

The universal and culture specific character of basic psychological need satisfaction

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“I wanted only to try to live in accord with the promptings which came from my true self. Why was that so very difficult?”

— Hermann Hesse, *Demian*

“随处做主，立处皆真”

— 临济禅师，*临济录*

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Chapter 1

Culture-Specific and Universal Aspects of Basic Psychological Needs: A General Introduction

We are all familiar with the word “need”. A young person says he needs to be popular at parties and advertisements convince us that we need the product they sell. Yet, what do we exactly want to say when we claim that “we need something”? Does it mean that the needed object is an inherent necessity for our physical and psychological health or does the need reflect an acquired desire or preference that we have learned through interaction with the social environment? Are there fundamental psychological needs, whose satisfaction is functionally beneficial for human functioning across individuals and cultures?

The present dissertation aims to examine the culture-specific and universal aspects of the role of psychological needs, as postulated in a Self-Determination Theory (SDT, Ryan & Deci, 2000). We focused on three psychological needs, namely, autonomy, relatedness, and competence. After presenting how both perspectives conceive psychological needs, we outline the three main goals of the present dissertation.

First, we focus on autonomy because it is a complex construct that has been used as an umbrella term to denote different concepts in the cross-cultural and adolescent psychology literature (see review in Van Petegem, Vansteenkiste, & Beyers, 2013). Before examining whether the benefits of autonomy are culture-bounded or universal, it is critical to be aware of the conceptualizations of autonomy from both sides of the debate as to ensure that the debate is grounded in a shared understanding of the notion of autonomy. To this end, the present dissertation aimed to empirically

disentangle the two prevailing concepts and operationalizations of autonomy in the cross-cultural and motivational literature, that is, autonomy as independence and autonomy as self-endorsement.

Second, we examined in depth the presumed universal character of the psychological needs, that is, their functional role in predicting well-being (a) across interpersonal differences in the endorsement of collectivistic beliefs, (b) across diverse countries characterized by a particular cultural climate (i.e., China, US, Peru, Belgium, South-Africa), (c) across interpersonal differences in the desire for need satisfaction and (d) across interpersonal differences in experienced safety deprivation.

Third, we explore two culture-specific aspects of the psychological needs. That is, we examined whether a vignette, in which parents adopt a parental guilt-induction approach towards their children, would be differently interpreted by Chinese, relative to Belgian, adolescents. Second, we examined whether the coping reactions towards experienced need frustration would be culture-dependent. The dissertation ends with a general discussion that presents a summarizing overview of the findings, takes a helicopter viewpoint towards the findings, and aims to build a dialogue between the SDT-perspective and the mainstream cross-cultural viewpoint on psychological needs. Finally, the dissertation ends with a revisit to traditional West and East philosophy on this matter.

The Cultural-Relativistic View on Basic Psychological Needs

A cultural-relativistic perspective on psychological needs and wellbeing is consistent with a social-constructivistic perspective, wherein psychological processes are conceived as social construction or scripts that are largely shaped by the specific social-cultural contexts (e.g., Burr, 2003). From that perspective, what people psychologically need to flourish is contextual relative, malleable, and, hence, not “essentialistic” (e.g., Shweder et al., 1998; Tooby & Cosmides, 1992). In other words, this perspective understands needs as primarily acquired and shaped *preferences* through

social learning, that is, people learn to value or desire certain preferred ways of functioning or certain objects through demands, obstacles, and affordances available in the socio-cultural environment (e.g., Buttle, 1989; McClelland, 1965; Rist, 1980; Roy, 1980).

The frequently used dimensions of individualism-collectivism and interdependent versus independent selves refer to acquired culture-specific preferences (Markus & Kitayama, 1991; Triandis, 1995). Independent selves primarily prefer for an independent will with little reliance on influence from others whereas interdependent selves are featured by preference for engagement in social relationships and keep harmony (Markus & Kitayama, 1991; Triandis, 1995). Within this viewpoint, autonomy gets largely equated with independence, such as making independent decisions or personal choices without relying on others. Autonomy then represents a socially constructed value that individuals learn to emphasize and prefer in individualistic-oriented societies. Because collectivistic-oriented cultures socialize people more into group-based functioning, the development and pursuit of autonomy in such cultures would be largely constrained by the primary value of interdependence which may require conformity, mutual duty and loyalty.

Further, what people need to thrive from this perspective is culture-bounded as well. In fact, a “match perspective” can be evoked to understand why the satisfaction of acquired needs contributes to well-being. That is, it is the degree of attunement between individuals’ acquired preferences and their socio-cultural context that contributes to well-being (Kitayama, Markus, & Kurokawa, 2000; Oishi, Diener, Lucas, & Suh, 1999). Based on this reasoning, some theorists suggested that being autonomous would only be beneficial for those in individualistic societies, such as the middle class European American context, since being autonomous and acting independently is highly valued in that context (e.g., Iyengar & Devoe, 2003; Uchida & Kitayama, 2009). In contrast, individuals in the more collectivistic-oriented Asian context, for instance, would benefit not from

acting autonomously, but from being involved in caring and harmonious relationships, as they are socialized into a more interpersonal mode of functioning (Iyengar & Lepper, 1999; Uchida, Norasakkunkit & Kitayama, 2004).

In addition, the pursuit of autonomy, when defined as independence, is sometimes portrayed as being in contradiction with relatedness, when defined as interdependence, harmony and mutual assurance (Iyengar & Lepper, 1999; Goossens, 2006; Markus & Kitayama, 2003; Rothbaum & Trommsdorff, 2007). As far as people act independently, they would forego the development of harmonious social relationships and, hence, autonomy is supposed to be a potential pitfall and barrier for getting relatedness satisfaction, especially in collectivistic-oriented societies (e.g., Jordan, 1991; Rothbaum & Trommsdorff, 2007).

Empirically, Iyengar and Lepper (1999) found that independent decision making was most motivating for American children, whereas reliance on important others for making decisions was more motivating for Asian American children. Further, Oishi et al (1999) found that satisfaction with self and one's freedom was a significantly stronger predictor of life satisfaction in countries high, relative to these low, on individualism. Although coming more from a social-psychological perspective, Schwartz (2000) developed a similar argument by equating autonomy with the quantity of the given choice options. Specifically, he argued that such provided autonomy could be burdensome for at least some people, as it would bring chaos, paralysis or even tyranny. Markus and Schwartz (2010) further proposed that a vast number of choice options can especially be counterproductive for non-Western cultures and among working-class Western people.

The emphasis on interdependence over autonomy is supposed to be maximized in parent-child relationships by parents' frequent guidance, consultation, and even intrusion into children's private life, as reflected in cross-cultural studies about parenting (e.g., Triandis, Bontempo, Villareal,

Asai, & Lucca 1988). Some theorists suggested that authoritarian or controlling parenting would not be harmful for children from relatively collectivistic societies, because sustaining harmonies, including acceptance of hierarchy and conformity are adaptive socialization strategies for them to be an interrelated co-agent with others (Chao, 1994; Dornbusch, Ritter, Leiderman, Roberts, & Fraleigh, 1987). Yet, the empirical relationships between controlling parenting and children's developmental outcomes have been less consistent. On one hand, a number of cross-cultural studies found that the effect of controlling parenting was less negative or even absent in Eastern Asian cultures (e.g., Bugental & Grusec, 2006; Chao, 1994; Dornbusch et al., 1987; Iyengar & Lepper, 1999). On the other hand, with the continuous clarification of the conceptualization of controlling parenting, more studies have reached the consensus about the detrimental effect of controlling parenting in both Western and Eastern societies (e.g., Soenens, Park, Vansteenkiste, & Mouratadis, 2012; Wang, Pomerantz, & Chen., 2007).

Still, a number of arguments have been forwarded why certain components of controlling parenting, such as guilt-induction – which is the central topic in Chapter 5 of the current dissertation - may be less detrimental in collectivistic-oriented cultures (Park & Kim, 2004). First, the reasoning is that parental guilt-induction is based on the interpersonal obligation that parental love and appreciation need to be deserved in exchange for children's compliance with parental expectations. The use of guilt promotes morality and filial piety and is said to be conducive to relational closeness in a society in which an interdependent orientation prevails (Kim, Yang, & Hwang, 2006). Second, because parental guilt-induction occurs more often in Asian societies, children would adapt better to it, making it a less harmful practice (Rudy & Halgunseth, 2005). Thus, the normative character of guilt-induction would alter its effects.

To sum up, this brief overview indicates that what is needed for people to thrive according to the cross-cultural relativistic perspective

largely depends on cultural socialization. As collectivists in general and Asians in particular have developed a less strong preference for autonomy, they would benefit less (or even not) from acting autonomously. Besides, striving for autonomy as independence would potentially conflict with building harmonious relations. Finally, controlling parenting, and especially the more subtle forms like guilt-induction which emphasizes the value of conformity and mutual obligation, would not be harmful to children in a relatively collectivistic society.

The Self-Determination Theory Perspective on Psychological Needs and Well-being

Instead of viewing people's psychological functioning as a mere reflection of social constructions, an organismic-dialectical perspective, as echoed in the Self-Determination Theory perspective (Deci & Ryan, 2000; Ryan & Deci, 2000) embraces the assumption that, by nature, people have an inherent tendency to be active and, through ongoing activity, to move towards increasing levels of integrity and psychological growth. Although this tendency could be supported by social-contextual factors, it can also be suppressed by the environment which would leave people vulnerable to ill-being and psychopathology (Vansteenkiste & Ryan, in press).

SDT proposes three basic psychological needs, namely, autonomy, relatedness and competence, whose satisfaction functions as a fundamental nutrient that energizes the integration process and contributes to health and psychological well-being. In contrast, need thwarting is said to relate to defensiveness, ill-being, and even pathology (Ryan & Deci, 2000; Deci & Vansteenkiste, 2004). Moreover, basic psychological needs are considered to be essential and universal necessities for wellness rather than only acquired through social learning.

In brief, competence refers to feelings of confidence and effectance to reach desired goals and to express one's capabilities (Deci, 1975; White, 1959). Relatedness refers to the feeling of genuine connection with others, to

careg for and being cared by others (Baumeister & Leary, 1995; Bowlby, 1979; Ryan, 1995). It not merely concerns interdependence, mutual duty and obligation or a high quantity of social connections, but the authentic sense of mutual acceptance and support (Kasser & Ryan, 1999). Finally, autonomy, the most debated and studied need in SDT, refers to the experience of volition and the full willingness, which stems from acting upon authentic values and interests (Deci & Ryan, 1985; Ryan & Deci, 2006). When the autonomy need gets frustrated, people feel controlled through either environmentally prescribed or self-imposed pressures.

Empirically, the link between satisfaction of the three psychological needs and various well-being indicators (e.g., positive affect, vitality) has been observed at (a) the intrapersonal level, thereby showing that day-to-day fluctuations in well-being co-vary with daily fluctuations in the satisfaction of the basic psychological needs (e.g., Ryan, Bernstein, & Brown, 2010); (b) at the between-personal level, with those individuals reporting higher psychological needs satisfaction feeling better about themselves (e.g., higher self-esteem, less self-defensiveness, Deci et al., 2001; Hodgin, Yacko, & Gottlieb, 2006) and their lives in general (e.g., life satisfaction, Kasser & Ryan, 1999). Such findings have been reported in diverse life domains, including work, exercising, education and health care to name a few, and a rapidly growing body of studies have provided evidence for the critical role of basic psychological need satisfaction across nations and cultures (for a review, see Ryan & Deci, 2012; Vansteenkiste, Niemiec, & Soenens, 2010).

With the definition of autonomy as volition and relatedness as authentic and caring connections, SDT proposed that these two needs are not contradictory but complementary to each other, such that their satisfactions could be mutually reinforcing (Ryan, Deci, Grolnick, & La Guardia, 2006). In other words, one typically feels authentically related and trust towards another person when one experiences the psychological freedom to be oneself in that relationship (Reis & Shaver, 1988; Ryan & Connell, 1989). Consistent with this, La Guardia, Ryan, Couchman and Deci (2000)

examined secure and insecure attachment in multiple social partners (mother, father, romantic partner and best friend) of college students. Across three studies, they found that feeling autonomous in a relationship was an important predictor of attachment security for that relationship. Along similar lines, study showed that college students' provision and receipt of autonomy support in friendships both uniquely related to friendship quality (Deci, La Guardia, Moller, Scheiner, & Ryan, 2006). Although autonomy and relatedness are conceived as being complementary, this does not preclude the possibility that both needs get pitted against each other, yet, doing so is expected to yield a cost for the relationship. For instance, when parents offer conditional regard, which involves parents making their love and appreciation contingent upon the child meeting their expectation, the child basically feels that the appreciation and love needs to be deserved. Such contingent regard may come at the cost of children's volition and even provoke resentment towards parents (Assor, Roth, & Deci, 2004).

Beside, relatedness satisfaction could also facilitate autonomy satisfaction. In attachment theory, Bowlby (1969, 1973) suggested that a secure attachment could offer a secure base for infant to explore environment with interests. A recent longitudinal study investigated this dynamics with adolescents and found that insecure attachment (i.e., anxiety and avoidance) was related with controlled motives in family decision making, further suggesting that adolescents' embeddedness in secure relationship could also facilitate growth of autonomy (Van Petegem, Beyers, Brenning, & Vansteenkiste, in press). Besides, from the SDT perspective, support for relatedness in one context can facilitate intrinsic motivation in that context. Empirically, study found that when children worked on an activity with an experimenter who ignored their attempts to interact, the children showed a low level of intrinsic motivation in the activity (Anderson, Manoogian, & Reznick, 1976). Studies also showed that students displayed higher intrinsic motivation when they experienced their teachers as warm and caring (Ryan & Grolnick, 1986; Ryan, Stiller, & Lynch, 1994). Besides,

SDT also propose that it is easier for people to internalize the values and goals from those others that they feel relatedness with. Yet, the degree of internalization could be limited to introjection or unintegrated identifications when only relatedness support but not autonomy support is available (Deci & Ryan, 2000). One study indirectly confirmed this proposal by showing that in the sports context, supporting relatedness satisfaction of the exercise practitioner especially related with introjected regulation of the exercise behavior positively (Markland & Tobin, 2010).

Within SDT, autonomy both concerns an experiential state (as reflected in autonomy need satisfaction) and a motivational force underlying a specific behavior (i.e., the reasons why one does certain behaviors; Ryan & Deci, 2006; Vansteenkiste, Niemiec, & Soenens, 2010). Specifically, SDT specifies different types of motives behind one's actions that vary in their relative degree of autonomy. These different motives are distinguished on the extent to which reasons for acting have been "taken in" or internalized (Deci & Ryan, 1985; Ryan & Connell, 1989). The more the behavioral regulation has been internalized, the more it is experienced as autonomous or self-endorsed. The least internalized type is *external regulation*, in which case the behavior is motivated by external pressures, such as meeting demanding external expectations, avoiding punishments, or obtaining controlling rewards. *Introjected regulation* reflects partial internalization, as the behavior is motivated by internal pressures, such as the desire to boost one's ego or the avoidance of negative self-feelings such as shame or guilt (Assor, Vansteenkiste, & Kaplan, 2009). The word "introjections" derived from the Latin words 'intro' & 'jacere', which means to 'throw' & 'inside', without "digestion" (see Vansteenkiste, Niemiec, & Soenens, 2010). Although an introjected motive stems from an internal impetus, it still has the phenomenological experience of pressure and obligation, as the person is dictated by the feeling that one "should" engage in the behavior (Ryan & Deci, 2011). Thus, an introjected motive also represents a controlled type of functioning. A fuller degree of internalization occurs in the case of *identified*

regulation, in which case the reasons underlying actions are accepted as personally meaningful and valuable. In other words, the behavior is in line with one's personal values and convictions, and therefore reflects self-endorsed functioning. Finally, *integrated regulation* represents the highest level of internalization as individuals fully assimilate the regulation such that it becomes congruent with their values and preferences.

Further, it is important to highlight that any given behavior can be energized by more than one of these motives. For instance, teenagers might both identify with the value of an action and also want to avoid guilt feelings or making a good impression on others by engaging in the activity (Deci & Ryan, 2012; Gillison, Osborn, & Standage, & Skevington, 2009). In fact, the observation that a mix set of motives can underlie people's behavior had led SDT-scholars to search for individuals characterized by a particular motivational profile, that is, a particular combination of motives characterizing their activity engagement (e.g., Vansteenkiste, Sierens, Soenens, Luycks, & Lens, 2009).

Further, SDT researches have assumed and found that unmet needs typically result from a controlling social environment (e.g., Deci & Ryan, 2012). A typical example of a proximal controlling environment is a controlling family climate, which is characterized by the pressuring placed on children to think, feel, or behave in specific ways, for instance, through the use of coercive language or seductive demands (Deci & Ryan, 2000; Soenens & Vansteenkiste, 2010). In contrast, autonomy-supportive parenting is characteristic of parents who promote volitional functioning and self-endorsement in their children by encouraging initiative, providing choices, taking the child's perspective, and providing a meaningful rationale when introducing a request (Grolnick, Deci, & Ryan., 1997; Soenens et al., 2007). An autonomy supportive context nurtures the need for autonomy. In addition, when one gives autonomy support which involve perspective taking, one will be more sensitive to what the other people need and mindful of the obstacles to the satisfaction of the other's needs (Ahmad, Vansteenkiste, &

Soenens, 2013; Deci, Ryan, 2012). Accumulating evidences have shown that in both Western and Eastern societies, controlling parenting contribute to children's internalizing and externalizing problems (e.g., Barber, Stolz, & Olsen, 2005; Soenens, Luyckx, Vansteenkiste, Duriez, & Goossens, 2008). For instance, Joussemet and colleagues (2008) found that after controlling for a number of risk factors for being aggressive—among them being male, having reactive temperament et al., controlling parenting was a robust predictor of the odds of following an aggressive trajectory.

Compared with the cultural relativistic perspective on the construction and function of psychological needs, SDT take a perspective of moderate universalism (Berry, Poortinga, Segall, & Dasen, 2011). On one hand, SDT recognizes that there surely exist cultural and individual differences in how people value or desire for the need, how people satisfy a need through different behavioral means and how they perceive a contextual event to be controlling and need frustrating . Moreover, there could be also variation in how people compensate or cope with the need frustration experiences. Yet, these issues have received very little attention in the SDT-literature and therefore receive more attention in the present dissertation. Note that the manifestation of these cultural differences in value and behavioral practices does not imply that there cannot exist a shared underlying psychological process in which people benefit from the psychological need satisfaction (Deci & Ryan, 2000; 2012). Whereas most of the SDT researches have focused on this functional process of need satisfaction, the present dissertation aims to extend previous work by paying attention to both the universal and culture-specific aspects of basic psychological need satisfaction.

Goals of the Dissertation and Overview of the Empirical Chapters

Given the current state of affairs in the literature on adolescent autonomy, we identified four general gaps which we aimed to address throughout the dissertation. The gaps and the goals are outlined below.

Aim 1: Empirical Separation of Distinct Conceptualizations of Autonomy

The functional role of autonomy across cultures has been a popular and debated topic (e.g., Oishi et al., 1999; Iyengar & Devoe, 2003). Unfortunately, part of this debate is rooted in conceptual confusion. From the perspective of social constructivism (e.g., Markus & Kitayama, 2003; Miller, 1997), autonomy is often understood as independence from external influence. This definition thus assumes that when one fits in with the group or follows the guidance of significant socialization figures (e.g., parents, teachers), one is by definition lacking autonomy. Yet, this does not need to be the case. Such a conclusion can, however, only be drawn if one no longer defines autonomy as the absence of external influences, but as the self-endorsement of an action, no matter actions involves independent decisions making or complying with an external influence. In other words, both independent and dependent functioning can vary in their level of self-endorsement, such that the two mentioned viewpoint on autonomy can be crossed and meaningfully linked. As a result, four different combinations emerge, which are self-endorsed independence, controlled independence, self-endorsed dependence and controlled dependence (Beyers, Goossens, Vansant, & Moors, 2003; Van Petegem, Vansteenkiste et al., 2013).

Specifically, autonomy as self-endorsement concerns “why” a certain action is undertaken, regardless of the action being independent or dependent. So self-endorsement is not restricted to “independent” initiatives. It is possible that one’s actions are largely determined by external input, yet to the extent one wholeheartedly consents to these external inputs, one maintains a sense of volition. For instance, if one is doubting where to spend her holiday one might ask other family members’ opinion and just love to go where they love to go or feel pressured to follow their advice. In this case, one is, respectively, willingly dependent or forced into dependence. Along the same line of reasoning, pressured functioning, as the opposite to self-

endorsed functioning, can be combined with independent behaviors. For instance, a PhD student might feel that he is solving a certain problem by himself because his advisor does not offer any help and guidance or because he likes to find out things by himself and considers the problem to be a challenge. In these cases, the PhD student is, respectively, forced into independence or is acting willingly independent. Although there has been some preliminary evidence for the distinction between both viewpoints in Western samples (Van Petegem, Vansteenkiste et al., 2013), this question has not been addressed yet among a sample of adolescents growing up in a collectivistic-oriented society. This leads us to formulate the first research question:

Research Question 1: Can the two conceptualizations of autonomy be meaningfully differentiated and do they carry a different function? We have argued that it is critical for researchers to be more exact in applying the concept of autonomy, before arguing for its functional significance cross-culturally. Therefore, the first aim of the present dissertation is to clarify this conceptual fuzziness by empirically separating and combining the two viewpoints of autonomy. This research question was addressed in the family context in **Chapter 2** in a sample of Chinese adolescents. To index autonomy as independence, we focused on one particular manifestation of independence, that is, adolescents' independent decision making in the family. This aspect of independence already gained considerable attention in the cross-cultural and developmental literature (e.g., Iyengar & Lepper, 1999; Smetana, Campione-Barr, & Daddis, 2004). To index autonomy as self-endorsement, in line with SDT, we measure the different motives reflecting the degree of internalization of the independence and dependence in decision making (Van Petegem, Beyers, Vansteenkiste, & Soenens, 2012). We examined whether both operationalizations of autonomy can be differentiated and how both are associated with Chinese adolescents' general psychological need satisfaction and well-being.

Aim 2: How Universal is the Beneficial Role of Basic Psychological Need Satisfaction?

Having gained more exact insight in the definition of autonomy, we are now in a better position to examine the universality claim, maintained within SDT, which constitutes the second aim of this dissertation. What SDT authors have continuously emphasized is the underlying process of phenomenological experience of need satisfaction, which is said to promote psychological health and this process is theorized to be universal (Deci & Ryan, 2002). In line with this, accumulating cross-cultural evidence indicates that individuals living in both Western and non-Western countries benefit from the satisfaction of all three psychological needs (see review in Deci & Ryan, 2000). This has been found in countries with varying cultural foci, including more collectivistic nations such as Jordan (Ahmad et al., 2013), China (Vansteenkiste, Lens, Soenens, & Luyckx, 2006), and South Korea (Jang, Reeve, & Ryan, 2009). Besides, several multi-country studies (e.g., Church et al., 2012; Sheldon, Elliot, Kim, & Kasser, 2001; Tay & Diener, 2011) also observed the positive link between the three needs and well-being.

Yet, this body of work had a number of caveats. First, some of the measures used to tap need satisfaction in some of these multi-culture studies have not been directly grounded in the conceptualization of needs in the SDT literature (e.g., Tay & Diener, 2011). Second, none of previous multi-country studies has tested the measurement equivalence of the basic needs (e.g., Sheldon et al., 2001; Tay & Diener, 2011). Therefore, to draw any formal conclusion about the presumed “universality” of the functional role of need satisfaction, at least two supplementary cross-cultural issues need to be sorted out. First, we need to demonstrate that the items used to indicate need satisfaction carry the same meaning for individuals from diverse cultures. Second, to make it clear to which degree individuals in different cultures benefit from psychological need satisfaction, we need to directly

compare the strength of the relations of need satisfaction to well-being across cultures. These observations led us to formulate research question 2:

Research Question 2: Are the relations between satisfactions of basic psychological needs and well-being will any different across cultures? We investigate Research Question 2 in two steps. First, in **Chapter 3**, we investigated whether psychological need satisfaction would relate to well-being in four diverse countries, which are located on different continents, that is, Belgium, China, Peru and the US. To this end, we began with developing a new basic psychological needs scale that taps into both satisfaction and frustration of the three needs. After providing factorial evidence for the scale, we examined the measurement equivalence across the four country groups. Finally, we examine whether the associations between satisfaction of the three needs and well-being would differ across the four countries. Additionally, we control for people's satisfaction with their financial and health conditions, as well as their family income, given these have been found to relate to psychological well-being across nations (e.g., Diener, Diener, & Diener, 2009).

Given that countries do not represent monolithic cultural blocks, but there substantial within country variation in the value of collectivism (Kagitcibasi, 1997; Oyserman, Coon, & Kemmelmeier, 2002), we also examined the universality claim in SDT by exploring whether people with a relatively more collectivistic orientation would benefit differently from psychological need satisfaction, compared with those with a less collectivistic orientation. This issue was explored in chapter 2.

Research Question 3: Are the relations between satisfaction of basic psychological needs and well-being moderated by individual differences in desire for satisfaction of the needs? A third aim of the dissertation was to investigate the individual variation in the degree to which people would benefit from the satisfaction of the basic needs. The proposed universality of the psychological needs in SDT does not exclude the possibility of individual variability in the extent to which people value or

desire the needs (Deci & Ryan, 2000). Indeed, this observation very much fits with the social-constructivistic viewpoint, which maintains that people learn to value different goals or needs through the demands, obstacles, and affordances that they encountered in the specific social environment (Berry et al., 2011; McClelland, 1965). According to the social constructivistic perspective, the observed variability in people's desire for need satisfaction raises the question whether people would only benefit from what they value or desire (e.g., Hofer & Busch, 2011; Kitayama, Markus, & Kurokawa, 2000). In other words, if individuals develop a stronger desire for a particular need, would they benefit more from the satisfaction of this need, as compared to people displaying a lower desire for the need? On the other hand, if satisfaction of the psychological needs for autonomy, relatedness and competence represent universal nutriments, according to SDT, every person would benefit from the satisfaction of them, even those who express a low desire for them. Thus, one other way to test the universality of the needs is to examine whether the relations between satisfaction of the needs and well-being would depend on the individuals' desire for the need satisfaction. We explore this in **Chapter 3**.

Research Question 4: Does psychological needs matter when financial and environmental safety are at risk? The broader cultural context includes more than merely cultural values, but also societal conditions, such as the economics existence, poverty as opposed to affluence and social policy. All these societal forces could be directly related to or interact with psychological needs to impact upon individuals' psychological functioning. One way to understand the role of these broader societal factors is through the concept of the need for physical safety, which means the need to prevent risks to physical sustenance and survival (Maslow, 1954). Living in an unsafe environment without protection – where delinquency, corruption, violence, and lawlessness are common, threatens people's perceived safety (e.g., Shields & Wheatley Price, 2005). Living in poverty such as with low income can also threaten people's financial safety to get

sufficient material resources for survival. Maslow (1943), in his model on the hierarchy of needs, maintained that the deprivation and striving for this basic need for safety may lead people to overlook their psychological needs. One way to interpret this proposal is that the effect of psychological need satisfaction may be constrained by deprivation of a safety need. In other words, individuals who perceive relative more deprivation in their need for safety would benefit less from the satisfaction of psychological needs, compared with those who perceive less deprivation in safety, suggesting that safety plays a moderating role in the association between psychological need satisfaction and well-being.

The aim of **Chapter 4** is to test the function of psychological need satisfaction in contexts with relatively more threats to financial safety (Study 1) or environment safety (Study 2). First, we examine whether the satisfaction of the three psychological needs would have unique contribution to well-being beyond and above the satisfaction of the need for safety. Second, we examine whether the relations between psychological need satisfaction and well-being depending on the degree to which the need for safety is satisfied.

Aim 3: Are there Cultural Variations in the Perception of Parental Guilt Induction and Coping towards Need Frustration?

Although people are under influence of embedded social contexts, it is individual who actively interpret or construe the meaning of social contextual inputs (e.g., Kelly, 1963). Indeed, as maintained in SDT, contextual events, including parental behaviors, can be experienced in different ways because the behaviors come to have different meanings in accordance with culturally endorsed values and practice (Deci & Ryan, 1987; Ryan & Deci, 2006). A similar suggestion that people's interpretation of potentially controlling behavior may differ depending on one's specific cultural context has been forwarded by a number of scholars (e.g., Darling & Steinberg, 1993; Mason et al., 2004; Rohner & Pettengill, 1985). One typical

example could be parental guilt induction, which is considered to be a more controversial form of controlling parenting from the cross-cultural perspective. Some scholars argue that it has a positive connotation because it is supposed to indicate morality and filial piety to promote relational closeness in a society with interdependent orientation (Azuma, 1984; Fung & Lau, 2012; Park & Kim, 2004). So it seems possible that Asian children may perceive guilt-induction to be less controlling than European American children. To the best of our knowledge, no study has directly investigated whether perceptions of parents' guilt induction (in terms of perceived control, need frustration, and resentment) differ cross-culturally.

Moreover, guilt induction is suggested to be not detrimental in East Asian societies since it is considered more appropriate and normative there (Kim et al., 2006). One study by Rudy and Halgunseth (2005) indeed showed that guilt induction not only happens more often in a collectivistic culture but also that, contrary to findings obtained in a sample from an individualistic culture, guilt-induction was unrelated to maladaptive maternal cognitions. On the other hand, the lack of maladaptive effects of guilt induction seems to be controversial with other emerging and increasingly convergent evidence that document the negative effect of controlling parenting across cultures (e.g., Barber et al., 2005).

Research Question 5: Are there cultural differences in the perception of the situation of parental guilt-induction? To better understand the functional role of guilt induction across cultural contexts, it could be important to separate the objective situation of guilt induction and the subjective perceptions of such situation. Whereas associations between the objective situation of parental guilty induction and the perceived control in this situation might be different across cultures, the link between perceived control and maladjustment could be relatively invariant across cultures. In other words, by separating objective parental behaviors from subjective perceptions of these behaviors we may be able to reconcile

cultural-specific and universal perspectives in the process of how people get influenced in a guilt inducing situation.

In **Chapter 5**, we thus first investigate to which extent Belgian and Chinese adolescents perceive a situation in which a parent is guilt inducing to be controlling, compared to generally controlling and an autonomy-supportive situation. Further, we also investigated how the perceived control relate to the perceived need frustration and resentment towards parents in these situations.

Research question 6: Are there cultural differences in the coping towards the negative experience of perceived controlling parenting? The last but also interesting question is whether there are any cultural differences in people's coping with frustration of the needs? Despite the universalistic perspective of SDT that people all suffer from frustration of the basic needs, people in different cultures could differ in how they tend to cope with or react to those negative experiences. Compared to the widely documented negative correlates and developmental outcomes of controlling parenting, very limited attention has been paid to individual and cultural differences in how adolescents cope with controlling parenting that leads to need frustration.

In **Chapter 5**, we investigate three types of coping strategies that have been articulated in Skinner's coping theory, that is, oppositional defiance, compulsive compliance and negotiation (Skinner & Zimmer-Gembeck, 2007). Although there is no direct evidence about how cultural contexts influence these coping styles, one might expect that individuals from relatively collectivistic contexts have greater tendency to adopt compulsive compliance to maintain at least the superficial harmony that is expected in such cultural contexts. In contrast, individuals from relatively individualistic societies might have a greater tendency for defiance to defend their individual position at the cost of offending the others. Yet we did not have explicit hypotheses about the role of negotiation, so we examined cross-cultural differences in negotiation in a more explorative fashion.

Table 1

Overview of the Empirical Studies

Chapter	Studies	Total <i>N</i>	Design	Average Age (years)	Gender (% boys)	Country	Analytical techniques
Chapter 2	Study 1	573	Cross-sectional	16.1	48%	China	CFA; SEM; multigroup
Chapter 3	Study 2	1051	Cross-sectional	20.0	27%	Belgium, China, Peru, United States	CFA; regression; SEM; multigroup
Chapter 4	Study 3	224	Cross-sectional	24.1	55%	South Africa	Regression
	Study 4	357	Cross-sectional	40.1	48%	China	Regression
Chapter 5	Study 5	657	Vignette-based	15.1	45%	Belgium, China	MANOVA; SEM; multigroup

Note. CFA = confirmatory factor analysis, SEM = structural equations modeling, MANOVA = multivariate analysis of variance.

Chapter 2

Autonomy in Family Decision-Making for Chinese Adolescents: Disentangling the Dual Meaning of Autonomy¹

The present study focused on the function of autonomy for individuals from a collectivistic culture, thereby differentiating between two prevailing conceptualizations of autonomy as independence and autonomy as self-endorsed functioning. Participants were 573 Chinese adolescents. Autonomy as independence (versus dependence) was operationalized as the degree of independent decision making within the family, whereas autonomy as self-endorsed (versus controlled) functioning was operationalized in terms of the degree of self-endorsement reflected in motives underlying both independent and dependent decision making. Basic psychological need satisfaction was examined as an explanatory mechanism (i.e., mediator) of the association between autonomy and well-being. Results showed that relatively more self-endorsed motives for both independent and dependent decision making yielded a unique positive relation with psychological well-being, with psychological need satisfaction playing an intervening role in these associations. In contrast, the degree of independent decision making as such did not yield any significant relations with well-being or need satisfaction. Moreover, individual differences in collectivistic cultural orientation did not moderate any of the above associations. Discussion focuses on the distinction between the two viewpoints of autonomy and their meaning for Chinese adolescents.

¹ Chen, B., Vansteenkiste, M., Beyers, W., Soenens, B., & Van Petegem, S. (in press). Autonomy in family decision making for Chinese adolescents: Disentangling the dual meaning of autonomy. *Journal of Cross-Cultural Psychology*. doi: 10.1177/0022022113480038

Introduction

For decades now, the construct of autonomy has received attention in diverse fields of psychology, including developmental (e.g., Zimmer-Gembeck & Collins, 2003), cross-cultural (e.g., Kagitçibasi, 2005) and personality psychology (Ryan & Deci, 2006). Yet, the question of how to define and measure autonomy exactly and whether it yields adjustment benefits is not resolved. One of the main problems concerns the conceptual confusion regarding the construct of autonomy, with theorists defining autonomy in different ways and, as a consequence, drawing different conclusions about the “same” construct. This problem further increases by the fact that prevailing operationalizations of autonomy often fail to match the proposed concept of autonomy. Indeed, although several measures are said to tap into autonomous functioning, they relate sometimes barely or even negatively to each other. Such confusion seems almost as old as the discipline of psychology itself, and is referred to as the “jingle-jangle fallacy” (Marsh, 1994), with the jingle fallacy pertaining to the belief that scales with the same name measure the same construct (Thorndike, 1904) and the jangle fallacy relating to the assumption that two scales with different names measure different constructs (Kelley, 1927).

Two decades ago, Ryan and Lynch (1989) already argued that the construct and measurement of autonomy needs clarification. In spite of this call, it seems that even experts in the field sometimes have a hard time to see the wood for the trees. Therefore, the first aim of the present study was to gain insight in the multitude of meanings of autonomy by examining the structure underlying a broad range of autonomy measures that tap into both healthy as well as dysfunctional types of autonomy. Specifically, based on theorizing and recent empirical research (e.g., Ryan & Deci, 2006; Vansteenkiste, Zhou, Lens, & Soenens, 2005), we tested whether the variation in autonomy measures can be captured by two underlying dimensions, that is, autonomy when defined as independent versus dependent functioning and autonomy when defined as volitional versus

pressured functioning. The second goal of the study was to relate these retained dimensions to several indicators of psychosocial functioning, including subjective well-being, problem behavior and attachment to the parents.

Autonomy as Independence

Individualism versus collectivism is an important dimension to describe cultural differences. This dimension refers to differences in the extent to which independent or rather interdependent self-construals are more salient (Markus & Kitayama 1991; Triandis, 1990). When adopting an independent self-construal, people value the importance of choosing actions independently and of making decisions without relying on others. In the present investigation, we will focus on one specific manifestation of independence in adolescence, that is, independent decision-making (Goossens, 2006), which refers to adolescents making choices by themselves, that is, without the parents' involvement.

Adolescents living in an individualistic society would typically learn through socialization to view personal decisions as a unique expression of themselves, thereby preferring to proactively make independent decisions to assert their autonomy (Iyengar & Lepper, 1999; Markus & Kitayama, 2003). By contrast, the development of autonomy in collectivistic cultures is supposed to be constrained by the primary task of interdependence. Due to the cultural priority to establish satisfying relationships and to maintain harmony, youngsters would primarily learn to take into account the perspective and preferences of in-group members when making decisions. In a family context, for instance, adolescents may more frequently consult parents before making a decision or they may comply with parents' preferences and advice, thereby allowing parents to decide for them. Consistent with this viewpoint, a number of studies have shown mean-level differences in independent functioning between individuals from Asian and Western societies (Oyserman, Coon, & Kemmelmeier, 2002). Similarly,

Chao and Tseng (2002) cited more than 20 studies that found greater exercise of parental authority and less promotion of independence in Asians (i.e., Chinese, Indians, Filipinos, Japanese and Vietnamese) than Caucasians. These findings confirm that dependence on the parents is more prevalent in collectivistic cultures.

Apart from these observed mean-level differences, some cross-cultural psychologists claim that autonomy as independence is unlikely to yield a beneficial effect for people raised within a collectivistic culture (Iyengar & DeVoe, 2003; Markus & Kitayama, 2003). One reason for this is that the pursuit of independence may conflict with the cultural focus on relatedness and conformity, which would create inner tension, thereby undermining well-being (Sagiv & Schwartz, 2000). There exists some evidence for this hypothesized moderating role of ethnic context. For instance, among European-American adolescents dependent decision-making was associated with less psychosocial well-being, whereas among African-American adolescents the same style of decision-making related to better adjustment (Lamborn, Dornbusch, & Steinberg, 1996). Along similar lines, Iyengar and Lepper (1999) found that independent decision-making was most motivating for Anglo-American children, whereas the dependent decision-making by important others (mother or classmates) was more motivating for Asian American, compared to Anglo-American, children. The authors interpreted this result as evidence that Asian American children are less motivated in situations that highlight autonomy, as manifested by independent decision-making.

