical characteristics of male participants, by suicidal history.

| | All men (<i>n</i> = 1093) | Suicidal history | | | χ^2 |
|-----------------------------------|-------------------------------|-------------------------------|-------------------------------|---------------------------------|----------|
| | | Controls (<i>n</i> = 714) | Ideators (<i>n</i> = 169) | Attempters (<i>n</i> = 210) | |
| Anxiety disorders | | | | | |
| GAD | 93 (8.5) | 33 (4.6) | 26 (15.6) | 34 (16.4) | 38.35* |
| Panic disorder | 60 (5.7) | 25 (3.6) | 12 (7.8) | 23 (11.4) | 17.05* |
| PTSD | 229 (22.2) | 97 (14.2) | 47 (28.2) | 85 (45.1) | 84.22* |
| <i>Any anxiety disorder</i> | 303 (28.3) | 130 (18.4) | 66 (39.6) | 107 (53.9) | 104.16* |
| Mood disorders | | | | | |
| Bipolar disorder | 140 (11.5) | 66 (8.2) | 32 (16.8) | 42 (18.7) | 22.75* |
| Dysthymia | 47 (4.5) | 14 (2.1) | 13 (7.9) | 20 (10.1) | 25.29* |
| MDD | 211 (19.7) | 91 (13.3) | 56 (33.2) | 64 (31.4) | 50.46* |
| <i>Any mood disorder</i> | 354 (31.5) | 158 (21.6) | 89 (50.6) | 107 (50.5) | 87.95* |
| Substance use disorders | | | | | |
| Alcohol dependence | 394 (35.7) | 207 (28.8) | 68 (40.2) | 119 (56.5) | 50.83* |
| Drug dependence | 426 (36.9) | 237 (31.0) | 72 (41.8) | 117 (54.2) | 36.03* |
| <i>Any substance use disorder</i> | 960 (87.3) | 612 (85.1) | 155 (91.0) | 193 (91.9) | 7.87* |
| Other disorders | | | | | |
| Any personality disorder | 347 (33.6) | 194 (29.2) | 61 (38.0) | 92 (45.3) | 17.58* |
| Psychosis symptoms | 136 (12.7) | 50 (7.3) | 30 (19.0) | 56 (26.6) | 54.45* |
| Any mental disorder | 998 (90.8) | 631 (87.8) | 163 (95.9) | 204 (96.9) | 18.86* |
| Two or more disorders | 713 (63.4) | 402 (53.7) | 133 (78.8) | 178 (85.0) | 82.57* |

Note. Data are presented as *n* (%). All percentages are presented weighted and bases unweighted. GAD, generalised anxiety disorder; PTSD, posttraumatic stress disorder; MDD, major depressive disorder. * $p < 0.05$.

Appendix M. Clinical characteristics of female participants, by suicidal history.

| | All women (<i>n</i> = 119) | Suicidal history | | | χ^2 |
|-----------------------------------|--------------------------------|------------------------------|------------------------------|--------------------------------|----------|
| | | Controls (<i>n</i> = 64) | Ideators (<i>n</i> = 18) | Attempters (<i>n</i> = 37) | |
| Anxiety disorders | | | | | |
| GAD | 15 (11.6) | 2 (3.2) | 6 (32.2) | 7 (17.9) | 12.46* |
| Panic disorder | 5 (4.6) | 1 (1.7) | 2 (14.2) | 2 (5.7) | 4.47 |
| PTSD | 63 (52.5) | 25 (38.4) | 12 (67.0) | 26 (74.1) | 11.33* |
| <i>Any anxiety disorder</i> | 69 (55.8) | 28 (42.0) | 13 (72.8) | 28 (75.0) | 11.82* |
| Mood disorders | | | | | |
| Bipolar disorder | 6 (5.6) | 4 (7.1) | 0 (0) | 2 (5.5) | — |
| Dysthymia | 13 (11.4) | 6 (10.5) | 2 (8.2) | 5 (14.8) | 0.66 |
| MDD | 43 (35.3) | 19 (30.3) | 4 (21.1) | 20 (52.6) | 6.24* |
| <i>Any mood disorder</i> | 49 (40.9) | 23 (37.4) | 4 (21.1) | 22 (58.1) | 6.74* |
| Substance use disorders | | | | | |
| Alcohol dependence | 55 (45.5) | 23 (35.2) | 11 (56.6) | 21 (61.3) | 6.53* |
| Drug dependence | 53 (44.3) | 28 (42.6) | 6 (37.8) | 19 (51.4) | 0.92 |
| <i>Any substance use disorder</i> | 98 (83.0) | 50 (76.8) | 17 (95.9) | 31 (89.0) | 5.46 |
| Other disorders | | | | | |
| Any personality disorder | 29 (25.6) | 13 (21.1) | 4 (27.4) | 12 (33.6) | 1.67 |
| Psychosis symptoms | 15 (11.5) | 0 (0) | 3 (15.5) | 12 (32.3) | — |
| Any mental disorder | 108 (89.1) | 56 (84.7) | 18 (100) | 34 (92.4) | — |
| Two or more disorders | 81 (66.9) | 36 (55.5) | 13 (72.8) | 32 (86.8) | 10.12* |

