Public chronic pain stigma and the role of pain type and patient gender: An experimental vignette study

Running title: public chronic pain stigma: role of pain type and gender

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Abstract

Research exploring the specific manifestations of chronic pain (CP) public stigma is scarce. One potential factor influencing public stigma manifestations may be the CP type, i.e., the presence (secondary CP) or absence (primary CP) of a clearly identifiable pathophysiology. Furthermore, patient gender may play a key role, whereby pain-related gender stereotypes may evoke distinct gender role expectations towards men and women experiencing CP. The aim of the research was two-fold. First, by means of an experimental vignette design, the general population's cognitive, affective and behavioral responses were investigated, both towards primary versus secondary CP and towards men versus women. Second, a potential interaction was examined between CP type and patient gender. The research is divided into two separate samples: individuals with CP (N= 729) and individuals without CP (N= 283). Factorial ANOVA models were estimated with CP type, patient gender and participant gender included as factors, age as control variable. The findings support, partly, the general hypothesis of higher (perceived) public stigma towards individuals with primary (vs. secondary) CP. No main effects of patient gender were observed. Gender bias in stigmatizing manifestations only emerged in certain contextual circumstances (i.e., pain type and participant gender). Different interaction effects (with a combination of gender, patient gender or CP type) were significant for the distinctive outcome variables. Interestingly, throughout the findings, different patterns of results are found in both samples. The study contributes to the literature on CP stigma, as well as the psychometric examination of items assessing stigmatizing manifestations.

Perspective

This study examined the role of contextual factors chronic pain type and patient gender into cognitive, affective, and behavioral stigmatizing manifestations coming from the general population towards individuals with chronic pain through an experimental vignette study. The study contributes to the chronic pain stigma literature, as well as the psychometric examination of items assessing stigmatizing manifestations.

Key words: chronic pain, stigma, pain type, patient gender, vignette study

Introduction

Chronic pain (CP) stigma is a widespread phenomenon entailing substantial costs for individuals with chronic pain (ICPs), their social environment, and society [20]. Indeed, research demonstrates how perceived stigma, i.e., the perception of being stigmatized, is related to poorer wellbeing in ICPs [33,51]. Chronic pain stigma can be regarded as a multilevel construct, manifesting at different levels of an individual's social environment [14]. Specifically, Chaudoir and colleagues describe three levels, 1) an intrapersonal level (i.e., internalized and perceived stigma), (2) an interpersonal level (i.e., interactions between patients and their social network) and (3) an institutional level (i.e., structural stigma) [14].

Indeed, stigma may exist within and be assessed from distinct perspectives, an important example of which is the general population. This is referred to as public stigma, which can be defined as "a set of stereotypes that motivate individuals to fear, reject, avoid, or discriminate against people with a stigmatized attribute" [17] - in this context: chronic pain. The study of public stigma is crucial for understanding ICPs' functioning and well-being, as its different manifestations (*i.e.*, cognitive, affective, behavioral) may exert a unique and significant impact. According to the Stigma Mechanisms in Health Disparities Model [13,14,16], public stigma initiates processes that may lead to unfavorable outcomes. First, stigmatized individuals may experience reduced access to healthcare or an underestimation of their pain or need for medical care due to doubts about credibility or trustworthiness [7]. Second, public stigma may hamper ICPs' social functioning, inspiring less sympathy, interaction or help from others [18,21,23,24,30,42]. Lastly, if ICPs become aware of or internalize the stereotypes surrounding them (i.e., self-stigma) [15], this may further compromise self-esteem, pain self-efficacy, and sense of personal control and higher catastrophizing [55].

Generally, stigma may involve cognitive (e.g., mistrust), affective (e.g., fear), and behavioral manifestations (e.g., social distance, discrimination) (cfr. Tripartite Model of Public Stigma) [12]. However, it is still unclear how public CP stigma specifically manifests in society. Additionally, research into factors that may moderate public stigma manifestations towards ICPs is lacking. One potential factor may be chronic pain type, i.e., the presence (secondary CP) or absence (primary CP) of a clearly identifiable pathophysiology. Primary CP is defined as *"pain in one or more anatomical regions that (1) persists or recurs for longer than 3 months, (2) is associated with significant emotional distress (e.g., anxiety, anger, frustration, or depressed mood) and/or significant functional disability (interference in activities of daily life and participation in social* *roles), (3) and the symptoms are not better accounted for by another diagnosis"* [40] (p. 29). Secondary CP "*is linked to other diseases as the underlying cause, for which pain may initially be regarded as a symptom"* [49] (p. 22). Research shows that people may suspect ICPs of feigning their pain when they have primary CP instead of secondary CP [23,30]. Furthermore, patient gender may play a key role, whereby pain-related gender stereotypes may evoke distinct gender role expectations towards men and women experiencing CP, leading individuals to associate a patient's gender with different types of pain [1,5] and pain responding [2,47]. However, it is still unclear if and how these expectations are reflected in differential public stigmatization towards men and women having CP. Examining potential moderating factors in public stigma is important in order to tailor programs focused on raising awareness in the public and to devote special attention to ICPs in individual therapy which may be more stigmatized.

The aim of the current research was two-fold. First, by means of an experimental vignette design, the general population's cognitive (i.e., CP stigmatizing beliefs, blame, pain severity), affective (i.e., approaching, avoiding affect) [52] and behavioral (i.e., social distance, inclination to help) responses were investigated, both towards primary versus secondary CP and towards men versus women [13,21,23,37,57]. Second, a potential interaction was examined between pain type and patient gender. Based on existing literature [19,21], we hypothesized that participants would report less stigmatizing responses towards secondary vs primary CP and towards men vs women. Second, a potential interaction was examined with patient gender (i.e., man vs. woman) and pain type (i.e., primary versus secondary CP).

Methods

Participants

The total sample of participants was recruited through online advertisements on the social network platform Facebook. The call to participate was also published in several community groups on Facebook (e.g., "You are from Ghent if…"). Eligibility criteria were being 18 years old and being a fluent Dutch speaker. A total of 1058 participants completed the survey. Data from six participants were excluded because they answered "no" to the question about whether they filled out the survey in an honest way and if they thought we could use their data to obtain reliable results. One participant did not provide informed consent, and was excluded from further analysis. After finishing the data collection, we discovered that 39 participants did not see a vignette with accompanying questions due to an error in the randomization process. Eventually, data of 1012 participants were included in the analyses. For participant gender, responses indicating the "Other" option (n=8) were recoded as missing, as to simplify data analyses and interpretation of findings.