Autonomy as Self-Endorsement

Within the framework of SDT, autonomy is not defined as independence but as self-endorsement. Self-endorsement implies that one fully concurs with the reasons or motives underlying one's actions, such that one's actions are grounded in authentic values and interests (Deci & Ryan, 2000). In other words, it refers to a full willingness to engage in one's

behavior and to personally endorse one's choices, expressed in experiences such as "I want to do this". The opposite of self-endorsement is controlled functioning, where one feels pressured or forced into a certain action, either by environmentally prescribed or self-forced demands, expressed in experiences such as "I feel coerced to do this".

To index the relative degree of self-endorsement, SDT specifies different types of motives behind one's actions. These different motives are distinguished on the basis of the extent to which one's reasons for acting have been "taken in" or internalized (Deci & Ryan, 1985; Ryan & Connell, 1989). The more the behavioral regulation has been internalized, the more it is experienced as autonomous or self-endorsed. The least internalized type is an *external* motive, in which case the behavior is motivated by external pressures, such as meeting demanding expectations, avoiding punishments, or obtaining rewards. An *introjected* motive reflects partial internalization. In this case, the behavior is motivated by internal pressures, such as the desire to boost one's ego or the avoidance of feelings of shame, guilt and anxiety (Assor, Vansteenkiste, & Kaplan, 2009). Although an introjected motive stems from an internal impetus, it still has the phenomenological experience of pressure and obligation, as the person is dictated by the feeling that one "should" engage in the behavior (Ryan & Deci, 2011). Thus, an introjected motive also represents a controlled type of functioning. A fuller degree of internalization occurs in the case of an *identified* motive, where actions are accepted as personally meaningful and valuable. In other words, the behavior is in line with one's personal values and convictions, and therefore reflects self-endorsed functioning. An integrated motive represents the highest type of internalization as individuals fully assimilate the regulation such that it becomes congruent with other values and preferences. Because integration requires a high level of self-reflection and introspection, and the mid-adolescents that participated in the present study may not have sufficiently developed these capacities yet (Harter, 2003; Ryan & Deci, 2012), we did not assess integrated regulation in the current study.

Consistent with the idea that these motives fall along a continuum of increasing internalization, Ryan and Connell (1989) found that motives next to each other on the continuum (e.g., external and introjected) correlated more strongly than motives situated further apart (e.g., external and identified). Further, also the pattern of correlates with external outcomes was reflective of a simplex pattern, with correlates with well-being and proactive coping becoming gradually more positive when moving along the continuum. Based on this ordered patterns of associations, different weights can be assigned to each motive depending on their location on the continuum as to derive a composite score. This score has been labeled the Relative Autonomy Index (RAI; e.g., Ryan & Connell, 1989) in case all motives were assessed and the Relative Internalization Index (RII; Neyrinck, Vansteenkiste, Lens, Duriez & Hutsebaut, 2006) in case the assessment was limited to the extrinsic motives, varying in their level of internalization.

Since the specification and operationalization of these motives, dozens of studies have examined their correlates across various (mainly Western) age groups and across a variety of life domains, including education, identity development, physical activity, and health care (see Vansteenkiste, Niemiec, & Soenens, 2010 for an overview). In these studies, higher degrees of self-endorsed, as opposed to controlled, functioning were consistently found to be linked with better psychosocial functioning. Further, several studies have confirmed that a higher degree of self-endorsement is also functionally important in Eastern Asian countries. For instance, Tanaka and Yamauchi (2000) found in a sample of Japanese undergraduate students that identified motives are positively associated with mastery orientation, deep-level processing and academic achievement, whereas introjected and external motives were related to a higher dropout rate and ill-being. Subsequent studies among Taiwanese and South-Korean (Sheldon et al., 2004), Russian and Turkish (Chirkov, Ryan, Kim, & Kaplan, 2003), Brazilian (Chirkov, Ryan, & Willness, 2005) and Chinese participants living in cities (e.g., Vansteenkiste, Zhou, Lens, & Soenens, 2005) and rural areas

(e.g., Zhou, Ma, & Deci, 2009) extended these initial findings, showing that higher self-endorsement relates to better psychological functioning and task performance across nations.

According to SDT, the reason why self-endorsement and psychological well-being are deeply connected is because self-endorsement facilitates the satisfaction of the basic psychological needs for autonomy, relatedness, and competence (Ryan & Deci, 2011). These needs are considered innate “psychological nutriments” that all humans across cultures require for thriving (Ryan, 1995; Sheldon, Elliot, Kim, & Kasser, 2001). In brief, autonomy refers to the experience of a sense of volition and psychological freedom, relatedness involves the feeling of connectedness with the persons one cares about, and competence entails the feeling of effectiveness to overcome challenges and to achieve desired outcomes.

When acting upon one’s personal convictions and values, as in the case of identified regulation, people’s behavior will be accompanied with a sense of volition and psychological freedom (Ryan & Deci, 2000). Interestingly, self-endorsed functioning and the support of it also contributes to relatedness satisfaction, for instance, as expressed in high quality romantic relationships (La Guardia, Ryan, Couchman, & Deci, 2000; Patrick, Knee, Canevello, & Lonsbary, 2007), parent-child relationships (Assor, Roth, & Deci, 2004) and friendships (Deci, La Guardia, Moller, Scheiner, & Ryan, 2006; Soenens & Vansteenkiste, 2005). Furthermore, self-endorsement facilitates competence satisfaction, as people execute activities more effectively when they completely stand behind their activities (Ryan & Deci, 2011).

Notably, need satisfaction may not only follow from but also facilitate more self-endorsed functioning, as need satisfaction is said to energize and be conducive to the processes of internalization and intrinsic motivation. There has been support in the literature for both directions of effects. For instance, longitudinal research (e.g., Sheldon & Elliot, 1999; Smith, Ntoumanis, Duda, & Vansteenkiste, 2011) has shown that self-

endorsed goal pursuit related to greater wellness through better goal attainment and enhanced psychological need satisfaction. Conversely, in other studies psychological need satisfaction has been modeled as an antecedent of self-endorsed functioning (e.g., Vallerand, Fortier, & Guay, 1997). In this study, we decided to first model need satisfaction as a consequence and mediator of self-endorsed functioning because this is the direction of effects examined and supported most consistently in SDT. Yet, we were open to the opposite direction of effects and also tested an alternative model (i.e., with self-endorsed motives as a mediator of the associations between need satisfaction and well-being).

Combining Both Conceptualizations

These two viewpoints on autonomy can be meaningfully linked. Independence versus dependence rather concerns the locus of the decision-making process, that is, it pertains to the question *who* is making the decision. The locus is internal in case one decides by oneself and the locus is external when one leaves the decision to others. The locus of the decision-making process may be a function of one's cultural background, with individualistic cultures promoting a more internal and collectivistic cultures promoting a more external locus of decision making. Yet, SDT additionally stresses the motives *why* one is acting in a certain way. Therefore, it is maintained that both an internal and an external locus of decision-making can be undergirded (i.e., motivated) by more or less self-endorsed reasons (deCharms, 1968; Ryan & Deci, 2000). This implies that different combinations arise when both viewpoints on autonomy are crossed. Specifically, a youngster may decide on her holiday plans independently because she personally values the importance of doing so (identified motive), to obtain a positive self-image by proving that she is capable of doing so without her parents (introjected motive), or because she feels obliged to figure things out by herself due to the lack of available support (external motive). Similarly, a youngster could leave this decision to his

parents because he fully endorses their opinion and therefore voluntarily gives away the decision (identified motive). He may also conform to the parents' opinion to avoid feelings of guilt or out of pressured loyalty (introjected motive) or because he has the feeling that his parents will appreciate him less if he does not conform to their decision (external motive).

In line with these conceptual distinctions, Beyers et al. (2003) performed a factor analysis on a large set of autonomy measures and found two slightly correlated factors, labeled separation and agency, which resemble independence and self-endorsement. Further, in a study on the living situation of emerging adults, Kins, Beyers, Soenens, and Vansteenkiste (2009) found that self-endorsed motives behind the choice to live independently related more strongly to well-being than the event of home leaving as such. Finally, a recent study examined various measurements regarding different operationalisations of the concept of autonomy and found they are empirically represented by two dimensions, one reflected the self-endorsement vs. pressured functioning and another reflected interpersonal distance (Van Petegem, Vansteenkiste et al., 2013).

In other words, the difference between the two viewpoints on autonomy, and their differential relations with outcome variables, is increasingly distinguished. Yet, today, the relevance of the distinction between both autonomy measures has not been directly examined in a non-Western sample. Indirect evidence has, however, been reported in the cross-cultural literature. For instance, Kagitçibasi (2005) makes an analogous distinction by differentiating the dimension of interpersonal distance (independence-interdependence) from the dimension of agency (autonomy-heteronomy). Further, Yeh and colleagues (Yeh, Bedford, & Yang, 2009; Yeh, Liu, Huang, & Yang, 2007; Yeh & Yang, 2006) coined the terms individuating and relational autonomy to refer to the fact that Chinese adolescents develop both an independent identity, in which case they express individualistic attributes, and an interdependent identity, in which case they

take their parents' wishes and expectations into account. Thus, both SDT and Yeh's dual autonomy model (Yeh et al., 2007, 2009; Yeh & Yang, 2006) share the assumption that autonomy can manifest with respect to independence-related and interdependence-related issues. Specifically, given that relating autonomy is measured with items such as "It is meaningful for me to fulfill my duty as a son or daughter", this form of dependence seems to reflect self-endorsed dependence in SDT. Yet, two differences are worth being mentioned. First, Yeh and colleagues primarily define autonomy as a capacity to achieve a particular identity, which emphasize the feeling of competence, as reflected in the phrases of the items such as "I always feel confident...." and "I always feel able to...." In contrast, in SDT definition of autonomy, feelings of self-endorsement and volition (i.e., the experience that one wants to do something and feels free to do it) are relatively more central. Second, SDT takes a somewhat more encompassing view as it stipulates that both more adaptive (i.e., self-endorsed) and more maladaptive (i.e., controlled) motives can underlie people's independent and dependent functioning (Rudy et al., 2007). For instance, Chirkov et al. (2003) measured the self-endorsed and controlled motives behind a variety of both collectivistic and more individualistic cultural practices.

Present Research

To shed further light on the distinction between independence and self-endorsement, we examined the relevance of these two constructs in a relatively collectivistic culture, that is, China. In Chinese society, interdependence is maximized in parent-child relationships by frequent guidance, consultation, and even intrusion into children's private life (Triandis, Bontempo, & Villareal, 1988). So, we believe the family environment is an important context to understand the meaning and functional role of autonomy for individuals from a relatively collectivistic society. Specifically, following a procedure developed by Van Petegem et al. (2012), adolescents first indicated whether they decided for themselves on a

diversity of daily issues or whether parents took decisions for them. In addition, they separately rated their motives for taking independent decisions and for being dependent on their parents. Using this methodology, we examined the following five research questions.

First, can autonomy as decisional independence and autonomy as self-endorsement be empirically differentiated? Based on theoretical grounds and previous work (Van Petegem et al., 2012; Van Petegem, Vansteenkiste et al., 2013), we expected that both sets of concepts could be distinguished using factor analysis and would be relatively orthogonal, as expressed in low correlations between the constructs.

Second, how do independence and self-endorsement contribute to psychological well-being? Based on Markus and Kitayama (2003), we reasoned that the level of independent versus dependent decision making would not be beneficial for Chinese youngsters, because independent functioning conflicts with the collectivistic emphasis on conformity and family harmony in China. Based on SDT, we hypothesized that self-endorsed dependence but also self-endorsed independence, as operationalized through the relative internalization index, would yield a unique positive relation to well-being, above and beyond the level of independent functioning per se.

Third, to what extent can the association between self-endorsement and well-being be accounted for by basic psychological need satisfaction? We hypothesized that both self-endorsed independent and self-endorsed dependent functioning would allow for greater psychological need satisfaction (e.g., Sheldon & Elliot, 1999), which, in turn, would relate to well-being. In addition, we examined an alternative model with need satisfaction as an antecedent of self-endorsed functioning rather than an intervening variable.

Fourth, we examined whether the proposed model would hold up for individuals differing in their collectivistic orientation. We divided the sample into two groups with lower and higher levels of collectivistic values

to examine whether the obtained associations would be similar for these two groups. This was deemed important because culture is a complex and dynamic construct in which the same cultural orientation could be more or less endorsed by different individuals (e.g., Kagitçibasi, 1997; Oyserman et al., 2002). Despite the different emphasis placed on independence by individuals with a different cultural orientation, we hypothesized that the associations between self-endorsed functioning, need satisfaction and well-being would not be moderated by a collectivistic orientation. Said differently, the self-endorsement of independent decisions would also contribute to the well-being of Chinese youngsters adopting a collectivistic orientation.

Finally, to further understand how the specific motives that together constitute the relative internalisation index relate to well-being, we broke the Relative Internalisation Index down into its separate components (i.e., the three motives) and examined whether they contributed uniquely to the outcomes. We hypothesized that identified motives would relate positively, whereas introjected and external motives would relate negatively to psychological need satisfaction and well-being.

Method

Participants

The sample comprised 591 Chinese high school students from 10th grade. To maximize the heterogeneity of the sample, we included (a) 292 participants from two high schools in respectively the Eastern and Western part of an urban area of China, Shanghai (52.4% girls) and (b) 299 participants from one local high school in a rural area of China, Shanggao (49.1% girls). The participants ranged in age from 14 to 18 years, with a mean of 16.08 years ($SD = 0.49$). 88.2% of the participants came from intact families, 5.3% came from divorced families and 4.1% came from a single parent family.

Of all the participants, eight showed missing data on more than 20% of the variables and were therefore not retained in the analyses. Little's (1988) MCAR-test produced a normed χ^2 (χ^2/df) of 1.24 for the remaining adolescents. According to Bollen (1989), this indicates that the data were likely missing at random, and as a consequence, cases with missing values could be retained in the analyses. To do so, we used the Full Information Maximum Likelihood (FIML) procedure available in Mplus 6.1 (Muthén & Muthén, 2007).

Procedure

Data were collected at school during regular school time. Before data collection, the teachers in charge of each class were gathered to have a 15 minutes training with the research staff about the instruction for the measurement. Then, each teacher administered the questionnaire in one class. The research staff stayed in each classroom for 5 minutes to answer students' questions and to address difficulties to understand or misinterpretations. The questionnaire took about 35 minutes to complete and anonymity was guaranteed.

Measures

Originally English instruments were translated into Chinese by a Chinese researcher fluent in English. The back translations were done by an English-Chinese language teacher with expertise in both languages. A third person (i.e., a psychologist) fluent in English compared the original and back translated version of the items to inspect their equivalence. Non-equivalent translations were discussed by the two translators and the psychologist to arrive at consensual agreement on the final wording.

Autonomy as Independence. To measure independent versus dependent decision-making, we administered a variation of the Family Decision Making Scale (FDMS, Dornbusch et al., 1985), which consisted of

24 issues from six social domains²: the personal domain (e.g., how to spend pocket money), the friendship domain (e.g., how much time to spend with friends), the prudential domain (e.g., whether you drink alcohol or not), the conventional domain (e.g., how you talk to your parents), the moral domain (e.g., whether you keep your words to others), and the academic domain (e.g., whether to attend after-school courses). The first five domains are based on Smetana's Social Domain Theory (Smetana, Campione-Barr, & Daddis, 2004; Smetana & Daddis, 2002). The academic domain was added to this study because it is an important issue in daily life for Chinese adolescents and their parents (Liu et al., 2000). Participants answered the question "Who decides on each of the following issues in your family?" on a 5-point scale: (1) "*My parents alone*", (2) "*My parents, after talking to me*", (3) "*My parents and I together*", (4) "*I decide, after talking to my parents*", and (5) "*I alone*". Higher scores indicate more independent decision-making. Cronbach's alpha was .84.

Autonomy as Self-Endorsement. Using an approach validated by Van Petegem et al. (2012), we then measured the motivation behind (in)dependent decision-making to index participants' degree of self-endorsed functioning. Participants were first instructed to select the three items with the highest scores on the FDMS and to write these down. Doing so, we aimed to prime their independent functioning, as these are issues about which the participant decides relatively independently. Then we asked why they decide rather alone about these issues. Through this procedure, we aimed to access their underlying motives for independent decision making, using 18 items adapted from the *Self-Regulation Questionnaire* (SRQ, Ryan & Connell, 1989) and used by Van Petegem et al. (2012). Three different

² As our measure of decisional independence comprised 24 issues, coming from six social domains, one may wonder why no differentiation was made in independent decision making in these different domains. However, reliability analyses produced low alphas for five of the six domains, and factor analysis could not differentiate between the six domains. Moreover, correlational analyses between independent decision making in these specific domains and the outcomes variables yielded a very similar pattern across domains, with almost no associations depression, self-esteem and vitality.

types of regulation were assessed, that is, identified motives (e.g., “because it is personally important to me”; 6 items), introjected motives (e.g., “because I would feel bad about myself I didn’t”; 6 items) and external motives (e.g., “because others pressure me to do so”; 6 items). Respondents answered on a 5-point Likert scale, ranging from 1 (“*Completely untrue*”) to 5 (“*Completely true*”). Then, a similar procedure was used to assess the motives for dependent decision-making. The participants first selected the three items with the lowest scores on the FDMS to prime their dependent functioning. Then, they filled out a similar version of the SRQ to measure their motives for dependent decision-making. Information regarding the internal validity of this instrument is presented as part of Research Question 1 in the Results.

Basic Need Satisfaction. To assess -basic psychological need satisfaction, we used the 9-item Basic Psychological Needs Scale (Sheldon et al., 2001), which taps into the satisfaction of autonomy (e.g., “I can do what I am really interested in”), relatedness (e.g., “I feel close and connected with other people who are important to me”), and competence (e.g., “I feel I can successfully complete difficult tasks”). Items were rated on a 5-point Likert scale, ranging from 1 (*Completely Disagree*) to 5 (*Completely Agree*). This scale has been validated in various studies (e.g., Sheldon et al., 2001; Sheldon, Cheng, & Hilpert, 2011) and yielded an acceptable reliability in current study ($\alpha = .72$).

Psychological Well-Being. Psychological well-being was measured using three indicators: self-esteem, depression, and vitality. Self-esteem was assessed with Rosenberg’s 10-item scale (Rosenberg, 1965), which has been widely examined across nations (Schmitt & Allik, 2005). Items were rated on a 5-point Likert scale ranging from 1 (*Completely Disagree*) to 5 (*Completely Agree*). Cronbach’s alpha was .86. Depression was assessed with a shortened version of the Centre for Epidemiological Studies-Depression scale (CES-D; Radloff, 1977), which taps into how often participants experienced specific depressive symptoms during the last week.

Items were rated on a scale ranging from 1 (*rarely or none of the time*) to 4 (*most or all of the time*). This shortened 12-item version has been validated extensively across cultures (e.g., Mackinnon, McCallum, Andrews, & Anderson, 1998; Roberts, Lewinsohn, & Seeley, 1991) and had a good reliability in the current study ($\alpha = .79$). Vitality was assessed with the 7-item Subjective Vitality Scale (Ryan & Frederick, 1997). Items tapped into feelings of energy, vigor, and aliveness over the past few months and were rated on a 5-points Likert scale ranging from 1 (*Completely Disagree*) to 5 (*Completely Agree*). The scale has been successfully used in a Chinese sample before (Vansteenkiste, Lens, Soenens, & Luyckx, 2006) and the Cronbach's alpha in the present investigation was .87.

Collectivism. To assess a collectivistic orientation, we used the Perceived Cultural Context questionnaire (PCC; Chirkov et al., 2003) which comprises subscales for horizontal and vertical collectivism (6 items for each construct). In this study, we followed the procedure of previous researchers (Jang, Reeve, & Ryan, 2009; Triandis, 1996) and combined the two collectivism scales into a single measure, yielding a Cronbach's alpha of .72.

Plan of Analysis

To examine whether the constructs of self-endorsement and independence can be differentiated (Research Question 1), we used Confirmatory Factor Analysis (CFA), thereby making use of robust maximum likelihood estimation in Mplus 6.1 to correct for the observed non-normality of some variables. Whereas each of the motives was represented by their respective items, we used the six different domains that were tapped into via the FDMS (i.e., personal, friendship, prudential conventional, moral, and academic) as indicators of independent decision making. We chose to rely on these domain-indicators rather than making use of the full range of 24 items as to balance the number of indicators across the motives and the level of independent decision making itself (Marsh, Hau, Balla, & Grayson, 1998). In addition, we inspected their intercorrelations

and used within-sample t-tests to examine the mean-level difference of motives for independent and dependent decision making.

To identify the unique contribution of independent decision-making and the relative internalization (i.e., self-endorsement) of both independent and dependent decision making in the prediction of psychological well-being (Research Question 2), a Structural Equation Model (SEM) was estimated. Beforehand, we examined the relations between a number of relevant background variables and well-being through a MANOVA to examine whether we needed to control for any of them in the main analyses. In the structural models, the latent variables were represented as follows: contrary to the approach used in the CFA (Research Question 1), self-endorsed motives were indicated by three parcels (rather than with the individual items) because we wanted to reduce the number of parameters to be estimated in these more complex structural models (Little, Cunningham, Shahar, & Widaman, 2002). Independent decision making was again represented by the six domains. Well-being was represented by the scales for vitality, depression, and self-esteem. Finally, need satisfaction was indicated by the three subscales for each of the three needs.

To examine whether psychological need satisfaction plays an intervening role in the association between the motives for (in)dependent decision making and psychological well-being (Research Question 3), we tested a number of additional SEM-models. In doing so, we followed Holmbeck's (1997) two-step procedure. In a first model, the independent variables (i.e., independent decision making; self-endorsement) were modeled as predictors of the intervening variable (i.e., need satisfaction), which, in turn related to the outcome (i.e., well-being). Then, in a second model a direct association between the independent and the dependent variable was allowed. According to Holmbeck (1997), evidence for an intervening effect is shown when the addition of a direct path from the independent variable to the dependent variable in the second model does not improve model fit compared to the first model. Notably, a variable can play

an intervening role in one of the following two ways (Mathieu & Taylor, 2006). First, an intervening variable can account for an initial direct association between the independent and the dependent variable, in which case the intervening variable is said to mediate the direct relation. Second, even in the absence of an initial direct association between an independent and a dependent variable, the independent variable can still be related indirectly to the dependent variable through the intervening variable, in which case an indirect effect is established. We performed bootstrapping testing which is highly recommended to quantify the indirect or mediated effect (Hayes, 2009; Preacher & Hayes, 2004). Bootstrapping testing also has the advantage that it does not require a normal distribution to test the indirect effect because, through a process of resampling, it generates bias-corrected confidence intervals for the indirect effect (MacKinnon, Lockwood, & Williams, 2004; Shrout & Bolger, 2002).

To test for the possible moderating role of collectivism in the associations between the motives, need satisfaction, and well-being (Research question 4), we divided the sample into two subgroups based on a standardized score of zero on the collectivism dimension. Next, we performed a multi-group CFA to examine the measurement equivalence across the two groups by constraining the factor loadings of each latent construct to be equal, while freeing intercepts and error variances. Next, we examined the structural equivalence by comparing a constrained model in which all structural paths were set equal across two groups with an unconstrained model where all structural paths were set free. We took two indexes of model invariance, that is, the difference in CFI (ΔCFI) and difference in chi-square statistic ($\Delta\chi^2$). $\Delta\chi^2$ is considered an elusive criterion especially when data are non-normally distributed (Byrne & Stewart, 2006; Cheung & Rensvold, 2002). Following this recommendation, we took a ΔCFI value of less than .01 as evidence for model invariance.

Finally, to gain insight in the specific contribution of the separate motives constituting the Relative Internalization Index for (in)dependence

(Research Question 5), we tested a SEM-model inserting all six motives as separate predictors next to the level of independent decision making.

Results

Research Question 1: Internal Validity, Means, and Correlations

Before examining whether independent, relative to dependent, decision making can be distinguished from the motives underlying both, we used CFA to examine the measures of motives for independent and dependent decision making separately. As for the motives underlying independence, after dropping one item with a low factor loading (i.e., $< .35$, from the introjected motivation subscale, “I can only feel proud of myself if I....”), a CFA with three latent factors yielded the following fit: $\chi^2(113) = 269.09$; $p < .001$, SRMR = .06, RMSEA = .05, CFI = .93. After removing the same introjected motivation item from the motives underlying dependence, the three-factor solution yielded the following fit indices: $\chi^2(113) = 294.01$; $p < .001$, SRMR = .05, RMSEA = .06, CFI = .93. Standardized factor loadings across the motives underlying independence and dependence ranged between .38 and .79.

More importantly, in a subsequent CFA, we examined whether the level of independent decision making per se can be differentiated from the motives underlying (in)dependent decisions. This model comprised seven latent constructs, that is, independent decision making as such as well as identified, introjected and external motives for both independent and dependent decision making. This model yielded the following fit: fit, $\chi^2(708) = 1212.86$; $p < .001$, SRMR = .06, RMSEA = .04, CFI = .91. The latent correlations among these seven constructs are shown in Table 1.

Table 1

Correlations among Latent Variables

	1	2	3	4	5	6	7	8
1. Independent DM	-							
2. Identified Independence	.09	-						
3. Introjected Independence	-.08	.37**	-					
4. External Independence	-.21**	-.09	.52**	-				
5. Identified Dependence	-.21**	.04	.03	.17**	-			
6. Introjected Dependence	-.28**	-.09	.41**	.39**	.56**	-		
7. External Dependence	-.16**	.06	.27**	.35**	-.28**	.34**	-	
8. Need Satisfaction	.00	.40**	.22**	.03	.17**	-.12*	-.29**	-
9. Well-being	-.07	.21**	.08	-.03	.09	-.10	-.26**	.67**

Note. DM = Decision Making. * $p < .05$. ** $p < .01$.

As expected, independent decision making had small correlations with the underlying motives, with correlations ranging from .09 to -.28. This pattern of relations provided support for our hypothesis that both operationalizations of autonomy are distinct and even relatively orthogonal. Cronbach's alpha was .80, .76 and .74 for the identified, introjected and external motives for independent decision-making, respectively, and .79, .72 and .85 for the three motives for dependent decision-making, respectively.

Further, as hypothesized, the correlations among the motives underlying both independent and dependent decision making showed a simplex-like pattern, with subscales situated closer to one another on the internalization continuum being positively associated (e.g., identified and introjected motives), and subscales situated further apart being negatively associated (i.e., identified and external motives). These ordered patterns of correlations add to the validity of the measurement and justify the creation of a composite score, representing the relative degree of internalization. In line with past work (e.g., Neyrinck et al., 2006; Soenens, Vansteenkiste, & Niemiec, 2009), a Relative Internalization Index (RII) was created by weighing the motives in the following way: (identified motive \times 3) + (introjected motive \times -1) + (external motive \times -2).

Next we examined mean-level differences between the motives underlying independence as well as dependence. These means can be found in Table 2. Identified motives for independent decision making were significantly more strongly endorsed than the introjected [$t(552) = 37.20, p < .001, d = 1.60$] and external [$t(552) = 48.39, p < .001, d = 2.01$] motives for independent decision making. Similarly, identified motives for dependent decision making were significantly more strongly endorsed than introjected [$t(552) = 21.72, p < .001, d = 0.85$] and external [$t(551) = 9.19, p < .001, d = 0.37$] motives for dependent decision making. In addition, external motives for dependent decision making were more strongly endorsed than introjected motives [$t(551) = 5.40, p < .001, d = 0.22$].

Table 2

Descriptive Statistics and Inter-correlation Matrix for Independent Decision Making, the Underlying Motives, Basic Psychological Needs Satisfaction and Psychological Well-being

	Mean	SD	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Indep DM	4.12	0.53	.13**	.06	-.05	-.14**	-.02	-.17**	-.19**	-.12**	.04	-.07	.02	-.04	-.04
2. RII-In	5.56	2.66	-	.70**	-.34**	-.72**	.14**	-.04	-.30**	-.18**	.13**	.15**	.10*	.11**	.07
3. Identified-In	4.18	0.66		-	.28**	-.08*	.01	.03	-.09*	.04	.22**	.26**	.23**	.17**	.17**
4. Introjected-In	2.70	0.88			-	.43**	-.19**	.01	.29**	.24**	.15**	.10*	.13**	.05	.11**
5. External-In	2.14	0.72				-	-.13**	.11**	.28**	.27**	-.03	.03	.06	-.02	.02
6. RII-De	1.87	3.41					-	.76**	-.05	-.77**	.17**	.12**	.06	.20**	.17**
7. Identified-De	2.95	0.87						-	.43**	-.20**	.11**	.13**	.04	.07*	.19**
8. Introject-De	2.19	0.80							-	.27**	-.07	-.03	-.05	-.07*	.13**
9. External-De	2.42	0.97								-	-.12**	-.04	-.04	-.24**	-.10*
10. Autonomy	3.55	0.72									-	.30**	.35**	.42**	.23**
11. Relatedness	3.95	0.60										-	.29**	.31**	.49**
12. Competence	3.41	0.75											-	.48**	.21**
13. Wellbeing	3.54	0.56												-	.29**
14. Collectivism	3.73	0.46													-

Note. DM = Decision Making, RII = Relative Internalization Index, In = Independence, De = Dependence. * $p < .05$. ** $p < .01$.

Finally, we examined the association of background variables and collectivism with the autonomy measures. A MANCOVA was performed to examine the effects of age, gender, living area, and family structure on decisional independence and relative internalization of (in)dependence. Results indicated no significant effects. Next, as can be noticed in Table 2, we found collectivism to be positively associated with relative internalization for dependent decision making ($\beta = .17, p < .01$), but to be unrelated to the relative internalization for independent decision making and the level of independent decision making itself.

Research Question 2: Independent Contributions of both Autonomy Operationalizations in the Prediction of Well-Being

Before examining the independent contribution of both autonomy operationalizations in the prediction of well-being, we explored whether we needed to control for any background variables through a MANCOVA, including age, gender, living area and family structure as independent variables and with the three measures of well-being as dependent variables. We found an overall significant effect of gender [$F(4, 512) = 4.56, p < .001, \eta^2 = .05$], with follow-up univariate analyses indicating that boys scored significantly higher on self-esteem [$F(1, 537) = 10.10, p < .01, \eta^2 = .02$] and vitality [$F(1, 537) = 11.50, p < .01, \eta^2 = .02$] than girls. Hence, we controlled for gender in the subsequent analyses by including it as a predictor of well-being in the structural equation models.

We tested a structural equation model in which independent decision making as such as well as the relative internalization of both independent and dependent decision making were modeled as predictors of psychological well-being. Whereas independent decision making itself was unrelated ($\beta = -0.02, ns$) to psychological well-being, the relative internalization of both dependent decision making ($\beta = .26, p < .01$) and independent decision making ($\beta = .13, p < .05$) yielded a unique positive association with well-being. On top of these psychological predictors, gender was positively

associated with well-being, indicating that boys reported higher well-being than girls ($\beta = .17, p < .01$). In total, 12% of the variance of well-being was explained in this model [SBS $\chi^2(97) = 209.23$, CFI = .96, RMSEA = .05, SRMR = .05].

Research Question 3: Need Satisfaction as an Intervening Variable

To address Research Question 3, we modeled need satisfaction as an intervening variable to explore whether it could account for the association between relative internalization of dependent and independent decision making and well-being. In the first model, we allowed paths from the relative internalization indices and independent decision making to need satisfaction, which, in turn, related to well-being. This model (Figure 1) had an acceptable fit [SBS $\chi^2(144) = 291.36$, CFI = .96, RMSEA = .04, SRMR = .05]. Relative internalization of independent and dependent decision making were positively associated with need satisfaction, while need satisfaction was positively associated with well-being. In contrast, independent decision making had no significant associations with need satisfaction.

In the second model, we added two direct paths from the relative internalization of independent and dependent decision making to well-being as to test whether adding these two direct paths would improve the model fit. The second model did not show any significant difference in model fit compared to the first model [SBS $\chi^2(142) = 286.20$, CFI = .96, RMSEA = .04, SRMR = .05, $\Delta\text{SBS } \chi^2(2) = 5.16, p > .05$]; moreover, none of the direct associations was significant. Because of its parsimony, the first model was preferred above the second model. Finally, results of the bootstrap estimation showed a significant indirect effect of relative internalization of independence (95% CI: 0.04 -0.19) and relative internalization of dependence (95% CI: .10 to .25) on well-being through need satisfaction.

In short, need satisfaction was found to play an intervening and, more specifically, a mediating role in the association between relative internalization of dependent or independent decision making and well-being.

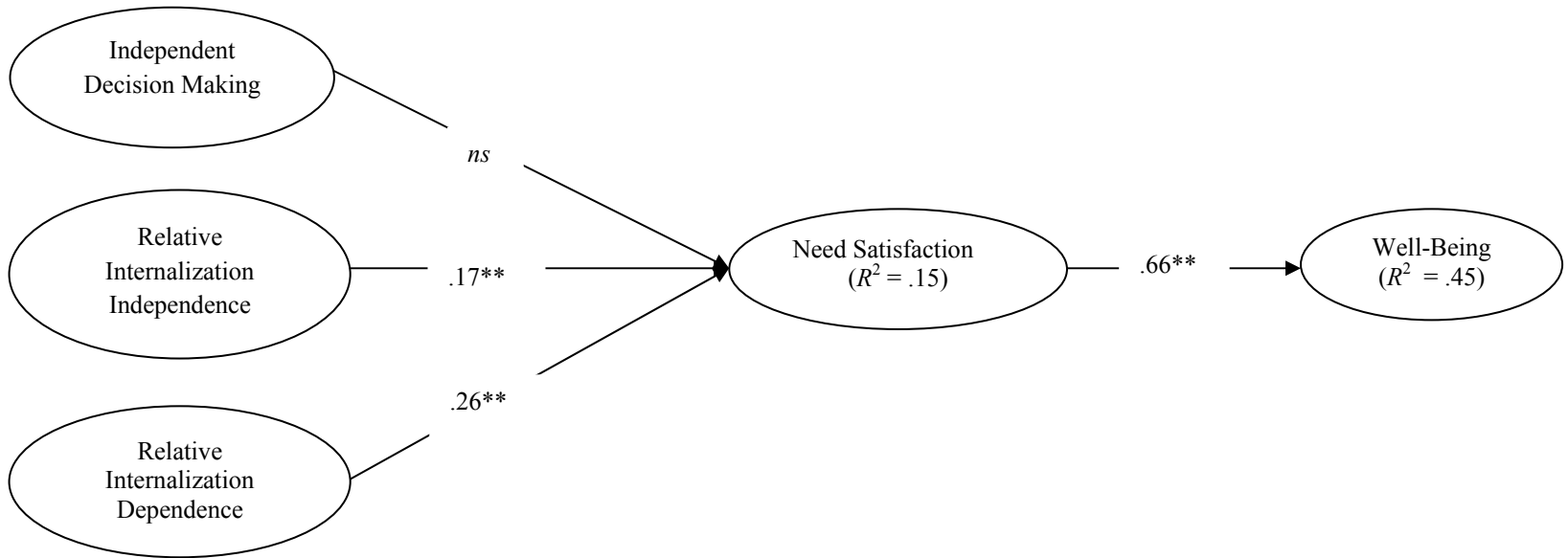


Figure 1. Structural Model of the Relation between Decisional Independence, Relative Internalization of Independence and Dependence, Need Satisfaction and Well-being. Correlations between endogenous variables are not printed, neither are the associations with control variables. * $p < .05$; ** $p < .01$.

Research Question 4: Examining Collectivism as a Moderator

We tested the above model in two groups, one with participants low on collectivism (i.e., scoring below a standardized score of 0) and one with participants high on collectivism (i.e., scoring higher than a standardized score of 0). Before doing so, we first examined whether the measurement model was equivalent across both groups. The constrained measurement model [SBS $\chi^2(262) = 395.02$, CFI = .95, RMSEA = .04, SRMR = .06] did not differ in terms of fit compared to the unconstrained model ($\Delta\chi^2(12) = 12.64$, $\Delta\text{CFI} = 0.00$), thus testifying to the invariance of the measurement model across the two subsamples.

Next, we tested an unconstrained structural model where the structural paths were allowed to vary across both groups [SBS $\chi^2(305) = 500.06$, CFI = .93, RMSEA = .05, SRMR = .07]. This model was compared to a constrained model where all the paths are set equal across both groups [SBS $\chi^2(308) = 501.57$, CFI = .93, RMSEA = .05, SRMR = .07]. The difference in model fit was not significant, $\Delta\chi^2(3) = 1.51$, $\Delta\text{CFI} = .00$, indicating that the model presented in Figure 1 was invariant across the subsamples of participants relatively low and relatively high on collectivism.

Research Question 5: Examining Separate Motives Underlying Independence and Dependence

Although more parsimonious, the creation of a relative internalization index provides no insight in which specific motives are driving the observed associations. Therefore, we tested our proposed model once more, this time inserting the six specific motives underlying dependent and independent decision making as predictors. In the direct effect model [SBS $\chi^2(325) = 596.48$, CFI = .94, RMSEA = .04, SRMR = .05], identified independent and externally dependent decision making were found to be, respectively, positively ($\beta = .21$, $p < .01$) and negatively ($\beta = -.29$, $p < .01$) associated with well-being.