Note. Data are presented as *n* (%). All percentages are presented weighted and bases unweighted. GAD, generalised anxiety disorder; PTSD, posttraumatic stress disorder; MDD, major depressive disorder. * $p < 0.05$.

Appendix N. Bivariate associations between mental disorders and suicidal outcomes in men.

| | In the total sample of men (<i>n</i> = 1093) | | Among men with ideation (<i>n</i> = 379) |
|-----------------------------------|---|-------------------|---|
| | Suicidal ideation ^a | Suicide attempt | Suicide attempt |
| Anxiety disorders | | | |
| GAD | 3.92 (2.47–6.21)* | 2.73 (1.71–4.35)* | 1.07 (0.60–1.89) |
| Panic disorder | 2.86 (1.66–4.93)* | 2.78 (1.57–4.89)* | 1.52 (0.70–3.28) |
| PTSD | 3.61 (2.64–4.95)* | 4.05 (2.87–5.72)* | 2.10 (1.34–3.29)* |
| <i>Any anxiety disorder</i> | 3.99 (2.99–5.33)* | 4.04 (2.92–5.60)* | 1.79 (1.17–2.73)* |
| Mood disorders | | | |
| Bipolar disorder | 2.43 (1.67–3.53)* | 2.10 (1.39–3.19)* | 1.13 (0.66–1.95) |
| Dysthymia | 4.60 (2.36–8.97)* | 3.38 (1.80–6.33)* | 1.31 (0.61–2.82) |
| MDD | 3.10 (2.24–4.28)* | 2.22 (1.55–3.18)* | 0.99 (0.58–1.45) |
| <i>Any mood disorder</i> | 3.71 (2.80–4.91)* | 2.74 (1.99–3.79)* | 1.00 (0.65–1.52) |
| Substance use disorders | | | |
| Alcohol dependence | 2.38 (1.82–3.12)* | 2.90 (2.10–4.00)* | 1.93 (1.26–2.98)* |
| Drug dependence | 2.11 (1.62–2.75)* | 2.41 (1.74–3.32)* | 1.65 (1.07–2.54)* |
| <i>Any substance use disorder</i> | 1.89 (1.20–2.98)* | 1.82 (1.00–3.30)* | 1.12 (0.52–2.45) |
| Other disorders | | | |
| Any personality disorder | 1.75 (1.32–2.32)* | 1.85 (1.33–2.58)* | 1.35 (0.87–2.11) |
| Psychosis symptoms | 3.86 (2.60–5.73)* | 3.46 (2.31–5.18)* | 1.54 (0.92–2.58) |
| Any mental disorder | 3.78 (1.99–7.16)* | 3.73 (1.56–8.96)* | 1.34 (0.40–4.42) |
| Two or more disorders | 3.99 (2.92–5.46)* | 4.04 (2.66–6.14)* | 1.53 (0.88–2.66) |

Note. Data are presented as odds ratios (OR) and their 95% confidence intervals (CI). GAD, generalised anxiety disorder; PTSD, posttraumatic stress disorder; MDD, major depressive disorder. * $p < 0.05$. ^a Irrespective of suicide attempt status.

