UNIVERSITEIT GENT

Faculteit Psychologie en Pedagogische Wetenschappen

Academiejaar 2011-2012

Tweede Examenperiode

Heeft psychologische behoeftebevrediging in elke cultuur een positief effect?

Een onderzoek naar de universaliteit van de zelf-determinatie theorie

Masterproef neergelegd

tot het behalen van de graad van Master in de Psychologie

afstudeerrichting Bedrijfspsychologie en Personeelsbeleid

Voorgedragen door: Jasper Van Assche

Promotor: Prof. Dr. Maarten Vansteenkiste

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Personally, I believe in self-determination,
but in the context of one South Africa
- so that my self-determination is based in this region,
and with my people.

Mangosuthu Buthelezi,
Zuid-Afrikaans politicus

GHENT UNIVERSITY

Faculty of Psychology and Educational Sciences

2011-2012

Does psychological needs satisfaction have a positive effect in every culture?

A study of the universality of Self-Determination Theory

Alternative title:

The dynamics of needs and well-being: the South African case

Jasper Van Assche

Promotor: Prof. Dr. Maarten Vansteenkiste

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ABSTRACT

This cross-sectional study focused on the dynamics between six carefully selected basic human needs in South Africa. We examined how the satisfaction of three safety needs (i.e. environmental safety, financial security and health) as conceived by Maslow (1954, 1970) and three psychological needs (i.e. autonomy, relatedness and competence) as defined by Self-Determination Theory (SDT; Deci & Ryan, 1985a; Deci & Ryan, 2000) related to well-being. 224 South-African university and police students from a variety of backgrounds completed the questionnaire battery. Results showed that the association between psychological need satisfaction and well-being remains even after controlling for safety need satisfaction, while safety needs at the same time accounted for an incremental amount of variance. Further, some evidence for mediation was found, suggesting that the associations between perceived environmental safety satisfaction and well-being and between perceived health satisfaction and well-being could be partly accounted for by psychological need satisfaction. In contrast, no moderation effects were found, suggesting that the association between psychological need satisfaction and well-being is not dependent on the level of safety need satisfaction. Finally, contrary to the assumptions embedded in Maslow's needs hierarchy, individuals who perceive low environmental safety and low health satisfaction tend to express a stronger rather than a weaker desire for autonomy and competence satisfaction, as opposed to individuals who perceive high environmental safety and high health satisfaction. Limitations, theoretical and practical implications concerning the universality of SDT's proposed psychological needs are discussed.

Key words: Need satisfaction, Safety, Maslow, Self-Determination Theory, Well-Being

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1 INTRODUCTION

The concept of basic human needs is attractive, popular and at the same time controversial (Sheldon, Elliot, Kim, & Kasser, 2001). In some theoretical traditions, needs have been defined as motivating forces that call an organism to action and whose satisfaction is essential and fundamental to the well-being, vitality and even survival of an individual or community (Maslow, 1943). Just as a plant must have air, water and light to survive and thrive, humans require certain nutriments to be mentally healthy and to grow psychologically (Kasser, 2002). Said differently: in daily life, needs may serve as a guiding compass allowing one to move towards a more satisfying and fulfilling life (McKnight & Kashdan, 2009). Needs are vital nutrients of well-being and a lack of needs satisfaction brings along negative results (Jacob, 1973; Jang, Reeve, Ryan, & Kim, 2009).

By assuming the existence of basic human needs, researchers can begin to identify the necessary nutriments for human thriving and provide a more unifying explanation that accounts for both positive (e.g., flourishing, subjective well-being,) and negative outcomes (e.g., ill-being, pathology; Ryan & Deci, 2000a; Ryan & Deci, 2000b; Deci & Ryan, 2004; Vansteenkiste, Simons, Lens, Sheldon, & Deci, 2004; Vansteenkiste, Niemiec, & Soenens, 2010). Indeed, numerous studies have underscored the predictive validity of needs for a broad array of outcomes (e.g. Payne, 1970; Betz, 1984; Pettijohn & Pettijohn, 1996; Fraser, 1998; Hagerty, 1999; Deci & Ryan, 2000; Ryan & Deci, 2001; Reis, Sheldon, Gable, Roscoe, & Ryan, 2000).