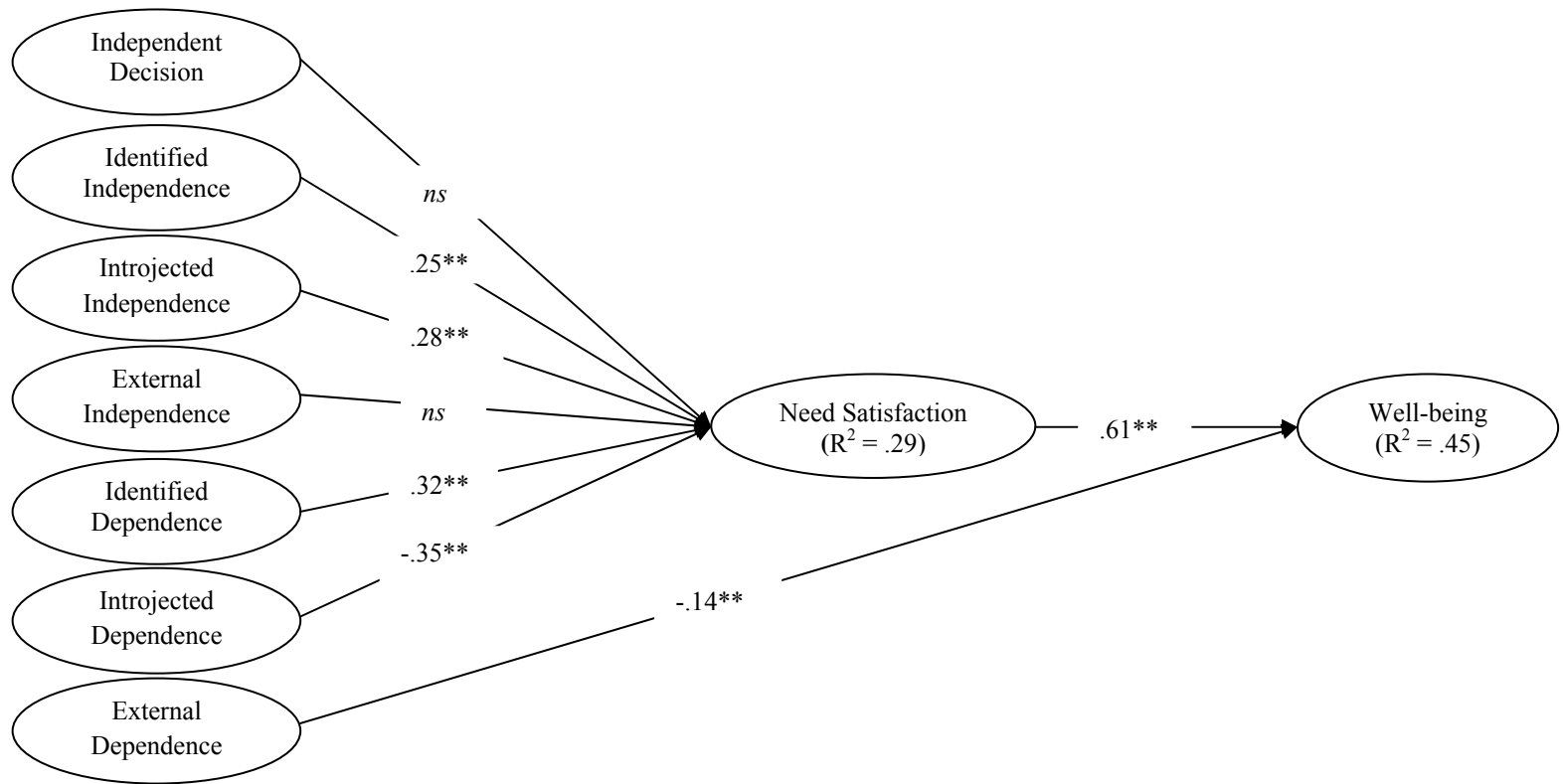


Figure 2. Structural Model of the Relation between Decisional Independence, the Underlying Motives for Independence and Dependence, Need Satisfaction and Well-being. Correlations between endogenous variables are not printed, neither are the effects of the control variables. * $p < .05$; ** $p < .01$. Note: R^2 = explained variance.

Next, we estimated a model in which psychological need satisfaction was an intervening variable without allowing direct associations between motives and well-being [SBS $\chi^2(403) = 734.01$, CFI = .94, RMSEA = .04, SRMR = .05]. A model containing direct paths from the six motives to well-being resulted in an improved model fit [Δ SBS $\chi^2(6) = 16.46$, $p < .01$]. As only external dependent decision making yielded a direct negative association with well-being, we left out all non-significant paths from the model, which resulted in the model displayed in Figure 2 [SBS $\chi^2(402) = 723.09$, CFI = .95, RMSEA = .04, SRMR = .05]. In total, 29% of the variance in need satisfaction and 45% of the variance of well-being was explained in this model. As can be noticed, both identified independent and identified dependent decision making related positively to psychological need satisfaction. Interestingly, whereas introjected independence yielded a positive association with need satisfaction, introjected dependence yielded a negative relation. Finally, bootstrapping testing indicated that for each of these four predictors, need satisfaction played an intervening role in the relation between the predictor and well-being; identified independence (95% CI: .02 to .23); identified dependence (95% CI: 0.17 to 0.36); and introjected independence (95% .08 to .35); introjected dependence w (95% CI: -0.17 to -.43). Because identified independence yielded an initial significant association with well-being, we can conclude that need satisfaction plays a mediating role for this predictor. In contrast, the lack of direct association in the case of introjected dependence, introjected independence and identified independence indicates that need satisfaction plays an indirect role for these three predictors.

Supplementary Analysis

From the SDT-perspective, need satisfaction may not only follow from the relative endorsement of (in)dependent decision making but may also play an antecedent role. Therefore, we tested an alternative model in which need satisfaction was said to predict both relative internalization

indices and independent decision making as such, which, in turn, related to well-being. We then compared this model with the previous mediation model by making use of the Akaike information criterion (AIC) and the Bayesian information criterion (BIC), because the two models are not nested (Bozdogan, 2000). Lower AIC and BIC values are indicative of a better fit (Bollen & Long, 1993). Although the alternative model yielded a reasonably good fit [SBS $\chi^2(143) = 305.12$, CFI = .95, RMSEA = .05, SRMR = .06], it had slightly higher AIC and BIC values (i.e., 27348.82 and 27623.36, respectively) than the model in which need satisfaction was modeled as an intervening variable (i.e., 27333.07, BIC = 27603.32). Moreover, the bootstrap estimation showed that the indirect effect of needs satisfaction on well-being through relative internalization for either independent or dependent decision making was not significant. Hence, we favored the originally proposed model with need satisfaction as an intervening variable.

Because, rather unexpectedly, introjected independence decision making related positively to need satisfaction, we performed a series of post hoc analyses. Specifically, we examined whether this association would be moderated by the identified motives for independence. The interaction between these two motives for independence was significant ($\beta = .10$, $\Delta F(1,527) = 4.96$, $p < .05$). Specifically, whereas among adolescents scoring high on identified independence, introjected independence related positively to need satisfaction ($\beta = .21$; $p < .01$), for those scoring low on identified independence, the relation between introjected independence and well-being was non-significant ($\beta = -.08$; $p > .05$). Thus, introjected independence is only positively associated with need satisfaction when identified independence is also high.

Discussion

The topic of human autonomy remains a controversial issue in cross-cultural psychology. To facilitate the debate around the role of human autonomy, the conceptual ambiguity surrounding the concept needs to be

resolved and its exact meaning needs to be articulated. To shed further light on this topic, in the current study, we adopted the distinction between two major conceptualizations of autonomy, that is, autonomy conceived of as independence and autonomy conceived of as self-endorsed functioning.

Defining and Measuring Autonomy in a Cross-Cultural Context

In cross-cultural (Markus & Kitayama, 2003; Rothbaum & Tromsdorff, 2007) and developmental psychology (Blos, 1979; Steinberg, 2002), autonomy has typically been defined as independence, that is, as the tendency to act in a self-reliant way without depending on others. When defined in this way, autonomy is typically portrayed as a Western value. Yet, when autonomy is defined as self-endorsed functioning, that is, as a full and willing endorsement of one's actions, autonomy does not represent the exclusive mode of functioning of Western individuals. This is because the degree of self-endorsement of one's behavior is largely orthogonal to whether one's actions entail independence or dependence. Along similar lines, Yeh and colleagues (Yeh et al., 2007, 2009; Yeh & Yang, 2006) distinguished between an individuating and a relating form of autonomy and suggested that these two forms can coexist. Thus, although youngsters growing up in more collectivistic societies like China might more often take into account societal norms and rely on their parents' advice when taking decisions, they may still function in an autonomous fashion, if at least their dependence is well-internalized. In that case, dependence will be experienced as willingly chosen and self-endorsed (rather than pressured).

In line with recent work (Van Petegem et al., 2012), and consistent with our first research question, we could clearly distinguish between these two viewpoints on autonomy through factor analysis. Specifically, independence, operationalized as adolescents' level of independent decision making regarding a diverse set of issues yielded small to non-significant associations with motives reflecting relative internalization of either independent or dependent decision-making. Said differently, the locus of the

decision-making process (i.e., who is making the decision?) was found to be distinct from the motives for doing so (i.e., why is the decision made by the youngster or the parents?).

In terms of descriptive results, we found that, on average, when Chinese adolescents follow their parents' decisions, it is most often because they personally value this reliance and input and relatively less often because they feel pressured into compliance. This finding echoes previous work suggesting that Chinese adolescents tend to adopt an orientation of relating autonomy, whereby they willingly take their parents' preference and opinion into consideration (Yeh & Yang, 2006). It is also consistent with a recent qualitative study (Russell et al., 2010) in which Chinese-American adolescents were found to make decisions within the boundaries of parents' preference, but still viewed it as their own volitional choice. Specifically, adolescents identified with their parents' advice for various reasons, including the belief that parents have more knowledge and resources to choose what is best for them and the belief that parents' involvement is indicative of their love and care. These reasons represent specific instantiations of the identified motives for dependency in the current study.

Thus, the finding that dependence can be undergirded by self-endorsed motives suggests that reliance on external guidance and compliance with traditions and norms does not necessarily imply a lack of autonomy. Indeed, conformity and autonomy do not fall along a single bipolar dimension, as has been suggested by some cross-cultural psychologists (e.g., Markus & Kitayama, 2003). To the extent that one, after genuine reflection, concurs with the external norms and traditions, one maintains a sense of autonomy and volition (Ryan, 1993). On the other hand, conformity to parental advice may also be driven by external pressures, such as the avoidance of parental criticism, or internal demands, such as pressured loyalty. Such controlled types of dependency may be steeped in an authoritarian parenting climate characterized by restrictive parental control (Chao, 1994; Dornbusch, Ritter, Leiderman, Roberts, & Fraleigh, 1987;

Soenens, Vansteenkiste, & Luyten, 2010). In such a family climate, obedience to the elder is seen as related to duty and self-sacrifice (Chao, 2000). However, when adolescents do not or only partially internalize such duty, they may feel pressured to carry it out (Miller, Das, & Chakravarthy, 2011).

Is Autonomy Beneficial for Chinese Adolescents, and How?

The distinction between independence and self-endorsement is not just a terminological issue, as both measures were found to relate differentially to Chinese adolescents' psychological well-being. While the level of dependent vs. independent decision making as such did not yield any relation to psychological well-being, the relative internalization of both independent and dependent decisions was uniquely associated with psychological need satisfaction and well-being.

What seems to matter to Chinese adolescents' well-being is not so much whether they take decisions themselves or leave the decisions to their parents, yet, whether they do so willingly. Specifically, to the extent that Chinese adolescents take independent decisions out of personal conviction rather than external pressure, they experience more psychological need satisfaction which, in turn, relates to higher well-being. This finding sheds further light on the "paradox of choice", that is, the question whether independence or free choice will engender well-being, especially for relatively collectivistic Asian individuals (Markus & Schwartz, 2012; Schwartz, 2006). It is not simply the case that Chinese adolescents do not benefit from independent choice making because such functioning mismatches with the dominant culture value. The key to the paradox is the consideration of the relative internalization of such behavior. If one authentically endorses the independent decisions one takes, one psychologically benefits from doing so, even if one lives in a relatively more collectivistic society as China. More generally, this finding is consistent with the claim in SDT that self-endorsed functioning is universally important and

beneficial (Chirkov, Sheldon, & Ryan, 2011; Ryan & Deci, 2006; Vansteenkiste et al., 2006).

One interesting finding was that individuals with a higher collectivistic orientation reported a higher level of internalization for dependence. This finding is consistent with Russell et al.'s (2010) finding that Asian individuals more easily interpreted dependence toward parents as being compatible with personal autonomy. Indeed self-endorsed functioning can be expressed through both independent decision making and conformity with parental guidance, depending on prevailing socio-cultural values. Although there is variation in the behavioral manifestation of self-endorsement, what ultimately matters is the phenomenological experience accompanying the independent or dependent behavior. A full willingness to act independently or to stay dependent is what contributes to Chinese adolescents' psychological well-being, no matter how collectivistic their orientation is. This finding is consistent with previous findings showing that not only American but also Chinese adolescents benefit from individuating and relating autonomy (Yeh et al., 2009). According to SDT, the main reason for these findings is that when autonomy is defined as self-endorsed functioning, an authentic intention with full willingness, it is an inherent and universal ingredient for growth and well-being rather than a socio-cultural construction, the effects of which depend on a match with one's environment (Chirkov et al., 2011; Ryan & Deci, 2000).

Notably, the finding that Chinese adolescents' willing dependence was related positively to their well-being allows us to reinterpret the results from the study of Iyengar and Lepper (1999), who found that Asian American children benefit from following the decisions of parents. The reason for this might be that the Asian children tend to endorse and trust the decisions from parents, and therefore volitionally follow their decisions. In other words, following parents' decisions might be what they are willing to do at that moment. Thus, they benefit from parental decision-making probably not because they are dependent on their parents as such, but

essentially because their dependency was a self-endorsed choice.

Findings from our mediation analyses suggest that the reason why both self-endorsed independent and dependent functioning relate to higher well-being is because they are related positively to basic psychological needs satisfaction. When pursued for volitional reasons, both dependent and independent decision-making seem to optimize the satisfaction of basic psychological needs, which, in turn, fosters psychological well-being (Deci & Ryan, 1985, 2000). This sequence of events, where self-endorsement predicts need satisfaction and subsequent adjustment is consistent with past findings in the literature (e.g., Filak & Sheldon, 2008; Sheldon & Elliot, 1999; Smith et al. 2011; Weinstein & Ryan, 2010). However, it is noteworthy that it has also been proposed that need satisfaction in a particular context energizes the self-endorsement of the activity at hand (e.g., Deci & Ryan, 2000). Hence, rather than representing a mediator, need satisfaction might also be an antecedent, the effects of which on well-being are mediated through self-endorsement. This alternative order of effects did not receive much support in our data, as the fit of this alternative model was somewhat lower and as the indirect effects through self-endorsement were mostly non-significant. Still, due to the cross-sectional design of current study, we cannot draw firm conclusions regarding order of effects and causality. That is, need satisfaction, as theorized within SDT, might also contribute to and energize internalization, such that both processes affect each other in a mutually reinforcing fashion. This issue needs to be sorted out in future longitudinal and experimental research.

Gaining Precise Insight: Considering the Separate Motives Underlying (In)Dependence

By breaking down the relative internalization indices into their subcomponents, we gained more precise insight in the question which motives were driving the observed associations. For instance, an introjected form of dependency was indirectly associated with lower well-being through

frustration of the basic psychological needs. In case Chinese adolescents comply with parents' decisions out of internal pressure like feelings of guilt and shame, they seem to pay a psychological cost for it. As Perls (1973) described vividly, introjection is a process where some external elements are thrown inside and "swallowed whole" but never "digested" (Ryan, Deci, Grolnick, & Guardia, 2006). Adolescents might think they "should" do something out of loyalty or obligation to meet parents' expectations, but actually they don't really "want" to do it. Moreover, the compliance with parents' decisions for externally pressuring reasons yielded a direct negative relation to well-being. These are noteworthy findings because, although the act of depending on one's parents matches the cultural norms (Markus & Kitayama, 1991), such behaviors may fail to bring psychological need satisfaction and well-being. These findings mesh with previous work showing that only when individuals internalized the cultural practice with full volition, they can benefit from those culturally matched practices (Chirkov et al., 2003).

More generally, we argue that important values in collectivist cultures such as loyalty and duty (Rothbaum & Tromsdorff, 2007), although being antithetical to autonomy when defined as independence, do not contradict self-endorsed functioning. When the duty towards members of one's ingroup (family and friends) is internalized, individuals experience psychological freedom and need satisfaction in carrying out the duty, despite the mean level difference in internalization of the duty across cultures (Miller et al., 2011). However, when an individual does not fully internalize the duty, the duty or compliance to obey may come to be experienced as a psychological burden, thereby negatively impacting on need satisfaction and well-being.

One interesting finding was that externally driven dependence was related directly to lower well-being, without mediation through diminished psychological need satisfaction. One possible reason is that our assessment was limited to need satisfaction and did not include items tapping into need

frustration. Recent studies have suggested that low need satisfaction might not necessarily imply that needs are actively thwarted and need frustration has been found to yield additional predictive value for maladaptive outcomes and psychopathology (e.g., Bartholomew, Ntoumanis, Ryan, Bosch, & Thøgersen-Ntoumani, 2011; Sheldon et al., 2011). Externally pressured dependence might involve a more active thwarting of the needs because the parents directly impose pressure and threaten adolescents' autonomy by telling them which direction they have to take. Such pressure may give rise to an orientation of oppositional defiance, where adolescents rebel against the parents' advice and do exactly the opposite of what parents expect (Vansteenkiste, Soenens, Van Petegem, & Duriez, in press). This, in turn, may increase adolescents' susceptibility to norm-breaking and aggressive behaviors. Thus, in future researches we may include processes of need frustration, defiance, and externalizing problems to better understand the effect of external dependence.

As for the other motives, we found, in accordance with our hypothesis, that identified motives were positively associated with well-being and that this association was fully accounted for by basic psychological need satisfaction. This confirmed previous findings that identified motives for independent home leaving and decision making were related positively to Western adolescents' adjustment (Kins et al., 2009; Van Petegem et al., 2012). This is also consistent with previous findings showing that Chinese adolescents benefited from both individuating and relating autonomy, concepts similar to identified independence and identified dependence, respectively (Yeh et al., 2007, 2009). It is noteworthy that identified and introjected motives for (in)dependence are moderately positively correlated. For instance, when one feels that it is meaningful to follow parents' request to fulfill one's duty as a son or daughter, it is also possible that meanwhile one feels somewhat internally pressured to comply with the request. Thus, it is important to investigate the unique contribution of identified or introjected (in)dependence when controlling for the other, as

done in the present study. Future research might further explore how different motives (such as identification and introjections) co-occur within persons, for instance through the use of person-centered analyses (e.g., cluster analysis).

Finally, interestingly but rather unexpectedly, we found a unique positive association between an introjected motive for independence and basic psychological need satisfaction and well-being. If anything, from a traditional cultural relativistic perspective one might hypothesize that Chinese adolescents should benefit from introjected dependence rather than introjected independence, because dependence is more normative and approved in that context. Yet, the current findings prompt us to further reflect what the introjected motives for independence mean in the current specific cultural and developmental context. Adolescence is a period in which individuals' demands for independence increase with age (Blos, 1967, 1979). In a Chinese cultural context, however, it is less normative for parents and society to promote independence (Dubas & Gerris, 2002). When Chinese adolescents do pursue independence, they might primarily do it out of a genuine desire, as also reflected in the high mean score for identified independence. Adolescents who personally endorse independence might interpret the internal pressures to be independent in a different way with a more internalized flavor. Feelings of guilt might be interpreted as rather informational and indicative to move towards more independent functioning rather than as evaluative and pressuring. The post hoc analyses confirmed this reasoning, as we found that only adolescents high on identified independence benefited from 'introjected' independence in terms of need satisfaction. Obviously, the explanation provided here is rather speculative and requires further examination.

Limitations and Suggestions for Future Research

Our findings need to be interpreted against the background of a number of limitations. First, since our main purpose was to differentiate and

understand two constructs of autonomy within a specifically collectivistic cultural context (i.e., China), we are unable to generalize the current findings to other cultures. Future research might include other Eastern as well as Western countries to make more formal and encompassing cross-cultural comparisons.

A second limitation is our cross-sectional design. Although the model comparisons suggested that satisfaction of psychological needs could better be modeled as a mediator of self-endorsed motivation rather than as an antecedent, a cross-sectional design does not allow one to draw any conclusion regarding the direction of effects. Future longitudinal research is needed to test the potential bidirectional relation between self-endorsed functioning and need satisfaction.

Besides, we relied on the adolescents as a single source of information about independence, motives, and well-being. This exclusive reliance on self-report may have artificially inflated some of the observed relations. However, it is important to emphasize that because our study focused on adolescents' intrapsychic experiences of autonomy, need satisfaction, and well-being, we believe adolescents' self-report of their independent and self-endorsed functioning are more relevant and valid than parents' reports. Nevertheless, for the well-being outcomes, future studies might use a multi-informant design to measure this in a more valid way.

Further, it would be interesting to include additional well-being indicators in future research, particularly indicators tapping into interpersonal functioning. As reported by Yeh and colleagues (2006, 2009), individuating and relating autonomy yielded distinct associations with different well-being outcomes, with individuating autonomy being primarily associated with intrapersonal well-being (e.g., depression and self-esteem) and relating autonomy being relatively more strongly related to interpersonal outcomes (e.g., filial piety and conflict frequency within adolescent-parents relationship). Future research could also include indicators of interpersonal well-being in different types of relationships (e.g., child-parents relationship

and friendship) to examine whether self-endorsed (in)dependence within parent-child relationships contributes to well-being across different types of relationships (see also Van Petegem et al., 2012).

Another interesting direction for future studies is to investigate the meaning of introjected and external motives of independence in Chinese adolescents using qualitative methodology. How do Chinese adolescents understand the items in a context where independence is expected and promoted less? And how does their understanding bring basic need satisfaction or affect the way how need satisfaction is expressed? We think such a further qualitative exploration is important to understand both etic (universal) and emic (culture-specific) aspects of autonomy (Berry, 1999).

Further, future research could focus explicitly on domain-differences in independent functioning, an issue that was beyond the scope of the present research. Instead, we focused on the general degree of independent functioning. Nevertheless, it would be interesting to explore, for instance, the relative internalization of academic, relative to other issues, among Chinese adolescents, considering Chinese parents' intensive involvement in this domain (Cheung & Pomerantz, 2011).

A final interesting future direction is to explore other cultural variables that possibly will moderate one's perception of self-endorsement. In the current study we found that the functional role of subjectively experienced self-endorsement was not moderated by collectivism. However, we think culture might influence how people perceive or interpret an objective behavior in terms of support for self-endorsement. In other words, culture could moderate the association between an objective situation or event (e.g., a parent giving advice about homework) and the subjective perception of this event in terms of experienced autonomy support or control. Cultural values such as filial piety (Leung, Wong, Wong, & Chang, 2010) and power distance (Begley, Lee, Fang, & Li, 2002) might play a role herein.

Conclusion

The present study empirically differentiated between two prevailing conceptualizations of autonomy, that is, independence and self-endorsed functioning. This differentiation adds to the debate about whether autonomy yields beneficial outcomes for individuals from a collectivistic culture. Whereas autonomy as independence did not show a unique association with psychological well-being, autonomy as self-endorsed (relative to controlled) functioning related to higher (versus lower) levels of subjective well-being. Further, the experience of basic psychological need satisfaction was an important explaining variable in this association. Moreover, these findings were found to be stable across individuals' levels of a collectivistic orientation. We propose that autonomy as self-endorsed functioning could be viewed as an etic part of human optimal functioning that applies to both individualistic and collectivistic cultures. In this sense, humans are not simply puppets that are passively determined by social expectations and socio-cultural pressures (Chirkov et al., 2011). Rather, they can initially reflect on these external requirements and decide whether to internalize them or not. Furthermore, the way how self-endorsed functioning is manifested, that is, in terms of independence or dependence, could be viewed as an emic feature of autonomy, which is more locally determined in the specific social context.

Chapter 3

Psychological Need Satisfaction and Desire for Need Satisfaction across Four Cultures¹

In the present study we investigated whether the satisfaction of the psychological needs for autonomy, relatedness, and competence, as identified within Basic Psychological Need Theory (BPNT; Deci & Ryan, 2000; Ryan & Deci, 2000), would uniquely contribute in the prediction of well-being regardless of participants' cultural background and interpersonal differences in need desire. This aim was pursued in a sample of late adolescents (total N = 1051; Mean age = 19.99) coming from four culturally diverse nations, namely, Belgium, China, USA, and Peru. After providing evidence for the measurement equivalence and construct validity of an adapted psychological need satisfaction measure, we found each of the three needs to relate uniquely to higher well-being. Most importantly, underscoring BPNT's universality claim, the outcomes of need satisfaction were not moderated by individual differences in the desire for satisfaction of the needs and the effects were found to be equivalent across the four countries. These findings provided more thorough evidences that across individual and cultural differences, the three basic needs for autonomy, relatedness, and competence are essential nutriments for optimal human functioning.

¹Chen, B., Vansteenkiste, M., Beyers, W., Boone, L., Deci, E. D., Deeder, J., Lens, W., Matos, L., Mouratidis, A., Richard, R. M., Sheldon, K. M., Soenens, B., Vanpetegem, S., & Verstuyf, J (2013). Psychological needs satisfaction and desire for need satisfaction across four cultures. *Manuscript under revision*.

Introduction

We are all familiar with the word “need”. Young people say they need smart-phones, and advertisements aimed at convincing us that we need the products they sell. In such cases, the concept of “need” refers to acquired desires or preferences. In other contexts however, need refers to what is essential or necessary for well-being and healthy functioning. For example, a person needs vitamins and nutrients, and children need responsive caregivers in early development. When applying this usage of the term to a psychological context, one may wonder whether there are, in fact, fundamental or basic psychological needs, whose satisfaction is required for healthy human functioning across individuals and cultures.

The present research was grounded in *Basic Psychological Needs Theory* (BPNT), one of the six mini-theories of *Self-Determination Theory* (SDT; Deci & Ryan, 2000; Ryan & Deci, 2000). The theory posits the existence of three basic psychological needs, namely, autonomy, relatedness and competence and their satisfactions represent the psychological nutrients that are claimed to be universally essential for human thriving. SDT researchers have used these three constructs to account for individual differences in both positive (e.g., well-being, engagement) and negative (e.g., pathology, aggression) outcomes (for an overview, see Ryan et al., 2006; Vansteenkiste & Ryan, in press).

Yet, many psychologists, including those adopting a social-constructive perspective, have eschewed the existence of universal psychological needs, instead arguing that psychological needs are cultural constructions that reflect variations in socio-cultural values (e.g., Buttle, 2006; Rist, 1980; Roy, 1980). Taking such a relativist perspective, they assume that individuals only benefit from satisfaction of those specific needs which they desire or value themselves (Hofer & Busch, 2011; Iyenger & Devoe, 2003). By contrast, SDT maintains that there are certain needs the fulfillment of which is necessary for well-being regardless of the extent to which people or society explicitly value or desire these needs (Deci & Ryan,

2000; Chirkov, Ryan, Kim, & Kaplan, 2003). Yet, very few, if any, studies have directly addressed this question. Therefore, in the current study we investigated whether the relations between psychological need satisfaction and well-being: a) differed across four diverse cultures (Peru, Belgium, US, and China), and; b) were moderated by individual differences in people's desires for the need satisfactions. In addition, this study expands upon some previous cross cultural examinations of basic need satisfaction by looking at the effects of both need satisfaction and need frustration on outcomes, the relations of need desire to both satisfaction and wellness, and by controlling for issues such as health and financial satisfaction.

Basic Psychological Needs Theory

Within BPNT, a basic psychological need is considered innate and its satisfaction is said to represent a universally essential experience for well-being (Ryan & Deci, 2000). This assumption lies in SDT's organismic-dialectical meta-theory, which views humans as active, growth-oriented organisms equipped with an inherent integrative tendency. Satisfaction of the basic psychological needs for autonomy, relatedness, and competence is said to function as a fundamental nutrient that energizes the integration process and contributes to health and psychological well-being. In contrast, need thwarting is said to relate to defensiveness, ill-being, and even pathology (Deci & Vansteenkiste, 2004).

Relatedness satisfaction refers to the experience of intimacy and genuine connection with others (Ryan, 1995), whereas relatedness frustration involves the experience of relational exclusion and loneliness. Competence satisfaction involves feeling effective and capable to achieve desired outcomes (Deci, 1975; Ryan, 1995), whereas competence frustration involves feelings of failure and doubts about one's efficacy. These two needs have been discussed and studied in other theories. For example, Baumeister and Leary (1995) and McAdams (1989) have elaborated the need for belonging, and White (1959) proposed competence motivation as a primary

human propensity. Finally, autonomy refers to the experience of self-determination, full willingness, and volition when carrying out an activity. In contrast, autonomy frustration involves feeling controlled through externally enforced or self-imposed pressures (de Charms, 1968; Deci & Ryan, 1985).

Empirically, the direct link between the three psychological needs and well-being indicators has been observed: (a) at the interpersonal level, with those who reported higher psychological needs satisfaction feeling better about themselves (e.g., higher self-esteem, Deci et al., 2001) and life in general (e.g., life satisfaction, Kasser & Ryan, 1999); and (b) at the intrapersonal level, showing that individual fluctuations in daily well-being and variability in security attachments in different relationships co-vary with fluctuation in satisfaction of the basic psychological needs within the day or within the relationship (e.g., La Guardia et al., 2000; Ryan, Bernstein, & Brown, 2010). Such findings have been reported in diverse life domains, including education (e.g., Mouratidis, Vansteenkiste, Sideridis, & Lens, 2011), the workplace (Van den Broeck, Vansteenkiste, De Witte, Soenens, & Lens, 2010), health care (Williams et al., 2011), and psychopathology (e.g., Ryan, 2005). Despite this substantial evidence, two important issues that have received relatively little empirical attention and therefore deserve additional research. These critical issues concern: (a) whether there are cultural variations in the degree to which individuals benefit from the satisfaction of psychological need, or in the costs of need frustration; b) whether the degree to which people experience psychological wellness from satisfaction of the basic psychological needs is moderated by individual differences in the people's explicit desire for satisfaction of those needs.

Individual Differences in Need Desire

At the individual level, there is undoubtedly variability in the degree to which people desire satisfaction of particular needs (e.g., Vallerand, 2000). According to the social-constructivist perspective such as the "standard social science model" (Toobey & Cosmides, 1992), individuals'

goals, values, and needs are primarily shaped through social learning, that is, through demands, obstacles, and affordances available in the social environment. Thus, psychological needs are said to be acquired through a social construction process in which individuals learn to value or desire specific needs (McClelland, 1965). Consistent with this notion of social learning is the proposal of a “match hypothesis.” Specifically, if individuals develop a stronger desire for a particular need satisfaction (e.g., wanting to have more achievement), they should benefit more from the satisfaction of this need, as compared to people displaying a lower desire for the need (Harackiewicz & Sansone, 1991; Hofer & Busch, 2011). If so, individual differences in the desire for a specific need would serve as a moderator for how much individuals benefit from the satisfaction of that need. Yet, this issue has, to the best of our knowledge, never been directly explored.

In contrast, SDT posits that the impact of need satisfaction on well-being is largely unaffected by one’s value or desire for that need (Deci & Ryan, 2000). This hypothesis stems from the very nature of SDT’s conceptualization of needs, namely as necessities for psychological wellness rather than socially constructed preferences. If satisfaction of the psychological needs for autonomy, competence, and relatedness represent universal nutrients, every person would benefit from the satisfaction of these needs, even those who express a low desire for them. To illustrate, individuals with a dismissive avoidant attachment style (Bartholomew & Horowitz, 1991) may consider close relationships as relatively unimportant and unnecessary based on their socialization history. Thus, they express a low desire for relatedness satisfaction. Still, they are likely to benefit from being in a close relationship nonetheless (Murphy & Bates, 1997; Ryan & Deci, 2008) and to pay additional costs if they do not get the need satisfied.

The current study aimed to investigate these two different perspectives on the role attributed to individual differences in need desires by examining, specifically, whether the association between need satisfaction and well-being would be higher for those who have higher desire

for the need. To maximize the variance in individual differences in need desire, we sampled individuals from four fairly different cultures.

Cultural Differences

Related to individual differences in need desire, another potential moderator to consider is the broader cultural climate. People are under the influence of numerous embedded contexts (e.g., Bronfenbrenner, 1979; Connell & Wellborn, 1991). Cultures may also differ in the degree to which they value and cultivate specific goals and “needs.” Some cross-cultural psychologists focus primarily on socio-cultural differences that influence individuals’ well-being in particular cultures (e.g., Heine, Lehman, Markus, & Kitayama, 1999). Yet, as pointed out by Diener (2009), one should not neglect the possibility of universal dynamics underlying different cultural syndromes; and indeed SDT has posited just such universal factors. Diener (2009) argued further that “more research is needed on which influences on well-being are universal across cultures and why” (p. 288). To meet this call, we examined whether satisfaction of the three basic psychological needs would contribute similarly to well-being across four cultures or, on the contrary, would vary in the degree to which they predict well-being in different cultures. To shed light on this issue, we took into account a number of critical points.

First, we emphasize the necessity of being precise in how the SDT needs are defined, particularly autonomy, which has been the most controversial need. This controversy has been due partly to the inconsistency in the way autonomy has been defined. Often, in more recent years it has been interpreted as meaning independence or individualism and has been contrasted with dependence or collectivism (Markus & Schwartz, 2010; Miller, 1997); whereas, the SDT tradition has consistently, for forty years, defined autonomy as the experience of self-determination, volition and willingness, and has contrasted it with the experience of pressure and coercion. In fact, various SDT writers have been very clear that the term

autonomy does *not* refer to independence (e.g., Chirkov et al., 2003; Ryan & Lynch, 1989). Indeed, people can act independently and do so volitionally (i.e., autonomously). Yet, people may also be dependent on others because they value doing so; this would also represent autonomous dependence. Alternatively, people can feel coerced or pressured to function either independently or dependently.

In line with this, two recent studies among adolescents from Belgium (Van Petegem et al., 2012) and China (Chen, Vansteenkiste, Beyers, Soenens, & Van Petegem, in press) found that the adolescents' independent versus dependent decision making in relation to their parents could be empirically differentiated from the degree of volition versus coercion underlying these decisions. In addition to being separable, the experiences of willingness and volition were related more systematically and strongly to well-being than independent practices and decision-making per se (e.g., Chirkov et al., 2003; Van Petegem et al., 2012).

In addition to these conceptual issues, it is fully recognized within BPNT that there exists cultural diversity, first, in the emphasis on these needs; second, in the mean level of need satisfaction; and third, in the way these basic needs get met. Concerning the first, as a function of the socio-cultural ambience, there likely exists variability in the values attached to the basic psychological needs across cultures (Oishi et al., 1999). Second, different cultural contexts may offer different opportunities or resources for need satisfaction, which may result in mean-level differences in satisfaction of autonomy, competence, and relatedness across cultures. Third, need satisfaction can be reached through different means that are in accord with the values and practices of different cultural contexts. For example, people in collectivistic societies may feel autonomous when following important others' or when enacting mainstream preferences and advice within their culture, whereas in individualistic cultures, people may tend to feel autonomous through making their own decisions and expressing personal opinions. Despite the diversity in specific behaviors that engender need

satisfaction from one culture to another, these different behavioral pathways might lead to the same outcomes, that is, to the phenomenological experiences of feeling effective, volitional, and related to others. The point is that the outcomes of need satisfaction can function in a far more universal way than the paths taken to reach the outcomes, whereas the paths may be more locally influenced by specific cultures.

Accumulating evidence indicates that individuals living in non-Western countries do benefit from the satisfaction of all three needs. This has been found in countries with varying cultural foci, including more collectivistic nations such as Jordan (Ahmad et al., 2013), China (Vansteenkiste et al., 2006), and South Korea (Jang et al., 2009). Besides, several multi-country studies (e.g., Church et al., 2012; Sheldon et al., 2001; Tay & Diener, 2011) also observed the positive link between the three needs and well-being. However, the measures used to tap need satisfaction in some of these multi-culture studies have not been directly grounded in the conceptualization of needs in the SDT literature (e.g., Tay & Diener, 2011) and in none of previous multi-country studies has the measurement equivalence of the basic needs been examined (e.g., Sheldon et al., 2001; Tay & Diener, 2011). In order to draw any formal conclusion about need satisfaction being equally beneficial across culture, it is critical, first, to demonstrate that the items used to tap need satisfaction carry the same meaning for individuals from diverse cultures. Furthermore, none of these multi-country studies directly compared the strength of the relations of the need satisfactions to well-being across cultures, leaving it unclear to what degree individuals in different cultures benefit from the psychological need satisfaction (e.g., Church et al., 2012; Sheldon et al., 2011). For these reasons, we adapted existing SDT need satisfaction scales and tested the requirement of measurement equivalence, which, if equivalent, is more appropriate for formally addressing the universality claim of BPNT. Thus, we directly compared the equivalence of the associations between need satisfaction and well-being across four diverse cultures. Additionally, we

controlled for people's satisfaction with their financial and health conditions, as well as their family income, sad these have been found to relate to psychological well-being across nations (Diener et al., 2009; Ryan & Deci, 2001). Controlling for these variables provides a more conservative test of our primary hypothesis as it allows us to examine whether the three psychological needs uniquely contribute to well-being over and above health and financial status.

The Present Study

The main aim of the present study was to explore whether the relationships between basic psychological need satisfaction and well-being are universal or rather depend on (a) individual differences in desire for satisfaction of the needs (i.e., "micro level") and (b) differences in the broader cultural ambience (i.e., "macro level"). We investigated these issues within four different cultures, namely, the US, Peru, Belgium, and China, which are not only geographically located on four different continents, but also differ along various cultural and political dimensions (Hofstede, Hofstede & Minkov, 2010). For instance, China is a relatively vertical collectivistic culture with a focus on values of interdependence and power distance. The US is more vertical individualistic with values of independence and personal achievement more prevailing. Peru is relatively vertical collectivistic with high tendency for uncertainty avoidance whereas Belgium tends to be more individualistic and egalitarian (Schwartz & Bardi, 2001; Hofstede et al., 2010).

Because pilot testing had pointed out that previous global needs satisfaction scales yielded unsatisfactory reliability in some samples, we formulated a broader pool of items. This set of items was then subjected to a scale validation process and the measurement equivalence across cultures was examined. After this validation process, we tested two primary hypotheses.

First, we examined the universality assumption of these psychological needs, as maintained within BPNT. Specifically, we hypothesized that the strength of the association between satisfaction of the three needs and well-being would be similar across the four countries (Hypothesis 1). Second, we hypothesized that the relations of the satisfaction of the three needs with well-being would not be moderated by individual differences in how much people wanted to get these needs satisfied (Hypothesis 2). Thus, people with a low desire for a specific need should benefit from getting that need satisfied as much as those with a high desire.