Sample size calculation using G*power for ANOVA fixed effect, special, main effects and interactions with four groups and two factors, resulted in a sample size of 171. This translates to a minimum of 43 people in each group, to gain an effect size of .25 and a power of .90. During data collection, most participants reported having chronic pain, likely due to the recruitment call mentioning the topic of chronic pain. Subsequently (after 10 days), the call was phrased more generally stating that the study was about perceptions and ideas of others. For this reason, the study remained online until the minimum desired sample size of participants without chronic pain was reached. We decided to not include "having chronic pain" as a factor as this would result in 4-way interactions which are very difficult to interpret. Eventually, the total sample was divided into a no-pain and a pain sample by means of participants' scores on the Graded Chronic Pain Scale [53]. Those with grade 0 were assigned to the no-pain sample (Sample 2), those with grades 1, 2 or 3 were assigned to the pain sample (Sample 1; N= 759). Individuals with and without CP, may have (1) unique social representations of ICPs and (2) distinct perceptions of public stigma [35]. As such, chronic pain status may also inform individuals' beliefs about ICPs.

Among those participants with chronic pain, 9.5% (N= 100) were categorized in pain grade 1 (i.e., mild chronic pain), 15.4% (N= 162) in pain grade 2 (i.e., bothersome chronic pain), and 47.3% (N= 498) in pain grade 3 (i.e., high impact chronic pain). In the total sample, 27.8% of participants reported a pain grade of 0.

Study Design

To examine the research questions, a 2x2 between-subjects vignette design was used. Participants were randomly assigned to one of four vignettes depicting (1) either a man or a woman (patient gender), (2) having primary vs. secondary chronic pain (type of chronic pain). The vignettes were designed to depict a realistic and severe chronic pain condition (see appendix A) and were evaluated by experts in the pain literature. The description of a secondary pain condition was based on the symptoms of rheumatoid arthritis [34]. The vignettes depicting a primary pain condition were based upon the symptoms of fibromyalgia [36]. Subsequently, participants completed several rating scales in response to the individual depicted in the vignette. Participants were obliged to complete all questions, so missing data was kept to a minimum. As previous research highlights the potential influence of observer gender in health stigma [11,31] and pain assessment and treatment [44], this was included as a potential moderating factor.

Measures

Sociodemographic characteristics

First, participants completed questions about their gender (i.e., man, woman, other), age, nationality, civil status, education, and profession.

Graded Chronic Pain Scale – Revised

The Graded Chronic Pain Scale – Revised (GCPS-R) [53] was administered to assess participants' pain intensity and disability. Using the GCPS-R, participants can be classified into 4 pain grades. People who reported that they did not experience pain during the last three months or only on some days were categorized in pain grade 0, indicating that chronic pain is absent. Participants with a sum score below 12 on GCPS-R items 3 ("What number best describes your pain, on average?"), 4 ("During the past 7 days, what number best describes how pain has interfered with your enjoyment of life?"), and 5 ("During the past 7 days, what number best describes how pain has interfered with your general activity?") were categorized in pain grade 1 (mild chronic pain). Participants with a sum score of 12 or higher were assigned to pain grade 2 (bothersome chronic pain). Participants who indicated that they experienced pain on most or all days during the last 3 months and who reported that the pain bothered them to carry out their activities on most or all days, were categorized in pain grade 3 (high impact chronic pain).

Rating scales

As public stigma towards ICPs has not been systematically examined in previous research, no specific and validated scales are currently available. Therefore, we adjusted commonly used measures assessing public stigma towards mental illness and developed a set of items based upon consultation of qualitative studies concerning chronic pain stigma and invalidation [38,41]. To assess perceived public stigma (and not personal stigma), all rating scales were adapted so that participants had to estimate what *most people* would think/do/feel (in line with Bracke, Delaruelle & Verhaeghe, 2019) [10]. In this way, we also diminish the probability of social desirable answers. To ensure the construct validity of the measures of chronic pain stigma (cognitive and affective manifestations), an exploratory principal axis factor analysis (EFA) and a confirmatory factor analysis (CFA) were conducted in the whole sample of participants (individuals with and without chronic pain). First, we randomly selected about 50% of the sample (N = 524) and conducted an EFA on this sample. Second, we conducted a CFA on the rest of the sample to confirm the factors derived from the EFA. EFA was conducted in SPSS 28. Pearson product-moment correlations were used. Bartlett's test ($p<.05$), eigenvalues (greater than 1), and scree plot were evaluated to determine the number of factors. Factor scores were derived using regression. Communalities had to be above .50. CFA was conducted in R using the Lavaan package [45]. Several fit indices were used to assess the measurement model goodness-of-fit [29]. A non-significant χ^2 indicated an acceptable fit to the observed data. However, this index is influenced by sample size. To address this problem, the χ^2/ degrees of freedom (CMIN/DF ratio), which represents the minimum sample discrepancy divided by degrees of freedom [56] was also analyzed. Ratios as low as 2 or as high as 5 were considered indicative of a reasonable fit [27,28,48]. Root Mean Square Error of Approximation (RMSEA) values below .06 were considered a reasonable fit [27,28]. For the Comparative Fit Index (CFI), values above .90 were considered as indicative of an adequate fit to the data [27,28].

Cognitive manifestations of public stigma

Stigmatizing beliefs about chronic pain. Thirteen items assessing stigmatizing beliefs regarding chronic pain were included, of which 11 were developed by the research team and two were adapted from a previous study. The development of the first 11 items was informed by main themes derived from two qualitative studies [38,41]. All items were answered on a scale from 0 (“Strongly disagree”) to 10 (“Strongly agree”). The self-constructed items were phrased as follows: (item 1) “Most people believe that …’s pain is imagined.”, (item 2) “Most people believe …’s pain has a psychological nature”, (item 3) “Most people believe that … experiences a lot of pain.” (reverse scored), (item 4) “Most people believe … is faking the pain.”, (item 5)