Needs have been widely studied and philosophers, psychologists and sociologists have developed different frameworks to provide a conclusive answer on some fundamental issues of debate (Warren, 2002). One of these issues concerns the question how many needs are really critical for well-being of humans. Although several contemporary theories have theorised about the issue of needs, one theory that is very explicit about this issue is Self-Determination Theory (SDT; Deci & Ryan, 1985a; Deci & Ryan, 2000). Based on empirical findings and theoretical accounts, three psychological needs (i.e. autonomy, relatedness and competence) have been proposed. Although Maslow's need hierarchy (Maslow, 1943, 1954, 1970) is more popularised, the framework has received little empirical attention among scientists. In the present paper, we will zoom in on one particular need of Maslow, namely the need for safety. Given the lack of prior research on the *interface* between basic needs suggested by SDT and safety, the main goal of this study is to investigate this interface from three different angles.

Firstly, we examined the contribution of the satisfaction of the three SDT needs and three safety needs in the prediction of well-being. Secondly, we examined whether the three SDT needs would partially mediate the relation between safety satisfaction and well-being. Thirdly, we examined whether the effect of the three SDT needs would depend on the level of safety satisfaction, being indicative of moderating dynamics among the basic needs in their association with well-being.

A second issue of debate is whether the basic needs are innate and for this reason universal or whether they are acquired and culture-specific. In addressing this issue, most research focused on differences between Western and Asian countries (Arnett, 2008). South Africa (and to a larger extent the continent of Africa) has been ignored (e.g. Camfield & Skevington, 2008). By exploring the relationship between need satisfaction and well-being in the diverse and multicultural Republic of South Africa, we will try to add valuable information to further address and stimulate this debate.

1.1 How many basic needs are out there?

Throughout history, several potential basic needs have been put forward, but there is a lack of consensus regarding which are most central or primary (Deci & Ryan, 2000; Sheldon et al., 2001). With regards to psychological need satisfaction, there is a long tradition of research (Ryan & Deci, 2001). Renowned psychologists as Angyal (1941), Epstein (1990), Swann (1990), Baumeister and Leary (1995) and Deci and Ryan (1985a) all investigated the idea of basic psychological needs that, when satisfied, endorse well-being. According to Angyal (1941), the trend towards psychological growth and integration is a harmonising amalgamation between autonomy (holistic self-regulation) and homonomy (integrating oneself in relation to others). Epstein (1990) specified four key needs: self-esteem, relatedness, pleasure and self-concept consistency. Swann (1990) selected two core needs, namely self-enhancement and self-consistency.

Baumeister and Leary (1995) focused strongly on the need to belong. Finally, Deci and Ryan (1985a) stipulated in the development of SDT three basic psychological needs; that is, the needs for autonomy, relatedness and competence. Social contexts that satisfy these crucial universal needs appear to be critical to endorse well-being and psychological growth (Ryan & Deci, 2000a). Given these three needs have received most empirical attention over the past decade (Sheldon et al., 2001), we will further explore the role of these psychological needs, but this time in conjunction with safety needs.

SDT (Ryan & Deci, 1985a; Deci & Ryan, 2000) is one of the most empirically grounded theories within motivation research. It is grounded in an organismic-dialectical macro-theory of human motivation, emotion and personality and it has steadily grown as the result of four decades of empirical research (Ryan & Deci, 2002; Niemiec & Ryan, 2009). Vansteenkiste and colleagues (2010) outline the development of SDT on the basis of the jigsaw metaphor: based on empirical evidence new pieces were added to a growing puzzle, such that over time a harmonious and internally consistent framework was developed, applicable in various fields, ranging from therapy, health care, work and religion to education (Vansteenkiste et al., 2010).

At this moment, SDT consists of five mini-theories: Cognitive Evaluation Theory (CET, Deci, 1975), Organismic Integration Theory (OIT; Ryan & Connell, 1989), Causality Orientations Theory (COT; Deci & Ryan, 1985b), Contents Goal Theory (Kasser & Ryan, 1996) and Basic Psychological Needs Theory (BPNT; Deci & Ryan, 2002). For the purpose of this study, we will focus on the Basic Psychological Needs Theory. BPNT systematically developed the idea of three fundamental basic needs as a unifying principle interwoven throughout the other mini-theories (Ryan & Deci, 2000b; Niemiec, Ryan, & Deci, 2010). These core prerequisites are the need to act autonomously, the need is to feel connected with others and the need to feel competent (Deci & Ryan, 1985a; Ryan & Deci, 2000a).