Appendix O. Bivariate associations between mental disorders and suicidal outcomes in women.

| | In the total sample of women (<i>n</i> = 119) | | Among women with ideation (<i>n</i> = 55) |
|-----------------------------------|--|---------------------|--|
| | Suicidal ideation ^a | Suicide attempt | Suicide attempt |
| Anxiety disorders | | | |
| GAD | 9.02 (1.68–48.47)* | 2.20 (0.74–6.65) | 0.46 (0.13–1.63) |
| Panic disorder | 5.44 (0.56–52.66) | 1.38 (0.20–9.35) | 0.37 (0.04–3.09) |
| PTSD | 4.06 (1.74–9.45)* | 3.63 (1.43–9.22)* | 1.41 (0.36–5.60) |
| <i>Any anxiety disorder</i> | 3.99 (1.76–9.04)* | 3.22 (1.31–7.92)* | 1.12 (0.27–4.57) |
| Mood disorders | | | |
| Bipolar disorder | 0.49 (0.08–3.04) | 0.96 (0.16–6.00) | — |
| Dysthymia | 1.23 (0.37–4.06) | 1.56 (0.46–5.31) | 1.94 (0.33–11.25) |
| MDD | 1.66 (0.75–3.69) | 2.79 (1.19–6.53)* | 4.16 (0.93–18.59) |
| <i>Any mood disorder</i> | 1.40 (0.64–3.07) | 2.68 (1.15–6.25)* | 5.19 (1.16–23.25)* |
| Substance use disorders | | | |
| Alcohol dependence | 2.72 (1.22–6.06)* | 2.42 (1.04–5.63)* | 1.22 (0.36–4.13) |
| Drug dependence | 1.18 (0.54–2.56) | 1.48 (0.64–3.43) | 1.74 (0.48–6.31) |
| <i>Any substance use disorder</i> | 3.20 (1.04–9.78)* | 1.93 (0.58–6.48) | 0.34 (0.03–3.79) |
| Other disorders | | | |
| Any personality disorder | 1.73 (0.71–4.20) | 1.76 (0.68–4.52) | 1.34 (0.33–5.46) |
| Psychosis symptoms | — | 14.15 (3.42–58.46)* | 2.59 (0.54–12.38) |
| Any mental disorder | 3.38 (0.87–13.18) | 1.67 (0.43–6.56) | — |
| Two or more disorders | 3.67 (1.51–8.93)* | 4.58 (1.55–13.48)* | 2.46 (0.55–11.01) |

Note. Data are presented as odds ratios (OR) and their 95% confidence intervals (CI). GAD, generalised anxiety disorder; PTSD, posttraumatic stress disorder; MDD, major depressive disorder. * $p < 0.05$. ^a Irrespective of suicide attempt status.

Appendix P. Original quotes from interviews and focus groups in Dutch.Identification of risk

Ik denk dat je het vooral moet durven bespreken, en durven vragen van “heb je plannen” maar dat is niet zo gemakkelijk om dat recht toe recht aan te vragen. Ik denk dat het zich vooral daar zit. Je moet dat op tafel durven leggen, niet rond de pot draaien. Handvaten zouden hier misschien wel nuttig zijn.

Nee, nieuwe gedetineerden worden niet standaard gescreend. Nee zeg ik, maar ergens wel. Sowieso het onthaalgesprek met de directie—dat bestaat erin dat wij een eerste screening doen “van wie hebben we hier voor ons, waar moeten we rekening mee houden?” We gaan natuurlijk niet direct vragen “ben je suïcidaal?” maar meestal voel je het wel aan als iemand depressief is.

Nee, soms als ze binnenkomen wordt soms door de politie wel gemeld van ja, dit is een zelfmoordrisico. Soms staat dit ook ergens gemeld door de onderzoeksrechter zelf, maar anders... Ze worden dan wel daags nadien gezien door ons, ook door PSD, en dat zijn dan toch redelijk intensieve gesprekken. Het is niet dat dit specifiek wordt bevraagd of zo, we voelen wel dat die mannen daar gemakkelijk zelf mee komen precies.