"Most people believe … is a burden for her/his family and friends.", (Item 6) "Most people believe that … is addicted to medication.", (Item 7) "Most people believe … has not tried enough to get better.", (item 8) "Most people believe … is a hypochondriac/worries too much about her/his physical complaints.", (item 9) "Most people believe … is looking for attention.", (item 10) "Most people believe … is a profiteer", and (item 11) "Most people believe … is lazy.". The last two items were adapted from a study of Boyd, Katz, Link and Phelan [9] and assessed blame and severity of the condition: (item 12) "Most people believe … is to blame for her/his condition." and (item 13) "Most people consider …'s problem to be severe" (reverse scored). One factor was extracted using principal axis factoring analysis (eigenvalues > 1.0) on a random sample of about 50% of the participants. This factor explained 62% of the total variance. A few communalities were below .50. Subsequently, we decided to eliminate items 5 (.40) and 6 (.44) with the lowest communalities. Confirmatory factor analysis on the other part of the sample showed an adequate fit of the data, $\chi2$ (44)= 560.324 (p< .001), CMIN/DF ratio= 13, CFI= 0.900, except the RSMEA= 0.152 (90% CI= 0.141-0.164) was too high. However, this could be related to the low number of variables [32] as the other fit indices were good. Items 3 and 13 were reverse scored and a sum score (range: 0-110) was calculated for the remaining items. Higher scores represent higher expected stigmatization. Cronbach's alpha was .95 for this scale. The final version of the scale is included in appendix B.

Affective manifestations of public stigma

To assess affective reactions towards ICPs, we used the affective reactions assessed in the study on mental illness stigma of Wirth and Bodenhausen (2009) [59]. Currently, no items are available assessing chronic pain public stigma, so we used items from a mental illness stigma study. No adaptation of the items' phrasing was needed as mental illness was not mentioned in the items. We changed the rating scale in accordance with the other items in our survey and we renamed it approaching and avoiding affect instead of positive and negative affect in line with Vervoort and Trost (2017) [52]. All items were answered on a scale from 0 ("Not at all") to 10 ("Very much"). Approaching affective reactions were assessed via the following three items: "To what extent would most people be *concerned* about …", "To what extent would most people feel *sympathy* towards …", and "To what extent would most people feel *pity* for …". Avoiding affective reactions were measured by "To what extent would most people feel *anger* towards …", "To what extent would most people be *irritated* by …", "To what extent would most people feel *dislike* for …". Two factors were extracted using principal axis factoring analysis (eigenvalues > 1.0) on a random sample of about 50% of the participants. These factors explained 75% of the total variance. All communalities were above .68. Varimax rotation resulted in two interpretable factors, one factor for approaching affective reactions and one for avoiding affective reactions. Confirmatory factor analysis on the other half of the sample showed a good fit of the data for approaching, $\chi2$ (1)= 0.001 (p= .980), CFI= 1.000, RMSEA= 0.000 (90% CI= 0.000-0.000) and a good fit for avoiding affective reactions, $\chi2$ (1)= 0.777 (p= .378), CFI= 1.000, RMSEA= 0.000 (90% CI= 0.000-0.112). A sum score (range: 0-30) was calculated for approaching respectively avoiding affective reactions. Higher scores represent higher levels of approaching or avoiding affective reactions. Cronbach's alpha was .88 and .77 for approaching and avoiding affective reactions respectively.

Behavioral manifestations of public stigma

Social distance. The Social Distance Scale [8] consists of 7 items measuring the respondent's willingness to engage in different social situations with another person. Two items of the original scale were omitted because they do not fit with all possible ages of the participants. The following items were used: "How would most people feel about renting a room in their home to someone like …", "How would most people feel about being a work colleague on the same job with someone like …", "How would most people feel having someone like … as a neighbor?", "How would most people feel about introducing … to someone they are friendly with?", and "How would most people feel about recommending someone like … for a job working for a friend of them?". Items were rated on a scale from 0 ("Not willing at all") to 10 ("Completely willing"). A sum score (range: 0-50) was calculated for the social distance scores; the lower the score the greater the desired social distance. Cronbach's alpha was .83 for this scale.

Inclination to help. Inclination to help was assessed via a single item "How likely would most people be to offer … help in general?", which was adapted from [59]. Participants answered this item on a scale from 0 ("Not at all") to 10 ("Very much").

Procedure

The study was approved by the ethical committee of the Faculty of Psychology and Educational Sciences at Ghent University. People interested in participating could click the link provided on Facebook, immediately directing them to the survey. The survey was administered online through LimeSurvey, a protected web-based survey tool to obtain research data whereby participants are required to complete each item in order to progress through the survey, eliminating the risk of potential missing data. The questions were answered anonymously, participants did not provide identifiable information. However, participants had the opportunity to ask a report of the study results and when they agreed upon this, they were asked to provide an e-mail address, which was stored in a separate file. First, general information about the study was given and thereafter informed consent was requested. On average, it took participants between 10 and 15 minutes to complete the survey. Participants did not receive any financial compensation for partaking in the study. The survey was first piloted with 8 participants, which allowed a further optimization of item phrasing and response format of the questions.

Data analysis plan

All analyses were conducted in IBM SPSS Statistics for Windows version 23 (IBM Corp., Armonk, N.Y., USA). A descriptive analysis of participant sociodemographic data (i.e., gender, age, nationality, civil status, education, and profession) was performed. Further, means, standard deviations, range, Cronbach's alpha from all measures were computed.

Responses in relation to the vignettes were analyzed using IBM SPSS Statistics for Windows version 23 (IBM Corp., Armonk, N.Y., USA). Factorial ANOVA was performed with main and interaction effects. In this model, participants' age was included as a control variable as it was associated with a few outcomes (i.e., stigmatizing beliefs, approaching affect, social distance). Patient gender (i.e., man vs. woman) and chronic pain type (i.e., primary vs. secondary pain) were included as factors. Participant gender was included as a potential confounding factor. In the case of significant interaction effects, post-hoc analyses (e.g., simple ANOVA analyses) were performed to allow for a more detailed investigation of the effect and to obtain graphical presentation of the effects of interest. The statistical significance level was set at 5%. Eta-squared is reported. The following rules of thumb can be applied: .01 is considered small, .06 is medium, and .14 or higher is large.

Results

Sample 1 - Individuals with chronic pain

Descriptive statistics

Sociodemographic characteristics in each sample are shown in Table 1. Means, standard deviations, range and internal consistency of all variables involved in each sample are presented in Table 2.