1.1.1 The need for autonomy

There is much confusion surrounding the notion of autonomy, mostly due to diverse conceptualisations of the concept. It is an umbrella term, a heterogeneous flag that covers many loadings (Beyers, Goossens, Vansant, & Moors, 2003). Autonomy has been used interchangeably with constructs like independence (Oyserman, Coon, & Kemmelmeier, 2002), individualism (Markus, & Schwartz, 2010), agency (Bandura, 1989), ownership (Avey, Avolio, Crossley, & Luthans, 2009), self-sufficiency (Rohe & Kleit, 1997), choice (Iyengar & Lepper, 1999), volition (Ryan & Deci, 2000a) and positive freedom (Vansteenkiste, in preparation). The separation-individuation theory (Blos, 1967, 1979) suggests autonomy is equal to independence or agency (taking independent choices without relying on others) as opposed to dependency (Guisinger & Blatt, 1994; Wiggins & Trapnell, 1996).

Within BPNT, autonomy does not refer to independence, but to self-determined or volitional behavior as opposed to controlled regulation without self-endorsement (Ryan & Deci, 2006; Devine, Camfield, & Gough, 2006; Harb & Smith, 2008). Autonomous individuals experience their behavior as derived from authentic interest and integrated values,

as an expression of the self. They experience a sense of volition, psychological freedom and self-endorsement rather than a feeling of control or coercion (either imposed through environmentally prescribed demands or trough self-imposed pressure; deCharms, 1968; Ryan & Connell, 1989). SDT specifically distinguishes autonomy from independence, noting that one can, for example, be autonomously dependent, or forced into independence (Ryan, 1993; Chirkov, Ryan, Kim, & Kaplan, 2003; Soenens et al., 2007).

1.1.2 The need for relatedness

The need for relatedness involves feeling genuinely and meaningfully connected to others, rather than feeling lonely, alienated or ostracized (Baumeister & Leary, 1995). A related individual feels respected, supported and accepted within intimate, warm and committed relationships with others (Harlow, 1958; Ryan, 1991; Vansteenkiste, Ryan, & Deci, 2008; Sheldon & Filak, 2008). This belongingness and affiliation leads to a refined social network of important others (differentiation) in which a person positions himself (integration; Angyal, 1941; Maslow, 1954). Scientists generally agree in terms of this definition of the relatedness need (e.g. Epstein, 1990; Baumeister & Leary, 1995).

1.1.3 The need for competence

The need for competence refers to the need of people to develop and use their own skills abilities to reach their goals (Skinner, 1995; Elliot, McGregor, & Trash, 2002). This feeling effective and capable in succeeding at optimally challenging tasks and being able to attain desired outcomes is also reflected in ideas such as mastery (White, 1959), effectance motivation (Harter, 1978), self-efficacy (Bandura, 1997), self-enhancement (Swann, 1990), achievement motivation (Atkinson, 1964) and need for achievement (Murray, 1938; McClelland, 1985). The need for effective, competent interactions with the environment is an inherent motivational source of energy and has a high evolutionary function, namely to adapt to an ever changing environment (Ryan & Deci, 2000a). A context that is well structured and competence-supportive, versus chaotic and disorienting, will fuel the satisfaction of the need for competence (Sheldon, Ryan, & Reis, 1996).

It is essential to SDT to define and conceptualise the 3 basic psychological needs clearly and to outline the distinctions between them (Ryan & Deci, 2000b). The need for competence, for example, should be clearly distinguished from the need for autonomy. Autonomy is a sense of volitional behavior initiating action, whereas competence is a sense of effectiveness and ability to achieve desired results. When an individual feels competent at performing a certain activity, that person can simultaneously have the feeling that it

constitutes a choice and is a reflection of his or her own values and interests. However, the same act can elicit a feeling of pressure and coercion, despite the feeling of mastery (Connell & Wellborn, 1991; Reis et al., 2000).