Prison officers: the backbone of prevention

Voor de bewaking is dat *on the job*, opleiding hebben wij daar niet echt voor gehad.

Denk dat dat meer moet gebeuren. Ze krijgen dat in hun basisopleiding maar dat is te simpel. Er gaan zoveel jaren dan over na die basisopleiding en dan zit dat toch allemaal weer wat verder weg, dus een heropfrissingscursus kan altijd goed zijn. Daar kunnen ze zich ook voor inschrijven voor opleiding maar ja, in de praktijk moet er al voldoende motivatie zijn...

Natuurlijk, wat een beetje ontbreekt is opleiding voor die mensen. Want niet iedereen... De ene gaat het al vlugger zien dan iemand anders. Dus daar hebben we wel al eens geprobeerd maar die opleiding is dan ook blijikbaar redelijk kostelijk en ook natuurlijk qua tijdsintensief, want als je dan al met een personeelstekort zit is dat dan natuurlijk ook heel moeilijk. Maar dat zou wel aangewezen zijn, denk ik. Dat er een opleiding wordt voorzien voor bewakingspersoneel rond herkennen van signalen.

Ik denk het probleem, in het kader van die opleiding, er is zo al veel personeelstekort dat opleiding al jarenlang op zo'n laag pitje staat omdat je, dan heb je nog eens zo veel mensen weg van de werkvloer. Het bewakend kader moet gewoon opgevuld geraken, zodanig dat mensen een opleiding kunnen volgen. Want die opleiding bestaat wel hé. Maar ja...

Ruimte voor individueel gesprek. Sociaal contact tussen de bewaking de gedetineerden. Hoe meer dagdagelijks contact dat er is, hoe minder kans dat er mensen tussen de mazen van het net glippen.

De chef op de gang is voor gedetineerden hét aanspreekpunt; dat is zo veel meer dan gewoon een deur open doen en er zijn voor de veiligheid.

Het is moeilijk om eens een kwartier uit te trekken voor iemand, terwijl dit het verschil kan maken.

Gezien de werkdruk hebben wij de tijd niet om wat meer tijd te maken, om een gesprek aan te gaan.

De bewaking heeft nu niet de tijd om met iedereen een keer een klapke te gaan doen—en dat zijn belangrijke elementen in preventie, denk ik. Dat je tijd kan maken voor de mensen, dat je ermee kunt gaan praten. Dat is heel belangrijk. Nu schiet men daar een beetje tekort, gewoon omdat we hier met zoveel volk hier zitten.

Restrictive measures for physical prevention

Als er een risico is, wordt de persoon onder een bepaald regime gezet. Een bijzonder regime waardoor hij om het kwartier gezien wordt. Dat is eigenlijk de voornaamste preventie die wij hier doen.

Dat is uitzonderlijk, daar gaan we niet te snel naar grijpen. Veiligheidscellen, dat verergert de zaak heel dikwijls. We willen mensen in hun gewone context houden. Door ze op de veiligheidscel te plaatsen, neem je al hun sociale contacten af, nemen we eigenlijk alles af.

Als die mens echt heel acuut zelfmoordgevaar is, het belangrijkste dat wij doen is dan de veiligheidscel. Maar ja, natuurlijk is dat een oplossing? Ja, dat is een oplossing om het acute gevaar te vermijden, maar het is geen hulp. Een gevangenis is daar niet de plaats voor, voor echte hulpverlening.

Wat we ook vaak doen, en we zitten hier met een overbevolking, is iemand op een duo-cel steken waardoor we eigenlijk een soort van sociale controle gaan creëren waarbij we eigenlijk een medegedetineerde gaan proberen betrekken, niet direct, maar eigenlijk doordat die erbij zit wel.

Een duo-cel omwille van daar de sociale bescherming. Maar dat is eigenlijk ook heel dubbel, want wat verwacht je dan van de celgenoot? Je moet zien dat je hen geen morele verantwoordelijkheid oplegt. Die moet het ook zien zitten. Je kan moeilijk iemand zeggen van: “en nu moet je zorgen dat die blijft leven.”