To operationalize well-being, we made use of various indicators, tapping into both hedonic and eudaimonic well-being. Eudaimonic well-being involves more than the attainment of subjective happiness and positive affect, as it refers to the degree to which one functions to one's full potential and the movement towards self-realization and psychological growth (Ryan, & Deci, 2001; Ryff, 1989). Thus, in the current study, we not only tapped into general life satisfaction and depressive symptoms, but also into several well-being dimensions from Ryff's (1989) eudaimonic well-being model as well as subjective vitality, which is a positive and phenomenologically accessible state of having energy available to the self and is also considered an indicator of well-being in SDT (Ryan & Deci, 2001).

Method

Participants

Participants were 1051 university students drawn from four nations: 298 from the mid-western part of the USA; 309 from Beijing, the capital of China; 200 from Flanders part of Belgium; and 244 from Lima, the capital of Peru. All universities were located in urban areas and enrolled students from diverse economic backgrounds. Gender, age, family income and parents' educational level appear in Table 1. The skewness and kurtosis of family income were within an absolute value of 1 in the American, Chinese and

Peruvian sample and within 1.5 in the Belgium sample, which indicates a relatively normal distribution of socioeconomic status (Lei & Lomax, 2005).

Table 1

Demographic Characteristics of the Four Samples

Sample	USA	China	Belgium	Peru
<i>N</i>	298	309	200	244
Gender				
Male (%)	35%	19%	41%	13%
Female (%)	65%	81%	59%	87%
Age				
Range (years)	18-29	17-24	18-28	16-32
Mean (years)	19.41	19.79	20.15	20.87
<i>SD</i> (years)	0.35	0.39	0.34	0.49
Mother Education				
Primary school (%)	0.3%	12.3%	3.0%	6.6%
High School (%)	25.5%	40.5%	38.0%	32.8%
University (%)	73.2%	47.2%	59.0%	60.2%
Father Education				
Primary school (%)	0.7%	6.1%	4.5%	2.9%
High School (%)	23.8%	39.2%	38.5%	23.4%
University (%)	74.8%	53.4%	57.0%	72.1%
Family Income				
Much below average country level (%)	0.3%	4.5%	0.0%	0.8%
Below average country level (%)	6.4%	16.5%	5.0%	3.7%
Around average country level (%)	39.9%	51.8%	51.5%	32.4%
Above average country level (%)	40.3%	12.3%	33.5%	40.6%
Much above average country level (%)	11.1%	3.6%	3.5%	9.8%
Would rather keep it private (%)	1.7%	10.7%	6.5%	12.3%

Measures

Background characteristics. Paternal and maternal education were assessed with a three-point question (1 = primary school, 2 = high school, 3 = university). Family income was assessed relative to the within-country average level, with six-point scales (cf. Table 1). Health satisfaction was assessed with single item (“how satisfied are you with your health condition?”). A similar item was used to assess financial satisfaction.

Basic psychological need satisfaction. A pool of items was generated and discussed by seven researchers with Flemish or Chinese cultural background who were familiar with SDT and spoke English well. First, the researchers retained 21 items after inspecting two global and one domain-specific scale on need satisfaction, namely, (1) the Basic Psychological Need Satisfaction Scale (BPNS; Gagné et al., 2003), (2) the Balanced Measurement of Psychological Needs (BMPN, Sheldon & Hilpert, 2012); and (3) relationship need satisfaction scale (La Guardia et al., 2000).

Next, the researchers generated an additional set of 21 items through brainstorming, ensuring that the items would capture the exact meaning of the three needs defined in SDT. Further, half of the items were concerned with satisfaction of each need and the other half with frustration of each need. To capture the proper wording for each of the items, we adopted a simultaneous approach when generating items, which involved moving back and forth among three languages (i.e., English, Dutch, and Chinese) and between the Belgian and Chinese cultures (Harkness, Van de Vijver & Johnson, 2002). The original item pool included, respectively, 16, 12, and 14 items to tap into autonomy, relatedness, and competence satisfaction and frustration.

In a second phase, the English version of the item pool was translated into Chinese, Dutch, and Spanish by three independent researchers fluent in English and each being a native speaker of one of these three languages. The back translations of all three versions were conducted by three other independent scholars who were trained in one of these languages.

Non-equivalent translations were discussed with the researchers to arrive at agreement on the final wording. All items were rated on a 5-point Likert scale, ranging from 1 (“*Completely untrue*”) to 5 (“*Completely true*”). The frustration items were reverse-scored and combined with their corresponding satisfaction items, thus forming three need variables that assessed level of satisfaction versus frustration of the needs. Validity information of this measure is provided in the first part of the Results section.

Need desire. To assess individuals’ desire for satisfaction of each of the three psychological needs, we used the nine items from the Psychological Needs as Motive scale (Sheldon & Gunz, 2009). Before rating each item, respondents read the following: “If you would have a chance to make changes in your life, how much would you like to have the following changes?” Then, respondents rated three items for relatedness (e.g., “You manage to feel more liked and accepted by those you care about, and feel less separation from them”), autonomy (e.g., “You manage to create a life style where others no longer pressure you, and you feel free to do what you really want to do”), and competence (e.g., “You manage to become better at some activity that is important to you, and feel less inept and incompetent”). Each items was rated on a five-point Likert scale ranging from 1 (“*No desire for this change*”) to 5 (“*Much desire for this change*”). Cronbach’s alphas were .77 for autonomy, .72 for relatedness and .77 for competence.

Psychological well-being. Psychological well-being was assessed with six indicators that have been widely used in previous cross-cultural studies (e.g., Deci et al., 2001; Oishi et al., 1999). All items were rated on a 5-point likert scale, ranging from 1 (“*Completely untrue*”) to 5 (“*Completely true*”). First, life satisfaction was measured with the Satisfaction with Life Scale (Diener, Emmons, Larsen, & Griffin, 1985; α ranged between .66 and .86 across the four countries). Depressive symptoms were measured with 10 items from the Centre for Epidemiological Studies-Depression (CES-D) scale (Radloff, 1977; the range for α was between .71 and .83). Vitality was assessed by the 7-item Subjective Vitality Scale (e.g., “I feel alive and vital”,

Ryan & Frederick, 1997); α s was between .81 and .88. Self-acceptance (e.g., “In general, I feel confident and positive about myself”), positive relations with others (e.g., “People would describe me as a giving person, willing to share my time with others”), and environmental mastery (e.g., “I have difficulty arranging my life in a way that is satisfying to me”) were assessed by 27 items from the Psychological Well-being Scale, which aims to assess eudaimonic aspects of well-being (Ryff, 1989). Cronbach alphas of these three scales ranged from .73 to .88 across the four countries.

Results

Preliminary Analyses

Validating the new Basic Psychological Needs Scale. To begin the validation process, we restricted the exploratory factor analyses (EFA) to China and the U.S. as they represent typical Western and Eastern cultures that differ most strongly on the value dimensions of individualism and power distance (Hofstede et al., 2010). This method allowed for an initial selection of items that worked well in the two most discrepant countries. Specifically, we first conducted EFA with the principal axis method of estimation using all the items. Two factors emerged with all the satisfaction items falling into one factor and all frustration items falling into the second factor. This is a typical pattern that has been documented in the measurement literature and implies a potential artifact of response styles for positive and negative items (Carmines & Zeller, 1979; Marsh, 1996). Next, we conducted EFA using an oblique rotation on the satisfaction and frustration items separately. With the satisfaction items, a three-factor solution for both samples was suggested based upon the criteria of eigenvalues larger than one. The three retained factors explained 59.37% and 64.18% of the item variance in the U.S. and Chinese samples, respectively. Next we retained the items with a factor loading > 0.45 and a cross loading < 0.30 in both samples (Hair et al., 1998). This procedure was repeated for the need frustration items. Again, three factors emerged with an eigenvalue larger than 1. The three retained factors

explained 52.04% and 42.87% of the item variance. In this way, 10 autonomy items, 9 relatedness items, and 12 competence items were retained.

Next, we examined the descriptive statistics of the remaining 31 items as indicated by their mean, median, standard deviation, skewness, and kurtosis across the four samples. The scores of all the items ranged from 1 to 5, and all standard deviations exceeded 0.50, being indicative of adequate variability. Results of skewness and kurtosis revealed that most items across the four samples violated the assumption of multivariate normality. We corrected for this in the subsequent Confirmatory Factor Analyses (CFA). The set of 31 items was subjected to a CFA performed on the total sample ($N = 1051$). CFA was conducted using the Mplus 6.1 software with robust maximum likelihood estimation which can correct the observed non-normality of the variables (Muthén & Muthén, 2007). To test the methodologically induced bias that possibly leads the need satisfaction and frustration items to fall onto distinct factors, we used a correlated traits and correlated uniqueness model (CFA-CTCU) that has recently been used successfully in CFAs applied to a Multi-Trait-Multi-Method (MTMM) matrix; this method possesses several advantages over the traditional CFA with Correlated Traits and Correlated Methods (CFA-CTCM; Brown, 2006; Kenny & Kashy, 1992). In CTCU, positive and negative items are viewed as two different methods to assess the same factor, and they are estimated by specifying correlated uniqueness among indicators based on the same assessment method (Brown, 2006).

To evaluate the model fit, Satorra-Bentler scaled chi-square (SBS- χ^2 ; Satorra & Bentler, 1994), the standardized root-mean-square residual (SRMR), the root-mean-square error of approximation (RMSEA) and the comparative fit index (CFI) were used. For CFI, values of about .90 or higher are generally considered acceptable (Little, 1997). For RMSEA and SRMR, a combined cutoff of .06 and .09, respectively, combined with a CFI value higher than .90 indicates a good fit (Hu & Bentler, 1999). Although

the CFA model with three latent variables fit the data well, $SBS-\chi^2 (220) = 439.29$, $SRMR = .03$, $RMSEA = .03$ and $CFI = .98$, we deleted one autonomy item with a low loading and one competence item with a high cross-loading based on the modification indices. Standardized factor loadings of the remaining items ranged between .42 and .72².

Next, multi-group CFA was used to test the measurement invariance of the remaining 29 items across the four subsamples. We began with testing the metric equivalence which means that we examined whether the item loadings onto their respective underlying construct are equivalent across groups (Fontaine, 2005). To do so, we constrained the factor loadings of the items to each latent construct to be equal, but allowed free intercepts and error variances across the four groups. Then, we compared the constrained model to the baseline model without constraints, thereby considering the difference in CFI (ΔCFI) and difference in Satorra-Bentler scaled chi-square statistic ($\Delta SBS-\chi^2$). ΔCFI is considered a better and more realistic criterion than $\Delta SBS-\chi^2$ in studies with large samples and especially when data are non-normally distributed (Cheung & Rensvold, 2002). Following this recommendation, we took a ΔCFI value less than .01 as evidence for model invariance (Cheung & Rensvold, 2002).

The constrained model had a somewhat worse fit than the unconstrained model $\Delta SBS-\chi^2 (78) = 202.29$, $p < 0.01$, $\Delta CFI = 0.01$, suggesting the non-equivalence of certain items. Based on the modification indices, we screened out 5 items that yielded non-equivalent loadings. Finally, 24 items were retained, with 8 items for each need subscale (4 satisfaction and 4 frustration items).

² Before we moved to the CFA with total sample with four groups to test the construct with method effect, we first tested the construct with a CFA with only Peru and Belgium samples which have not been used to in the previous EFA analysis. The reason is to avoid that the four-sample solution would be biased by the use of two of the same samples used to achieve the factor structure that EFA seek to “confirm”. The three - factor model with method effect fit the data of Peru and Belgium samples well, with $SBS-\chi^2 (233) = 373.44$, $p < 0.01$, $CFI = 0.97$, $RMSEA = .04$, $SRMR = 0.06$.

The constrained measurement model had an acceptable fit, $SBS-\chi^2 (942) = 1321.82$, $CFI = .95$, $RMSEA = .04$, $SRMR = .07$, which was invariant from the nested unconstrained model, $\Delta\chi^2 (63) = 85.83$, $p = .03$, $\Delta CFI = .003$. The factor loadings of this set of items can be found in Table 2. The means and standard deviations for the need satisfaction scales can be found in Table 4. Next, we tested for scalar equivalence, which is a requirement to compare group means and which can be tested by constraining the both factor loadings and intercepts such that they are equivalent across the four groups (Fontaine, 2005).

Compared with baseline model, χ^2 difference test was significant and ΔCFI was .06, which is larger than the invariance criteria of .01 and which indicates lack of scalar variance among the four groups (Cheung & Rensvold, 2002). After freeing the intercepts of 10 items based on the modification indices, partial scalar equivalence was reached (Byrne et al., 1989; Vandenberg & Lance, 2000). Specifically, the fit of the partial constrained model was as follows: $SBS-\chi^2 (972) = 1411.98$, $p < 0.01$, $CFI = 0.943$, $RMSEA = .04$, $SRMR = 0.07$ and did not deviate from the fully constrained model, $\Delta CFI < .01$. Briefly, the CFA multi-group analyses supported the full metric invariance and partial scalar equivalence. The internal consistency for autonomy satisfaction was, respectively, .82, .77, .85, and .80 for the US, Chinese, Belgian and Peruvian sample. In the same order, the internal consistency for relatedness satisfaction was .87, .79, .83, and .73, while the internal consistency for competence satisfaction was .89, .79, .88, and .80.

Table 2

Factor Loadings, Communalities, Items Means and Standard Deviations after CFA with Method Effect in Total Sample (N =1051)

Items	Autonomy	Relatedness	Competence	R^2	M	SD
A1. I feel a sense of choice and freedom in the things I undertake.	.71			.51	3.85	0.88
A2. I feel that my decisions reflect what I really want.	.73			.54	3.78	0.86
A3. I feel my choices express who I really am.	.67			.44	3.85	0.90
A4. I feel I have been doing what really interests me.	.64			.41	3.75	0.98
A5. Most of the things I do feel like “I have to”.	-.48			.23	2.39	0.94
A6. I feel forced to do many things I wouldn’t choose to do.	-.51			.26	2.29	1.05
A7. I feel pressured to do too many things.	-.47			.22	2.55	1.07
A8. My daily activities feel like a chain of obligation.	-.42			.17	2.53	1.07
R1. I feel that the people I care about also care about me.		.62		.38	4.17	0.91
R2. I feel connected with people who care for me, and for whom I care.		.62		.39	4.12	0.86
R3. I feel close and connected with other people who are important to me.		.62		.39	4.16	0.82
R4. I experience a warm feeling with the people I spend time with.		.61		.37	4.13	0.82
R5. I feel excluded from the group I want to belong to.		-.59		.35	1.84	0.94
R6. I feel that people who are important to me are cold and distant towards me.		-.59		.34	1.73	0.94
R7. I have the impression that people I spend time with dislike me.		-.59		.35	1.73	0.88
R8. I feel the relationships i have are just superficial.		-.69		.48	2.01	0.96

Table 2 (continued)

Factor Loadings, Communalities, Items Means and Standard Deviations after CFA with Method Effect in Total Sample (N = 1051)

Items	Autonomy	Relatedness	Competence	R^2	M	SD
C1. I feel confident that I can do things well.			.70	.48	4.04	0.84
C2. I feel capable at what I do.			.74	.55	3.91	0.86
C3. I feel competent to achieve my goals.			.74	.55	4.03	0.88
C4. I feel I can successfully complete difficult tasks.			.68	.46	3.78	0.88
C5. I have serious doubts about whether I can do things well.			-.58	.33	2.25	1.02
C6. I feel disappointed with many of my performance.			-.50	.25	2.42	1.02
C7. I feel insecure about my abilities.			-.68	.47	2.30	1.04
C8. I feel like a failure because of the mistakes I make.			-.58	.34	2.28	1.12

Correlations and means. Table 3 shows the means and standard deviations for the three psychological need satisfaction scales, the need desire scales, and the composite of psychological well-being in the four countries. Next, we examined differences in need satisfaction between the four countries via a MANOVA-analysis³. MANOVA analysis indicated significant differences between the four countries for the seven measures [$F(21, 2786) = 28.10, p < .01, \eta^2 = .17$].

Subsequent ANOVA tests showed significant differences between the four countries for each of the seven measures. Further, post hoc Tukey analysis suggested that, in comparison to the three other countries, the Chinese scored significantly lower on need satisfaction and well-being. The Peruvians scored highest on need satisfaction and well-being, with the USA and Belgian samples - which did not differ significantly - falling in between. As for need desire, the Chinese sample consistently reported the highest levels of need desire across the three needs. The Peruvians did not differ from the Belgians in terms of need desire and both countries scored significantly lower than the U.S. and Chinese samples.

Table 4 shows the intercorrelation matrix for the main variables. As in previous research and as expected within BPNT (e.g., Ryan & Deci, 2011), the three scales of need satisfaction were highly correlated. The correlations were even higher for psychological need desire.

³ Because only 14 (i.e., 5 autonomy, 4 competence, and 5 relatedness items) out of the 24 items met the criterion of scalar invariance, country means were based on these 14 items. To examine whether this pattern of group difference of psychological need satisfaction can be generated to the mean of the total 24 items, we first used paired samples T test to examine whether the mean of 14 items differ from the mean of 24 items in four groups. The results showed no significant difference in each of the four groups. Then we examined the group mean difference of psychological need satisfaction with the mean of the 24 items. The result was the same pattern as in the comparison with the 14 items.

Table 3

Means and Standard Deviations of Need Satisfaction and Psychological Well-being for the Four Countries

Measures	Total		USA		China		Belgium		Peru		F-value	η^2
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Psychological Need Satisfaction	3.83	0.56	3.82 _b	0.60	3.51 _c	0.47	3.92 _b	0.46	4.18 _a	0.46	82.12**	.20
Autonomy	3.68	0.66	3.62 _c	0.62	3.31 _d	0.58	3.90 _b	0.55	4.05 _a	0.62	78.78**	.19
Relatedness	4.11	0.63	4.10 _b	0.68	3.78 _c	0.57	4.19 _b	0.52	4.44 _a	0.50	60.76**	.15
Competence	3.71	0.69	3.73 _b	0.75	3.44 _c	0.60	3.65 _b	0.63	4.06 _a	0.61	40.87**	.11
Psychological Need Desire	3.21	1.10	3.35 _b	0.93	3.77 _a	0.75	2.64 _c	1.02	2.73 _c	0.80	93.26**	.22
Autonomy	3.13	1.14	3.18 _b	1.09	3.74 _a	0.92	2.54 _c	1.02	2.68 _c	1.11	70.16**	.17
Relatedness	3.11	1.15	3.27 _b	1.09	3.70 _a	0.91	2.67 _c	1.06	2.47 _c	1.13	74.80**	.18
Competence	3.38	1.10	3.61 _b	0.99	3.86 _a	0.86	3.00 _c	1.02	2.77 _c	1.17	65.74**	.16
Psychological Well-being	3.68	0.57	3.67 _b	0.62	3.48 _c	0.47	3.68 _b	0.53	3.93 _a	0.53	29.97**	.08

Note. Means in the same row that do not share subscripts differ at $p < .01$ using Tukey contrasts. ** $p < .01$.

Table 4

Correlations among Background Variables and Study Variables in the Total Sample

Measure	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. Age	-.13**	.02	.06	.09**	-.02	.07*	-.05	-.08*	-.11**	.02	-.02	-.07*	.00	-.04	.05	.04
2. Income	-	.05	.14**	.05	.11**	.09**	-.11**	-.12**	.09**	.08*	.09**	-.01	.09**	.10**	.01	.06
3. Health S		-	.37**	.32**	.30**	.31**	-.17**	-.16**	-.17**	.49**	.47**	-.29**	.48**	.31**	.36**	.39**
4. Financial S			-	.35**	.29**	.33**	-.21**	-.23**	-.29**	.42**	.41**	-.27**	.41**	.28**	.35**	.33**
Satisfaction																
5. Autonomy				-	.59**	.61**	-.41**	-.32**	-.37**	.69**	.57**	-.43**	.63**	.52**	.61**	.54**
6. Relatedness					-	.55**	-.28**	-.36**	-.20**	.68**	.50**	-.44**	.59**	.70**	.52**	.49**
7. Competence						-	-.26**	-.27**	-.32**	.73**	.56**	-.48**	.73**	.50**	.67**	.58**
Desire																
8. Autonomy							-	.68**	.69**	-.33**	-.33**	.16**	-.31**	-.25**	-.27**	-.24**
9. Relatedness								-	.62**	-.31**	-.27**	.19**	-.28**	-.29**	-.21**	-.23**
10. Competence									-	-.30**	-.27**	.19**	-.31**	-.19**	-.26**	-.23**

Note. S = satisfaction. * $p < .05$, ** $p < .01$.

Table 4 (continued)

Correlations among Background Variables and Study Variables in the Total Sample

Measure	11	12	13	14	15	16	17
Psychological Well-Being							
11. Composite	-	.80**	-.70**	.88**	.76**	.84**	.83**
12. Life Satisfaction		-	-.36**	.72**	.48**	.61**	.58**
13. Depressive Symptoms			-	-.53**	-.48**	-.55**	-.54**
14. Self Acceptance				-	.60**	.72**	.66**
15. Positive Relations					-	.58**	.55**
16. Mastery of Environment						-	.65**
17. Vitality							-

* $p < .05$, ** $p < .01$.

Further, correlations among satisfaction of the three psychological needs and the six well-being indicators were all significant in the expected direction and the strength of these correlations was similar across the three needs. In addition, consistent with the findings of Sheldon and Gunz (2009), there was a pattern of negative correlations between the satisfaction of each need and the desire of the corresponding need. Also of interest are the correlations between need desire and well-being. Specifically, it seemed that, the higher a person's desire for satisfaction of any of the three needs, the lower were the person's scores on well-being.

Background variables. Next, we explored the effects of background variables on the assessed outcomes. A first MANOVA indicated a multivariate gender-effect, Wilk's Lambda $F(7, 999) = 8.80, p < .01, \eta^2 = .06$, for need satisfaction. Subsequent univariant ANOVAs showed that females ($M = 4.14, SD = 0.60$) reported slightly more relatedness satisfaction than males ($M = 4.02, SD = 0.69$), $F(1, 1037) = 6.99, p < .01, \eta^2 = .01$, whereas males ($M = 3.84, SD = 0.70$) reported somewhat more competence satisfaction than females ($M = 3.66, SD = 0.68$), $F(1, 1029) = 13.13, p < .01, \eta^2 = .01$. No other gender effects were found. Correlations between the continuous background variables of age, family income, financial and health satisfaction are presented in Table 4. As can be noticed, age was slightly positively correlated with autonomy and competence satisfaction and negatively with the desire for relatedness and competence. Family income correlated positively with autonomy and relatedness satisfaction as well as slightly positively with the well-being composite. Finally, financial and health satisfaction yielded a significant positive association with the three need satisfaction measures as well as with the composite well-being and each of its separate indicators. Thus, we controlled for all of these background variables when examining associations between the three needs and well-being in the primary analyses.

Primary Analyses

Hypothesis 1: Need satisfaction and well-being across four countries. To test our hypothesis about the relations between need satisfaction and well-being across the four countries, we first explored the associations in the total sample using structural equation modeling (SEM). After controlling for age ($b = -.01$, ns), family income ($b = .00$, ns), gender ($b = .00$, ns), financial satisfaction ($b = .09$, $p < .01$) and health satisfaction ($b = .18$, $p < .01$), as well as for the method effects associated with satisfaction versus frustration items, autonomy, relatedness, and competence need satisfaction each were found to yield independent positive associations with psychological well-being ($\beta_s = .41$, $.28$, and $.35$, respectively, $ps < .05$). The model fitted the data well: SBS χ^2 (316) = 1057.08, CFI = .93, RMSEA = .05, SRMR = .08.

Next, multi-group comparison analysis using SEM was used to examine formally whether the associations between need satisfaction and well-being would be different across countries. First, the initially constrained model in which all path coefficients were set equal across the four countries had the following fit: SBS χ^2 (1234) = 2066.04, CFI = 0.92, RMSEA = 0.05, SRMR = 0.07. The unconstrained model in which paths were allowed to vary across countries did not have a significantly better fit as compared to the constrained model [$\Delta\chi^2$ (9) = 14.06, $p > .05$; $\Delta CFI = .001$]. This result indicates that the hypothesized associations from autonomy, relatedness, and competence satisfactions to well-being were equivalent in the four samples.

Hypothesis 2: Need satisfaction and need desire. To examine the independent contribution of all three needs and the moderating role of need desire in the relation between need satisfaction and well-being, we performed a hierarchical regression analysis in the total sample. After inserting the background characteristics of gender, age, and family income as well as the control variables of health and financial satisfaction in Step 1, the three need-satisfaction measures together with need desire were introduced in Step 2.

Table 5
Hierarchical Regression Analysis Regressing Well-being onto Need satisfaction, Need Desire, and their Interactions

	Step 1	Step 2	Step 3
Gender	-.04	-.02	-.02
Age	.00	-.03	-.03
Family Income	.00	-.03	-.03
Health Satisfaction	.37**	.19**	.19**
Financial Satisfaction	.29**	.09**	.09**
Need Satisfaction			
Autonomy Satisfaction		.23**	.22**
Relatedness Satisfaction		.27**	.25**
Competence Satisfaction		.35**	.37**
Need Desire			
Autonomy Desire		-.07	-.08
Relatedness Desire		.03	.02
Competence Desire		.04	.03
Interaction			
Autonomy: Satisfaction X Desire			.02
Relatedness: Satisfaction X Desire			.02
Competence: Satisfaction X Desire			.02
ΔR^2	.30**	.42**	.00

** $p < .01$.

Finally, in Step 3, the two-way interactions between the need satisfaction measures and the corresponding need desire measures were added, which were created by multiplying the standardized scores on the variables. As shown in Table 5 (Step 1), health and financial satisfaction were both positively associated with well-being and explained 30% of the variance in well-being. Then, in Step 2, the three need-satisfaction variables but not the need-desire measures were associated uniquely with higher well-being, explaining an additional 42% of the variance in well-being. In the last step, none of the three interaction terms was found to be significant, suggesting that the associations between psychological need satisfaction and well-being are not moderated by the individual differences in desire for these need satisfactions.

Supplementary Analyses

Given that we noticed considerable mean level differences in need satisfaction and well-being across the four countries in Table 3, we further explored this issue. We examined a mediation model in which well-being differences between particular countries could be accounted for by differences in need satisfaction between cultures. As Belgian and American participants did not differ in psychological well-being, we aggregated the scores of these two samples and contrasted this combined group with the Chinese and Peruvian samples by creating two dummy contrasts. In a hierarchical regression analysis, the two country dummy codes were inserted in Step 1 (i.e., Dummy 1 = China versus U.S./Belgium; Dummy 2 = Peru versus U.S./Belgium) together with the background characteristics. Then, need satisfaction was added in Step 2 to examine whether need satisfaction could explain the initially observed country contrasts. The results of Step 1 indicate that both country dummy codes yielded a unique significant association with well-being ($\beta_{\text{China vs. Belgium \& US}} = -.15, p < .01$; $\beta_{\text{Peru vs. Belgium \& China}} = .21, p < .01$), indicating that Chinese participants reported lower and Peruvian participants higher well-being compared to the Belgian/U.S.

sample. These initial associations disappeared after the separate need satisfaction measures were entered in Step 2. Further, the Sobel (1982) t-test showed that all six sets of indirect effects (2 country dummy codes x 3 psychological needs) were all significant at $p < .01$ level. This indicated that differences between countries in well-being were mediated by psychological need satisfaction.

Discussion

Do certain basic psychological needs actually exist for all people, in the sense that their satisfaction would contribute to, and need frustration diminish, the well-being of individuals from different societies and across people with different levels of desire for the needs? This question highlights the long-term debate between social constructivism (e.g., the standard social science model) and universalism (e.g., evolutionary psychology) in explaining human behavior, with the present paper specifically focusing on SDT's hypothesized basic psychological needs. The current study was designed to shed further light on the question of whether the benefits associated with satisfaction of the psychological needs for autonomy, relatedness, and competence would vary as a function of micro-level differences (i.e., individual differences in need desire) and macro-level differences (i.e., more distal contextual differences among cultures).

Moderation by Individual Differences in Need Desire

In line with past work (e.g., Ryan et al., 2010; Sheldon et al., 2001), the current findings showed that the satisfaction of the needs for autonomy, competence, and relatedness yielded independent contributions in the prediction of well-being. Moreover, extending past work, the study suggested that how much one benefits from these need satisfaction does not depend on how strongly one desires more need satisfaction. Although the large sample size ($N = 1051$) yielded sufficient power to detect an interaction effect, the three interaction terms between need satisfaction and the desire of

the corresponding need explained no additional variance in the well-being outcomes above and beyond the main effects of the three needs satisfactions. These findings underscore BPNT's universality claim as they indicate that even people who do not express desire for satisfaction of the needs for autonomy, relatedness, or competence nonetheless benefit from having these needs satisfied - just as do those who explicitly desire need satisfactions.

At first sight, the lack of moderation obtained in the present study may seem contradictory with initial evidence for an interaction between need motive (i.e., desire) and need satisfaction using implicit (i.e., projective) measures of need motive as typically used within Motive Disposition Theory (e.g., Hofer & Busch, 2011; Schöler, Sheldon, & Fröhlich 2010). However, in those prior studies with projective measures of need motives, the focus was on the MDT needs for achievement and affiliation, which are theoretically quite different from SDT's competence and relatedness constructs (Deci & Ryan, 2000), and of course were measured quite differently. Further, in the prior studies, the effect sizes of the obtained moderation effects were much smaller than the main effect of basic psychological need satisfaction (Hofer & Busch, 2011), and the obtained interactions were not disordinal (implying a cross-over effect) but were ordinal in nature, suggesting that people with low need strength also benefit from need satisfaction. Thus, although we were not assessing the same variables and were not measuring variables in similar ways, there is no clear inconsistency between these prior results and our present findings.

Following Sheldon and Gunz (2009), we operationalized need desire as the extent to which individuals want to get more satisfaction of the need. As one can see in Table 4, need desire was negatively related to the satisfaction of their respective needs. This pattern of relations suggests that self-reported desire for a need may partly reflect previous experiences of need frustration. That is, when a person has experienced less satisfaction of a basic need, the desire for it may become more salient. Nonetheless, as was predicted by SDT, this did not affect the relations between need satisfactions

and well-being. Satisfaction of each of these basic needs contributed to positive wellness, not only for individuals who reported relatively high desire and frustration of the need, but also, to the same degree, for those who experienced relatively low desire and high satisfaction of the need.

Functional Role of Need Satisfaction across Cultures

A second major aim of this investigation was to rigorously examine whether need satisfaction would yield a similar relation to well-being across different cultures. From a cross-cultural relativistic perspective, autonomy, competence, and relatedness would be functionally important only in those cultures that value and fertilize these needs. For example, Heine et al. (1999) proposed that whereas Western cultures emphasize autonomy, Eastern societies value more relatedness. As a result, neither the presence of autonomy would be expected to be beneficial nor its absence to be detrimental for those who live in a society that is more oriented towards interdependence (Markus & Kitayama, 2003; Miller, 1997). However, a key finding in this study was that the associations from satisfaction of each of the three psychological needs to psychological well-being were statistically equivalent across the four country groups.

Extending previous cross-cultural studies with psychological needs, we started with formal validation process and provided evidence for the measurement equivalence of the need scale, so that we can conclude that the items are understood similarly by the participants from the four different cultural groups. Notably, the unique contributions of all three needs emerged after controlling for family income, financial satisfaction, and health satisfaction and after controlling for response bias associated with the satisfaction and frustration items.

Notwithstanding the observation that the structural relations were equivalent across countries, we did find significant mean level differences in need satisfaction between the countries in preliminary analysis, as various socio-cultural contexts could offer different supports and affordances for

need satisfaction (Deci & Ryan, 2012). Specifically, China was consistently the lowest group in satisfaction across the three needs. This might be due to the relatively hierarchical and controlling economic and political systems that could transfer more social control onto citizens' lifestyles and vocational choices, and that offer less opportunity for autonomy and competence satisfaction (Deci & Ryan, 2012). The U.S. sample reported the second lowest level of autonomy satisfaction. At first, this might seem anomalous, given that the US is an individualistic culture, but within SDT individualism is viewed not as an issue of independence and self-reliance and does not imply autonomy satisfaction (Chirkov et al., 2003; Ryan & Deci, 2011). It is possible that the relatively low levels of autonomy satisfaction are due to increasingly strong extrinsic aspirations for wealth, fame, and image in the U.S. in general (Twenge et al., 2010), as research has typically shown that extrinsic aspirations relate negatively to satisfaction of autonomy (e.g., Kasser & Ryan, 1996; Sebire, Standage, & Vansteenkiste, 2009).

The country differences in psychological well-being mirrored the country differences in need satisfaction. Further, we found in a set of supplementary analyses that these country differences in psychological well-being were accounted for largely by the variance in psychological need satisfaction. This result underscores the critical role of autonomy, relatedness, and competence satisfaction in contributing to the psychological well-being within and across cultures.

Mean-level differences also existed for need desire. Interestingly, the Chinese sample expressed the highest levels of need desire, including the need for autonomy, thus suggesting that they desire more satisfying personal relationships, greater effectiveness, and the freedom to choose what they really want to do for themselves. The strong desire for autonomy or self-determination in China would seem to contradict the traditional cultural relativistic hypothesis that individuals in a collectivistic society such as China do not value or desire autonomy, although previous work has similarly shown a high preference for autonomy in Asian contexts (e.g.,

Sheldon et al., 2001). It is quite plausible that this high desire for all three needs is rooted in the lack of satisfaction of those needs.

Limitations and Future Research Implications

Although we investigated participants with diverse cultural backgrounds, they were all university students. This clearly limits the representativeness of the studied cultural populations, but the choice for these convenience samples has the advantage of comparability in terms of background variables such as age and education. Still, we must be cautious in generalizing the results to the broader population. It would be especially interesting to investigate less educated and more impoverished samples to subject basic psychological needs theory's universality claim to an even more rigorous test.

In the current study we did not analyze separately the satisfaction versus frustration of the three needs because we were primarily interested in how the overall level of satisfaction versus frustration of each need uniquely contributed to well-being. Cronbach's alphas of the need scales were adequate, supporting our summing of the need satisfaction and reversed need frustration items. However, a recent call has been made to study satisfaction and frustration separately as need frustration may have additional predictive value for ill-being and psychopathological outcomes (e.g., Bartholomew et al., 2011; Vansteenkiste & Ryan, in press). We believe it would be important to further explore this issue, especially when focusing on outcomes reflecting the "dark side" of human experience.

In this study we focused on the SDT's hypothesis of the universal psychological functions of three needs in relation to well-being, and results revealed that little variance in these relations was explained by cultural and individual differences. Yet, there could be important individual and cultural differences in how people get the needs satisfied. Specifically, people might have different ways to satisfy the same need in different cultural contexts, and issue that warrants exploration in future studies.

Conclusions

The present study found that three basic psychological need satisfactions specified by SDT, namely, autonomy, relatedness, and competence, uniquely contributed to psychological well-being, even when controlling for health and financial satisfaction, for participants from four diverse countries (i.e., Belgium, China, Peru, and U.S). Furthermore, these relations were not moderated by individual differences in how strongly people desired need satisfaction. These results consistently suggested that the three basic needs for autonomy, relatedness, and competence are essential nutrients for optimal human functioning across individual and cultural differences.

Does Psychological Need Satisfaction Matter when Environmental or Financial Safety Are at Risk?¹

Grounded in Self-Determination Theory, the present study investigates whether the relation between satisfaction of the psychological needs for relatedness, competence and autonomy and well-being would be constrained by satisfaction of the need for safety. In Study 1, we investigated environmental safety in a sample of young adults ($N = 224$) from South Africa, a country known for its low public safety. In Study 2, we focused on financial safety within a socio-economically deprived adult Chinese sample ($N = 357$) and we additionally examined the role of materialism. Although safety satisfaction yielded a positive relation to well-being in both studies, satisfaction of the psychological needs contributed to well-being above and beyond safety satisfaction and, furthermore, this association was not moderated by safety satisfaction. Further, lower financial safety satisfaction related to a higher desire for psychological need satisfaction in study Two. Finally, in contrast with the positive relation between financial safety and well-being, materialism yielded a negative association, which was fully accounted for by low psychological need satisfaction. Together, these results suggest the important contribution of basic psychological needs satisfaction beyond safety satisfaction and materialistic attainment in the prediction of well-being.

¹ Chen, B., Van Assche, J., Vansteenkiste, M., Soenens, B., & Beyers. (2013). Does psychological need satisfaction matter when environmental or financial safety are at risk? *Manuscript under submission*.

Introduction

Do human beings need certain basic psychological nutrients to be mentally healthy, just like plants need air, water and sunshine to grow? Psychologists have intensively discussed and investigated the number and type of needs critical for human well-being (e.g., Baumeister & Leary, 1995; Maslow, 1954; McClelland, 1965; Ryan & Deci, 2000). During the last decade, the concept of psychological needs has received increasing attention, mainly due to accumulating empirical evidence for *Basic Psychological Needs Theory* (BPNT), one of the five mini-theories of *Self-Determination Theory* (SDT; Ryan & Deci, 2000; Vansteenkiste et al., 2010). BPNT specifies three fundamental psychological needs - relatedness, competence and autonomy - that, when satisfied, would promote well-being and psychological growth. Dozens of studies in a variety of life domains, cultural contexts and among diverse age groups and populations have provided evidence for this claim, suggesting that the satisfaction of these three needs is indeed essential for human growth (Deci & Ryan, 2000).

Nevertheless, there could be other needs that matter on top of the psychological needs articulated in SDT. For instance, some scholars have posited a need for self-esteem (e.g., Pyszczynski, Greenberg, & Solomon, 2004), a need for popularity-influence (Derber, 1979), or a need for safety or security (e.g., Kasser, 2002; Maslow, 1943). The present study focused on the interplay between SDT's psychological needs and the need for safety, which can be broadly defined as the need to feel safe from environmental threats and to perceive oneself as having sufficient material resources to ensure basic survival (Maslow, 1943). Although a need for safety has been posited at the theoretical level, only few studies have examined the role of safety satisfaction in the prediction of psychological well-being, either by itself or in combination with other needs (Maslow, Hirsh, Stein, & Honigmann, 1945; Sheldon, Elliot, Kim, & Kasser, 2001).