- INSERT TABLE 1 ABOUT HERE –

- INSERT TABLE 2 ABOUT HERE –

Factorial ANOVA results

- INSERT TABLE 3 ABOUT HERE -

Cognitive manifestations of public stigma

Stigmatizing beliefs about chronic pain. Results are shown in Table 3. Only a main effect of pain type was observed (F(1,715)=5.98, p=.015, η2=.008), indicating that participants expected most people to endorse more stigmatizing beliefs about CP in the case of primary CP (M=63.17, SD=20.39), as compared to secondary CP (M=60.13, SD=22.06). However, the size of this effect is small, so its statistical significance may not translate into equal clinical significance.

Affective manifestations of public stigma

Approaching affect. Results are shown in Table 3. A significant interaction between pain type and patient gender was observed (F(1,716)=4.44, p=.035, η2=.006) (see Figure 1). Specifically, participants expected most people to have significantly less approaching affect towards men with primary CP (M=14.49, SD=5.07) as compared to women with primary CP (M=15.30, SD=5.94; F(1,307) = 5.82, p=.02), but approaching affect towards men (M=14.85, SD=5.28) and women with secondary CP (M=13.94, SD=5.61) was not significantly different. Further, a significant interaction was observed between patient gender and participant gender (F(1,716)=4.48, p=.035, η2=.006) (see Figure 2), indicating that when the patient was a man, men (M=13,94, SD=5.15) expected most people to report less approaching affect than did women (M=15.83, SD=6.78). Conversely, when the patient was a woman, women (M=13.94, SD=5.61) expected most people to experience less approaching affect towards the patient than did men (M=14.24, SD=5.75). Again the effect sizes are small.

- INSERT FIGURE 1 ABOUT HERE -

- INSERT FIGURE 2 ABOUT HERE -

Avoiding affect. Results are shown in Table 2. Significant main effects of participant age (F(1,716)=8.80, p=.003, η2=.012) and participant gender (F(1,716)=4.47, p=.035, η2=.006) were observed, indicating that younger participants (ß=-.04, t=-3.03, p=.002) and women (M=14.04, SD=5.32) expected most people to have more avoiding affect towards the patient as compared to older participants and men (M=12.84, SD=5.84), respectively. The effect size for age was twice as big as the one for gender.

Behavioral manifestations of public stigma

Social distance. Results are shown in Table 3. A small main effect of CP type was observed (F(1,716)=6.52, p=.011, η2=.009), indicating that participants expected most people to show more social distance towards patients with primary pain (M=23.96; SD=8.16) as compared to secondary pain (M=24.70; SD=8.50; F(1,716)=6.60, p=.01). However, the following interactions have to be taken into account to interpret this main effect. First, the main effect of pain type was dependent on patient gender (F(1,716)=9.71, p=.002, η2=.013) (see Figure 3). Specifically, this effect was only significant in the case of vignettes describing male patients ($M_{primary}$ = 23.85; $SD_{primary}$ = 8.49; $M_{secondary}$ = 25.54; $SD_{secondary}$ = 8.11; F(1,391) = 6.82, p=.01). Another significant two-way interaction was observed between CP type and participant gender (F(1,716)=7.53, p=.006, η2= .010) (see Figure 4). Specifically, the effect of pain type was only significant among male participants ($M_{primary}$ = 22.00; $SD_{primary}$ = 9.34; $M_{secondary}$ = 26.97; $SD_{secondary}$ = 8.49; F(1,115) = 8.99, p = .00). Effect sizes for the latter two interactions are considered small. Lastly, the three way interaction between vignette gender, participant gender and CP type just reached significance (F(1,716)=3.96, p=.047, η2=.006), so this should be interpreted with caution.

- INSERT FIGURE 3 ABOUT HERE -

- INSERT FIGURE 4 ABOUT HERE -

Inclination to help. Results are shown in Table 3. Within the pain sample, no significant main or interaction effects were observed.

Sample 2 - Individuals without chronic pain

Descriptive statistics

Sociodemographic characteristics in each sample are shown in Table 1. Means, standard deviations, range and internal consistency of all variables involved in each sample are presented in Table 2.

Factorial ANOVA results

- INSERT TABLE 4 ABOUT HERE -

Cognitive manifestations of stigma

Stigmatizing beliefs about chronic pain. Results are shown in Table 4. A significant main effect of participant gender was present (F(1,271)=6.18, p=.014, η2=.022), indicating that women (M=53.02, SD=20.89) expected more stigmatizing beliefs than men (M=47.17, SD=19.40), but this small effect was dependent on gender of the patient with CP (F(1, 271)= 4.88, p=.028, η2=.018) (see Figure 5). More specifically, men expected more stigmatizing beliefs towards women with CP (M= 52.90, SD= 17.91) than towards men with CP (M= 41.43, SD=19.34) (F(1,82)=7.96, p=.006). Among female participants, no significant differences were observed between stigmatizing beliefs towards men (M=53.67, SD=20.67) and women with CP (M=52.13, SD=21.28).

- INSERT FIGURE 5 ABOUT HERE -

Affective manifestations of stigma

Approaching affect. Results are shown in Table 4. A main effect of age was observed (F(1,271)=13.11, p=.000, η2=.046), indicating that younger participants (ß=-.06, t=-3.62, p=.000) expected more approaching affect towards the patient than did older participants. This is a small to medium effect size indicating that there is more evidence for this relationship. Further, the interaction between participant gender and patient gender was significant (F(1,271)=6.85, p=.009, η2=.025) (see Figure 6). The effect size is regarded between small and medium. Specifically, male participants expected the general population to experience significantly less approaching affect towards female patients (M=16.00, SD=5.14) as compared to male patients (M=18.74, SD=4.56, F(1,83)=6.67, p=.012). Female participants did not expect a significant difference in approaching affect towards female patients (M=17.49, SD = 4.71) as compared to male patients (M=16.54, SD=5.65, F(1,195)=1.56, p=.212).

- INSERT FIGURE 6 ABOUT HERE -

Avoiding affect. Results are shown in Table 4. Only the main effect of CP type was significant (F(1,271)=4.11, p=.044, η2=.015), indicating that participants expected most people to experience more avoidant affect towards the patient with primary pain (M=13.48, SD=5.21) than towards secondary pain (M=11.79, SD=5.25, F(1,281)=7.50, p=.007). However, this effect is small.