Wel wat je soms een probleem mee kan hebben is het feit van iemand op bijzondere bewaking op duo steken. Dan heb je enerzijds een stukje dat je een medegedetineerde verantwoordelijk maakt maar die mens ook mogelijks een trauma aan te doen doordat je weet van der kan der wel iemand bij die mogelijks iets gaat doen.

Je merkt wel steeds hetzelfde basisarsenaal van maatregelen bij directie. Da's zo een beetje: ge slaat alles toe, ge pakt scherpe voorwerpen af, ge zet iemand onder bijzondere bewaking. Dus ge pakt de risico's weg, maar beschermende maatregelen.... Eigenlijk moet ons arsenaal maatregelen, op het moment dat we een suïciderisico hebben, uitbreiden.

Eigenlijk in onze reflex van uit het gevangeniswezen om dingen wegnemen, risico's wegnemen. We hebben veel minder de reflex om iets toe te voegen. We nemen de risico weg, maar wat voegen we eigenlijk toe?

Mogelijkheden om mensen therapeutisch op te volgen zijn natuurlijk heel beperkt in de gevangenis. Beveiliging is vaak één van de weinige zaken die we kunnen realiseren.

Ge zijt hier redelijk beperkt, hé. Ge hebt zo het preventieve voor iemand te beschermen, voor zijn veiligheid. Maar qua zorg... da's minder natuurlijk.

Clinical intervention

Een groter beschikbaarheid van gespecialiseerde hulpverlening is nodig. Wij hebben één dag per week een medewerker van CGG die hier consultaties komt doen, maar daar is een wachtlijst voor.

De realiteit is dan dat wij met lange wachtlijsten werken, ja. Ge kunt moeilijk zeggen: verzet u gedachten voor een paar weken. Dus op zich kunnen we daar niet zo heel kort mee op de bal spelen.

Het therapeutische aanbod is wel heel erg beperkt. Uiteindelijk zijn wij daar zeer beperkt binnen, net zoals andere diensten. Dat lijkt mij niet in verhouding te staan met het aantal gedetineerden die er zitten en de problematieken.

Ik ben samen met mijn collega maar één dag in de week hier, dus wij zijn niet in de mogelijkheid om kort op de bal te spelen als andere diensten. Wij kunnen geen crisisopvang garanderen—gewoon door praktische redenen en een tekort aan middelen.

Soms valt dat op JWW en PSD, die daar minder tijd voor hebben en ook heel erg overbevraagd zijn, die ook in principe niet therapeutisch geschoold zijn. Terwijl CGG, dat zijn therapeuten die zijn daarvoor opgeleid die weten wat ze doen. Zij zijn eigenlijk in eerste instantie de meest aangewezen persoon om die opvolging te doen.

Ik zou ook wel eens een handleiding willen—ok ja, ik heb zo veel jaar gestudeerd, maar hoe dat je dan in dat gesprek met die mensen die suïcidaal zijn... Daar zou ik ook graag meer vorming en handvaten bij hebben. Dat zou ik wel kunnen gebruiken. [...] Nu heb ik het gevoel dat ik mijn buikgevoel volg.

We hebben een psychiater die om de twee weken een keer komt. Iedereen die wel bij de psychiater kan gaan, maar dat is natuurlijk... Ik maak mij geen illusies, dat is tien minuten en de meeste gaan daar voor hun medicatie. Omdat de psychiater medicatie voorschrijft—die iemand anders niet kan voorschrijven.

Gepaste behandeling hebben wij hier niet. Wij hebben een psychiater maar één dag om de twee weken—veel te weinig. We hebben niet de omkadering voor mensen met een psychische problematiek, dus veel positief kan ik daar eigenlijk niet over zeggen.

Changes to the prison regime

Ik denk wel dat wij vanaf dag één moeten proberen mensen een leefklimaat aan te bieden waarin ze zoveel mogelijk mogelijkheden zijn tot sociaal normaal handelen. Je moet ze de kans geven om zoveel mogelijk te ontplooiën, hé, door werk, sociale contacten, door lessen, door vorming, door sport, door creativiteit, door 't is eender wat. Alles wat zorgt voor een normale maatschappelijke activiteiten waarin mensen zich kunnen ontplooiën. En daar falen wij als gevangeniswezen grandioos in—daar moet je niet onnozel over doen.