In the present study, we examined the relative contribution of psychological need satisfaction and safety need satisfaction in the prediction

of individuals' well-being. We also examined the moderating role of safety need satisfaction, more specifically, the possibility that psychological need satisfaction matters only when the safety need has been satisfied. We focused on two aspects of safety, environmental safety (Study 1) and financial safety (Study 2), and we studied both aspects in samples in which the need for safety might be threatened according to objective criteria (i.e., South African students and Chinese adults from rural areas, respectively).

Basic Psychological Needs

Within BPNT, basic psychological needs are considered innate and universally essential nutriment for well-being (Ryan & Deci, 2000). The assumption of the existence of basic psychological needs is founded in SDT's organismic-dialectical meta-theory, in which humans are conceived of as active, growth-oriented organisms equipped with an inherent integrative tendency (Ryan & Deci, 2000; Vansteenkiste et al., 2010). Satisfaction of the basic psychological needs for relatedness, competence, and autonomy is said to energize the internalization process and to contribute to psychological health and growth. In contrast, need frustration is said to elicit defensiveness, psychological insecurity, ill-being and even psychopathology (Ryan & Deci, 2000; Vansteenkiste & Ryan, in press).

Satisfaction of the need for relatedness involves feeling genuinely cared for and loved by significant others rather than feeling lonely and alienated (Baumeister & Leary, 1995; Deci & Ryan, 1985). Competence refers to the experience of effectiveness in interacting with one's environment and is contrasted with experiences of inferiority and inadequacy (Deci & Ryan, 2000). Autonomy refers to the experience of volition and self-endorsement as opposed to feeling controlled or pressured (deCharms, 1968; Ryan & Connell, 1989; Ryan & Deci, 2006).

Consistent with BPNT, numerous studies have provided support for the link between psychological need satisfaction and a variety of well-being outcomes (e.g., vitality, life satisfaction), behavioral outcomes (e.g.,

persistence, performance) and relational outcomes (e.g., secure attachment) across a variety of life domains, including parenting, education, work, health care, and psychotherapy (for reviews see Ryan & Deci, 2000; Vansteenkiste et al., 2010). Further, over the past few years, several cross-cultural studies showed that the satisfaction of all three needs relates positively to well-being across cultures (Chen et al., 2013). Chen and colleagues (2013) showed that psychological need satisfaction related positively to well-being regardless of whether people desire to get the need met or not, thereby further testifying to the universal importance of need satisfaction.

In addition to examining the importance of psychological need satisfaction across life domains, cultures and interpersonal differences in desired need satisfaction, another way to test the importance of the psychological needs is by examining whether their contribution to well-being can be replaced by another need, such as the need for safety. In other words, does satisfaction of the psychological needs relate to well-being even when controlling for the effect of safety satisfaction and/or is the effect of psychological need satisfaction dependent upon satisfaction of the need for physical safety?

The Need for Physical Safety

Maslow (1954) defined safety as the need to prevent risks to physical sustenance and survival. Although he did not define or categorize different forms of physical threats very precisely, he provided a few illustrative cases. For instance, he referred to the need to feel protected from physical harms and threats imposed by the environment (e.g., “crimes and nature disasters”, p. 87), which can be labeled ‘environmental safety’. Further, he described safety as the need to have sufficient material resources for basic survival (e.g., a basic salary and pension after retirement) and as the need to avoid poverty. We will refer to this need as ‘financial safety’.

Further, Maslow (1943) maintained that striving for physical safety may lead people to overlook the other psychological needs. Specifically,

based on his hierarchical need model, he argued that “the appearance of a need rests on other prepotent needs; needs or desires must be arranged in hierarchies of prepotency” (p. 91). Because he posited the need for safety at a lower level in the hierarchy, people’s functioning may become dominated by the pursuit of safety need satisfaction if the safety need remains unfulfilled. Said differently, the potency of the higher-level psychological needs may get reduced if the lower-level needs are not satisfied.

Although Maslow did not propose very specific predictions about the interplay between psychological needs and the need for safety, one way to interpret his hierarchical need model is that the safety need is more *fundamental* when compared to the psychological needs, as the latter needs are situated higher up in the hierarchy. Thus, from a hierarchical viewpoint, the effect of psychological need satisfaction may be constrained by deprivation of safety satisfaction. Technically, the constraining role of physical safety may manifest in two ways. First, the effect of psychological need satisfaction may drop to zero when controlling for physical safety satisfaction. Second, individuals deprived from safety satisfaction would not benefit from the satisfaction of higher-level psychological needs as much as those who have satisfied their safety need, suggesting that safety plays a moderating role in the association between psychological need satisfaction and well-being.

Further, we attempted to test Maslow’s model in yet another way. That is, we examined whether individuals deprived from satisfaction of a lower-level need would express a lowered desire for satisfaction of higher-level needs. As they are preoccupied with the pursuit of more proponent needs, they would have less energy available to pursue satisfaction of higher order needs. Given the dearth of studies addressing this issue, we examined whether safety need deprivation would relate negatively to the desire to get the psychological needs met. These issues were examined with respect to two facets of safety, that is, environmental and financial safety.

Environmental safety. In most Western cultures, the peaceful and stable societal climate guarantees that citizens feel relatively safe from criminal assault, tyranny, and exploitation. Still, in other societies, the need for environmental safety can be an active motivator which becomes salient especially in times of deprivation (Maslow, 1954; McHale & McHale, 1978; Sheldon et al., 2001). Living in an unsafe environment without protection - where delinquency, corruption, violence, and lawlessness threaten people's personal security - was found to be detrimental to life satisfaction in several studies (e.g., Lelkes, 2006; Shields & Wheatley Price, 2005). In light of such findings, we expected that the subjective appraisal of environmental safety would relate positively to well-being. We focused on individuals' subjective appraisal of safety because there is not a simple one-by-one relation between living in an objectively unsafe environment and feeling unsafe. That is, people living in a neighborhood with high crime rates may differ in the extent to which they feel unsafe.

Financial safety and materialism. Few people would doubt that humans require some material necessities to feel safe (Kasser, 2002; Maslow, 1954) and several strands of research suggest that financial safety is indeed critical for people's well-being. For instance, people's financial status - as indexed by their objective income - is associated positively with well-being and this relation is more pronounced in poor, relative to wealthier, countries (Diener, Suh, Lucas, & Smith, 1999; Oishi et al., 1999). Presumably, money is especially critical for well-being when it helps to avoid poverty and to sustain material resources for basic survival (Diener & Seligman, 2004; Veenhoven, 1991). Further evidence for the contribution of financial safety to well-being comes from studies showing that financial deprivation is associated with lower well-being in a poverty context (Christoph, 2010; Whelan, 1992). Together then, these studies suggest that financial safety, as a subjective appraisal of whether one has sufficient money available for basic sustainability, is critical for psychological well-being.

One question that arises when studying the topic of financial safety is how this notion is related to the topic of materialism, which has received quite some attention, both in SDT (Kasser, 2002) and in the consumer literature (e.g., Belk, 1985). This is an important issue to address because the pursuit of materialism has been found to relate negatively to well-being, while we hypothesize financial safety to relate positively to well-being. In our view, financial safety and materialism can be conceptually differentiated. Although there are several definitions available in the literature (Belk, 1985; Richins, 1994), there is a consensus that materialism reflects the importance a consumer attaches to expensive and luxurious possessions in life (Ahuvia & Wong, 1995). In SDT, materialism represents one aspect of a broader extrinsic goal orientation, which further involves goals such as popularity and physical attractiveness. Past research has shown that the pursuit of extrinsic aspirations, when compared to the pursuit of intrinsic aspirations (e.g., self-development, community contribution), relates to lower well-being (e.g., Kasser, 2002; Vansteenkiste, Soenens, & Duriez, 2008). Interestingly, not only the pursuit but also the attainment of extrinsic aspirations failed to engender well-being, both among adolescents (Niemic, Ryan, & Deci, 2009) and late adults (Van Hiel & Vansteenkiste, 2009).

Although financial safety satisfaction and materialistic attainment have a shared focus on the attainment of material resources, the type of resources attained and the underlying motivation seems different. Whereas financial safety involves the garnering of sufficient resources to protect oneself against poverty, materialistic attainment involves buying luxurious goods to show off to others and to validate one's ego (Kasser, 2002). Therefore, we predicted that materialistic attainment, in contrast to financial safety satisfaction, would relate negatively to well-being, presumably because it fails to bring about psychological need satisfaction (Kasser, Ryan, Couchman, & Sheldon, 2004; Vansteenkiste & Lens, 2006).

The Present Study

The present study investigates the interplay between satisfaction of the psychological needs for autonomy, competence and relatedness and satisfaction of the need for physical safety in the prediction of well-being. The following three hypotheses were examined in both Study 1 and Study 2, which focused on environmental safety and financial safety, respectively. First, we examined whether the association between psychological need satisfaction and well-being remains significant when taking into account safety need satisfaction. Given the presumed universal and essential character of the psychological needs for relatedness, competence and autonomy (Ryan & Deci, 2000), we hypothesized that their beneficial effects would not be cancelled out by safety satisfaction (Hypothesis 1). Second, we examined whether individuals who experience less safety need satisfaction would benefit less from psychological need satisfaction. Based on Maslow's hierarchical need model, one may argue that, among individuals who experience more physical safety deprivation, the functional importance of psychological need satisfaction would be reduced, such that they would benefit less or not at all from the satisfaction of psychological needs. On the other hand, if these psychological needs are really crucial and basic, as SDT proposes, one would reason that their satisfaction contributes to well-being, irrespective of the level of safety need satisfaction. Thus, we hypothesized that the associations between psychological need satisfaction and well-being would not be dependent upon (i.e., moderated by) environmental or financial safety need satisfaction (Hypothesis 2). Third, we explored the association between safety need satisfaction and the desire for more satisfaction of the three psychological needs. Following Maslow's hierarchical model of needs, we examined whether a lack of safety need satisfaction would relate negatively to the desire for psychological need satisfaction (Hypothesis 3).

Finally, in Study 2 we investigated associations between financial safety and materialistic attainment. We expected that both constructs would be distinct and that they would show independent and differential

associations with well-being, with materialistic attainment relating negatively and financial safety satisfaction relating positively to well-being (Hypothesis 4). Further, we expected that the negative association between materialism and well-being would be mediated by low psychological need satisfaction (Hypothesis 5).

Study 1

Study 1 focused on the role of environmental safety in South Africa, a country known for its high rates of criminality (e.g., Demombynes & Özlerb, 2003) and violence, as shown for instance in the high incidence of rape (e.g., Jewkes & Abrahams, 2002). South Africans report feeling fairly unsafe on the streets, especially after sunset and when using public transport in the cities (Ferreira & Harmse, 2000; George, 2003). Further, the high incidence of household violence, parental alcoholism and child abuse indicate that the need for environmental safety is often threatened within the family too context (Le Roux, 1996). In light of these facts, South Africa seemed an ideal case to examine the question whether psychological need satisfaction would matter in the prediction of well-being above and beyond the level of experienced environmental safety and whether the effect of psychological need satisfaction would be moderated by the level of safety satisfaction.

Method for Study 1

Participants and procedure. A total of 224 South African young adults (55% males; M age = 24.13, SD = 4.25) participated in this study. We sampled students from different institutions: two universities (74%) and one college (26%). The ethnic distribution was as follows: 58% African, 28% Caucasian, 9% colored and 5% Asian. This distribution deviates somewhat from the total population (CIA World Factbook, 2013). Specifically, Caucasians were overrepresented and Africans were underrepresented, which is likely due to the sampling of university students.

As for living area, 48% of the participants came from urban areas in the Gauteng Province, 24% from rural areas and 28% from township areas around Pretoria, the executive capital city. Relative family income was assessed with a five-point scale asking participants to compare their family income with the average income level of the country. Participants also had the option to keep this information private. The scores for income largely followed a normal distribution. Thirteen percent of the participants reported their monthly family income to be much below average level of the country, 26% below average level of the country, 23% around average level, 18% above average, 3% much above the average level of the country and 17% chose not to divulge this information. Students filled out the questionnaires in the classroom. Prior to completing the questionnaires, an investigator explained the purpose of the study and guaranteed anonymity to the students.

Measures. All questionnaires were administered in English, the working language in the participating universities and college. Unless indicated otherwise, items were rated on a 5-point Likert scale, ranging from 1 (“*Completely Untrue*”) to 5 (“*Completely True*”).

Basic psychological need satisfaction. To assess basic psychological need satisfaction, we used the Basic Psychological Needs Scale-Revised (BPNS-R), which was recently validated across four countries (i.e., Peru, China, US, Belgium; Chen et al., 2013). The BPNS-R consists of three subscales pertaining to the three needs identified in SDT, with each need being assessed with eight items. These consist of a balanced combination tapping into both satisfaction (e.g., “I feel the people I care about also care about me”; “I feel competent to achieve my goals”; “I feel my decisions reflect what I really want”) and frustration (e.g., “I feel excluded from the group I want to belong to”; “I feel disappointed with many of my performances”; “I feel forced to do many things I wouldn’t choose to do”). In the present sample, Cronbach’s alpha of competence was .80. Because the relatedness and relatedness autonomy scales initially had somewhat lower reliability, we removed one item from the relatedness scale

and two from the autonomy scale. This resulted in Cronbach's alphas of .74 and .80, respectively.

Environmental safety. To assess environmental safety, we used three items developed by Sheldon et al. (2001) and slightly adjusted them to fit the purpose of the study. An example item is: "I feel safe from threats and uncertainties". Cronbach's alpha was .66.

Need desire. To assess the desire to get one's psychological needs met, we used the Psychological Needs as Motive scale (Sheldon & Gunz, 2009). Before rating each item, respondents read the following: "If you would have a chance to make changes in your life, how much would you like to have the following changes?" Then, respondents rated 9 items for the three needs (e.g., "You manage to feel more liked and accepted by those you care about, and to feel less separation from them"; "You manage to become better at some activity that is important to you, and to feel less inept and incompetent"; "You manage to create a life style where others no longer pressure you, and where you feel free to do what you really want to do"). Each item was rated on a five-point Likert-type scale ranging from 1 ("No desire for this change") to 5 ("Much desire for this change"). Because reliabilitites for the subscales were low, we calculated the total scale score for psychological need desire, resulting in a reliable index ($\alpha = .85$).

Psychological well-being. Well-being was indicated by four indexes, namely life satisfaction, depressive symptoms, vitality and self-acceptance, which have been widely used in previous cross-cultural studies (e.g., Oishi et al., 1999; Wissing & van Eeden, 2002). Life satisfaction was measured with the Satisfaction with Life Scale (Diener et al., 1985; $\alpha = .75$). Vitality, tapping into feelings of energy and vigor over the past few months, was assessed with the Subjective Vitality Scale (Ryan & Frederick, 1997; $\alpha = .81$). Self-acceptance, which involves a positive attitude towards oneself and the past, was measured with nine items from the Psychological Well-being Scale (Ryff, 1989; $\alpha = .74$). Depressive symptoms were assessed with the Centre for Epidemiological Studies-Depression (CES-D) scale (Radloff,

1977; $\alpha = .82$). An Exploratory Factor Analysis with principal-axis method on these four well-being indicators showed clearly that they load on one factor. Thus, we z-scor the four scales and after reverse coding the items for depression, the scales were averaged to form a composite score of well-being (Kaplan, Ganiats, Sieber, & Anderson, 1998).

Results for Study 1

Preliminary analyses. First, we explored the associations between background variables and outcomes. We ran a MANCOVA including gender, age, institution type (i.e., university or college), ethnicity, living area and family income as independent variables and the assessed measures as outcomes. Gender [$F(6, 125) = 3.78, p = .002, \eta^2 = .15$] and institution type [$F(6, 125) = 5.89, p < .001, \eta^2 = .22$] both yielded a significant multivariate effect on the study variables. Subsequent univariant ANOVAs showed that females reported more relatedness satisfaction and well-being than males. With regard to institution type, college students reported higher levels of environmental safety satisfaction, relatedness satisfaction, competence satisfaction, autonomy satisfaction and well-being compared to university students.

Table 1 also shows the means and standard deviations of the studied variables and their correlations. Environmental safety satisfaction was positively correlated with the satisfaction of all three psychological needs and with well-being, but was unrelated to the desire for psychological need satisfaction. Satisfaction of each of the three psychological needs related positively to the composite well-being score.

Table 1

Correlations among Study Variables in the South African Youth Sample (Study 1)

Measure	Mean	SD	1	2	3	4	5
1. Environmental Safety	3.51	0.89	-				
2. Relatedness Satisfaction	4.23	0.66	.42***	-			
3. Competence Satisfaction	4.21	0.63	.35***	.52***	-		
4. Autonomy Satisfaction	3.51	0.89	.32***	.55***	.55***	-	
5. Psychological Need Desire	3.31	0.95	-.13	-.12	-.13	-.08	-
6. Composite Well-Being	3.83	0.60	.61***	.64***	.58***	.64***	-.10

* $p < .05$; ** $p < .01$; *** $p < .001$.

Main analyses. To examine our first two hypotheses, we performed a hierarchical regression analysis. In Step 1, we inserted the relevant background variables (i.e., gender and institution type). In Step 2, we added environmental safety and in Step 3, we added the three psychological needs to examine whether they would relate to well-being above the contribution of environmental safety (Hypothesis 1). In Step 4, we added the three two-way interactions between psychological need satisfaction and safety satisfaction to investigate whether the relations between the satisfaction of the three psychological needs and well-being would depend on the perceived satisfaction of environmental safety (Hypothesis 2). The three interaction terms were created by multiplying the z-scored variables of safety satisfaction and psychological need satisfaction. The results can be found in Table 2. In Step 2, environmental safety satisfaction was significantly related to higher well-being. Adding the three psychological need satisfaction measures in Step 3 resulted in an increase in explained variance of 21% up and above the contribution of environmental safety satisfaction, with all three needs being uniquely positively related to well-being. Interestingly, the association between environmental safety satisfaction and well-being diminished but remained significant when psychological need satisfaction was added to the equation. Finally, none of the three interaction terms added in Step 4 were significant, suggesting that the associations between psychological need satisfaction and well-being are not dependent upon the satisfaction of environmental safety.

To examine whether inter-individual differences in safety satisfaction would relate to the desire for psychological need satisfaction, we conducted a hierarchical regression analysis, thereby regressing the desire for psychological need satisfaction on environmental safety and the background variables. Environmental safety tended to relate negatively to desire for psychological needs satisfaction ($\beta = -.13, p = .06$).

Table 2

Hierarchical Regression Analysis Predicting Well-Being by Environmental Safety, Psychological Need Satisfaction and Interactions (Study 1)

	Step 1	Step 2	Step 3	Step 4
Gender	-.21**	-.23***	-.13**	-.14**
Institution Type	.47***	.35***	.14**	.15**
Environmental Safety (ES)		.57***	.34***	.34***
Psychological Need Satisfaction				
Relatedness Satisfaction			.24***	.23***
Competence Satisfaction			.14**	.15**
Autonomy Satisfaction			.27***	.26***
Interactions				
Relatedness x ES				-.04
Competence x ES				.02
Autonomy x ES				-.01
ΔR^2	.16***	.31***	.21***	.00

* $p < .05$; ** $p < .01$; *** $p < .001$.

Brief Discussion of Study 1

Study 1 confirmed Hypothesis 1 by showing that satisfaction of the three psychological needs predicts well-being of South African students, even beyond the contribution of environment safety. Further, the results supported Hypothesis 2 by showing that the links between psychological need satisfaction and well-being did not depend on the satisfaction of environmental safety. In addition, we investigated the relation between environmental safety and desire for more psychological need satisfaction. Maslow (1954) proposed that individuals deprived in the satisfaction of lower-level needs would express a lower desire for the satisfaction of a

higher-level need. However, our data did not support this hypothesis, as a lack of environmental safety tended to relate positively (rather than negatively) to desire for satisfaction of the psychological needs.

Study 2

Study 2 extended Study 1 in two ways. First, we tested our three main hypotheses in the context of another facet of the safety need, that is, financial safety. Second, we examined the role of materialistic attainment - another aspect of financial attainment - to explore whether financial safety satisfaction and materialistic attainment have distinct and differential associations with well-being. Based on previous studies about materialistic attainment (e.g., Kasser & Ryan, 2001; Niemiec et al., 2009), we expected that, in contrast with the positive association of financial safety with well-being, materialistic attainment would yield a negative relationship with well-being (Hypothesis 4). Further, we expected that the negative association between materialistic attainment and well-being would be mediated by the diminished psychological needs satisfaction (Hypothesis 5).

To investigate the issue of financial safety, we selected a Chinese migrant worker sample whose financial safety was relatively at risk. These migrants came from rural areas to work in the Shanghai area and are named “Mingong” (migrant labor workers). This population is part of the cheap Chinese labor market and previous studies provided evidence for their inferior socio-economic conditions, as indicated by low wages and high poverty (e.g., Guo & Cheng, 2010). Because of the strict administration system in cities, only 10% of this population benefits from social welfare protection such as health insurance and a pension program; and these migrant labor worker are the first to lose their job during an economic crisis (Lu, Hu, & Treiman, 2011). Clearly, this migrant group is in a poor financial situation and lives near the safety breadline. In Shanghai, the most expensive city in mainland China and one of the most expensive cities in the world (Mercer’s Cost of Living Survey, 2012), the financial pressure to survive

could be even bigger. Shanghai is also an interesting area to examine the effect of materialism. As suggested by Belk (1985), materialism is not the “sole province of Americans”. A materialistic orientation could also be highly prevalent in a city like Shanghai which is heavily influenced by Western culture (Chen, 2007).

Method for Study 2

Participants and procedure. We accessed a sample of migrant workers through a school which specifically targets rural migrant children. Because most migrants are not officially registered, their children cannot enter public city schools unless they pay an extra city-education endorsement fee (Liang & Chen, 2005). To avoid this, they typically bring their children to a migrant children school set up by the municipal government and the migrant community. We went to the schools and explained the students that we wanted to do an anonymous survey among their parents. Students took home an envelope with the questionnaires inside and an instruction sheet explaining the purpose of the study in detail. Students brought back the sealed envelope with the completed questionnaires the following morning. Through this procedure anonymity was guaranteed. Considering the relatively low educational level of the targeted sample, we explained to the students that if the parents had difficulties to read or understand the questionnaire, they did not need to hand in the questionnaire. In this way, we received 357 valid out of 394 distributed questionnaires (90.60%). 47.5% of the sample was male and the mean age was 40.08 years ($SD = 3.18$).

Monthly objective family income was assessed with a six-point scale indicating different amounts of income. 9.2% reported a monthly family income lower than 1500 Yuan. 19.8% reported an amount between 1500 to 2500 Yuan, 21.5% between 2500 to 4000 Yuan, 20.3% from 4000 to 5500 Yuan, 18.4% between 5500 to 8000 Yuan and 10.5% reported an income above 8000 Yuan, which is close to the average monthly family income in

Shanghai. In sum, almost 90% of the participants had an income lower than the average family income in Shanghai. Of all participants, 4.7% had a university degree, 63.8% had a high school degree and 31.3% only finished primary school education.

Measures. Some of the measures used in this study (such as the BPNS-R and most of the well-being scales) were already available and validated in Chinese (Chen et al., 2013). Other measures were translated into Chinese by a Chinese researcher fluent in English. The back-translations were done by an English-Chinese language teacher with expertise in both languages. A third person (i.e., a psychologist) fluent in English compared the original and back-translated version to inspect their equivalence. Non-equivalent translations were then discussed to arrive at consensual agreement on the final wording.

Basic psychological needs satisfaction. To assess basic psychological need satisfaction, we used the same scale as in Study 1 (BPNS-R). Cronbach's alpha of relatedness was .69. To ameliorate the reliability of the scales for competence and autonomy, it was necessary to remove respectively one and two items from these scales. After doing so, Cronbach's alphas were .67 and .61 for competence and autonomy, respectively.

Financial safety. Three items to measure financial safety were written specifically for the purpose of the present study. These read "I feel my financial situation is not enough to support my family" (*reverse coded*); "I feel a strong financial pressure" (*reverse coded*); and "I feel satisfied with my financial situation". Cronbach's alpha was .60.

Materialistic attainment. To assess materialistic attainment, we adapted three items developed by Sheldon et al. (2001) to reflect attainment of materialistic aspirations. An example item is "I have nice and expensive things and possessions." Cronbach's alpha was .67.

Table 3

Correlations among Study Variables in the Chinese Migrant Worker Sample (Study 2)

Measure	Mean	SD	1	2	3	4	5	6	7
1. Family Income	3.54	1.56	-						
2. Financial Safety	3.03	0.86	.12*	-					
3. Materialistic Attainment	2.22	0.87	.10	.07	-				
4. Relatedness Satisfaction	3.49	0.50	.10	.01	-.24***	-			
5. Competence Satisfaction	3.61	0.60	.07	-.02	-.27***	.49***	-		
6. Autonomy Satisfaction	3.57	0.63	.10	-.01	-.26***	.48***	.58**	-	
7. Psychological Need Desire	3.38	0.70	.04	-.17**	-.22***	.22***	.28***	.31**	-
8. Composite Well-Being	3.48	0.44	.11*	.27***	-.13*	.46***	.48***	.45**	.18**

* $p < .05$; ** $p < .01$; *** $p < .001$.

Need desire. We used the same scale as in Study 1 to assess individuals' desire for of basic psychological need satisfaction. Cronbach's alpha was .77.

Psychological well-being. We intended to assess psychological well-being with the same four indicators as in Study 1. However, the reliability of self-acceptance was only .45, which is statistically unacceptable (Kline, 1999). Accordingly, we decided not to use this scale in Study 2. Cronbach's alphas for life satisfaction, depressive symptoms and vitality were .72, .76, and .78, respectively. An Exploratory Factor Analysis with principal-axis method on these three well-being indicators suggested that one factor needed to be retained. As in Study 1, we z-scored and combined the three scales to form a composite well-being score.

Results for Study 2

Preliminary analyses. We first explored the effects of all background variables on all assessed outcomes. A MANCOVA showed that only family income had a significant multivariate effect on the study variables [$F(7, 286) = 2.07, p < .05, \eta^2 = .05$]. Consequently, we only controlled for family income in the main analyses.

Table 3 shows the means and standard deviations of the study variables and their correlations. Family income was positively correlated with both financial safety and well-being. Financial safety was positively correlated with well-being. Materialistic attainment was unrelated to financial safety and was correlated negatively with satisfaction of the three psychological needs and well-being. Financial safety was also correlated negatively with desire for psychological need satisfaction. Consistent with Study 1, the psychological need satisfaction scales were highly correlated and satisfaction of each of them was related positively to well-being.

Main analyses. Similar to Study 1, we first performed a stepwise hierarchical regression analysis to examine the first two hypotheses. We inserted the relevant background variable (family income) in Step 1 and

financial safety in Step 2. In Step 3, we added the three psychological needs to examine whether they would relate to well-being up and above the contribution of financial safety (Hypothesis 1). In Step 4, we added the three two-way interactions between psychological need satisfaction and financial safety to investigate whether the relations between satisfaction of the psychological needs and well-being would depend on perceived satisfaction of financial safety (Hypothesis 2). Results can be found in Table 4.

Table 4

Hierarchical Regression Analysis Predicting Well-Being by Financial Safety, Psychological Need Satisfaction and Interactions (Study 2)

	Step 1	Step 2	Step 3	Step 4
Family income	.11*	.08	.01	.00
Financial Safety (FS)		.27***	.29***	.26***
Psychological Need Satisfaction				
Relatedness Satisfaction			.23***	.23***
Competence Satisfaction			.27***	.28***
Autonomy Satisfaction			.18**	.18**
Interactions				
Relatedness: Satisfaction x FS				-.03
Competence : Satisfaction x FS				.02
Autonomy: Satisfaction x FS				.05
ΔR^2	.01*	.07***	.31***	.00

* $p < .05$; ** $p < .01$; *** $p < 0.001$.

In Step 2, financial safety satisfaction had a significantly positive relation with well-being and explained 7% of the variance in well-being. Adding the psychological needs in Step 3 resulted in a 31% increase in

explained variance, with all three needs being uniquely positively related to well-being. The relationship of financial safety with well-being remained unchanged. None of the three interaction terms was significant in Step 4, suggesting that the associations between psychological need satisfaction and well-being were not moderated by financial safety satisfaction.

To investigate the relation between financial safety satisfaction and desire for psychological need satisfaction (Hypothesis 3), we conducted a hierarchical regression with financial safety as a predictor, controlling for family income, and desire for psychological need satisfaction as dependent variable. Results showed that financial safety satisfaction related negatively to desire for psychological need satisfaction ($\beta = -.16, p < .01$).

A novel aspect of Study 2 involved examining the interplay between financial safety satisfaction and materialistic attainment in the prediction of well-being (Hypothesis 4). A hierarchical regression analysis pointed out that financial safety satisfaction and materialistic attainment were both uniquely related to well-being, yet in opposite directions. Specifically, as shown in Table 5, financial safety satisfaction yielded a positive relation to well-being, whereas materialistic attainment yielded a negative relation. In a next step, we also entered the interactions between financial safety satisfaction and materialistic attainment, which was not significantly predicting well-being.

Finally, we examined whether the negative association between materialistic attainment and well-being would be mediated by low psychological need satisfaction (Hypothesis 5). After controlling for relevant background variables, materialistic attainment was negatively related to a composite score of need satisfaction ($\beta = -.27, p < .01$). Further, the association between materialistic attainment and well-being dropped to non-significance when we entered the satisfaction of the three psychological needs in the regression ($\beta = .03, p > .05$). Moreover, the indirect effect of materialistic attainment on well-being through need satisfaction was significant, as indicated by a Sobel test (1982), $z = -3.05, p < .01$. This

indicates that the negative relation between materialistic attainment and well-being was fully mediated by diminished satisfaction of the three psychological needs.

Table 5

Hierarchical Regression Analysis Predicting Psychological Well-Being by Family Income, Financial Safety, Materialistic Attainment and their Interaction (Study 2)

	Step 1	Step 2
Family Income	.08	.09
Financial Safety (FS)	.27***	.28**
Materialistic Attainment (MA)	-.15**	-.17**
Interaction		
FS x MA		.05
ΔR^2	.10***	.00

* $p < .05$; ** $p < .01$; *** $p < 0.001$.

Brief Discussion of Study 2

Study 2 extended the findings of Study 1 to an adult poverty sample in China. Regarding the main effects of psychological need satisfaction, the results were consistent with Hypothesis 1 and the findings of Study 1. Satisfaction of all three psychological needs related to well-being beyond the benefits of financial safety. Moreover, the relations between the satisfaction of the three psychological needs and well-being did not depend on the level of financial safety (Hypothesis 2). Note that these findings were obtained in spite of the fact that the reliability of the measures was somewhat lower in this study compared to Study 1. The relatively lower reliability is likely due to the nature of our sample, which may have involved at least some people who had difficulty understanding some of the items. Still, given the brevity

of the scales used, reliability estimates were acceptable. Furthermore, given the theoretically predictable pattern of associations obtained, the relatively lower reliability clearly did not seem to undermine the validity of the scales.

As for Hypothesis 3, the findings contradicted Maslow's hypothesis, as we found that individuals with lower financial safety reported more (rather than less) desire for basic psychological need satisfaction. Further, materialistic attainment was related negatively to well-being, confirming Hypothesis 4 that financial safety and materialistic attainment are functionally distinct. Finally, as maintained in Hypothesis 5, the negative relation between materialistic attainment and well-being was fully mediated by diminished psychological need satisfaction.

General Discussion

Based on BPNT and Maslow's hierarchical model, two prevalent theories in the literature on basic human needs, we conducted two studies to investigate the interplay between physical safety satisfaction and psychological need satisfaction in the prediction of well-being. Our primary aim was to examine whether the functional role of psychological need satisfaction would be constrained if safety needs were deprived. The two studies focused on distinct aspects of physical safety in two samples relatively at risk in either of these safety facets.

Numerous studies have demonstrated the critical importance of the satisfaction of people's basic psychological needs for relatedness, competence, and autonomy for individuals' well-being and adjustment (see Vansteenkiste & Ryan, in press, for a recent overview). Yet, what has been relatively less explored is whether there are other needs that matter (but see Sheldon et al., 2001). This is a critical issue as the claim that these psychological needs are essential requires one to show that the effects of these psychological needs are not constrained by other needs. The present set of studies aimed to fill this void in the literature by zooming in on the need for safety, as conceived within Maslow's hierarchical need model.

Interestingly, the amount of pages that have been devoted to Maslow's need model in textbooks or popularized books in motivation psychology (e.g., Hollyforde & Whiddett, 2002) stands in sharp contrast with the number of empirical studies that have addressed this model. Therefore, we believe the current study sheds new light on this understudied topic and reveals a number of interesting findings.

Satisfaction of Basic Psychological Needs and Well-Being

The findings of both studies, although conducted among fairly diverse samples coming from different cultural backgrounds, were remarkably consistent. That is, the satisfaction of each of the three psychological needs contributed to well-being above and beyond the effect of environmental or financial safety. This suggests that physical safety satisfaction does not cancel out the effects of psychological need satisfaction. Note that testing whether psychological needs matter in predicting well-being in samples for which safety is at risk constitutes a fairly conservative test of the SDT position, particularly because safety has been proposed as a deficiency need which becomes more functionally salient in situations of deprivation (Maslow, 1954) and which may undermine the predictive validity of higher needs in such situations. In both the South African and Chinese sample, the scores on safety satisfaction are distributed approximately normally across the continuum of the measure (1-5), but in both samples a substantial part of the sample scores below the scale middle point (3). So indeed, both samples comprise a substantial amount people at risk, but are not extremely deprived samples. Still, given the wide variance across the whole scale, the samples are ideal to test the interaction hypothesis. As it turns, the functional role of psychological need satisfaction was not dependent on individuals' level of experienced safety need satisfaction. Said differently, even for those who perceived more deprivation in their environmental or financial safety, the satisfaction of their psychological needs contributed to their well-being to the same degree as for

those who felt less deprived in their safety. Thus, even among the vast number of individuals in our samples who feel threatened and unsafe, they still report higher well-being if they develop authentic and trustful relationships, feel confident in carrying out their activities, and experience a sense of psychological freedom in their behavior.

It is noteworthy that these converging findings were obtained in two samples with very different cultural traditions, socio-economic statuses and age groups. In addition, both samples were under-studied in previous research on needs. The findings of these studies provide important further evidence for the claim that relatedness, competence and autonomy represent basic psychological nutriments that are universally important for human well-being, above and beyond physical safety. The findings regarding the need for autonomy are particularly noteworthy because in cross-cultural literature, the universal importance of this need has been debated. Specifically, autonomy has been proposed to be only beneficial for individuals from higher social classes who are well educated or for individuals from relatively individualistic societies where the value of autonomy is emphasized (Markus & Schwartz, 2010). This discussion is partly rooted in diverse conceptualizations of the notion of autonomy. In SDT, autonomy is conceived as the experience of volition and psychological freedom and is differentiated from the notion of independence and individualism (e.g., Chirkov et al., 2003; Ryan & Deci, 2006). This differentiation is critical because some cross-cultural researchers understood SDT's notion of autonomy as independence and, on these grounds, argued that BPNT's universality claim should be refuted (e.g., Iyengar & Lepper, 1999; Markus & Schwartz, 2010). Yet, both people's independent actions as well as their reliance on others (i.e., dependence) can be either volitional or relatively more pressured in nature. Consistent with this analysis, recent research among Belgian (Van Petegem et al., 2012) and Chinese adolescents (Chen et al., in press) showed that both forms of autonomy are distinct and

that autonomy as volition rather than as independence positively contributed to well-being across cultures.

We also found that both environmental and financial safety satisfaction were uniquely related to well-being beyond the contribution of psychological need satisfaction. Specifically, in a Chinese low-income sample, financial safety was related uniquely to well-being, which is consistent with previous studies showing that perceived financial deprivation and financial strain relate negatively to well-being (e.g., Whelan, 1992). Similarly, among youngsters in South Africa, a country characterized by low public security (e.g., Powdthavee, 2005), feeling safe about one's living environment was an important source of well-being. Such findings are consistent with previous theorizing that physical safety is a basic human need that is critical for psychological well-being (Maslow, 1943).

Materialistic Attainment and Well-Being

Consistent with previous research, we found that when individuals reported higher materialistic attainment (i.e., when they managed to gather more luxurious and expensive material goods), they experienced less well-being. Although at first sight higher materialistic attainment might reflect a better financial situation, it had a totally opposite relation with well-being than financial safety. Interestingly, the data show that there is no correlation between financial safety and materialistic attainment, suggesting that financial safety and materialistic attainment are almost fully independent constructs. In other words, those who experience financial safety may not be able or willing to consume luxurious goods and those who achieve their materialistic ideals may be unable to foresee in their basic living conditions. Future research with person-centered analyses (e.g., cluster analysis) may focus more directly on varying combinations of financial safety and materialistic attainment and their associations with well-being.

The finding that materialistic attainment related negatively to well-being is somewhat striking considering that the attainment of materialistic

goals might represent a mechanism to cope with poverty. Research indeed shows that, in the face of economic threat, individuals become more oriented towards extrinsic goals and pursue more materialistic aspirations (Kasser, 2002; Sheldon & Kasser, 2004). It could be reasoned that poor individuals could compensate for the feeling of belonging to a low-status group by engaging in conspicuous consumption so as to impress others (Lapoint & Hambrick-Dixon, 2004). From an evolutionary perspective, it also seems likely that wealth and status may have offered important short-term benefits in countering threats to security and survival in our past (Buss, 2000). Although the pursuit and even attainment of materialistic goals may be relatively hard wired coping responses to poverty, unfortunately, the present findings suggest that they do not represent adaptive coping strategies for those who feel threatened in their financial security. In fact, materialistic attainment and financial security did not interact in the prediction of well-being, suggesting that materialistic attainment was detrimental for everyone.

Further, we found that the negative relations between materialistic attainment and well-being were fully mediated by diminished psychological need satisfaction. This is consistent with previous theoretical arguments and empirical findings that materialistic values deprive satisfaction of the needs for relatedness, competence and autonomy (Sheldon & Kasser, 2004; Vansteenkiste et al., 2008). Our findings suggest that, even when people attain their materialistic goals, they still pay a price in terms of frustrated psychological needs and subsequent lowered well-being. Money seems like a double-edged sword effecting people's well-being differently, depending on its functional meaning, that is, whether it is perceived as a means to provide in basic resources or as a means to demonstrate one's worth through luxury.