Behavioral manifestations of stigma

Social distance. Results are shown in Table 4. Only the main effects of age (F(1,271)=4.19, p=.042, η2=.015), participant gender (F(1,271)=4.38, p=.037, η2=.016) and the interaction between participant gender and CP type (F(1,271)= 4.99, p=.026, η2=.018) (see Figure 7) were significant. Specifically, older participants (B= -.056, t= -2.046, p= .042) and women (M = 26.48, SD= 8.22) expected less social distance compared with younger participants and men (M= 28.29, SD= 8.38). No significant difference was found for male participants in social distance towards patients presenting with primary (M=29.71, SD=7.83) versus secondary CP (M=27.11, SD=7.78) (F(1,82)=2.031, p=.158, η2=.024). In contrast, female participants expected less social distance towards patients with secondary CP (M=27.69, SD=8.53) (F(1,194)= 4.199, p=.042, η2=.021) in comparison with primary CP (M=25.30, SD=7.78).

- INSERT FIGURE 7 ABOUT HERE -

Inclination to help. Results are shown in Table 4. Only a small significant three-way interaction was observed (F(1,280)=4.76), p=.030, η2=.017) (see Figure 8). Men, in the case of primary pain, expected no difference in inclination to help the man with CP (M=5.27, SD=1.80) vs. the woman with CP (M=5.47, SD=2.07, F(1,38)=.102, p=.752). In the case of secondary pain, men expected that most people would be more inclined to help the man with CP (M=6.09, SD=2.09) as compared to the woman with CP (M=4.88, SD=1.90, F(1,47)=4.371, p=.042). Women, in the case of primary pain, expected no difference in inclination to help the male patient (M=5.13, SD=1.85) as compared to the female patient (M=5.08, SD=1.86, F(1,98)=.022, p=.882). In the case of secondary pain, an inverse, yet still statistically insignificant effect was observed.

- INSERT FIGURE 8 ABOUT HERE -

General discussion

The current study aimed at investigating the perceived cognitive, affective and behavioral manifestations of public chronic pain stigma according to members of the general population, including both individuals with (Sample 1) and without chronic pain (CP) (Sample 2). More specifically, we examined whether public stigma was perceived to manifest itself differently depending on the presentation of primary versus secondary CP and patient gender. Based on existing research [11,31], the gender of the participant was included as a potential moderator, potentially confounding the results. The findings can be summarized as follows.

The present findings support, partly, the general hypothesis of higher (perceived) public stigma towards individuals with primary (vs. secondary) CP. Participants with CP expected more stigmatizing beliefs and social distance towards primary CP vs. secondary CP, and participants without CP expected more avoidant affect towards the patient with primary CP as compared to the patient with secondary CP. These findings are in line with previous studies observing that people from the general population show less trust, sympathy and inclination to help towards individuals with primary CP versus individuals with secondary CP [19] Interestingly, the main effect of pain type on social distance was dependent on participant gender, yet differentially so in both samples. Findings show that among participants with CP, the effect of pain type was only significant among male participants, while among participants without CP, this effect was only significant among female participants.

Contrary to our second hypothesis that more public stigma would be observed towards female patients as compared to male patients, no main effects of patient gender were observed. Gender bias in stigmatizing manifestations only emerged in certain contextual circumstances (i.e., pain type and participant gender). This is in line with previous research suggesting that gender biases in pain are a contextual phenomenon, i.e., it may be enhanced or suppressed by contextual cues pertaining to the characteristics of the pain/clinical situation (e.g., pain type), the person in pain and/or the observer (e.g., gender) [3,4]. First, patient gender bias was moderated by pain type. Specifically, participants with CP expected men with CP to be more stigmatized than women with CP (less approaching affect), but only when they reported primary pain. Second, gender bias was moderated by participant gender. Specifically, in the CP group, male participants expected men to be more stigmatized (i.e., less approaching affect) than women. Conversely, male participants without CP expected women to be more stigmatized (i.e., less approaching affect) than men. A similar pattern was found in the no-pain sample for stigmatizing beliefs, where only male participants expected more stigmatization towards women with CP. In sum, men without CP expected more stigmatization from the general population (more stigmatizing beliefs and less approaching affect) towards women with CP as compared to men with CP. This finding was not observed in the CP group. This is in line with previous work indicating the role of observer gender in different instances of health stigma (e.g., [31]). Further research could benefit from explicitly including participant gender in the analyses, as previous work on the interaction between observer gender and patient gender has shown interesting, yet largely inconsistent results (e.g., [25]).

Interestingly, throughout the current findings, different patterns of results are found in both samples. These differences between participants with (in-group) and without CP (out-group) may be understood through the in-group perception of individuals with stigmatized characteristics [46]. As participants with CP have a lived experience of CP and associated stigmatization, they may have been more likely to base their responses on personal experience, as compared to participants without CP. As such, this may account for a different, and perhaps more complex perspective on public stigma and its manifestations in everyday life among ICPs.

Taken together, the results of the current study highlight the need for a more thorough and clear conceptualization of public CP stigma. Here, public CP stigma was conceptualized as a latent construct that may manifest itself in individuals' cognitions (i.e.,, stigmatizing beliefs), (e.g., approaching or avoiding) affective states and behaviors (i.e., social distance, inclination to help). However, these manifestations proved to be differentially influenced by contextual factors such as pain type and patient gender, highlighting their distinct status as subcomponents of stigma. This may highlight the need for a more clear and encompassing conceptual model of stigmatization and its different manifestations as well as a more explicit account of their relative positions and interrelations within that model. Interestingly, a comparison of findings from both studies suggested that participants with and without CP (1) had different perceptions of public stigma of CP that were (2) differentially influenced by CP type and patient gender. Although the current study design did not allow a thorough investigation of the effect of participant pain status (chronic pain vs. no chronic pain) on perceived public stigma, future research may elucidate this effect by explicitly including participant pain status as a factor of interest in the design.

The results of the current study are to be considered in the light of a number of limitations. First, recruitment through Facebook may have - to a certain degree - created a selection bias in the sample. Since individuals presented with the ad were required to initiate participation themselves by clicking on the link, it may have been the case that individuals with certain pre-existing beliefs about CP were more inclined to partake (e.g., personal experience). Second, the sample showed limited diversity in terms of gender and ethnicity/race, potentially limiting the generalizability of the findings. Third, although vignette designs are deemed highly appropriate to examine attitudes towards or stereotypes about a given group, they create artificial encounters. As such, in terms of ecological validity, it remains to be examined whether these findings generalize to real-life encounters with ICPs. Furthermore, also the social and interpersonal context of the observer influences judgements of others, which we cannot disentangle in the current study. Fourth, participant pain status (i.e., CP vs. no CP) was not included as a factor of interest in the design to reduce the complexity of the results. Thus, although a comparison between participants with and without CP does provide an initial insight into differences between both groups, this approach does limit the possibility to draw reliable conclusions about the role of pain status in perceived public stigmatization of CP. Lastly, we did not perform any corrections for multiple testing, in line with recommendations of Perneger (1998) [43] and Nakawaga (2004) [39]. The findings of this study await replication in future research.