Ook die overbevolking, die momenteel niet weg te krijgen is, is ook heel moeilijk om daarmee aan de slag te gaan. Ge kunt ook voor activiteiten maar een beperkt aantal mensen die je kunt laten deelnemen en je ziet dat er enorme wachtlijsten ontstaan voor werk. Dit is momenteel heel moeilijk. Ook voor het werken is dat een enorm verschil hé. Mensen moeten heel lang wachten tegen dat ze aan het werk kunnen. Nu is het vaak dat ze geen geld hebben, dat ze in de problemen komen waarmee ze dan geen kantine kunnen bestellen, geen tabak en dat zorgt allemaal voor bijkomende frustraties

Nu zijn er echt wel lange wachtlijsten. Ze kunnen misschien één of twee keer in de week deelnemen aan sport. Soms duurt het zelf nog veel langer. [...] Als zij zich kunnen bezig houden met van alles, zorgt dat ook al voor een goed, voor hun welzijn van de man zelf, tegenover als ze op hun cel zitten en niets om handen hebben: ze kunnen niet werken, ze kunnen niet sporten. Dan is dat natuurlijk veel moeilijker, hé.

Los van overbevolking, het is ook doordat er personeelstekorten zijn, dat er weinig ruimte is voor die extra's. Prioriteit is veiligheid. De extra's die erbij komen rond hulp- en dienstverlening, daar is er gewoon geen tijd voor, en ook geen geld. Dus dat zijn de eerste dingen die wegvallen. Eens dat dit op punt staat, dat die overbevolking beheersbaar is, dat er voldoende personeel is en dat er voldoende middelen zijn, dan pas kan je daaraan werken. Ge kunt gij beleid uitstippelen, maar beleid gekoppeld mee u middelen en personeel. Als dat er niet is, is het jammer dat je u tijd en energie in dat beleid hebt gestoken.

Kunnen die direct beginnen sporten en dat is vaak ook een alternatief voor mensen vol te steken met medicatie. Werk is hetzelfde. Mensen moet hier bijna 2 tot 2,5 maand wachten eer dat ze kunnen beginnen werken. Heel af en toe geven we mensen voorrang als dat echt wel, ja, indicaties zijn. Ook door de psychiater. Maar om den duur zijn er meer uitzonderingen, en dat is natuurlijk ook niet correct.

Collaboration and communication

Er zijn duidelijke afspraken rond beroepsgeheim. Eigenlijk koppelen wij zeer weinig terug. Het enige dat wij terugkoppelen is dat de persoon staat ingepland, punt. Dan weten zij dat er iets zal mee gedaan wordt. Maar inhoudelijk, naar directie of cipers, mogen wij niets zeggen. Maar het lijkt wel dat dit voor de betrokken partijen oké is.

De blauwdruk van dat draaiboek was richting te werken met een multidisciplinair meldpunt. Wat dus betekent dat mensen die suïcidesignalen zouden opvangen, dat kunnen aanmelden bij een groep personen die zich vrijwillig kandidaat hebben gesteld om te functioneren als lid van het meldpunt. Die mensen zijn ook opgeleid door het CGG. En die mensen, op het moment dat ze dus een aanmelding krijgen van een mogelijk suïcidesignaal, gaan binnen de kortst mogelijke tijd wat een diepgaander gesprek hebben met betrokken gedetineerden die aangemeld is. En eigenlijk aan de hand van gevalideerde vragenlijsten en wat ze geleerd hebben uit de opleiding, een risico-inschatting doen van het op dat moment gemelde suïcidesignaal. [...] Het blijft ook niet bij een eenmalig risico-inschattingsgesprek. Het gaat ook, eens dat het meldpunt een dossier opent, gaat men het ook opvolgen en op een bepaald moment kan het ook gewoon afgesloten worden.

Wat ik goed vind is dat er een systematiek is, dat er een proces is, en dat dat proces gestandaardiseerd is. [...] Vroeger, die inschatting gebeurde niet en nu hebben we eigenlijk een proces, een gestandaardiseerd proces van aanmelding en dan volgt altijd hetzelfde: er komt een risico-inschatting.