Desire for Psychological Need Satisfaction and Safety Need Satisfaction

One of the most explicit claims by Maslow about the hierarchical prepotency of needs involves the concept of need desire. According to

Maslow (1943), “once a desire is satisfied, another pops up to take its place” (p. 81). In other words, only when the need for safety is gratified, the energy necessary for pursuing the satisfaction of higher level needs becomes available. Accordingly, a desire for psychological need satisfaction would especially get activated after the more potent safety need is satisfied. Although this hypothesis can be inferred directly from Maslow’s hierarchical model, few, if any, studies have tested this hypothesis. None of the two current studies provided evidence for this hypothesis. On the contrary, we found that when individuals perceived more safety deprivation, they desired more, rather than less, satisfaction of the basic psychological needs. When people live in a society with high crime rates and feel unsafe about their environment, or when people are in poverty and feel unsafe about their financial situation, they expressed a slightly stronger desire for relatedness, competence and autonomy satisfaction.

Although Maslow tended to use the terms need desire and need pursuit interchangeably, it is important to differentiate the desire for need satisfaction and the active pursuit of need satisfaction, with the latter term involving a more active behavioral intention to gain need satisfaction. The assessment of need desire in our study did not involve an active attempt to get the needs met but rather involved a responsiveness to opportunities for psychological need satisfaction if such opportunities would be easily available (i.e., “If you have chance to get more satisfaction, how much would you like to have...”). From this angle, our data suggest that people deprived in safety need satisfaction would desire need satisfaction if such need satisfaction is easily available. If desire would have been operationalized as the active attempt to pursue need satisfaction or the choice between devoting limited energy to the gratification of safety or psychological needs, safety deprivation would perhaps be negatively associated with psychological need desire.

Limitations and Directions for Future Research

One shortcoming of the present studies is their cross-sectional design. As such, we could not draw conclusions about direction of effects, let alone about causality. For instance, well-being may not only be a consequence of need satisfaction but may also increase the likelihood of new need satisfying experiences. Future longitudinal or experimental designs can address the causality issue more thoroughly.

A second limitation is that we relied on participants' self-reports as a single source of information about all study variables. This exclusive reliance on self-reports may have artificially inflated some of the observed relations and also raises problems with response tendencies that we did not control for (Arnold & Feldman, 1981). Yet, because our study focused on individuals' intrapsychic experiences of satisfaction and desire for certain needs, we believe that self-reports are more relevant than other informants' reports. Nevertheless, it would be desirable to control for social desirability in future investigations.

A third limitation could be the overestimated literal ability of our participants. Although English is the most commonly spoken language in official and commercial South African public life (Da Silva, 2008), the percentage of native English-speaking people in South Africa is only 8.2% (Van der Merwe & Van der Merwe, 2006). Future research should translate and validate the English version of this questionnaire battery in other official languages and try to replicate our findings (Kim, Park & Park, 2000). In China, although every participant understood Chinese Mandarin, the low educational level of the sample may have limited participants' understanding of certain items that require relatively higher levels of self-introspection, such as self-acceptance.

Finally, although our measures of the different safety facets are adapted from previously validated scales, the items might be too general in nature. Future research might include more specific items concerning real-life threats to safety in the specific region of interest. In South Africa, for

example, items such as “I feel safe when walking the streets at night” would pertain a more precise measurement of local environmental safety.

Conclusion

In sum, we found that in two different studies, satisfaction of the three basic psychological needs specified by SDT, namely relatedness, competence and autonomy, yielded a unique contribution to psychological well-being above and beyond financial environmental and financial safety, even for those who experience safety deprivation. Furthermore, individuals who perceived lower safety satisfaction actually expressed a greater desire for psychological need satisfaction. These results seem to echo with Victor Frankl’s (1946) description and reflection of people’s search for meaning and psychological freedom in extremely unsafe and deprived situations, such as the concentration camp he survived during World War II: “Everything can be taken from a man but one thing: the last of the human freedoms - to choose one’s attitudes in any given set of circumstances” (Frankle, 1946, p. 75). Consistent with this notion that human are not fully conditioned by physical circumstances, the present findings suggest that deprivation of physical safety does not block the benefits people extract from basic psychological need satisfaction.

Chapter 5

Where Do the Cultural Differences in Dynamics of Controlling Parenting Lie? Adolescents as Active Agents in the Perception of and Coping with Parental Behavior¹

Although research shows that perceived controlling parenting is related to maladaptive outcomes across different cultures due to the frustration of children's universal psychological needs for autonomy, relatedness and competence, such findings do not preclude the possibility of cross-cultural differences in how controlling parenting is perceived and dealt with. This study investigated Belgian ($N = 341$) and Chinese ($N = 316$) adolescents' perceptions of and reactions towards a vignette depicting parental guilt-induction, relative to a generally controlling and an autonomy-supportive vignette. First, whereas Belgian adolescents perceived guilt-induction to be as controlling as general parental control, Chinese adolescents perceived guilt induction to fall in between the general control and autonomy support. Second, perceived controlling parenting positively predicted need frustration across both samples. Third, similarities and differences emerged in the way Belgian and Chinese adolescents reacted to need frustration, with need frustration predicting more oppositional defiance in both samples, but more compulsive compliance and less negotiation in the Chinese, relative to the Belgian sample. The discussion focuses on how culture-specific patterns of responses towards controlling parental can be reconciled with the notion that universal psychological processes would account for the effects of controlling parenting.

¹ Chen, B., Soenens, B., Vansteenkiste, M., Van Petegem, S., Beyers, W. (2013). Where do the cultural differences in dynamics of controlling parenting lie? Adolescents as active agents in the perception of and coping with parental behavior. *Manuscript in preparation.*

Introduction

Research increasingly suggests that, when children perceive their parents as controlling (i.e., as pressuring, intrusive, and domineering), they are more likely to display maladjustment, an effect that has been observed across countries marked with a different cultural climate (e.g., Pomerantz & Wang, 2009). To explain these findings, it has been argued that controlling parenting may frustrate universal psychological needs in children, that is, the needs for autonomy, competence, and relatedness (e.g., Soenens & Vansteenkiste, 2010). However, these universal effects of perceived controlling parenting do not preclude the possibility of cross-cultural differences (a) in the way adolescents come to perceive parental behavior as controlling and (b) in the way they respond to controlling parenting. This study aimed to tap into these more specific and possibly culture-dependent processes, thereby focusing on adolescents' active interpretations and coping reactions (i.e., oppositional defiance, compulsive compliance, and negotiation) in response to controlling parenting. We explored these dynamics with a focus on parental guilt-induction, a parenting practice that has been identified as characteristic of controlling parenting (e.g., Barber, 1996) and that may operate differently in different cultures (e.g., Fung & Lau, 2012). Specifically, we compared Chinese and Western-European (i.e., Belgian) adolescents' perceptions and ways of coping in response to perceived guilt-induction relative to more general forms of controlling parenting and parental autonomy support.

Dynamics of Controlling Parenting

To unravel some of the complexities of the concept of parental control (e.g., Barber, 1996; Grolnick & Pomerantz, 2009; Soenens & Vansteenkiste, 2010), we rely on Self-Determination Theory (SDT; Deci & Ryan, 2000; Ryan & Deci, 2000; Vansteenkiste et al., 2010), a general theory on motivation that is increasingly applied to the domain of socialization and parenting. In SDT, controlling parenting is characteristic of

parents who pressure their children to think, behave, or feel in particular ways (Grolnick et al., 1997). Controlling parenting is contrasted with autonomy-supportive parenting, which is characteristic of parents who promote volitional functioning and self-endorsement in their children by encouraging initiative, providing choices, taking the child's perspective, and providing a meaningful rationale when introducing a request (Grolnick et al., 1997; Soenens et al., 2007).

Importantly, in SDT the term controlling parenting is distinguished from the concept of parental structure (Grolnick & Pomerantz, 2009). Parental structure refers to the extent to which parents provide clear guidelines for behavior and assist the child in meeting these guidelines. There is a qualitative distinction between parental structure and controlling parenting because guidelines and assistance (i.e., structure) can be conveyed either in a controlling (i.e., pressuring) fashion or a more autonomy supportive way (Grolnick & Pomerantz, 2009; Soenens & Vansteenkiste, 2010).

According to SDT, controlling parenting can manifest in a wide variety of ways, including (a) relatively more externally controlling and overtly punitive discipline techniques such as corporal punishment or verbal hostility and (b) relatively more internally controlling and insidious tactics such as guilt-induction, shaming, and love withdrawal (Grolnick, 2003; Soenens & Vansteenkiste, 2010). Using this SDT-based definition of controlling parenting, the concept of parental psychological control (Barber, 1996; Barber & Harmon, 2002) can be regarded as an important manifestation of controlling parenting. Psychological control is defined as "parental behaviors that are intrusive and manipulative of children's thoughts, feelings, and attachments to parents" and involves components such as love withdraw, shame induction, excessive pressure for change, invalidation of feelings, and guilt-induction (Barber & Harmon, 2002, p 15). The present study especially focuses on guilt-induction as a specific controlling parenting practice.

Accumulating evidence, a part of which is based on research on parental psychological control and much of which is based on Western samples, has shown that controlling parenting relates internalizing problem such as depression, low self-esteem and anxiety (e.g., Barber, Olsen, & Shagle, 1994; Soenens et al., 2008) as well as with externalizing problems including delinquency, antisocial behavior, and substance use (e.g., Doyle & Markiewicz, 2005; Walker-Barnes & Mason, 2004). In contrast, perceived autonomy-supportive parenting has been found to relate to adaptive motivational and developmental outcomes in a variety of life domains (e.g., Grolnick et al., 1991; Soenens & Vansteenkiste, 2005).

Although controlling parenting occurs more frequently in Eastern compared to Western societies (e.g., Ho, 1986; Olsen et al., 2002; Ng, Pomerantz, & Deng, in press; Wu et al., 2002), the negative effects of perceived controlling parenting were found to generalize to relatively collectivistic societies such as China (Vansteenkiste et al., 2005), Korea (Soenens et al., 2012), India and Pakistan (Barber et al., 2005) and Jordan (Ahmad et al., 2013). For instance, in both samples from the US and China, parental psychological control predicted decreases in children's academic and emotional adjustment (Wang et al., 2007). In contrast, research increasingly shows that perceived autonomy-supportive parenting is related to beneficial outcomes across countries and cultures (Pomerantz & Wang, 2009).

According to SDT, the underlying mechanism of the seemingly universal effect of controlling parenting is frustration of children's basic psychological needs (Ryan et al., 2006; Soenens & Vansteenkiste, 2010). SDT maintains that all human beings have a set of basic and innate psychological needs, the satisfaction of which represents a universally essential condition for well-being. In contrast, frustration of these basic needs is said to relate to defensiveness, ill-being, and even pathology (Ryan & Deci, 2000; Vansteenkiste & Ryan, 2013). First, the need for relatedness refers to experiences of intimacy and genuine connection with others (Ryan,

1995). Frustration of the need for relatedness involves the experience of relational tension, conflict, and loneliness. Second, the need for competence involves that one feels effective and capable to achieve desired outcomes (Deci, 1975; Ryan, 1995). Frustration of this need involves feelings of failure and doubts about one's efficacy. Third, the need for autonomy refers to experiences of self-endorsement, willingness and psychological freedom when carrying out an activity. Autonomy frustration involves feeling controlled through externally enforced or self-imposed pressures (deCharms, 1968; Deci & Ryan, 1985). There is robust evidence that satisfaction of these three needs is related to well-being and adjustment across various cultures and countries, including non-Western countries, across the globe (see e.g., Chen et al., 2013; Chirkov et al., 2010).

The identification of three universally essential needs may allow for an understanding of why perceived controlling parenting relates to maladjustment across cultures (Soenens & Vansteenkiste, 2010). When parents are perceived as pressuring, children feel compelled to do things they have no interest in or do not value (i.e., autonomy need frustration). Given that controlling parenting often involves a conditional orientation towards the child, where the child feels that the parent only cares about him or her when meeting parental standards for conduct (Assor et al., 2004). Controlling parenting can also frustrate children's competence, in particular when their parents show disappointment and induce shame (e.g., Assor et al., 2004). In contrast to controlling parenting, autonomy-supportive parenting would contribute to satisfaction of the three needs (Grolnick et al., 1997). Consistent with this reasoning, a number of studies showed controlling and autonomy-supportive parenting to be related in opposite ways to psychological need satisfaction, which, in turn, related to adolescents' developmental outcomes (e.g., Grolnick et al., 1991; Skinner & Edge, 2002). Particularly relevant to the current study, in a recent study with adolescents from Jordan, Ahmad et al. (2013) showed that perceived controlling

parenting was related negatively to teacher-rated adjustment, with this association being accounted by low need satisfaction.

Cultural Differences in the Perception of Controlling Parenting

In spite of the evidence for the presumably universal effects of perceived controlling parenting, a number of cross-cultural studies also found that the effect of controlling parenting was less negative or even absent in Eastern Asian cultures (e.g., Chao, 1994; Bugental & Grusec, 2006; Iyengar & Lepper, 1999). For instance, controlling parenting did not appear to hamper Asian students' academic progress, whereas it was associated with poor academic achievement in European Americans (Dornbusch et al., 1987). One interpretation of this finding was that Chinese children may view this parenting style a natural extension of high parental expectations that could be favorable to children's development. Another issue at play herein could be that certain components of controlling parenting, such as guilt-induction, have a relatively less pressuring and more benign meaning in East Asian cultures (Darling & Steinberg, 1993; Grusec, 2012; Mason et al., 2004; Park & Kim, 2004). In that respect, for instance, Chao (1994) proposed that Asian children might interpret coercive and restrictive parenting more as parental concern or involvement. In contrast, in an individualistic culture such parenting would have a less benign meaning and would be more likely to be perceived as a reflection of parental anger and rejection (Rudy & Grusec, 2006). Similarly, Darling and Steinberg (1993) proposed that the same parental practice might be experienced differently in terms of affective meaning by individuals from different cultures.

Along the same lines, SDT highlights the difference between the occurrence of an event and its functional significance (Deci & Ryan, 1985). External events, including parental behaviors, can be perceived or interpreted to yield a more informational or evaluative function and this perceived function could further the functional role of the event. This distinction has important repercussions for the debate about whether the

effect of controlling parenting might be culture-bounded or generalize across cultures. Whereas associations between *perceived* controlling parenting and maladjustment may be invariant across cultures, cultural differences in the relation between *objective* parental behaviors and *subjectively experienced* controlling parenting may be found. In other words, by separating objective parental behaviors from their subjective perception, we may be able to reconcile culture-specific and universal-process perspectives.

Empirically, only a few studies investigated cultural differences in the perceptions and affective meaning assigned to potentially controlling parental behaviors. Mason et al (2004), for instance, presented adolescents with items reflecting potentially controlling parental behaviors and asked them to rate these items in terms of expressed parental love and caring versus anger. Adolescents' interpretations were found to vary by ethnicity, with African American, relative to White and Hispanic, youth associating the controlling parental behaviors more with love and care and less with anger. Similar findings have been reported by Chao and Aque (2009) and Zhou, Lam, and Chan (2012).

The present study aimed to extend this small body of work by examining whether Chinese, relative to Belgian, adolescents would have different perception of a controlling parenting scenario, relative to an autonomy supportive one. We were particularly interested in their perception of the use of guilt - induction, because this parental strategy might be especially prone to cross- cultural variability.

Guilt Induction as an Ambient Facet of Controlling Parenting

Guilt induction, a key element of parental psychological control, refers to the parental use of guilt as a means of pressuring children to comply with parental requests (Barber & Harmon, 2002; Kernis, Brown, & Brody, 2000). Compared to more explicit and overt forms of controlling parenting, such as the use of controlling language (e.g., "you should"; Vansteenkiste, Simons, Lens, Soenens, & Matos, 2005) or the use of threats or punitive

discipline (e.g., “you have to, otherwise...”), guilt-induction is relatively more subtle. Also, guilt-induction may be more of a mixed blessing (Nelson, Yang, Coyne, Olsen, & Hart, 2013), as it may be perceived as having both informational and evaluative value. Guilt-induction has some informational value because it reflects parental discontent with a specific wrongdoing, signals parental concern, and yields some indication to the child for how to behave in the future. On the other hand, guilt-induction also yields an evaluative connotation as parental love and appreciation are only deserved in exchange for children’s compliance with parental expectations. Because of its manipulative and intrusive nature, guilt-induction could come at the cost of accumulated feelings of resentment towards the guilt-inducing parent (Baumeister, Stillwell & Heatherton, 1994).

The way how guilt-induction is interpreted likely depends on numerous factors, including cultural differences. For instance, some scholars (Azuma, 1988; Park & Kim, 2004; Rudy & Halgunseth, 2008) argue that especially in Asian societies, feelings of guilt are indicative of morality, filial piety and loyalty vis-à-vis the parents and that feelings of guilt may help to promote relational closeness and to foster achievement motivation (Kim et al., 2006). As such, for adolescents in collectivist cultures, the informational value of guilt-induction would be relatively more salient. Consistent with this reasoning, Rudy and Halgunseth (2008) reported that guilt-induction not only happens more frequently in a collectivistic (i.e., India and Pakistan), relative to an individualistic (i.e., Canadian and British), culture, but also that the use of guilt-induction was unrelated to maladaptive maternal cognitions. Given that East Asian, relative to Western, adolescents may assign a different meaning (i.e., less controlling) to guilt, they may also experience less psychological need frustration and less resentment following parental guilt-induction. Examining this issue was one of the aims of the present study.

Coping with Psychological Needs Frustration and Resentment

In addition to examining cross-cultural differences in perceived controlling parenting, we examined cross-cultural differences in the way adolescents cope with feelings of need frustration and resentment, an issue that has received little empirical attention. One relevant framework in this regard is Skinner and colleagues' coping theory (e.g., Skinner & Zimmer-Gembeck, 2007). Consistent with SDT, objective events are said to be stressful and threatening to the extent the basic psychological needs get thwarted. Such need-frustrating circumstances may trigger either oppositional defiance, which refers to doing exactly the opposite of what the pressuring situation demands (e.g., Vansteenkiste et al., in press), or compulsive compliance, which involves a rigid obedience to the demand by giving up one's personal preference (see also Grusec & Kuczynski, 1997). Yet, a more adaptive coping strategy involves negotiation, which means articulating and constructively prioritizing one's interests in a way that takes into account another's interests and perspective to reach agreement (Yeates & Selman, 1989).

In the cross-cultural literature, East Asian children are depicted as dutiful and obedient, an orientation that is influenced by the Confucian philosophy and family culture (Goh & Kuczynski, 2009). According to this view Asian adolescents are socialized to respect and follow parental guidance as to demonstrate their filial piety (Chao, 2001; Jo, 1996; Wang & Hsueh, 2000). As a consequence, Chinese adolescents might be more likely to display unquestioning obedience, which would manifest as compulsive compliance when reacting to experienced need frustration and resentment vis-à-vis the parent.

Yet, in response to need frustration and resentment, adolescents may also reject parental authority all together (Deci & Ryan, 1985; Vansteenkiste & Ryan, 2013; Van Petegem, Soenens, Vansteenkiste & Beyers, 2013). Past work among Western adolescents indeed found controlling parenting to elicit oppositional defiance through need frustration (Skinner & Edge, 2000;

Vansteenkiste et al., in press; Van Petegem, Soenens et al., 2013). Yet, such a response may not necessarily apply to East Asian adolescents, as they are more oriented towards compliance to parents. Consistent with this, Pomerantz and Qin (2011) found that Chinese adolescents' feelings of obligation to their parents increased with age, whereas it decreased with age in American adolescents. Extrapolating from this work, we tested in the current study whether Chinese, relative to Belgian, adolescents would less easily defer to their parents in the face of parental pressure, need frustration, and resentment.

Although negotiation is said to represent a more constructive coping strategy (Compas et al., 2001), we are not aware of any study that examined adolescents' attempts to negotiate in response to controlling parenting. Negotiation involves expressing one's personal perspective and wishes through a respective dialogue (Skinner, 2003), a skill that is more highly valued in horizontal individualistic cultures (Oyserman et al., 2002). In light of this reasoning, Belgian, relative to Chinese, adolescents may engage in more negotiation in response to controlling parenting. Yet, on the other hand, Helwig et al. (2003) found that Chinese children do value concepts of rights, individual autonomy, and democracy in their social reasoning and also use these values to evaluate social practices. Accordingly, Chinese adolescents may also use negotiation as a way to maintain personal jurisdiction. Given these conflicting perspectives, the question whether there would cross-cultural differences in the use of negotiation was examined in a more explorative fashion.

The Present Study

To examine cross-cultural similarities and differences in the way parental guilt-induction is experienced and in the way adolescents respond to this practice, we presented adolescents from China and Belgian with a vignette depicting either parental guilt-induction, or a more generally controlling vignette or an autonomy-supportive vignette. Following the

vignettes, the participants rated the perceived controllingness of the parental behavior, need frustration in the parent-child relation, resentment vis-à-vis the parent, and engagement in different coping responses. The basic model integrating all of the study variables to be examined is depicted in Figure 1. The most important aim of this study was to examine whether there would be cross-cultural similarities and differences in the strength of several paths in this model. Specifically, we examined the following three sets of hypotheses.

First, we examined whether Belgian and Chinese adolescents would perceive the guilt-induction vignette differently in terms of its controlling nature, elicited need frustration and resentment compared to the two other vignettes. We hypothesized that Belgian adolescents would experience guilt-induction as equally controlling, need frustrating and resentment-provoking as the generally controlling vignette, which both would differ from their experiences associated with the autonomy-supportive vignette. Chinese adolescents would interpret the guilt induction vignette in a relatively more benign fashion. For Chinese adolescents, experiences associated with guilt induction might take an intermediate position in between the autonomy supportive vignette and the more generally controlling one (Hypothesis 1).

Second, we examined the relation between perceived controlling parenting and experiences of need frustration and resentment. Based on SDT and previous research (e.g., Ahmad et al., 2013; Assor et al., 2004), we hypothesized that perceived controlling parenting would relate positively to need frustration and resentment and that these relations would be equivalent across the two samples (Hypothesis 2).

Third, we examined potential cross-cultural similarities and differences in adolescents' coping responses. We hypothesized that, whereas compulsive compliance would be a relatively more salient coping response in Chinese adolescents, oppositional defiance would be a relatively more salient coping response in Belgian adolescents (Hypothesis 3).

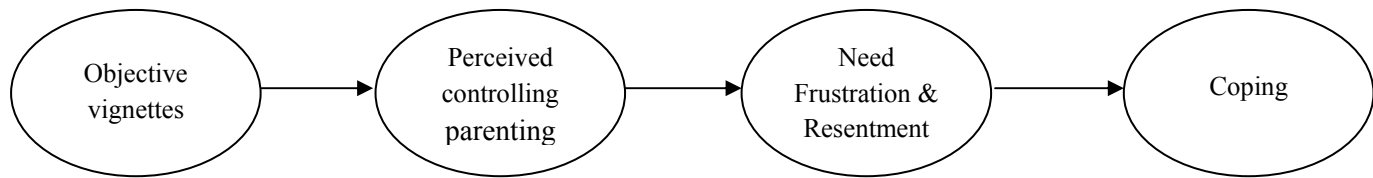


Figure 1. Hypothesized integrated model.

Specifically, among Chinese participants the association of experiences of need frustration and resentment with compulsive compliance may be more pronounced than among Belgian participants. In contrast, we expected the associations of oppositional defiance with both need frustration and resentment to be stronger in Belgian sample. As we did not have explicit hypotheses about the role of negotiation, we examined cross-cultural differences in negotiation in a more explorative fashion.

In the vignettes we focused on the academic domain for two reasons. First, we expected academic vignettes to yield sufficient room for cross-cultural differences in perceptions and responses as it is associated with a greater sense of morality and responsibility in China (e.g., Pomerantz & Wang, 2009). Second, across cultures academic functioning is considered an important domain in adolescents' lives and a domain in which parents are often involved (e.g., Pomerantz, Moorman, & Litwack, 2007).

Method

Participants

Participants were 341 Chinese adolescents and 316 Belgian adolescents. The Belgian sample was 40.5% male and the mean age of participants was 15.74 years² (range = 12 to 19 years, *SD* = 1.16). In the Belgian sample, 78.9% of the participants came from intact families, 18% came from a divorced family, and 1.9% came from a family in which one parent had deceased. Almost all participants (96.8%) in the Belgian sample had the Belgian nationality. The Chinese sample was 50.2% male and the mean age of participants was 14.39 years (range = 14 to 16 years, *SD* = 0.51). In the Chinese sample, 79.4%, of the participants came from an intact

² Because the range and the mean of age of the Belgium and Chinese samples differed, we selected a sub-sample matched in terms of age from both groups and re-ran all of the analyses. The results pattern in both MANOVA and SEM were identical, suggesting that the lack of similarity in average age did not affect the results.

family, 8.3% from a divorced family, and 1.4% from a family in which one parent had deceased. All participants in Chinese sample were of Chinese nationality.

Of all the participants, only one showed missing data on more than 20% of the variables and was therefore not retained in the analyses. Little's (1988) MCAR-test produced a normed χ^2 (χ^2/df) of 1.19 for the remaining participants. According to Bollen (1989), this indicates that the data were likely missing at random, and as a consequence, missing values could be estimated and cases with missing values could be retained in the analyses. To do so, we used the Full Information Maximum Likelihood (FIML) procedure available in Mplus 7 (Muthén & Muthén, 2007).

Procedure

In Belgium, the data were gathered in the context of courses on developmental psychology. Specifically, participants lived in the Flanders part of Belgium. Undergraduate students visited the families at home and an informed consent was signed by both the adolescents and one of the parents. The participants were assured that participation was voluntary and that their data would be treated confidentially. In both countries, participants received a questionnaire package with the purpose of the study and brief instructions provided on the first page. In China, the data were gathered at a middle school. Instructions were provided by an assistant researcher during a regular class period. Participants lived in the Shanghai area. Participation in the study was voluntary and anonymity was guaranteed. The questionnaire was designed to take about half an hour to complete. Adolescents were randomly distributed³ to three conditions and received either a questionnaire package with an, autonomy-supportive vignette (27.3% and 33.8% of the Belgian and

³ Because classes as a whole were randomly assigned to a particular condition and the number of students per each class differed somewhat, the actual number of participants per condition also varied. Nevertheless, students are randomly distributed to different classes.

Chinese samples, respectively), a generally controlling vignette (27.9% and 29.6%, respectively), or a guilt-induction vignette (44.8% and 36.6%).

Materials and Measurements

Vignettes. Three vignettes were used to operationalize three different maternal styles of communication, that is, a generally controlling style, a guilt-inducing style, and an autonomy-supportive style. Common to the three vignettes was the description of a situation in which the child had obtained a lower grade than usual for an important course at school. Specifically, participants were asked to imagine the following situation: *“One day you come home from school with a lower grade than usual for an important course. Because initially you thought the test went fairly well, you expected good points, and this is also what you told to your mother. When you now inform your mother about your low grade, here is what she says: [...].”* Following the description of the situation, participants received a maternal response that was either or autonomy-supportive (e.g., inviting language, perspective taking), specifically guilt-inducing (e.g., expressing adolescents’ performance owe to parents’ donation), or generally controlling (i.e., a mixture of expressing disappointment, lack of perspective taking, blaming, controlling language and intrusive monitoring). The three parental responses are presented in Appendix 1. In each of the conditions, the mother requested to study more on a next occasion.

The style of communicating this request, however, differed between conditions. An important advantage of this procedure is that both the situation and the maternal request are the same for every participant and that the only difference between conditions involves the maternal style of introducing the request.

The vignettes for the generally controlling and autonomy-supportive styles have been validated in a previous study among Belgian adolescents (Van Petegem, Soenens et al., 2013). The vignette of guilt-induction was constructed for the purpose of the present study. To capture the proper

wording for the guilt-induction vignette, we relied on conceptual descriptions of guilt-induction available in the literature (e.g., Barber et al., 2002) and we adopted a simultaneous approach which means developing the different language versions at the same time by moving back and forth among three languages (i.e., English, Dutch, and Chinese) and between the Belgian and Chinese culture to minimize the cultural bias (Harkness et al., 2002).

The vignettes and questionnaires were originally developed in English and translated to Dutch for Belgian adolescents and to Chinese for Chinese adolescents. Back-translation procedures (Brislin, 1970) were adopted to ensure conceptual equivalence across languages. In both cases, the questionnaire was translated from English into Dutch or Chinese by a bilingual researcher and then translated back to English by another bilingual graduate student. The back-translated and original questionnaires were compared and points of discrepancy were discussed to reach consensus in accurate reflection of the original meaning in English questionnaire.

To check the veridicality of the hypothesized situation, participants evaluated the vignette situation on two criteria, that is, relevance (“*How relevant is the situation as such in your life?*”) and credibility (“*Do you think youngsters at your age ever experienced such a situation?*”), thereby using a 7-point scale ranging from “*completely disagree*” to “*completely agree*”. The situation itself was rated as relatively relevant by both the Belgian ($M = 5.05$, $SD = 1.30$) and Chinese adolescents ($M = 5.21$, $SD = 1.77$) and both samples did not differ from each other, $F(1, 645) = 1.70$. The situation was rated also as relatively believable by both the Belgian adolescents ($M = 5.99$, $SD = 1.03$) and Chinese adolescents ($M = 5.82$, $SD = 1.54$) and both samples did not differ from each other, $F(1, 647) = 2.58$. In addition, participants rated how frequently each of the three parental responses occurred in both countries on a 5-point scale, ranging from 1 (“*never*”) to 5 (“*always*”). The following means were obtained among the Belgian, $M_{AS} = 3.34$ ($SD = 1.22$), $M_{Guilt} = 2.59$ ($SD = 1.19$) and $M_{CON} = 2.68$

($SD = 1.37$), and Chinese adolescents, $M_{AS} = 2.78$ ($SD = 1.26$), $M_{Guilt} = 2.70$ ($SD = 1.38$) and $M_{CON} = 2.60$ ($SD = 1.19$). ANOVAs showed that the two samples differed significantly on the reported frequency of the autonomy-supportive response [$F(1,175) = 7.50, p < .01, \eta^2 = .04$], while both samples did not differ in terms of the controlling responses.

Perceived controlling parenting. To assess to which degree adolescents interpret or perceive the respective parental situation as controlling, we used four items from the Psychological Control Scale -Youth Self-Report (PCS-YSR; Barber, 1996). These items seemed most directly relevant to the current study and have been used previously in a vignette-based study on dynamics of controlling parenting (Van Petegem, Soenens et al., 2013). The items are “*If my mother reacts like this, I would feel like...*” “*she insists upon doing things her way.*”, “*she is not very sensitive to my needs.*”, “*she is disappointing at me.*”, “*she is trying to change how I see things.*” Cronbach’s alpha was for .84 the Belgian sample and .60 for the Chinese sample.

Psychological need frustration. To assess basic psychological need frustration, we made use of items from the Basic Psychological Need Scale-Revised which has recently been validated (Chen et al., 2012) across four countries (i.e., Peru, China, US, Belgium). The BPNS-revised consists of three subscales pertaining to the frustration (versus satisfaction) of each of the three needs identified in SDT. For the purpose of this study, we used 9 items tapping into frustration of the basic psychological needs and we reformulated the items such that they refer to the specific situation described in the vignettes (e.g., “*If my mother would react like this, I would feel disappointed with my performance*”). The Cronbach’s alpha was for .87 Belgian sample and .82 for Chinese sample.

Resentment. To assess feelings of resentment towards one’s mother, we used a brief 3-item scale developed and validated by Assor et al. (2004). An example item is: “I would feel very angry with my mom”. Cronbach’s alpha was .82 in the Belgian sample and .77 in the Chinese sample.

Coping. Each of the three coping styles was assessed with 4 items. Oppositional defiance was measured with a scale developed and validated by Vansteenkiste, Soenens et al. (in press). An example item is *“I would rebel against the request of my mother”*. Items for compulsive compliance and negotiation were inspired from the child coping questionnaire developed by Finnegan, Hodges, and Perry (1998). Example items are: *“I would remain silent and take it, even if I feel she treats me unfairly”* (compulsive compliance) and *“I would try to come to a reasonable agreement with my mother”* (negotiation). The Cronbach’s alpha for three coping styles was for .75, .82 and .86 respectively for the Belgian sample and .75, .85 and .88 for the Chinese sample.

Results

Background Variables and Descriptive Statistics

Descriptive statistics and correlations between the study variables can be found in Table 1. We began with performing a MANOVA, which revealed a multivariate gender effect, Wilk’s Lambda $F(6, 591) = 4.21, p < .01, \eta^2 = .04$. Subsequent univariate ANOVAs showed that boys ($M = 2.17, SD = 0.92$) reported more oppositional defiance than girls ($M = 1.91, SD = 0.79$), $F(1, 596) = 13.60, p < .05, \eta^2 = .02$. No other gender effects were found. As regards age effects, correlations showed that age was positively correlated with the perceived controlling parenting ($r = .09, p < .01$), resentment towards mother ($r = .24, p < .01$), and negotiation ($r = .10, p < .01$), while it was negatively associated with compulsive compliance ($r = -.15, p < .01$). In the main analyses, we controlled for both gender and age.

Between-Vignette Differences in Perceptions and Coping Responses

To examine between-vignette differences in terms of perceived controlling parenting, need frustration, resentment, and coping, we first performed a MANCOVA with both type of vignette and country as independent variables, while controlling for gender and age differences.

Table 1

Descriptive and Correlations between Perceptions of the Parenting Situations and Copings towards the Situations

	<i>M (SD)</i> Belgium	<i>M (SD)</i> China	1	2	3	4	5	6
Perception of situation								
1. Controlling parenting	3.00 (0.98)	2.91 (0.85)	-	.75**	.69**	-.10	.37**	.06
2. Need frustration	2.76 (0.79)	2.74 (0.78)	.64**	-	.75**	-.04	.35**	.01
3. Resentment	2.78 (1.03)	2.22 (1.01)	.47**	.58**	-	-.22**	.50**	-.01
Coping								
4. Compulsive compliance	2.65 (0.74)	2.85 (0.98)	.36**	.36**	.09	-	-.35**	-.28**
5. Oppositional defiance	2.06 (0.79)	1.99 (0.95)	.26**	.36**	.60**	-.05	-	-.14**
6. Negotiation	3.84 (0.72)	3.52 (1.08)	-.33**	-.34**	-.44**	-.10	-.30**	-

Note. Correlations of Belgian sample above diagonal, correlations of Chinese sample below. ** $p < .01$.

The mean scores for the outcomes separated by vignette and by country are presented in Table 2. First, we examined the main effect of vignette type on the outcomes in the total sample. The MANCOVA indicated a significant multivariate effect of type of vignette, Wilk's Lambda $F(6, 617) = 16.27, p < .01, \eta^2 = .14$. Considering the significant multivariate effect of gender, we tested the interaction between gender and conditions on the all the outcomes and no significant effect was found.

More importantly, the MANCOVA also indicated a significant multivariate interaction between type of vignette and country, Wilk's Lambda $F(6, 614) = 6.55, p < .01, \eta^2 = .06$, indicating that at least some of the between-vignette differences were qualified by country. Subsequent univariate ANOVAs showed that the interaction effects were significant for perceived controlling parenting, need frustration, resentment, and compulsive compliance. As shown in Table 2, Belgian adolescents perceived both generally controlling and guilt-inducing vignette to be more controlling and to yield more need frustration and resentment compared to the autonomy supportive vignette. Said differently, Belgian adolescents perceived guilt induction to be similar as the generally controlling vignette, thus supporting Hypothesis 1. In contrast, Chinese adolescents perceived the generally controlling vignette to be more controlling compared to the guilt-induction vignette which, in turn, differed from the autonomy-supportive vignette. In terms of perceived need frustration, Chinese participants reported more need frustration in the generally controlling vignette compared to the guilt-induction vignette, which did not differ from the autonomy-supportive vignette. A similar pattern tended to emerge for resentment, although guilt-induction did not differ significantly from these two situations. Overall then, guilt-induction took a more intermediate position situated in between the other vignettes, also providing support for Hypothesis 1.

Table 2

Main Effect of Vignettes and Interaction with Country (MANCOVA)

		<i>Mean (SD)</i>			Vignette	Country* Vignette
Dependent Variables	Sample	Autonomy-support	Guilt-induction	Generally controlling	<i>F</i> (2,651)	<i>F</i> (2,651)
Perception of situation						
Perceived controlling parenting	Total	2.31 (0.93) _b	3.23 (0.92) _a	3.42 (0.84) _a	83.06**	13.64**
	Belgium	2.14 (0.86) _b	3.45 (0.85) _a	3.49 (0.82) _a	83.58**	
	China	2.49 (0.97) _c	2.91 (0.92) _b	3.34 (0.85) _a	16.54**	
Need frustration	Total	2.29 (0.70) _b	2.91 (0.76) _a	3.00 (0.70) _a	55.65**	16.08**
	Belgium	2.08 (0.51) _b	3.06 (0.72) _a	2.96 (0.70) _a	68.59**	
	China	2.50 (0.80) _b	2.71 (0.76) _b	3.04 (0.70) _a	12.11**	
Resentment	Total	1.91 (0.83) _b	2.75(1.03) _a	2.78 (1.07) _a	49.54**	13.48**
	Belgium	1.88 (0.68) _b	3.10(0.93) _a	3.10 (0.98) _a	64.63**	
	China	1.94 (0.95) _b	2.24 (0.97) _{ab}	2.44 (1.06) _a	5.88**	
Coping						
Compulsive compliance	Total	2.60 (0.83) _b	2.79 (0.84) _{ab}	2.84 (0.92) _a	4.31*	7.71**
	Belgium	2.67 (0.69)	2.67 (0.73)	2.60 (0.80)	0.35	
	China	2.52 (0.95) _b	2.97 (0.94) _a	3.11 (0.98) _a	9.75**	
Oppositional defiance	Total	1.87 (0.82) _b	2.04 (0.82) _{ab}	2.13 (0.93) _a	4.47*	0.45
	Belgium	1.87 (0.72) _b	2.07 (0.73) _{ab}	2.21 (0.92) _a	4.48*	
	China	1.87 (0.90)	1.99 (0.94)	2.04 (0.95)	0.70	
Negotiation	Total	3.68 (0.95)	3.69 (0.87)	3.71 (0.94)	0.07	2.22
	Belgium	3.74 (0.71)	3.83 (0.71)	3.95 (0.74)	1.21	
	China	3.62 (1.14)	3.48 (1.02)	3.44 (1.07)	1.01	

Note. Means within a row that do not share subscripts are significantly different ($p < .01$), as indicated by Tukey contrasts. * $p < .05$; ** $p < .01$.