Despite these limitations, the current study contributes significantly to the literature on CP stigma, as well as the psychometric examination of items and scales assessing stigmatizing manifestations coming from the general population. Further, the clinical implications of the current study are evident in a number of ways. In general, raising awareness about CP and particularly primary CP in the general population is still necessary to counter possible stigmatizing thoughts, affect, and behavior towards people having CP. Stigmatization is negatively related to ICPs' well-being [33,51], which emphasizes the necessity of raising awareness in this regard. This is related to, on the one hand, bias awareness, i.e., how much awareness someone has about personal stigmatizing beliefs and on the other hand education, namely correcting misinformation about the stigmatized attribute (i.e., chronic pain). Also, within the group of ICPs more education could be provided about primary chronic pain conditions as in-group stigma towards individuals with primary CP is also problematic. Further, patients with primary CP may face greater public stigmatization than patients with secondary CP, so clinicians should be aware of this in two ways. First, clinicians should be mindful of their own beliefs, affect, and behavior (i.e., bias awareness) towards ICPs, and in particular individuals with primary CP. Second, they may want to help patients cope with possible stigmatization; again, this may be of greater importance for people with primary CP. Clinicians could focus on lowering the influence of perceived stigma by reflecting with patients why certain people stigmatize ICPs (e.g., specific misunderstandings) and how they can adequately respond to this. Lastly, ICPs' gender may significantly moderate stigmatization, highlighting the value of educational strategies aimed at raising awareness about the impact of stigma and the factors that may give rise to it.

Future research should aim to examine public chronic pain stigma from an intersectionality framework [58]. For instance, although some evidence suggests that the pain experiences of women of different social classes are assessed differently [6,22] the extent to which public stigma towards men/women of different ages, race/ethnicity, and/or SES differs is unknown. In order to examine important intersections of chronic pain stigma (i.e., other stigmatized identities evoking or further exacerbating stigma), recruiting more diverse samples is warranted. For instance, other strategies should be adopted to also recruit people from diverse racial/ethnical groups (e.g., by means of bilingual researchers, build trust) [26]. Furthermore, in chronic pain research, age is often included as a control variable and consequently it does not receive much attention. It could be informative to study age in more detail and look how it intersects with stigma. This was not within the scope of the current study as we did not manipulate age in the vignettes.

To understand chronic pain, a biopsychosocial perspective is warranted. However, in healthcare the biomedical way of thinking is still dominant making it difficult for individuals with chronic pain to establish fruitful healthcare relationships and receive effective pain management. This may be a problem of particular importance for individuals with primary chronic pain. These dynamics may also underpin stigma as individuals with chronic pain are often perceived as difficult patients with low engagement and treatment adherence [54]. The health stigma literature highlights that experiences of (intersectional) stigmas are also dependent on the characteristics that people associate with the stigma [50]. It is possible that the primary chronic pain stigma is influenced by the fact that people relate this to depression as there is no explanation for the pain. Future research could examine these dynamics more deeply.

Taken together, the findings of the current study attest to the importance of public stigma as perceived by individuals both with and without CP. They also highlight the moderating roles of pain type and patient gender in the perception of specific manifestations of public stigmatization of CP. However, further systematic examination is necessary to disentangle the underlying dynamics.

Figure legends

Figure 1. Two-way interaction between pain type and patient gender with approaching affect as outcome (pain sample).

Figure 2. Two-way interaction between patient gender and participant gender with approaching affect as outcome (pain sample)

Figure 3. Two-way interaction between pain type and patient gender with social distance as outcome (pain sample)

Figure 4. Two-way interaction between pain type and participant gender with social distance as outcome (pain sample)

Figure 5. Two-way interaction between patient gender and participant gender with stigmatizing beliefs as outcome (no pain sample)

Figure 6. Two-way interaction between patient gender and participant gender with approaching affect as outcome (no pain sample)

Figure 7. Two-way interaction between pain type and participant gender with social distance as outcome (no pain sample)

Figure 8. Three-way interaction between pain type, patient gender and participant gender with inclination to help as outcome (no pain sample)

References

1. Bernardes FS, Costa M, Carvalho H. Engendering pain management practices: the role of physician sex on chronic low-back pain assessment and treatment prescriptions. Journal of Pain 2013; 4(9): 931–940. DOI: 10.1016/j.jpain.2013.03.004.

2. Bernardes FS, Keogh E, Lima ML. Bridging the gap between pain and gender research: A selective literature review. European Journal of Pain 2008; 12(4): 427–440. DOI: 10.1016/j.ejpain.2007.08.007.

3. Bernardes FS, Lima ML. On the contextual nature of sex-related biases in pain judgments: The effects of pain duration, patient's distress and judge's sex. European Journal of Pain 2011; 15(9): 950–957. DOI: 10.1016/j.ejpain.2011.03.010.

4. Bernardes FS, Lima ML. A contextual approach on sex-related biases in pain judgements: The moderator effects of evidence of pathology and patients' distress cues on nurses' judgements of chronic low-back pain. Psychology and Health 2011; 26(12): 1642–1658. DOI: 10.1080/08870446.2011.553680.

5. Bernardes FS, Silva SA, Carvalho H, Costa M, Pereira S. Is it a (fe)male pain? Portuguese nurses' and laypeople's gendered representations of common pains. European Journal of Pain 2014; 18(4): 530–539. DOI: 10.1002/j.1532-2149.2013.00387.x.

6. Bernardes SF, Tomé-Pires C, Brandão T, Campos L, Teixeira F, Goubert L. Classism in pain assessment and management: the mediating role of female patient dehumanization and perceived life hardship. Pain 2021; 162(12): 2854–2864. DOI: 10.1097/j.pain.0000000000002278.

7. Biernat M, Manis M. Shifting standards and stereotype-based judgments. Journal of Personality and Social Psychology 1994; 66(1): 5–20. DOI: 10.1037/0022-3514.66.1.5.