Wij hebben daar op dit moment gewoon de middelen niet voor. Wij hebben daar de mankracht niet voor. Er zijn nog veel te veel andere zaken. Om daar nu nog een extra takenpakket te gaan bijnemen...

Nu ik denk dat de werking dat daar is uitgewerkt geweest, dat dat een utopie is. Dat is een heel intensief project. Dat moet je heel wat mensen kunnen trainen en heel regelmatig overleggen. Je hebt heel wat personeel nodig om dat draaiende te kunnen houden—dat is heel belastend voor uw personeel.

Dat is wel iets waar dat wij veel te weinig tijd voor maken—om gewoon eens naar elkaar te luisteren en samen te zitten. Er is te weinig tijd voor visie, beleid.

Culture

Mentaliteitswijziging bij het personeel. Openstaan voor initiatieven, voor veranderingen, voor hulpverlening. Dat zal niet de eerste keer zijn dat je gehoord hebt dat er een bepaalde manier van handelen en denken is bij penitentiair beampten.

Het blijft natuurlijker gemakkelijker voor professionelen om signalen te herkennen dan voor de bewaking. Die zijn daar niet mee bezig.

Eigenlijk zou er een betere aansturing van bovenaf moeten zijn, want nu eigenlijk ik hoor zo van links en rechts dat er andere gevangenis en daar ook mee bezig zijn om zo iets op te starten. [...] Ons hoofdbestuur, ja, die laten ons ook zo maar een beetje aanmodderen. Ik denk, moest dat er van bovenaf wat meer zijn, dat zou ook maken dat we dat hier binnen de organisatie een klein beetje gemakkelijker zouden kunnen toepassen.

One size does not fit all

Nu, ik denk, we moeten daar toch ook wel een onderscheid in maken in populaties. We werken hier met een populatie van langgestraften, doorgaans veroordeelden. Mensen komen hier ook wel toe als ze al een paar jaar in de gevangenis zitten of al een hele tijd in de gevangenis zitten. De grote crisis is er vaak af. Wat in andere gevangenis... Mijn ervaring is toch wel: mensen komen in een gevangenis binnen, de onzekerheid rond strafmaat, rond wat gaat er gebeuren, wat verlies ik, wat win ik? Dat geeft heel veel stress en dat maakt dat mensen gemakkelijker suïcidaal worden. Dat hebben wij hier minder.

We zijn een overbevolkt arresthuis. Wat dat voor iedereen een enorme impact heeft, in de eerste plaats voor de mensen die hier verblijven. [...] Wat er ook bij arresthuizen is, is dat het aanbod qua werk, activiteiten dat dit een stuk minder is dan in gevangenis waar dat mensen zitten voor hun straf uit te zitten, hé. Daar is veel meer aandacht voor opleiding, vrije tijd, ontspanning en sport.

Ik denk ook wel dat het leven op de vrouwenafdeling minder hard is dan het leven op de mannenafdeling. Er is meer omkadering. Dat is een afgesloten afdeling waar ze bijvoorbeeld hun eigen kledij mogen dragen, meer activiteiten hebben, een vast personeelsequipe. [...] Dat is ook een kleinere groep, die hangen wat meer aan elkaar, die peppen elkaar wat op. Misschien ook wel dat daar cheffen meer tijd kunnen maken om eens een praatje te maken dan op de drukke mannenafdeling. Ik denk dat het hier wel kan gebeuren dat mannen binnen komen en dat die verdwijnen in de drukte, dat ze niet gedetecteerd worden. Op de vrouwenafdeling is er ook meer mogelijkheid om meer contact te hebben met hun kinderen—ik denk wel dat dat belangrijk is voor moeders. Op de vrouwenafdeling wordt daar meer in voorzien. [...] Die hebben meer mogelijkheden. In de zomer bijvoorbeeld hebben zij twee wandelingen. Ik denk dat het voor de vrouwen de detentie zelf iets gemakkelijker is. En dat het ook wat zichtbaarder is als het er niet goed mee gaat—die kleinschaligheid.