BPNT maintains that a full understanding of human motivation requires a consideration of these three basic psychological needs, emphasizing that those needs specify the necessary conditions for psychological growth, integrity, and well-being (Deci & Ryan, 1985a; Deci & Ryan, 2000). Indeed, increasing evidence has been obtained for the fact that the satisfaction of those 3 needs has a strong relationship with and is functionally important for the psychological health and welfare of individuals (Reis et al., 2000; Sheldon & Niemiec, 2006; Vansteenkiste et al., 2010). Consequently, the principle of Ockham's Razor (the law of parsimony) seems valuable here: with a minimum (3) of constructs a maximum of phenomena is explained. Nonetheless, the theory is open to the addition of other basic needs, provided sufficient empirical evidence for their existence and their predictive validity (Vansteenkiste et al., 2010). One viable candidate concerns the need for safety.

Kasser (2002), for instance, criticises SDT for their exclusive focus on psychological, growth-oriented enhancement needs and advocates for the inclusion of deficiency needs in the list of basic human needs. Deficiency needs, often referred to as the existence category (ERG Theory; Alderfer, 1969), include physiological and safety needs (Maslow, 1954, 1970; Wicker, Brown, Wiehe, Hagen, & Reed, 1993). No one disagrees that all human beings have certain physiological needs (e.g. air, water, food, sex, sleep and activity) that must be met in order to ensure survival (Kasser, 2002). An inclusive model of how these physiological needs relate to growth-oriented enhancement needs has been proposed by Maslow (1943, 1954, 1970). Maslow proposed that human needs can be categorized into different categories which are structured in a hierarchy of prepotency and probability of appearance (Wahba & Bridwell, 1976). These need categories are physiological needs, safety needs, belongingness needs, esteem needs and the need for self-actualisation.

The first and most prepotent level of motivation is the need to satisfy physiological needs or ‘drives’ (Maslow, 1970; Franken, 2001). If the physiological needs are relatively well gratified, there then emerges a new set of needs categorised as safety needs (Maslow, 1943). Kasser (2002) considers the needs clustered in this category as the essentials in life and, in fact, previous research found moderate to strong associations between satisfaction of the safety needs and well-being (e.g. Maslow, Hirsh, Stein, & Honigmann, 1945; Williams & Page, 1989; Sheldon et al., 2001).

The safety needs consist of several facets, including the need for environmental safety, the need for financial security and the need for health.

1.1.4 The need for environmental safety

The need for environmental safety or personal security is the need to feel secure and protected from harms, threats and uncertainties imposed by the environment. It is the need for structure, order, law, stability, protection and freedom from fear, anxiety and chaos (Maslow, 1970). In most Western cultures, the peaceful and stable society makes its members feel safe enough from wild animals, extreme temperatures, criminal assault, threats to authority, tyranny and so on. Still, in other societies, the need for environmental safety can be an active motivator which becomes salient especially in times of deprivation (Maslow, 1970; McHale & McHale, 1978; Sheldon et al., 2001).

South Africa, for instance, has a high criminality rate (Demombynes & Özlerb, 2003; Powdthavee, 2005). Also, perceptions of safety and security on the streets are quite low, especially after dark and when using public transport in the cities (Ferreira & Harmse, 2000; George, 2003). Furthermore, numerous cases of household violence, parental alcoholism and abuse also indicate that the need for personal security or environmental safety is often frustrated in the family context (Le Roux, 1996). Finally, the epidemiology of rape and sexual coercion in South Africa is a growing concern (e.g. Jewkes & Abrahams, 2002; Moffett, 2006). We will focus on the global, subjective appraisal of environmental safety. For these reasons, South Africa seemed the ideal case to examine the relative contribution of the satisfaction of the psychological needs, as stipulated within BPTN, and the perception of a safe environment.