8. Bogardus ES. A social distance scale. Sociology & Social Research 1933; 17: 265–271.

9. Boyd JE, Katz EP, Link BG, Phelan JC. The relationship of multiple aspects of stigma and personal contact with someone hospitalized for mental illness, in a nationally representative sample. Social Psychiatry and Psychiatric Epidemiology 2010; 45(11): 1063–1070. DOI: 10.1007/s00127-009-0147-9.

10. Bracke P, Delaruelle K, Verhaeghe M. Dominant Cultural and Personal Stigma Beliefs and the Utilization of Mental Health Services: A Cross-National Comparison. Frontiers in Sociology 2019; 4: 1–12. DOI: 10.3389/fsoc.2019.00040.

11. Bradbury A. Mental Health Stigma: The Impact of Age and Gender on Attitudes. Community Mental Health Journal 2020; 56(5): 933–938. DOI: 10.1007/s10597-020-00559-x.

12. Breckler SJ. Empirical validation of affect, behavior, and cognition as distinct components of attitude. Journal of Personality and Social Psychology 1984; 47(6): 1191–1205. DOI: 10.1037/0022-3514.47.6.1191.

13. Carr DB. Patients with Pain Need Less Stigma, Not More. Pain Medicine 2016; 17: 1391–1393. DOI: 10.1093/pm/pnw158.

14. Chaudoir SR, Earnshaw VA, Andel S. “Discredited” versus “Discreditable”: Understanding how shared and unique stigma mechanisms affect psychological and physical health disparities. Basic and Applied Social Psychology 2013; 35: 75–87. DOI: 10.1080/01973533.2012.746612.

15. Chibnall JT, Tait RC, Ross LR. The effects of medical evidence and pain intensity on medical student judgments of chronic pain patients. Journal of Behavioral Medicine 1997; 20(3): 257–271. DOI: 10.1023/a:1025504827787.

16. Corrigan PW, Larson JE, Watson AC, Boyle M, Barr L. Solutions to discrimination in work and housing identified by people with mental illness. Journal of Nervous and Mental Disease 2006; 194(9): 716–718. DOI: 10.1097/01.nmd.0000235782.18977.de.

17. Corrigan PW, Penn DL. Lessons from social psychology on discrediting psychiatric stigma.

American Psychologist 1999; 54(9): 765–776. DOI: 10.1037/0003-066X.54.9.765.

18. DeRuddere L, Bosmans M, Crombez G, Goubert L. Patients Are Socially Excluded When Their Pain Has No Medical Explanation. Journal of Pain 2016; 17(9): 1028–1035. DOI: 10.1016/j.jpain.2016.06.005.

19. DeRuddere L, Bosmans M, Crombez G, Goubert L. Patients Are Socially Excluded When Their Pain Has No Medical Explanation. Journal of Pain 2016; 17(9): 1028–1035. DOI: 10.1016/j.jpain.2016.06.005.

20. DeRuddere L, Craig KD. Understanding stigma and chronic pain: A-state-of-the-art review. Pain 2016; 157(8): 1607–1610. DOI: 10.1097/j.pain.0000000000000512.

21. DeRuddere L De, Goubert L, Stevens M, Amanda AC, Crombez G. Discounting pain in the absence of medical evidence is explained by negative evaluation of the patient. Pain 2013; 154(5): 669–676. DOI: 10.1016/j.pain.2012.12.018.

22. Diniz E, Castro P, Bousfield A, Figueira Bernardes S. Classism and dehumanization in chronic pain: A qualitative study of nurses’ inferences about women of different socio-economic status. British Journal of Health Psychology 2020; 25(1): 152–170. DOI: 10.1111/bjhp.12399.

23. Eccleston C, Crombez G. Worry and chronic pain : A misdirected problem solving model. Pain 2007; 132(3): 233–236. DOI: 10.1016/j.pain.2007.09.014.

24. Goffman E. *Notes on the managemant of spoilded identity*. New York: Simon & Schuster, Inc.; 1963.

25. Hirsh AT, Hollingshead, N. A. Matthias MS, Bair MJ, Kroenke K. The influence of patient sex, provider sex, and sexist attitudes on pain treatment decisions. Journal of Pain 2014; 15(5): 551–559. DOI: 10.1016/j.jpain.2014.02.003.

26. Hood AM, Booker SQ, Morais CA, Goodin BR, Letzen JE, Campbell LC, Merriwether EN,

Aroke EN, Campbell CM, Mathur VA, Janevic MR. Confronting Racism in All Forms of Pain Research: A Shared Commitment for Engagement, Diversity, and Dissemination. Journal of Pain 2022; 23(6): 913–928. DOI: 10.1016/j.jpain.2022.01.008.

27. Hu L, Bentler PM. Fit Indices in Covariance Structure Modeling: Sensitivity to Underparameterized Model Misspecification. Psychological Methods 1998; 3: 424–453. DOI: 10.1037/1082-989X.3.4.424.

28. Hu L, Bentler PM. Cutoff Criteria for Fit Indexes in Covariance Structure Analysis: Conventional Criteria versus New Alternatives. Structural Equation Modeling 1999; 6: 1–55. DOI: 10.1080/10705519909540118.

29. Jackson DL, Gillaspy JA, Purc-Stephenson R. Reporting Practices in Confirmatory Factor Analysis: An Overview and Some Recommendations. Psychological Methods 2009; 14(1): 6–23. DOI: 10.1037/a0014694.

30. Jackson JE. Stigma, liminality, and chronic pain: mind-body borderlands. American Ethnologist 2005; 32(3): 332–353. DOI: 10.1525/ae.2005.32.3.332.

31. Kaitz JE, Steinhilber KM, Harris JI. Influence of Provider Gender on Mental Health Stigma. Community Mental Health Journal 2022; 58(3): 536–540. DOI: 10.1007/s10597-021-00849-y.

32. Kenny DA, McCoach DB. Effect of the Number of Variables on Measures of Fit in Structural Equation Modeling. Structural Equation Modeling 2003; 10(3): 333–351. DOI: 10.1207/S15328007SEM1003_1.

33. Ko C, Lucassen P, van der Linden B, Ballering A, Olde Hartman T. Stigma perceived by patients with functional somatic syndromes and its effect on health outcomes – A systematic review. Journal of Psychosomatic Research 2022; 154: 110715. DOI: 10.1016/j.jpsychores.2021.110715.