As for the coping responses, Belgian adolescents' report of compulsive compliance did not differ between the three situations, whereas Chinese adolescents reported more compulsive compliance in response to the guilt-induction and generally controlling vignettes compared to the autonomy-supportive vignette. This finding is consistent with Hypothesis 3, which stated that compulsive compliance would be a more salient response to controlling parental behavior among the Chinese, relative to the Belgian, participants.

Further, the between-vignette differences in oppositional defiance were not moderated by country. Across the two countries, adolescents reported more defiance in the generally controlling than in the autonomy-supportive vignette. Thus, our hypothesis about the cross-country difference in the salience of oppositional defiance was not supported in this analysis. Finally, neither the type of vignette nor the interaction between vignette and country affected scores on negotiation.

Structural Equations Models (SEM)

Next, we tested the proposed integrated model (Figure 1) with multi-group SEM analysis (with country as a moderator). A skewness and kurtosis test revealed that some items across the two samples violated the assumption of multivariate normality. Accordingly, we used the Mplus 7.0 software with robust maximum likelihood estimation which can correct for the observed non-normality of the variables (Muthén & Muthén, 2007). Then, using multi-group CFA we examined the measurement equivalence of all the items of the studied variables. Prior to testing the structural models, we first tested for metric equivalence of the measurement model by constraining the factor loadings of the items to each latent construct to be equal across the two groups. We compared a constrained model to a model without constraints. As suggested by Cheung and Rensvold (2002), the use of ΔCFI as an index of model invariance relative to the baseline model is more preferable and realistic compared to the use of difference in chi square statistic because the

latter is considered an elusive criterion especially when data are non-normally distributed (see also Byrne & Stewart, 2006). Following these recommendations, we took a ΔCFI value less than .01 as evidence for model invariance. The constrained measurement model had an acceptable fit, $\text{SBS-}\chi^2(674) = 1248.39$, $\text{CFI} = .918$, $\text{RMSEA} = .05$, $\text{SRMR} = .07$, and had a similar fit compared to the nested unconstrained model, $\text{SBS-}\chi^2(652) = 1177.40$, $\text{CFI} = .925$, $\text{RMSEA} = .05$, $\text{SRMR} = .06$. ΔCFI was .007, indicating metric invariance of the measurement model⁴.

Next, we tested two structural models, one with need frustration as a mediator and one with resentment as a mediator. We tested separate models rather than combining both variables into one model because both presumed mediators were highly correlated and caused problems of multicollinearity when being entered simultaneously. To represent the three levels of the type of vignette variable, we took the guilt-induction vignette as the main reference point and we created two dummies, one comparing guilt induction (0) to the generally controlling vignette (1) and one comparing guilt induction (0) to the autonomy-supportive vignette (1).

First, we examined the models in the total sample. The model with either need frustration, $\text{SBS-}\chi^2(214) = 500.69$, $p < .01$; $\text{CFI} = .936$; $\text{SRMR} = .05$; $\text{RMSEA} = .05$, or resentment as an intervening variable, $\text{SBS-}\chi^2(214) = 548.96$, $p < .01$; $\text{CFI} = .920$; $\text{SRMR} = .06$; $\text{RMSEA} = .05$, fit the data well. Next, we examine the moderating role of country. Following Bollen's suggestion (1989), we first tested an unconstrained model where all path coefficients were allowed to vary between countries.

⁴ We also tested for scalar equivalence by constraining both the factor loadings and the intercepts of all the items to be equal across two groups. However, this constrained model had a worse fit than the unconstrained model. After freeing the intercepts of 10 items based on the modification indices, partial scalar equivalence was reached (Byrne et al., 1989; Vandenberg & Lance, 2000). Briefly, the CFA multi-group analyses supported the full metric invariance and partial scalar equivalence.

Table 3

Test of Path Coefficient Equivalence of the Model with Perceived Need Frustration between the Belgian and Chinese Sample

<i>Model</i>	<i>SBSχ^2</i>	<i>df</i>	<i>CFI</i>	<i>SRMR</i>	<i>RMSEA</i>	<i>Model Comparison</i>	
						<i>Comparison</i>	<i>Δ SBSχ^2 (1)</i>
Model 1: No constraints (baseline model)	785.24**	442	.93	.07	.05		
Model 2: Full constrained model	875.20**	448	.91	.10	.06	vs. Model 1	89.96**
Model 3: Fix Guilt vs. Autonomy support → PCP	821.17**	443	.92	.08	.05	vs. Model 1	35.93**
Model 4: Fix Guilt vs. Control → PCP	790.60**	443	.93	.07	.05	vs. Model 1	5.36*
Model 5: Fix PCP → Need frustration	787.14**	443	.93	.07	.05	vs. Model 1	1.90
Model 6: Fix Need frustration → Compulsive compliance	814.74**	443	.92	.08	.05	vs. Model 1	29.5**
Model 7: Fix Need frustration → Oppositional defiance	785.67**	443	.93	.07	.05	vs. Model 1	0.43
Model 8: Fix Need frustration → Negotiation	810.50**	443	.93	.08	.05	vs. Model 1	25.26**

Note. PCP = Perceived Controlling Parenting. * $p < .05$; ** $p < .01$.

Table 4

Test of Path Coefficient Equivalence of the Model with Perceived Resentment between the Belgian and Chinese Sample

<i>Model</i>	<i>SBSχ^2</i>	<i>df</i>	<i>CFI</i>	<i>SRMR</i>	<i>RMSEA</i>	<i>Model Comparison</i>	
						<i>Comparison</i>	<i>Δ SBSχ^2 (1)</i>
Model 1: No constraints (baseline model)	794.24**	442	.92	.07	.05		
Model 2: Full constrained model	884.63**	448	.90	.10	.06	vs. Model 1	110.39**
Model 3: Fix Guilt vs. Autonomy support → PCP	825.31**	443	.92	.08	.05	vs. Model 1	31.06**
Model 4: Fix Guilt vs. Control → PCP	797.02**	443	.92	.07	.05	vs. Model 1	2.77
Model 5: Fix PCP → Resentment	794.47**	443	.92	.07	.05	vs. Model 1	0.23
Model 6: Fix Resentment → Compulsive compliance	808.19**	443	.92	.08	.05	vs. Model 1	13.95**
Model 7: Fix Resentment → Oppositional defiance	803.55**	443	.92	.07	.05	vs. Model 1	9.31**
Model 8: Fix Resentment → Negotiation	832.27**	443	.91	.09	.05	vs. Model 1	38.03**

Note. PCP = Perceived Controlling Parenting. * $p < .05$; ** $p < .01$.

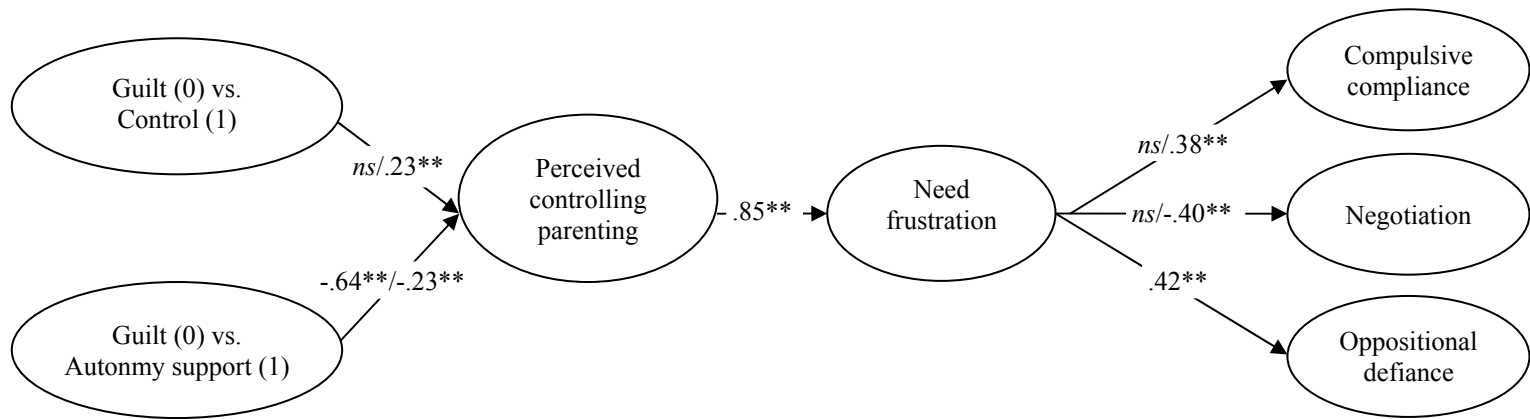


Figure 2. SEM model with perceived need frustration as intervening variable. The first coefficient refers to the Belgian sample and the second to the Chinese. SBS- χ^2 (444) = 787.68^{**}; CFI = .93; SRMR = .07; RMSEA = .05. * $p < .05$; ** $p < .01$.

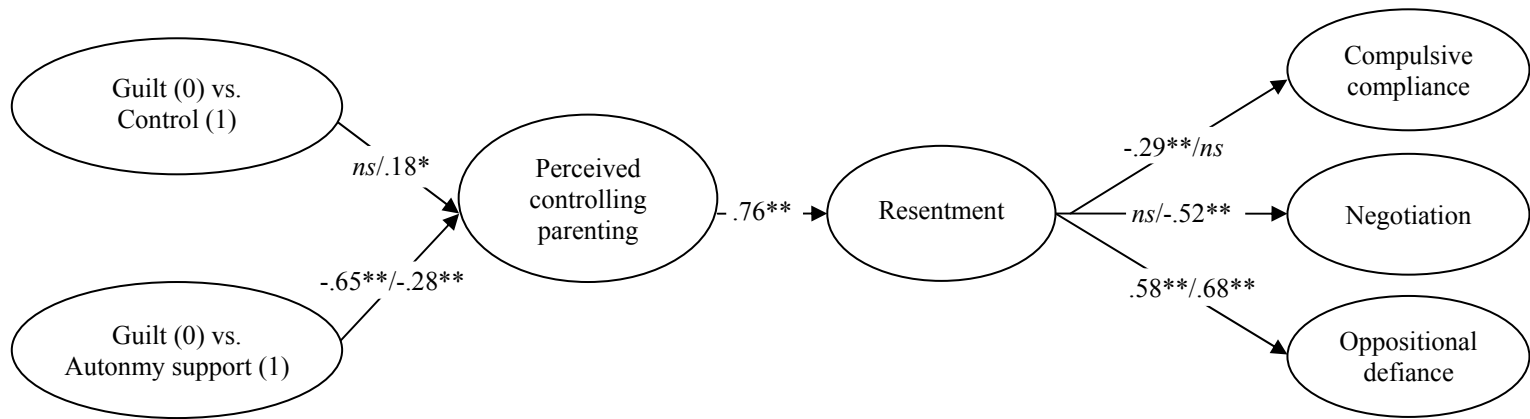


Figure 2. SEM model with perceived resentment as intervening variable. The first coefficient refers to the Belgian sample and the second to the Chinese. SBS- χ^2 (406) = 774.46^{**}; CFI = .91; SRMR = .07; RMSEA = .05. * $p < .05$; ** $p < .01$.

Next we tested a full constrained model where all path coefficients were fixed to be same across two country groups. We took the difference in Satorra-Bentler scaled chi-square statistic ($\Delta SBS-\chi^2$) as the criterion for model comparisons. The unconstrained model had a significantly better fit than the fully constrained model, suggesting that at least some of the paths are not equivalent between the two countries. Then we tested a set of partial constrained models and in each model one path was set to be equal across the two countries. We then compared the fit of each constrained model with the baseline unconstrained model. In this way, we examined which specific paths were invariant across the two samples. Results are shown in Table 3 and 4 for the models with need frustration and resentment, respectively.

As shown in Tables 3 and 4, in both models the relations between the dummies contrasting the guilt-induction vignette with the other two vignettes and perceived controlling parenting were different across country groups. As shown in Figure 2 and consistent with the MANOVA findings, Chinese adolescents perceived the guilt-induction, relative to the generally controlling vignette, to be less controlling, whereas Belgian adolescents perceived both controlling vignettes to be equally controlling. Although both Belgian and Chinese adolescents perceived the guilt-induction vignette to be more controlling than the autonomy-supportive vignette, this effect was more pronounced in Belgian adolescents.

Next we examined the association between perceived controlling parenting, need frustration, and with resentment. As shown in Tables 3 and 4 and graphically displayed in Figures 2 and 3, these relations were equivalent across the two countries, with a perceived controlling style yielding a positive association with both perceived need frustration and resentment. These results support Hypothesis 2.

Finally, we examined how need frustration and resentment were associated with the three coping reactions. As shown in Tables 3 and 4, only the path between need frustration and oppositional defiance was equivalent across the two groups, with need frustration relating positively to defiance in

both subsamples. However, the path between resentment and defiance did differ between the countries, with resentment yielding an even stronger positive association with oppositional defiance in the Chinese, relative to the Belgian, sample. Further, compulsive compliance associated positively with need frustration and was unrelated to resentment in the Chinese sample, whereas it was unrelated to need frustration and negatively related to resentment in the Belgian sample. These results showed that, compared with Belgian adolescents, Chinese adolescents are relatively more inclined to increase their engagement in compulsive compliance in response to the experiences following a perceived controlling style. Finally, as for negotiation, Chinese adolescents tended to use less negotiation in response to need frustration and resentment, whereas these relations were not significant for Belgian adolescents.

Discussion

The present study aimed to extend our understanding of cultural similarities and differences in the process of how adolescents perceive and cope with parental guilt-induction, relative to the use of generally controlling and autonomy-supportive parenting practices. To examine these processes, we made use of standardized vignettes, which allowed us to operationalize parental practices in a more objective way. We chose to study guilt-induction in Chinese and Belgian adolescents because this practice was hypothesized to be especially prone to cross-cultural variability in its meaning and effect (e.g., Park & Kim, 2004; Rudy & Halganseth, 2008). In general, we found that Chinese adolescents perceived parental guilt-induction, at least in the academic field, as less controlling than Belgian adolescents. Yet, once the situations were perceived as controlling, adolescents from both countries suffered from the perceived pressure to a similar degree in terms of need frustration and resentment. Interestingly, they did differ to some extent in the way how they coped with these negative experiences. Taken together, these findings shed new light on the

underexplored micro-processes of how adolescents from different cultures cope with negative experiences associated with controlling parenting.

Cultural Differences in the Perception of Parental Guilt-Induction

As hypothesized, the Belgian adolescents perceived the guilt-inducing vignette to be equally controlling, need frustrating and resentment-provoking as the more generally controlling vignette. In addition, these two controlling vignettes both differed from the autonomy supportive vignette. This pattern of results suggests that for Belgian adolescents to elicit feelings of pressure, need frustration and anger, the use of guilt-induction suffices.

The pattern of findings among the Chinese adolescents was more nuanced, with the guilt-inducing vignette being perceived as moderately controlling and falling in-between the generally controlling and autonomy-supportive situations. Specifically, Chinese adolescents perceived the guilt-inducing vignette to be less controlling parenting and less need frustrating when compared to the generally controlling vignette, suggesting that parental guilt-induction, when used in isolation from other controlling practices, carries a less intrusive meaning. This is consistent with Rudy and Halgunseth (2008)'s finding that guilt-induction is less maladaptive for people from collectivistic, relative to individualistic, societies. As highlighted by Park and Kim (2004), one reason could be that feeling guilty and indebted towards parents for their love and sacrifice is considered to be proper in Asian societies. Chinese adolescents may more easily internalize the moral obligations of reciprocal care and loyalty vis-à-vis their parents. As a result, when parents induce guilt in children by highlighting that they failed to reciprocate parents' sacrifice and care, adolescents may accept this reasoning more easily and perceived it as less controlling. This may be especially the case for academic issues, as learning is viewed in China as a moral endeavor to improve oneself, but to fulfill one's responsibility vis-à-vis one's parents as well (e.g., Li, 2005; Pomerantz & Qin, 2011). Promoting children's learning is also viewed as a major responsibility for Chinese

parents themselves, a task on which they spend considerable time (Chao, 1994; 2000). Given the moral importance and the sense of responsibility attached to learning, parental investment in this domain may be interpreted less negatively in China.

However, it is noteworthy that although guilt-induction was perceived as less negatively than generally controlling behavior and although it seemed successful in eliciting compliance in Chinese adolescents, guilt-induction still carries a more pressuring connotation compared with the use of autonomy support. Chinese adolescents interpreted parental guilt-induction as more controlling than parental autonomy support and these heightened levels of perceived control, in turn, related to more need frustration and resentment towards parents. This is consistent with Baumeister (1994)'s view that once people see guilt induction as manipulative, they may respond with resentment and avoidance of the attachment figure.

Cultural Universality of the Role of Perceived Psychological Control

In spite of the cultural differences in the way objective parental guilt-induction is perceived, some of the subsequent processes elicited by perceived controlling parenting were similar across both cultures. Specifically, the association between perceived controlling parenting and psychological need frustration was equivalent across Belgium and China. This is consistent with the assumption in SDT about the negative function of *perceived* parental pressure across cultures (Grolnick et al., 1997; Soenens & Vansteenkiste., 2010). The current findings are consistent with previous studies documenting a negative relation between perceived controlling parenting and frustration of psychological needs in either North American (e.g., Pomerantz & Eaton, 2000) or non-western societies such as Jordan (Ahmad et al., 2013) and Korea (Soenens et al., 2012). The present study extends this work by showing that, although Chinese adolescents perceived the guilt-induction to be less controlling than Belgian adolescents, once

participants, regardless of their cultural background, perceived the situation as controlling, they did suffer from it in terms of need frustration.

Along similar lines, the relation between perceived controlling parenting and resentment towards parents was equivalent across both samples. The association between perceived controlling parenting and resentment is consistent with previous studies (e.g., Assor et al., 2004) and makes sense given that we sampled adolescents. The biological development and particularly hormonal activation during adolescence could create increased mood swings and arousability, which may render adolescents more emotionally sensitive to parental control conditions (Feldman, 2008). However, at first sight, the lack of between-country differences in this association seems in contrast with previous findings showing that Western adolescents report more negative emotions (e.g., anger, resentment) than East Asian adolescents towards teacher or parental controlling behaviors (Mason et al., 2004; Chao & Aque, 2009; Zhou et al., 2012). The key difference between these studies and the current study is that the perceived anger in relation to an objective controlling behavior (akin to the vignettes used herein) was used, whereas the present study examined how perceived resentment related to *perceived* controlling parenting. Although we did not compare directly the country mean-level difference in resentment, we can still observe from the descriptive means that the Chinese adolescents reported relatively lower resentment towards the guilt-induction and generally controlling vignettes, compared with Belgian adolescents. This finding is consistent with findings obtained in previous research showing that Chinese adolescents indeed tend to experience less anger towards parents when facing an objectively controlling situation. The current findings add to these findings by showing that, once Chinese adolescents perceived the situation as controlling, they had the same degree of resentment toward parents as Belgian adolescents.

Cultural Similarities and Differences in Coping with Perceived Negative Experience

Although the experience of need frustration has been found to yield various costs in past work (e.g., Bartholomew et al., 2011), few studies have actually examined how people would cope with such experiences of need frustration. Therefore, after tapping into the perceived situation, we investigated three different coping reactions.

The general picture that emerged among the Chinese adolescents was that they displayed an intriguing mix of responses. Specifically, they reported both being more inclined to compulsively comply as well as to oppositionally defy the request to study more in response to experiences of need frustration. Further, they also reported being inhibited to start negotiating with parents. The pattern of findings for resentment as an intervening mechanism was generally similar. This pattern of responses was in certain ways similar but in others ways dissimilar for how the Belgian adolescents reacted. Specifically, also the Belgian adolescents reported they would engage in oppositional defiance. Yet, differently from the Chinese adolescents, they would not comply compulsively with the parents and would not feel inhibited to negotiate.

As for the specific coping responses, first, in the Chinese sample, negotiation was related negatively with perceived need frustration and resentment in the vignette. If we interpret this pattern in a reversed way, it indicates that Chinese adolescents only tend to negotiate if they perceived more satisfaction and less resentment in the situation. Probably in such a case, they feel more psychologically secure to negotiate and to assert their preference and opinions. In the Belgian sample, there was no association between need frustration or resentment and negotiation.

Further, a post hoc analysis showed that Belgian adolescents reported a higher mean level of negotiation than Chinese adolescents across the vignettes⁵, indicating that negotiation is a more common coping reaction for Belgian adolescents. Probably they grow up within a relatively democratic family culture which is more prevalent in Western European society (Oyserman et al., 2002), and such a democratic atmosphere offers more space to learn to negotiate as a common communication style across situations.

Different from our hypothesis, we found that Chinese adolescents tended to adopt similar or even slightly higher levels of oppositional defiance than Belgian adolescents when they perceived need frustration and resentment in the vignettes, despite the fact that they have been assumed to be more oriented towards interdependence and obligation vis-à-vis parents (Chao, 2001; Pomerantz & Qin, 2011). Previous studies have documented that perceived controlling parenting led to oppositional defiance in Western samples (Skinner & Edge, 2000; Vansteenkiste et al., in press). The present study added to these findings by showing that Eastern Asian adolescents also tended to rebel against controlling parenting. Again, the developmental stage of our samples (i.e., adolescence) may provide an explanation as adolescence is a period characterized by increased cognitive development, which may lead to more critical thinking, de-idealization of parents, and a higher frequency and intensity of conflict with parents (Feldman, 2008).

As for compulsive compliance, when Chinese adolescents perceived more need frustration, they tended to comply more. Even when they feel resentment towards the situation, they would not comply less. This is consistent with the finding that they tended to negotiate less when experiencing these negative experiences. In contrast, for Belgian adolescents,

⁵ We did a post-hoc ANOVA analysis to see the country mean level difference in negotiation between two countries, $F(1, 649) = 20.37, p < .01$. Prior to the ANOVA, we tested and found the intercept equivalence of the four items that index negotiation.

resentment towards parents was related negatively to compliance. Belgian adolescents did not adopt compulsive compliance as a coping strategy for controlling parenting and, if anything, they would comply less when they perceived resentment.

Although compliance may seem like a culturally proper reaction in China because it involves filial piety and is aimed at sustaining harmony towards parents (e.g., Rothbaum et al., 2000), , it is interesting to see that compulsive compliance actually was closely and positively linked with perceived need frustration in China. Our data do not allow us to make firm conclusions about the maladaptive or adaptive nature of compulsive compliance as coping response for Chinese adolescents because we did not examine outcomes of this coping response. Yet, its association with negative experiences seems to point to its maladaptive nature. Future longitudinal study is needed to further investigate the functional role of this coping strategy.

It is important to note that we focused on compulsive compliance, which is defined and operationalized as rigid obedience with pressure (Grusec & Kuczynski, 1997; Skinner & Edge, 2000). It is also possible that some adolescents comply because they fully agree with parents' requests and feel willing to do follow the requests. Such a "willing submission" has been referred as another constructive coping accommodation involving genuine acceptance and cooperation (Kochanska & Aksan, 1995; Skinner & Edge, 2000). It would be interesting for future study to investigate both types of compliance simultaneously.

It is interesting to note that the correlation between oppositional defiance and compulsive compliance was not significant in the Chinese sample, indicating that it is possible for a Chinese adolescent to adopt both defiance and compulsive compliance in the face of pressuring experiences. At first sight this seems contradictory because these two reactions involve opposite behavioral directions. Yet, compulsive compliance and oppositional defiance have in common that they both reflect controlled function (Skinner

& Edge, 2000; Vansteenkiste et al., in press). More specifically, the findings suggest that it is possible for Chinese participants to be compliant to parents on the surface, yet to seek for sneaky ways to rebel against parental authority at the same time. If this is true, Chinese adolescents would seek more insidious and advanced ways of being defiant (e.g., being defiant behind the parents' back). Future qualitative research can explore this possibility further. Another explanation could be that we operationalized the coping responses as the hypothesized intention to adopt the reaction in the vignette rather than in terms of actual coping behavior. Thus, it is possible that Chinese adolescents have the intention to rebel yet do not actually put this intention into practice.

Limitations and Future Research Directions

A number of limitations warrant interpreting the current findings with caution and suggest directions for future research. One limitation is that we relied on participants' self-reports as a single source of information about all study variables. This exclusive reliance on self-report may have artificially inflated some of the observed relations (Arnold & Feldman, 1981). Yet, because our study focused on adolescents' intrapsychic perception of parental behavior in scenarios and intention to cope with the negative experience, we believe that self-report is more relevant than other informants' report.

Second, we did not assess the cultural values of collectivism or filial piety presumed to underlie the cultural difference in adolescents' interpretation of parental guilty induction, nor did we assess the adolescents' perception of a controlling parenting history. This limitation precludes a further explanation of why Belgian and Chinese adolescents differ in their perception and coping towards parental control. For instance, adolescents with a relatively autonomy-supportive history of parenting might tend to use more negotiation when faced with unfair and negative experiences. The

possible role of individuals' history of parenting definitely warrants future research.

Third, the scenarios used in current study were domain specific and focused on parental control over adolescents' academic performance. Yet, we need to be cautious in generalizing the results to other life domains. Future research can investigate adolescents' perception and coping across different social domains to see whether there are interactions between domain and culture (cf. Smetana, 2000).

Overall, the current investigation of adolescents' coping towards perceived need frustration and resentment in scenarios was somewhat preliminary and explorative. We only examined adolescents' intention to use various coping responses in hypothesized situations. It is unclear however what these coping responses really mean to them and what the developmental outcomes of each coping strategy are. Future research can further explore the meaning of defiance, compulsive compliance, and negotiation to adolescents in different cultures. Further, it would be interesting to include a more constructive type of compliance reflecting the construct of accommodation in Skinner's (2000) coping theory. Investigating these coping responses is important because it may provide more insight into the reason why some adolescents suffer more than others from controlling parenting and why some might even be capable of displaying an adaptive coping response to avoid the initiation of a downward spiral of controlling parenting and maladjustment (e.g., Soenens, Luyckx, Vansteenkiste, Duriez, & Goossens, 2008; Vansteenkiste, Soenens et al., in press). Longitudinal research would be ideally suited to examine adolescents' actual coping behavior in daily life and to shed further highlight adolescents' active role in strengthening or breaking the recursive loop of controlling parental behaviors and personal maladjustment.

Conclusion

Conciliating cultural-specific and universal-process perspectives on parenting, the present study suggested that cultural differences in the dynamics of parenting mainly lie (a) in the different degree to which adolescents perceive a potentially controlling parental practice such as guilt-induction as being actually controlling and (b) in the different ways in which they cope with the experiences following from perceived controlling parental behavior. Notwithstanding these cross-cultural differences, perceived controlling parenting also seemed to have a common function as it was related to psychological need frustration and resentment in similar ways across the two cultures.

Appendix

Appendix 1. *Vignettes of Three Parental Responses*

Autonomy-supportive response

Ouch, yet you had a bad feeling about it, and you probably expected it to be better. Probably you did your best, so I can imagine this result is not what you hoped for. Why do you think it turned out this way? It can happen that you deal with a test not good as at other times. Okay, this time it was not that good, but you can try to learn from what went wrong. Maybe you can see it as a challenge to deal with the matter in another way? If you need some help, you can always rely on me for this.

Guilt-inducing response

You gave me hope that your test result would be good, and therefore I can only be sad and disappointed with this result. Don't you feel guilty yourself about this inferior score? You probably haven't put much effort in studying for this test? You know, I try really hard to take care of you and this family. I am doing all of this for you, so that you would be able to study hard and obtain good results. Now I wonder: is this test result the thanks that I get for my hard work? I am asking you: try not to disappoint me like this in the future and just study hard for your next test to avoid this kind of results.

Generally controlling response

Ow, such a bad result disappoints me, I'd really expected better from you. I had not bargained for such a bad result, so I can't be happy with that. You probably haven't worked much on it? To do well at such a test, it's not only about being able to do it, but also about wanting it. Look, what is clear at least, is the fact that such failures cannot be repeated in the future and that the result must be better next time of course. From now on, you'll have to study for this course on the moments I say so, and I will control it regularly. I'm not doing this for fun, but there is no other option, if you don't want to disappoint me and yourself again with a bad result.

General Discussion

The present dissertation aimed to examine and reconcile the culture-specific and universal-process perspective on the role of psychological needs. The work was grounded in Self-Determination Theory, a broad-band theory on human motivation and personality development (SDT, Ryan & Deci, 2000). This final chapter starts with a brief summary of the key findings as a function of the pursued three research objectives. After reflecting on the implications of the findings, thereby defending the position of *moderate universalism*, the limitations of the conducted studies as well as directions for future research are discussed. We end up with a brief revisit to the traditional West and East philosophy on the issue of a good life and autonomy.

Overview of the Findings of the Dissertation

Aim 1: Separation of Distinct Conceptualizations of Autonomy

The first aim of the present dissertation was to differentiate the two prevalent views on autonomy in the literature, that is, autonomy as independence and autonomy as self-endorsement. In Chapter 2, we operationalized independence as adolescents' level of independent decision making from parents (i.e., *who* makes the decision?) and self-endorsement as the degree of willingness to be independent or dependent in this decision making (i.e., *why* do you follow your own decision or your parents' decision?). A number of findings emerged. First, we could clearly distinguish between these two operationalizations of autonomy through factor analyses. Second, we found both operationalizations to relate differently to Chinese adolescents' psychological need satisfaction and well-being. While the level of independent vs. dependent decision making as such did not yield any unique relation to these outcomes, self-endorsement of both independent and dependent decision making in family context was uniquely associated with general need satisfaction and well-being. In other words, autonomy as a full willingness to act independently or to stay dependent is what contributes to Chinese adolescents' psychological wellness rather than autonomy as independence vs. dependence itself.

Aim 2: How Universal is the Beneficial Role of Basic Psychological Need Satisfaction?

A second aim of the present dissertation was to test to which extent the function of perceived satisfaction of the psychological needs for autonomy, relatedness and competence was universal. In Chapters 2 through 4, across more than 2500 participants varying in age and cultural background, we consistently observed the unique and positive relations between satisfactions of each the three psychological needs and well-being. To test the universality of need satisfaction, we examined three potential moderators, that is, (a) cultural differences both within and across nations,

(b) inter-individual differences in the desire for need satisfaction, and (c) the experienced deprivation of the basic need for physical safety.

In Chapter 2, we found that within-nation variation in the collectivistic value orientation did not moderate the degree to which people benefit from autonomy in family decision making and general psychological need satisfaction. In other words, both Chinese adolescents that are highly collectivistic oriented and those with a low collectivistic orientation benefit from satisfaction of the psychological need for autonomy, relatedness, and competence. In Chapter 3, we extended this finding to include, apart from Asia and China, three other continents and countries, that is, North America (i.e., United States), South America (i.e., Peru) and Europe (i.e., Belgium). We developed and validated a new measure for need satisfaction and examined the measurement equivalence across these four samples. By providing evidence for the measurement equivalence of the 24 items, we ensured that the indicators of need satisfaction carried the same meaning across cultures. Further, we obtained strong evidence for the universal functionality of the three needs as we found that the relations between satisfaction of the three needs and well-being were equivalent in strength across the four countries.

Further, in Chapter 3 we also investigated whether the degree to which one benefits from psychological need satisfaction depends on inter-individual variation in the desire for the satisfaction of each these three needs. Although the large sample size ($N = 1051$) yielded sufficient power to detect an interaction effect, the three interaction terms between need satisfaction and desire explained no additional variance in the well-being outcomes above and beyond the main effects of the three needs satisfactions themselves. These findings indicate that even people who do not express a desire for the satisfaction of the needs for autonomy, relatedness, or competence nonetheless benefit from having these needs satisfied, just as do those who explicitly desire need satisfaction.

In Chapter 4, we investigated whether the relation between satisfaction of the three needs and well-being would be constrained or moderated by the deprivation of the need for safety. Using data of South-African youth which are relatively at risk regarding environmental safety and Chinese rural migrant workers in Shanghai which are at risk regarding financial safety, we found that the functional role of psychological need satisfaction was not dependent on individuals' level of experienced satisfaction of the safety need. Said differently, even for those who perceived strong deprivation in their financial or environmental safety, the satisfaction of their psychological needs contributes to their well-being to the same degree as for those who felt not deprived at all in their safety.

Together, these evidences suggest that across individual and cultural differences, the perceived satisfaction of three basic needs for autonomy, relatedness, and competence contributes to psychological well-being.

Aim 3: Does there Exist Cultural Variation in the Perception of Parental Guilt-Induction and the Coping Strategies to Handle Need Frustration?

Despite the similar beneficial function of need satisfaction across individual and cultural variations, in Chapter 5 we found culture-specific patterns in the perception of an antecedent event that elicits need frustration, that is, parental guilt-induction. Through a vignette study, parental guilt-induction was contrasted with a generally controlling and autonomy-supportive parenting vignette among Belgian and Chinese adolescents. Whereas Belgian adolescents perceived guilt-induction to be as controlling and need frustrating as generally controlling parental behavior, Chinese adolescents perceived guilt induction to fall in between generally controlling and generally autonomy-supportive parenting. However, once the Chinese adolescents perceived the parenting behavior as controlling, these perceptions engendered need frustration in the same degree as it is the case among Belgian adolescents.

Next, we found similarities and differences in the way Belgian and Chinese adolescents reacted to the experience of need frustration. On one hand, both groups reacted to need frustration with more oppositional defiance. On the other hand, need frustration related to more compulsive compliance and less negotiation in Chinese adolescents only. In sum, some cultural variations exist in the association between objective parental behaviors and adolescents' perception of the behaviors and association between the perception and coping reactions.

Theoretical Reflections and Implications of the Findings

Clarification of the Theoretical Fuzziness of Autonomy

The ongoing debate on the functional role of autonomy in the cross-cultural literature is often rooted in the conceptual confusion, which is caused by mixing up autonomy as independence with autonomy as self-endorsement (Iyengar & Devoe, 2003; Markus & Kitayama, 1991; Rothbasum & Tromsdroff, 2007). We argue that it is critical for researchers, though, to be more exact and careful when studying the concepts of autonomy and independence across cultures. In the present dissertation, when empirically differentiated, autonomy as self-endorsement, a full willingness behind one's behavior, contributed to adolescents' well-being across culture, whereas autonomy as independence did not.

The conceptualization of autonomy as self-endorsement pertains primarily to the *quality* of the regulation of the behavior rather than to its specific *content*, as it deals with the question *why* one engage in the behavior, that is, whether it is carried out of willingness based on authentic values and interests or out of internal and external pressures. Indeed, self-endorsement as the “why” and the quality of the behavior can be applied to behaviors in different domains (see Vansteenkiste, et al., 2010). On the other hand, the dimension of independence, relative to dependence, concerns the *what* of behavior and rather reflects a quantitative aspect, that is, the degree to which one relies or does not rely on others. Following this reasoning, as shown in

Chapter 2, the dimension of autonomy as self-endorsement and the dimension of (in)dependence can be meaningfully differentiated and combined, consistent with what is recently found in a study that investigated these two dimensions across Greek and Belgian samples (Fousiani, Van Petegem, Vansteenkiste, Soenens, & Chen, 2013).

Such findings allow us to rethink collectivistic values such as loyalty, duty, and conformity. Although conformity to familiar or cultural norms would be antithetical to autonomy when defined as independence, such conformity does not by definition contradict autonomy as self-endorsement. Conformity can be undergirded by different degree of self-endorsement. In Chapter 2, for instance, it was found that when Chinese adolescents followed their parents' decisions, it was more often because they personally valued their input and reliance and relatively less because they felt pressured into compliance. Such results are consistent with Miller and colleagues' (2011) finding that when people fully identify with the duties towards members of their in-group (e.g., family and friends), they experience a sense of psychological freedom and need satisfaction in carrying out these duties. These findings imply that to the extent that one, after genuine reflection, concurs with the external norms and traditions, one can maintain a sense of autonomy and volition and benefit from it (Ryan, 1993).

On the other hand, when individuals do not fully internalize the duties and norms, these may come to be experienced as a psychological burden, thereby impacting negatively on their need satisfaction and well-being. Chapter 2 provides evidence that Chinese adolescents paid a well-being cost when they complied with parents' decision out of introjected motives. In such case, adolescents think they "should" comply as a "good child" to be loyal and meet parents' expectations, but actually they do not really "want" to do it. As described vividly by Perls (1973), introjection is a process where external elements such as these moral values are thrown inside the person and are "swallowed whole" by the person, but are not being "digested" (Ryan et al., 2006).

It is interesting to note that Chinese adolescents' independent decisions were primarily motivated by self-endorsed reasons. Presumably, when Chinese adolescents take independent decisions, it is mainly because they think it is personally meaningful and valuable to do so. This finding is consistent with the previous work among Western adolescents (Kins et al., 2009; Van Petegem et al., 2012). Notably, the combination of independence and self-endorsement might be typical for adolescence, an age period during which individuals increasingly strive and become mature to function in a self-reliant way (Beyers, et al., 2003; Blos, 1979). Interestingly, yet rather unexpectedly, we also found a positive association between introjected independence and well-being among Chinese adolescents. Such finding prompts us to further reflect what the introjected motive for independence means in this developmental stage and cultural context where independence is supposed to be socially unexpected and is promoted less. Further post-hoc analysis showed that only when the introjected motive for independence is accompanied with high identified motive for independence, did introjected independence yield positive effect. It would be interesting to further use qualitative methodology to investigate how the Chinese adolescents with high identified motive to be independent would understand and handle the internal pressure to be independent, for instance *"Why would you feel bad about yourself if you do not make independent decisions?"*

Some researchers portrayed autonomy as providing people with as many choices as possible, such that a larger array of choices would engender greater autonomy or self-determination (e.g., Schwartz, 2000). However, studies found that exposure to too many options can actually be burdensome and discouraging, especially for Eastern Asians (Baumeister, Bratslavsky, Muraven, & Tice, 1998; Iyengar & Lepper, 2000; Markus & Schwartz, 2010). From the SDT's perspective, the number of options given, just as the degree of independent decision making as such, is different from the level of self-endorsement of the choice or decision making. One can have many options available to choose from, yet not feel autonomous if one cannot

target what one truly wants. For instance, asking someone who does not play basketball to make a choice from dozen brands of basket balls might not have a feeling of self-endorsement in this choice. Alternatively, one could be direct towards a particular option (which means no choice) and yet feel autonomous if one truly endorses the provided option (Katz & Assor, 2007), which could likely to be the case when one feels connected to the person taking a decision for oneself. Consistent with this, Bao and Lam (2008) found that mothers making choices for their children rather than children engage in choice making themselves did not forestall their intrinsic motivation in the activity, if they felt related to their mothers. It would be interesting for future study to further explore what other factors would moderate the link between the objective number of options and the subjective experience of choice or psychological freedom. For instance, if people have a clear view on their inner values and interests, they are less likely to feel overwhelmed when facing a broad array of options, such that they maintain a sense of psychological freedom in the choice process.