34. Kronzer VL, Crowson CS, Sparks JA, Myasoedova E, Davis J. Family History of Rheumatic,

Autoimmune, and Nonautoimmune Diseases and Risk of Rheumatoid Arthritis. Arthritis Care and Research 2021; 73(2): 180–187. DOI: 10.1002/acr.24115.

35. Lorenzi-Cioldi F, Clémence A. Group Processes and the Construction of Social Representations. *Blackwell Handbook of Social Psychology: Group Processes*, Hogg/Blackwell; 2001. DOI: 10.1002/9780470998458.CH13.

36. Maffei ME. Fibromyalgia: Recent advances in diagnosis, classification, pharmacotherapy and alternative remedies. International Journal of Molecular Sciences 2020; 21(21): 1–27. DOI: 10.3390/ijms21217877.

37. Martin JK, Pescosolido BA, Olafsdottir S, Mcleod JD. The construction of fear: Americans' preferences for social distance from children and adolescents with mental health problems. Journal of Health and Social Behavior 2007; 48(1): 50–67. DOI: 10.1177/002214650704800104.

38. Monsivais DB. Decreasing the stigma burden of chronic pain. Journal of the American Association of Nurse Practitioners 2013; 25(10): 551–556. DOI: 10.1111/1745-7599.12010.

39. Nakagawa S. A farewell to Bonferroni: The problems of low statistical power and publication bias. Behavioral Ecology 2004; 15(6): 1044–1045. DOI: 10.1093/beheco/arh107.

40. Nicholas M, Vlaeyen JWS, Rief W, Barke A, Aziz Q, Benoliel R, Cohen M, Evers S, Giamberardino MA, Goebel A, Korwisi B, Perrot S, Svensson P, Wang SJ, Treede RD. The IASP classification of chronic pain for ICD-11: Chronic primary pain. Pain 2019; 160(1): 28–37. DOI: 10.1097/j.pain.0000000000001390.

41. Nicola M, Correia H, Ditchburn G, Drummond P. Invalidation of chronic pain: a thematic analysis of pain narratives. Disability and Rehabilitation 2019; 0(0): 1–9. DOI: 10.1080/09638288.2019.1636888.

42. Pachankis JE. The psychological implications of concealing a stigma: A cognitive-affective-

behavioral model. Psychological Bulletin 2007; 133(2): 328–345. DOI: 10.1037/0033-2909.133.2.328.

43. Perneger T V. What’s wrong with Bonferroni adjustments. British Journal of Pain 1998; 316: 1236–1238. DOI: 10.1136/bmj.316.7139.1236.

44. Robinson ME, Wise E a. Gender bias in the observation of experimental pain. Pain 2003; 104(1–2): 259–264. DOI: 10.1016/S0304-3959(03)00014-9.

45. Rosseel Y. Lavaan: An R Package for Structural Equation Modeling. Journal of Statistical Software 2012; 48(2): 1–36. DOI: 10.18637/jss.v048.i02.

46. Rüsch N, Corrigan PW, Wassel A, Michaels P, Olschewski M, Wilkniss S, Batia K. Ingroup perception and responses to stigma among persons with mental illness. Acta Psychiatrica Scandinavica 2009; 120(4): 320–328. DOI: 10.1111/j.1600-0447.2009.01403.x.

47. Samulowitz A, Gremyr I, Eriksson E, Hensing G. “Brave Men” and “Emotional Women”: A Theory-Guided Literature Review on Gender Bias in Health Care and Gendered Norms towards Patients with Chronic Pain. Pain Research and Management 2018; 2018. DOI: 10.1155/2018/6358624.

48. Satorra A, Bentler P. A scaled difference chi-square test statistic for moment structure analysis. Psychometrika 2001; 66(4): 507–514. DOI: 10.1007/BF02296192.

49. Treede RD, Rief W, Barke A, Aziz Q, Bennett MI, Benoliel R, et al. Chronic pain as a symptom or a disease: The IASP Classification of Chronic Pain for the International Classification of Diseases (ICD-11). Pain 2019; 160(1): 19–27. DOI: 10.1097/j.pain.0000000000001384.

50. Turan JM, Elafros MA, Logie CH, Banik S, Turan B, Crockett KB, Pescosolido B, Murray SM. Challenges and opportunities in examining and addressing intersectional stigma and health. BMC Medicine 2019; 17(1): 1–15. DOI: 10.1186/s12916-018-1246-9.

51. VanAlboom M, DeRuddere L, Kindt S, Loeys T, Van Ryckeghem D, Bracke P, Mittinty MM, Goubert L. Wellbeing and Perceived Stigma in Individuals with Rheumatoid Arthritis and Fibromyalgia. The Clinical Journal of Pain 2021; 37(5): 349–358. DOI: 10.1097/AJP.0000000000000929.

52. Vervoort T, Trost Z. Examining Affective-Motivational Dynamics and Behavioral Implications Within The Interpersonal Context of Pain. Journal of Pain 2017; 18(10): 1174–1183. DOI: 10.1016/j.jpain.2017.03.010.

53. VonKorff M, Debar LL, Krebs EE, Kerns RD, Deyo RA, Keefe FJ. Graded chronic pain scale revised: mild, bothersome, and high-impact chronic pain 2020; 161(3). DOI: 10.1097/j.pain.0000000000001758.

54. Wasan AD, Wootton J, Jamison RN. Dealing with difficult patients in your pain practice. Regional Anesthesia and Pain Medicine 2005; 30(2): 184–192.

55. Waugh OC, Byrne DG, Nicholas MK. Internalized stigma in people living with chronic pain. Journal of Pain 2014; 15(5): 550.e1-550.e10. DOI: 10.1016/j.jpain.2014.02.001.

56. Wheaton B, Muthén B, Alwin DF, Summers GF. Assessing Reliability and Stability in Panel Models. Sociological Methodology 1977; 8: 84–136. DOI: 10.2307/270754.

57. Williams CDC. Defeating the stigma of chronic pain. Pain 2016; 157(8): 1581–1582. DOI: 10.1097/j.pain.0000000000000530.

58. Wilson Y, White A, Jefferson A, Danis M. Intersectionality in Clinical Medicine: The Need for a Conceptual Framework. American Journal of Bioethics 2019; 19(2): 8–19. DOI: 10.1080/15265161.2018.1557275.

59. Wirth JH, Bodenhausen G V. The role of gender in mental-illness stigma: A national experiment. Psychological Science 2009; 20(2): 169–173. DOI: 10.1111/j.1467-9280.2009.02282.x.