Towards a Dialogue between Cultural-Relativism and Universalism: Making the Case for Moderate Universalism of the Basic Psychological Needs

To what extent are psychological processes common to all humans (universalism) and to what extent are they unique to specific cultural groups (cultural relativism)? This question is perhaps the most debated issue in cross-cultural psychology (Berry et al., 2011) and also central to the present dissertation. In four empirical chapters we gained more insight into both the universal/etic and culture-specific/emic aspects of psychological needs and these findings allow us to delineate the SDT-position regarding these issues.

Berry et al. (2011) proposed relativism vs. universalism as a continuum on which four positions can be distinguished. The first two positions represent relativism in an extreme or moderate form, which emphasizes psychological process and functions are either totally dependent

on people's construction of socio-cultural contexts or depend on the interaction between an organism and the context. As such there are no so called universal psychological processes which are not moderated by contextual factors. At the end of the other side of this continuum is extreme universalism, which reduces human behaviors to a finite set of universal psychological dimension that are not influenced by any cultural factors.

Among these three positions is *moderate universalism* which emphasizes both differences and similarities in behaviors, cognitions, and attitudes across cultures. Importantly, this viewpoint proposes that the manifestation of cultural differences does not automatically deny the possibility of universal underlying psychological functions and processes (Berry et al., 2011). Such moderate universalism very much reflects the position of SDT, which we examined in greater detail in the present dissertation.

We began our study with the assumption that there surely exists contextual variation in the demands, available resources and obstacles towards satisfaction of certain needs (Deci & Ryan, 2000, 2012). As a function of such socio-cultural differences, there could grow inter-individual and cultural variability in how much value or desire one attaches to the separate needs, in the way people reach need satisfaction as well as the extent to which they perceive contextual events as satisfying or frustrating of their psychological needs (Deci & Ryan, 2000; McClelland, 1965; Oishi, et al., 1999). The present dissertation aimed to shed light both on the role of these cross-cultural dynamics as on the critical question whether the presumed underlying process of need satisfaction contributes to well-being would depend on these cultural and individual variations.

Different manifestations of self-endorsement. In Chapter 2, we examined self-endorsement with regard to both dependent and independent decision making. We argued that the dimensions of self-endorsement and independence can be differentiated and meaningfully combined. From another perspective, we can also conceive dependent and independent

decision making as two different behavioral manifestations of self-endorsed autonomy, or in other words, different means to reach volition and psychologically free functioning. These different behavioral manifestations or means to get towards need satisfaction may vary as a function of interindividual (e.g., age, gender differences) as well as cultural differences, which depend on the prevailing values, practices and available resources for the person in that specific socio-cultural context (Deci & Ryan, 2012). For instance, the correlation pattern in Chapter 2 revealed that a stronger collectivistic orientation related positively to self-endorsed dependent decision making. Similarly, Miller et al (2011) showed that Indian adults perceived more choice in the duty towards family and friends when compared with American adults. Thus, both in that study and in our Chapter 2, the more collectivistic oriented group more easily attained self-endorsed autonomy through engaging in dependence-oriented behaviors.

Despite such possible variation in the behavioral manifestations of self-endorsement, what ultimately matters for need satisfaction and wellbeing, as shown in both studies, is the phenomenological experience of self-endorsed autonomy accompanying the independent or dependent behavior and this relation is not moderated by a collectivistic value orientation or by country. In future studies, it would be interesting to examine more formally and systematically if and how each of the three needs can be satisfied through different means, in terms of different behaviors and practices in different cultures. In other words, how people in different contexts can subtract the same experience of need satisfaction from different behavioral practices, or subtract a different experience of need satisfaction from the same behavior. In Chapter 5, we actually touched upon the second issue by investigating how people from different cultures perceived a relatively subtle type of parental control (i.e., guilt-induction) to be controlling and need frustrating.

Objectively presented and subjectively perceived parental practices. In Chapter 5, the evidence supports the culture-specific way of

perceiving parental guilt induction in the academic domain. For Belgian adolescents, the guilt-inducing situation carried a controlling meaning, which was equally strong as the generally controlling parenting situation, with both presented controlling situations being perceived differently from the autonomy-supportive situation. Yet, among Chinese adolescents, the situation of parental guilt-induction in the academic domain carried only a moderate controlling meaning and the situation fell in-between the presented generally controlling and autonomy-supportive situations. After revealing this culture-specific pattern in the perception, the results further showed that the relations between perceived controlling parenting and need frustration and resentment towards parents were equivalent across Belgian and Chinese participants. In other words, once adolescents perceived the situation to be controlling and intrusive, they all suffered from such perceptions, thereby experiencing more need frustration and resentment towards parents despite their different cultural backgrounds.

This pattern of results is consistent with the perspective of moderate universalism on psychological needs. That is, although perceived controlling parenting represents as one culturally shared antecedent of need frustration, there is room for cultural variation in how people come to the perception of controlling parenting. At the methodological level, this study indicates that the parenting literature may want to move beyond *perceived* parenting by differentiating the objective characteristics of the parental behavior from the subjective interpretation or psychological meaning attached to the parenting behavior; Elucidating the critical role cultural contexts herein can be a topic for future research.

Yet, one limitation of our investigation is that although we found country differences in perception of the parental situation, without assessing specific cultural variables and contextual factors, we cannot make more detailed conclusions about what mechanisms can account for these country differences. For instance, the cultural value of filial piety and one's perceived responsibility or loyalty towards parents could help to explain the

cultural differences in adolescents' interpretation of parental guilt-induction. Another interesting contextual factor that can be explored in future research is adolescents' perception of parenting control in family history, which might moderate how adolescents perceive an encountered situation. For instance, adolescents who are regularly exposed to controlling parenting could become more sensitive to the cues that imply a pressuring intention in a given situation and, hence, more easily perceive a subtle controlling situation as controlling. Yet, the alternative is also possible, such that an adolescents growing up in a controlling environment might get used to such atmosphere and thus becomes more "numb" toward a potentially controlling environment.

Intercultural variation in the desire for need satisfaction. In Chapter 3, we investigated the role of people's desire for satisfaction of each of the three needs across the four country groups. At the aggregated level, we observed country -level differences in both the desire and satisfaction of the needs. Such a finding is consistent with our reasoning that there exist different evaluations and more or less support and resources to get the needs satisfied in different societies. Interestingly, the Chinese sample reported the highest desire for autonomy, relatedness, and competence, while simultaneously reporting the lowest level of satisfaction of all three needs. Such pattern seems to imply that when a person has experienced less satisfaction of a basic need, the desire for it may become more salient (Sheldon & Gunz, 2009).

However, more importantly, despite of this observed cultural variation in need desire the associations between need satisfaction and well-being was found to be equivalent across the four country groups, thus strongly supporting the universal functional role of basic psychological need satisfaction. The same lack of moderation was observed at the individual level. Although people differ in how strong they want or care about getting a certain need satisfied, such inter-individual variation did not moderate the degree to which they benefitted from the satisfaction of each of the three

needs. Completely in line with this, in Chapter 5 we found that even for individuals who feel threatened and unsafe about environment and financial situation, they still report higher well-being if they develop authentic and trustful relationships, feel confident in carrying out their activities, and experience a sense of psychological freedom in their behavior. Thus, again, the beneficial role of need satisfaction is not constrained by another characteristic, underscoring its robustness.

Cross-cultural variation in coping with psychological need frustration. Finally, in Chapter 5, we examined whether people with different cultural background would cope differently with need frustration. For Belgian adolescents, the reaction to need frustration mainly took one prototypical form, that is, oppositional defiance. For Chinese adolescents, an intriguing mix of responses emerged, including oppositional defiance, withdrawal (i.e., less negotiation) as well as compulsive compliance. Except for being explained through different cultural values, these differences in coping pattern might also be due to adolescents' socialization history, which we will further explain in the next section.

Brief summary. In sum, our studies imply that there exist both cultural differences and similarities in the psychological needs depending on which psychological process we are specifically looking at. There could exist cultural specific patterns in the means to reach need satisfaction, in the desire for need satisfaction, in the coping towards need frustration, and in how people perceive need experience in contextual events. Yet, underlying these cultural variations, the functional process in which perceived need satisfaction contribute to well-being, nevertheless has been shown to be a universal aspect of the three basic psychological needs.

What are the practical implications of this perspective of moderate universalism for schools, work organizations, and clinical institutions? First, practitioners need to realize that humans are not the puppets of social expectations and values. To promote healthy adjustment in any context, it does not mean to use exogenous means to shape, control and direct

individual's behavior to match with the expectations and preferences of that socio-cultural context. If people do not internalize and fully identify with the external rules and norms, they would pay a well-being cost to attune themselves with the external expectations. Second, it is important for practitioners to realize that across the universe, people have basic and inherent psychological needs for autonomy, relatedness, and competence. These three needs may serve as a guiding tool for how to support people to enhance their wellness and actualize their potential, regardless of their ethnic background, age and gender, such as in an international school. As said by the Roman emperor Marcus Aurelius, *"Whatever the universal nature assigns to any man at any time is for the good of that man at that time."* Third, practitioners still need to pay attention what behavioral practices are satisfying or frustrating for the specific person in a specific situation. The same practice may have different meanings for individuals depending on various factors such as their cultural background or previous life experiences.

Reflections on Possible Reactions to Need Frustration

Given that we consistently found that people suffer from low satisfaction or high frustration of their psychological needs, this raises the question how people can react. By examining the role of desire (i.e., Chapter 3), coping (i.e., Chapter 5) and materialistic aspirations (i.e., Chapter 4), the present dissertation shed light on this topic. Although this is not the main research question of the present dissertation, it is nevertheless interesting to reflect on this topic based on the limited data we have and previous findings in the literature.

In Chapter 3, we found a negative correlation between the satisfaction and the desire for the three psychological needs, suggesting that need desire is actually indicative for a shortage in need satisfaction or may even reveal need frustration. This negative association also helps to explain why Chinese participants, compared to those coming from other countries,

reported the highest mean level in need desire and the lowest mean level for need satisfaction. It makes sense from an evolutionary perspective that if autonomy, relatedness, and competence are essential needs for human well-being, when such need was not met, people would want to get more of it, so that the need can sustain and evolve (Baumeister & Leary, 1995; Sheldon & Gunz, 2009). On the other hand, in Chapter 4, we observed a different pattern in the Chinese poverty sample, that is, the relations between satisfaction and desire for the needs turned out to be positive. In other words, different from the previous sample of Chinese universities students, these Chinese migrant workers within a relative poverty situation reported less desire for need satisfaction when they experienced more frustration of the needs. Why can such inconsistent patterns exist and what can be the moderating factor? One explanation is that the previous experience of acute and chronic deprivation of the need might make a difference (Sheldon, 2011). One study showed that acute or situationally primed autonomy frustration evoked effort to restore autonomy, whereas long-term frustration had more problematic effects (Radel, Pelletier, Sarrazin, & Milyavskaya, 2010). When frustration becomes chronic, people might feel helpless or exhausted to restore the need satisfaction. And they might suppress the conscious desire and striving for the need to avoid more disappointment and frustration. Future research can explore whether the relation between need frustration and explicit need desire is moderated by conditions of acute/short-term frustration and chronic/long-term frustration. Besides, it would be interesting to further explore the discrepancy between explicit self-reported desire and implicitly assessed desire when people are in a need frustrating condition.

Moreover, when people experienced need frustration, instead of realizing what one is really missing, people might channel their energy to pursue for some compensatory and substitute motives that are essentially irrelevant to the basic psychological needs (Deci, 1980; Ryan & Deci, 2002; Vansteenkiste & Ryan, 2013). Adopting materialistic pursue can be one case (Ryan & Deci, 2008). For instance, previous studies have shown that when

teenagers perceived their parents to be controlling and less warm, they reported more extrinsic aspiration, which involves the pursuit of goals like materialism, fame and physical attractiveness (e.g., Kasser, Ryan, Zax, & Sameroff, 1995; Williams, Cox, Hedberg, & Deci, 2000). Along the same line, Sheldon and Kasser (2004) found that the experimental induction of conditional regard from important others elicited the pursuit of extrinsic goals compared to a neutral condition. Although the pursuit of these extrinsic goals may bring some sort of collateral satisfaction, they fail to provide the satisfaction of the basic psychological needs that are necessary for wellness (Vansteenkiste et al., 2008). As shown in Chapter 4, to the extent one attains more the materialistic goal, one even experiences less well-being and such relation is fully mediated by the diminished basic need satisfaction. Similarly, studies found that increased attainment of extrinsic goals did not predict increased well-being, on the contrary, it related to increased ill-being (Niemic et al., 2009; Van Hiel & Vansteenkiste, 2009). In sum, it seems that need frustration and the substitute extrinsic pursue constitutes a coercive cycle.

Besides, the previous and chronic need experience may also influence which behavior is adopted to cope with an acute need-frustrating situation. As shown in Chapter 5, people differ in terms of their way of coping with the situational parental control and need frustration, which could also be partly due to adolescents' previous chronic experience of need frustration. For instance, adolescents who have experienced long-term controlling parenting might have tendency for learnt helplessness, thereby either withdrawing from the situation all together or engaging in compulsive compliance. Differently, adolescents growing up in relatively autonomy supportive family atmosphere might tend to use more negotiation when facing unfair need-frustrating experiences. In the present dissertation we do not have data to back up these explanations. Future studies need to explore the role of such socialization experiences in shaping adolescents' way of handling need frustrating experiences.

Finally, an interesting and important question is what could be the more constructive and “resilient” way to cope with the basic psychological needs frustration and controlling parenting. Such investigations are important because it may provide more insight into the reasons why some adolescents suffer more than others from controlling parenting and why some might even be capable of displaying an adaptive coping response to avoid the initiation of a downward and coercive cycle of controlling parenting and maladjustment (e.g., Soenens et al., 2008; Vansteenkiste et al., in press). Further longitudinal studies can explore the developmental process of coping and adjustment outcome of the coping reactions. Besides, it would be interesting to include other types of coping, for instance, relatively constructive types of compliance that point to accommodation in Skinner’s (2000) coping theory.

Methodological Considerations of Cross-Cultural Research

In the present dissertation we have taken into account some methodological considerations of cross-cultural research. First, in developing the new measurement for psychological need satisfaction and the vignette for guilt induction, we carefully follow the simultaneous approach, which involved moving back and forth among different languages and cultural contexts to minimize the cultural bias through selecting wordings with similar pragmatic meaning and functional equivalence in both cultures (Harkness, et al., 2002).

Second, in cross-cultural research it is important to make sure that the constructs and measurement of the intended concepts are comparable across cultural groups (Van de Vijver, 2003). To indicate psychological well-being, we used the instruments that have been widely used and validated in various countries such as Rosenberg’s self-esteem scale (Rosenberg, 1965), the CESD (Radloff, 1977) and the Satisfaction with Life Scale (Diener et al., 1988), and we tried to avoid well-being indicators that showed different meanings across cultures, such as positive and negative

affects (e.g., Eid & Diener, 2009; Fontaine, Poortinga, Setiadi, & Suprapti, 2002). Besides, in each study that involves cross-cultural comparison we examined the measurement equivalence of the items. We mainly focused on the equivalence at the metric level, which means to examine whether the factor loadings of items on the latent construct is similar across cultural groups. This metric equivalence allows us to further compare the structural relations between the studied variables across groups (Fontaine, 2005). Yet, equivalence at a scalar level is required to compare the mean level difference across groups. In Chapter 5, we did not reach full scalar equivalence and this limit the possibility to directly compare the mean level differences of the studied variable across the two country groups.

Third, in Chapter 3 we initially found that the items for need satisfaction and frustration fall into two factors in EFA. We looked into literature and found that this could be due to an artifact of response styles for positive and negative items (Carmines & Zeller, 1979; Marsh, 1996). Thus we tried to use a correlated uniqueness model (CFA-CTCU) to control for this potential methodology bias (Brown, 2006; Kenny & Kashy, 1992). In this way, we control for the variance that is shared by positive items and shared by the negative items. Yet statistically, we cannot really tell such variance is totally due to methodology bias or also contains some content-wise meanings that point to the meaningful differentiation between satisfaction and frustration of the needs. In Chapter 3 we treat satisfaction and frustration of each need as one dimension with adequate Cronbach's alphas of each need dimension and the correlations between satisfaction and frustration scores were fairly high, supporting our summing of satisfaction and frustration scores. However, a recent call has been made to study satisfaction and frustration separately as need frustration may have additional predictive value for ill-being and psychopathological outcomes (e.g., Bartholomew et al., 2011; Vansteenkiste & Ryan, 2013). We would rather keep this issue open and believe it is important to further explore whether satisfaction and frustration have different functional meaning,

especially when focusing on outcomes at the “dark side” of human experience.

Another concern in cross-cultural research is whether response artifacts in self-report such as social desirability, impression management and the reference group effect might differentially influence reports of need satisfaction and well-being across cultures (e.g., Heine, Lehman, Peng, & Greenholtz, 2002). It is one of the methodology limitations that we did not assess and control for. Yet, in all our investigations we guaranteed the anonymity to the participants and this might help to reduce people’s intention for self-serving. As for reference group effect (RGE; Heine et al., 2002; Peng, et al., 1997, it means that responses to self-report items are based not on respondents’ absolute level of a construct but rather on their level relative to a salient comparison group. If people’s perceptions of their reference group’s norm are more or less normally distributed, the average response will be close to the scale midpoint in every group. This implies that all cross-cultural differences will be small and will not capture the valid cross-cultural differences. RGE implications did not hold in our research. Instead, there is substantial variation in the assessed items and scales across countries.

Limitations and Future Directions

The present dissertation is not without its limitations, which at the same time provide directions for future research. A first limitation of the present dissertation is the primary reliance on cross-sectional designs, which prevents us from drawing any conclusions about direction of effects, let alone about causality. Besides, future longitudinal design can also allow us to gain deeper insight in how adolescents could gradually internalize the originally external rule and develop the self-endorsed motives. For instance, Chinese students in middle school study under many rules set by school teachers and parents and are often persuaded to study hard (Peng, 1993). Such an adolescent may study mainly out of external or introjected motives

to avoid criticism from teachers and to please parents. Although controlled motives may prompt learning behavior as such and might help one in obtaining a sense of competence for what one studies, for the adolescents to truly internalize the study rules; their need for autonomy and relatedness also has to be nurtured. It would be interesting to investigate this process of internalization with longitudinal data and to explore which contextual factors, such as need supports from teachers and classmates (e.g., Bao & Lam, 2008; Zhou et al., 2009), and intra-individual factors, such as adolescents' sense of responsibility towards parents (e.g., Pomerantz, Cheung, & Qin, 2012) could moderate this process.

In Chapter 4, we selected samples which are relatively at risk for either the need for environmental safety or financial safety. It would be interesting for future research to investigate each of the safety needs in two contrasted samples, for instance, a sample from a society with objectively high financial supply and reliable social welfare (e.g., Belgium or other Western-European countries), and a sample from more financially deprived and acutely threatening circumstances (e.g., Tanzania or Syria). First, such contrasted samples could provide more variance in perceived financial or environmental safety, which could provide an even more stringent test of the functional role of physical safety in well-being. Second, we can use qualitative studies to investigate the meaning of financial or environmental safety for these two groups with different objective situations. For instance, we did not find relations between financial safety and psychological need satisfaction, suggesting financial safety has a unique relation to well-being which is not mediated by psychological need satisfaction. Yet, one study with a Belgium sample found that job insecurity was negatively associated with work-related well-being and this relation was fully mediated by psychological need satisfaction (Elst, Brock, Witte, & Cuyper, 2012). This difference could be due to the fact that financial safety possesses more psychological meaning in a non-poverty sample and has a more physically surviving meaning within a poverty sample. Besides, it would be very

interesting to explore which factors could moderate the relation between one's objective financial situation and subjectively perceived financial safety. For instance, for individuals with more psychological need frustration, it might more be more difficult to perceive financial safety out of an objective financial situation.

In Chapter 5, we used hypothesized vignettes to ask the adolescents to imagine the situation in which their parents have specific behaviors and expressions. Yet, such manipulation has its limitations. First, because the target of imaginative figure (parents) is the one that adolescents encounter everyday in their life, it is unavoidable that adolescents would largely bring in their actual experience with parents in real life to the imagination of an acute and hypothesized situation. In other words, large amount of variance in the interpretation could be due to the adolescents' actual experience with parents which they bring in the imagination rather than due to our intended manipulation of the parenting style. Besides, their actual experience with parents might also influence the validity of the manipulation as for an adolescent with a very controlling mother, it might be difficult for him/her to imagine that his/her mother behave in autonomy supportive way in a situation. In the future study, the targeted figure of manipulation can be an unfamiliar person that does not exist in participants' real life (e.g., a coach on specific task). In this way, the manipulation can be more standardized and independent from one's actual life experience. Second, future researches can use video tape or field experiment to manipulation the different situations, instead of asking participants to imagine the situation by themselves. In such way, the manipulation is more vivid and all the non-language information such as tones and facial expressions can be standardized. One additional advantage of such a real life intervention or experiment is that one could also tap into the actual (rather than intended or self-reported) coping behavior in the situation.

Besides the cultural value dimension such as collectivism-individualism, Moreover, cultural diversity lies also in more distal and broad

social context such as the economic system (e.g., capitalism, socialism), the political system (e.g., democracy, totalitarianism) and the education system (e.g., evaluation criteria of “success” student). These contextual diversities would offer variation in the emphasis of the need, and more importantly in the support or obstacles to satisfy the need (Deci & Ryan, 2012). For instance, recently Twenge and Kasser found that from 1976 to 2007, the society insecurity factors (e.g., unemployment rate, crime rate, ect) and the amount of advertising for consumption in America explained adolescents’ increased materialistic value and decreased motivation to work across the generations. Along the same line, Kasser, Cohn, Kanner, and Ryan (2007) suggested that living in a society with highly competitive capitalist economy that focus on promoting economic growth and encouraging consumption, people are exposed to messages promoting the worth of materialistic aims and further experience need frustrating from such aims. It would be important for more future researches to investigate such “practical” and concrete contextual factors in detail which might have far more huge influences on people’s psychological needs satisfaction and well-being than the cultural value or believes.

Dialogue between West and East Ideology

In the end, we would like to briefly revisit the traditional West and East philosophy, hoping to gain more insight in what we might overlook in the traditional cultural values, especially in East Asian societies such as China. In literature, the hypotheses about cultural difference in people’s motives, needs and wellness are too often based on assumptions of different cultural values such as independence and interdependence derived from the traditional ideology and philosophy in the East and West. Indeed, the quest for “a good life”, what constitutes a “fully developed person”, in one form or another, has been the dominant consideration in the long history of both Eastern and Western philosophy. Yet, the similarities and differences between the two cultural traditions in the issue of well-being and autonomy

could be far more complicated than the simple division between independence and interdependence. To get more insight to the so called “traditional cultural value”, we first briefly review thoughts about the “good life”, healthy developed persons and autonomy from several main schools of philosophy in the West and East. For the West we have a look at Socrates and Aristotle from the Ancient Greek, Spinoza from rationalism and Kant from Kantianism. For the East we focus on the tripartite of Confucianism, Daoism and Zen Buddhism, which are the three major schools of thoughts that constitute the backbone of traditional Chinese culture.

Socrates and Aristotle were the first thinkers to discuss the nature of “good life” and address the eudaimonia of well-being which involves actualizing one’s valued life purpose and moral virtue rather than temporary presence of sensual pleasure and positive emotion (McMahon, 2006; Ryan, Curren, & Deci, 2013; Chirkov, Ryan, & Sheldon, 2011). In this process people fulfill their potential and flourish. Moreover, Aristotle proposed that everyone has a natural tendency and capability to use one’s reflective reasoning to establish and integrate one’s values and virtues, whereas the content of the value and virtue and the way of applying them could differ from person to person depending on one’s particular circumstances. This use of one’s reflective reasoning and endorsement in choosing one’s personal life direction is later referred to as autonomy, which is proposed as an essential condition for human flourishing (Younkins, 2003). Furthermore, Aristotle emphasized that because man socially oriented by nature, mutual trust and support, reciprocity and friendly feelings are other necessary conditions for attaining one’s eudaimonia (Chirkov et al, 2011).

After the period of medieval Christianity that suppressed the idea of personal will and autonomy, Spinoza (1632 - 1677) returned to the idea that there were important connections between well-being and autonomy. Spinoza actually did not use the term “autonomy” but instead the concept of “human freedom” and “activity”. According to him, to be active (autonomy) does not mean absolute freedom from external influence, which is

impossible for humans. It means to determine our action based on our reasoning, understanding and further intuitive knowledge of the essence of the nature and our place in it (Laurens, 2012). Thus, an autonomous person acts from the necessity of her/his nature which frees her/him from the tyranny of desire and conflicting passions and brings deep contentment (Harris, 1973). In contrast, when our action is governed by external forces out of our reflection and understanding, we are passive and not autonomous. Besides, Spinoza thinks that people need to treat others benevolently because initially, we are as one unity fundamentally connected by sharing the same essence (Kisner, 2011).

In Kant's philosophy, autonomy plays a critical role as the foundation of morality. Similar to Spinoza, Kant articulated that autonomy does not consist in being bound by no laws or rules, but by laws that go through one's reasoning and genius endorsement (Robert, 2012). For any moral action, he thinks that the individual needs to be legislator of his action, in other words, the action is based on one's reasoning and internalized moral values (Robert, 2012). Despite that a rule might be firstly proposed by external sources, everyone needs to be the authority of oneself to reflect and decide whether this rule is reasonable and whether s/he is willing to act on it. In contrast, if one obeys to the rules of action that are only legislated externally, it is not morality. Further, Kant suggested that only pursuing happiness in line with this autonomous morality is deserved and virtuous, which composes a significant part of "good life" (Guyer, 2000).

The ethics in Confucianism have been viewed as root of the collectivistic cultural value in China. Indeed, the central moral values such as "Ren" (benevolence) and "Yi" (reciprocity) in Confucianism all point to relational harmony. However, what is often overlooked in Confucian ethics is his emphasis in the sincerity of the self and self-reflections in the action towards others.

ZiGong, the student of Confucius asked him, "Is there any one word that could guide a person throughout life?" Confucius replied, "How about

reciprocity! Never impose on others what you would not want to do for yourself” (Chapter 53). For Confucius, virtuous action is based on self examination and sympathetic understanding of others, rather than simply conforming to external demands (Bonevac & Philips, 2009). The relations between individual interests and collectivistic ones are dialectical rather than simple subordination of individual interests (Wong, 2008). Actually, he clearly distinguished people who volitionally endorse morality for its own sake and delight, and people who follow no moral principle of their own, but only blindly follow or obey the popular trend, which is even called by Confucius as “the enemy of virtue” (Chan, 2002). Confucius emphasized the importance of reflective thinking to examine the ethical reason behind a rite and to determine whether that rite is appropriate. For him, “A great man is one who forms a volitional moral will. In moral life he follows nothing but the moral will that he develops and the moral principles that he reflectively endorses” (Chan, 2002, p. 289-290). Moreover, he put forward the concept of “Zi Zhi”, which means “regulate the will of the self” based on self-awareness and reflective reasoning. Although he did not use the concept of “free will” and “autonomy”, the ancient Greeks and Kant would very much agree that this is a description of the autonomy which they also proposed.

Daoism started around the same time as Confucianism. Its founder, LaoTzu, as a naturalist, centered this philosophy on the concept of Dao. Dao means the very essence and root of all things, which is similar to the “natural law” in Spinoza’s philosophy. According to LaoTzu, the flourish of human life lies in one recognizing and returning to one’s own nature or genuine state, which is part of Dao. LaoTzu emphasized that everyone has the inherent potential and intrinsic tendency to integrate and grow when their life depends on their genuine nature rather than authority from the source external to the person. As he put it in *Tao Teh Ching*, “If I keep from commanding people, they behave themselves. If I keep from preaching at people, they improve themselves. If I keep from imposing on people, they become themselves.” Besides, similar as Spinoza, LaoTzu also proposed that

we need to care about others because all people share the same underlying nature (Chang & Page, 1991). We can see that despite from totally different cultural traditions and times, despite one taking the rationality approach and one taking the holistic and intuitive approach, Spinoza and LaoTzu share strikingly similar insights on autonomy and benevolence based on understanding of the nature necessity.

We finally focus on one school of Mahayana Buddhism, Zen, which originated from China after Taoism and was greatly influenced by it (Chan, 1963). Zen emphasizes that everyone possesses an inner perfection, a Buddha-nature, which is just another name for true human nature with potential to integrate and grow. The intent of Zen is to help people reach the inner state of integration or harmony and tranquility through practicing living according to one's naturalness and being authentic, in Linji, a Buddhist Monk's words, "be self-governed with authenticity wherever you are" (Chang & Page, 1991). Zen understands psychological freedom or autonomy just as one's authentic expression of one's naturalness and the following inner integration. To experience such freedom, Zen emphasizes that it is critical to put off the illusory ego which is bounded with desires for certain self-image, fame or material possession. Such ego brings defensive judgment, division and conflict both within the self and towards others, which is said to be the core of suffering. Instead, Zen proposes people to be open and receptive to the being of things at the moment with simple awareness rather than judgment, which is also called "mindfulness" (Austin, 1999). In such a way people also become aware of other people's feelings and needs and thus develop authentic compassion for others (Chang & Page, 1991).

After the above brief review, it is fair to say that although both West and East go through the period of "central power" of either religion or other forms of authority, one cannot deny that autonomy, as reflective endorsement of one's action or authentic expression of one's naturalness, has been a continuous intellectual and humanistic pursue in both cultural history

in the East and the West. Moreover, their understanding of the relations between human well-being and autonomy, and between autonomy and interpersonal benevolence share more convergences than contrasts.

General Conclusion

In sum, it is critical for researchers to be more exact in applying concepts of autonomy and independence in cross-cultural research. Without such care, psychologists may come to the conclusion that most individuals in non-Western societies do not need autonomy. Besides, when arguing for the perspective of universalism and cultural relativism of psychological needs, it is important to be accurate in which psychological process we are specifically looking at. There could be cultural, contextual setting and individual difference in the desire or value attached to the need, in the degree to which the other basic safety need are satisfied, in the perception towards a contextual event to be need satisfying or frustrating and in the coping towards the need frustration. Yet, underlying these variations, there exist the universal psychological process in which the perceived satisfaction of the three fundamental needs, autonomy, relatedness and competence, promoted psychological health.

Het Universele en Cultuurspecifieke Karakter van Bevrediging van Psychologische Basisbehoeftes

Dit proefschrift focust op het thema van de bevrediging van psychologische basisbehoeftes en steunt daarbij op de Zelfdeterminatie Theorie (ZDT; Ryan & Deci, 2000) vanuit twee perspectieven, namelijk de universele en cultuurspecifieke aspecten van bevrediging van de behoefte aan autonomie, verbondenheid en competentie. De behoefte aan autonomie verwijst naar een gevoel van psychologisch vrij functioneren. De behoefte aan relationele verbondenheid houdt in dat men zich ingebed weet in diepgaande en bevredigende sociale relaties. De behoefte aan competentie verwijst naar het gevoel zich bekwaam te voelen in de activiteiten die men uitvoert.

Wat het universele aspect betreft focusten we op de functionele rol van waargenomen bevrediging van deze drie basisbehoeftes. We onderzochten of de bijdrage van psychologische behoeftebevrediging aan het algemene welbevinden van mensen mogelijk verschilde a) afhankelijk van de culturele dimensie van collectivisme, b) tussen verschillende landen, c) afhankelijk van het individuele verlangen naar behoeftebevrediging, en d) afhankelijk van de mate waarin iemands' fysieke veiligheid bedreigd is. Wat het cultuurspecifieke aspect betreft onderzochten we a) de waargenomen mate van psychologische behoeftebevrediging vanuit een objectieve opvoedingssituatie, en b) dwangmatige instemming, verzet en onderhandelen als cultuurspecifieke manieren om met ervaren behoeftefrustratie om te gaan.

Dit proefschrift start met een conceptuele verheldering van het begrip autonomie, de meest controversiële behoefte van de drie basisbehoeftes binnen ZDT, door de inconsistente manier waarop autonomie

gedefinieerd wordt in de literatuur. Zoals blijkt uit Hoofdstuk 2, werden de twee meest voorkomende definities van autonomie empirisch van elkaar onderscheiden, enerzijds door ze succesvol als afzonderlijke factoren te modeleren in een factoranalyse, anderzijds en belangrijker, door hun gedifferentieerde functionele rol voor het welbevinden van Chinese adolescenten ($N = 573$) bloot te leggen. Enkel vrijwillig functioneren, en niet zozeer onafhankelijkheid, vertoonde positieve verbanden met welbevinden. Deze verbanden werden niet gemodereerd door individuele scores op de culturele waarde collectivisme.

Na deze eerste verheldering en bevestiging van de positieve rol van vrijwillig functioneren binnen de Chinese cultuur, zetten we in Hoofdstuk 3 de stap naar een bredere culturele context door de relatie tussen psychologische behoeftebevrediging en welbevinden te onderzoeken in vier verschillende landen en culturen (Peru, België, Verenigde Staten en China; totale $N = 1051$). Bovendien onderzochten we in deze studie of deze relatie gemodereerd werd door interindividuele verschillen in de mate waarin mensen verlangen naar behoeftebevrediging. We vonden, in lijn met de Zelf-Determinatie Theorie, dat de relatie tussen psychologische behoeftebevrediging en welbevinden volledig equivalent was over de vier landen, en dat er geen moderatie was door individuele verlangens naar behoeftebevrediging.

Verder hebben we in Hoofdstuk 4 bevrediging van de drie psychologische behoeftes onderzocht samen met de basisbehoefte aan fysieke veiligheid. Dit deden we in twee steekproeven, enerzijds een steekproef met een relatief risico betreffende omgevingsveiligheid (Zuid-Afrikaanse jongeren; $N = 224$), anderzijds een steekproef met een relatief risico op het gebied van financiële veiligheid (arbeiders in Sjanghai, gemigreerd vanuit landelijk China; $N = 357$). Het doel was om na te gaan of de positieve rol van bevrediging van de drie psychologische basisbehoeftes blijft bestaan, ook als we, in overeenstemming met de hiërarchische behoeftetheorie van Maslow (1943, 1954), de meer basale geachte behoefte

aan veiligheid in rekening brengen. We vonden dat bevrediging van de drie psychologische basisbehoeftes uniek bijdroeg aan de voorspelling van welbevinden, bovenop het effect van bevrediging van de behoefte aan veiligheid. Bovendien was bleek het effect van psychologische behoeftebevrediging op welzijn niet afhankelijk van de bevrediging van de behoefte aan veiligheid, wat suggereert dat mensen die zich absoluut onveilig voelen in hun omgeving of financiële onzekerheid ervaren, evenveel profiteren van psychologische behoeftebevrediging dan hun landgenoten die zich veilig voelen.

Het doel van het laatste empirische hoofdstuk was om de cultuurspecifieke aspecten te bestuderen in de manier waarop jongeren uit de Westerse (België; $N = 341$) of Aziatische cultuur (China; $N = 316$) objectief controlerend opvoeden door hun ouders waarnemen, en hier op reageren met frustratie van hun basisbehoeftes. We focussten in het bijzonder op de mate waarin ouders hun adolescente kinderen een schuldgevoel aanpraten. Daarnaast wilden we onderzoeken hoe jongeren uit deze twee culturen omgaan met de ervaren behoeftefrustratie en de wrok tegenover hun ouders als gevolg van de controlerende opvoeding, concreet door dwangmatig in te stemmen met het ouderlijk verzoek, of door zich ertegen te verzetten, of door te onderhandelen over het verzoek. De resultaten toonden culturele verschillen in de perceptie van een objectief controlerende opvoeding, en in het omgaan met de daaruit volgende behoeftefrustratie. Wat niet verschilde tussen de twee culturen was het verband tussen gepercipieerde ouderlijke controle en behoeftefrustratie.

Samenvattend kunnen we besluiten dat dit proefschrift een aantal cultuurspecifieke en een aantal universele processen heeft blootgelegd met betrekking tot de psychologische basisbehoeftes binnen ZDT. Aan de ene kant suggereert dit onderzoek dat de manier waarop en de mate waarin mensen bepaalde objectieve situaties als behoeftefrustrerend ervaren, en de manier waarop ze omgaan met deze frustratie, gedeeltelijk cultureel bepaald is en gebonden is aan de specifieke sociale context waarbinnen dit proces

plaatsvindt. Echter, naast deze cultuurspecifieke perceptie en coping, blijkt uit dit proefschrift ook dat het onderliggende proces, waarin bevrediging van de drie psychologische basisbehoeftes uniek bijdraagt aan het welbevinden van mensen, niet verschilt tussen culturen of landen, ook niet afhankelijk is van het individuele verlangen naar behoeftebevrediging, noch van de mate van het al of niet voldaan zijn van de behoefte aan veiligheid. Deze resultaten bevestigen allemaal dat de drie basisbehoeftes binnen ZDT, autonomie, verbondenheid en competentie, essentiële en universele voedingsstoffen zijn voor de groei en het welbevinden van mensen.

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