1.1.5 The need for financial security

A second facet of the more global safety need is the need for financial security (Maslow, 1970). Previous researchers tend to equate financial security with having lots of money (Diener & Biswas-Diener, 2002). More money may enhance well-being when it means avoiding poverty and living in a developing nation (the absolute argument; Veenhoven, 1988, 1991). However, absolute income appears to increase well-being little above and beyond a critical threshold (Campbell, Converse & Rodgers, 1976; Diener, 1984; Diener, Suh, Lucas, & Smith, 1999; Oishi, Diener, Lucas, & Suh, 1999). More than absolute income, it is the subjective perception of financial security which relates to well-being (Oleson, 2004; Prawitz et al., 2006; Rojas, 2008; Clark, Frijters & Shields, 2008).

To our knowledge, only one study has explored the relationship between financial security and well-being in South Africa (Devey & Møller, 2002). These authors pointed out that a major concern for South Africa's new democracy is the huge gap between the living conditions of the poor and the rich. South Africa has a high rate of poverty, unemployment is high and the state is ranked among the top ten countries in the world for income inequality as measured by the Gini-coefficient (Neff, 2006; Human Development Report, 2011; World Bank Group, 2011). Since 1994, when Apartheid was abolished, the new government has sought to implement ambitious programmes to redress past discrimination against the poor and address quality of life issues (Devey & Møller, 2002). It would be interesting to explore whether now, in 2012, perceived financial security relates significantly with well-being among South Africans.

1.1.6 The need for health

The need for health security is the third component within the safety cluster. Being healthy and in good physical condition is vital (Paluska & Schwenk, 2000. People of all ages, both male and female, benefit both physically and psychologically from regular physical activity (e.g. Hayes & Ross, 1986; Pate et al., 1995. Reciprocally, well-being and optimism seem to have beneficial effects on physical well-being (Mechanic & Hansell, 1987; Scheier & Calver, 1992; Miquelon & Vallerand, 2008). Other evidence for the existence and significance of the need for physical health was provided by Brugha, Wing & Smith (1989).

Some health problems frequently reported in South Africa are obesity, HIV and AIDS. For example, 29.2% of men and 56.6% of women are overweight or obese and an estimated 5.6 million individuals (i.e. a prevalence of 17.8%) are living with HIV and/or AIDS in South Africa, the highest number of people in any country in the world (Puoane et al., 2002; Harrison, 2009). The need for health is certainly out there in South Africa and therefore, South Africa is an ideal place to examine whether health satisfaction would matter in the prediction of well-being above psychological need satisfaction as conceived in BPNT. We will focus on the subjective perception of one's physical health condition, since the self-rating of health deemed to be an important psychosocial parameter in the evaluation of health status (Kaplan, Barell & Lusky, 1988).

To conclude, the need for safety, comprising various facets, might be a viable candidate as a fourth basic human need in the prediction of well-being, in particular in South Africa, where those needs are deprived more often. There exists some preliminary evidence for the importance of safety needs. First, in various studies, these three facets of the more

global safety need were found to yield a positive relation with wellbeing (e.g. Bislky, 2003; Pickett & Wilkinson, 2007; Winkworth & White, 2011). Yet, few studies to date have examined whether these three facets yield an independent relation with well-being when controlled for each other and when controlled for the psychological needs stipulated within SDT. One notable exception is the work by Sheldon and colleagues (2001).

They tested ten candidate basic needs and, across different samples, they measured the extent to which each of these ten needs, including the needs for autonomy, competence, relatedness, health and environmental safety as studied herein, was present during a satisfying event (Study 1-2) or was frustrated during an unsatisfying event (Study 3). Results show that the satisfaction of the needs for autonomy, relatedness and competence are among the strongest predictors of positive affect within positive experiences (Study 1-2). Thus, when people are asked to bring to mind deeply satisfying experiences, they think of experiences in which they felt strongly autonomous, competent and related to others rather than experiences in which they felt safe or healthy. In contrast, in the prediction of negative affect within negative experiences, the absence of personal security (or environmental safety) and physical thriving (or health) appeared to be more important than the three SDT needs in such a way that individuals perceived them as strongly missing within unsatisfying events (Study 3).

Since unsatisfying events happen regularly in the life of South Africans, the question rises whether in this country, the association between psychological needs and well-being is as robust as SDT predicts and whether it remains significant after controlling for safety needs. In accordance with SDT's predictions, we expect significant independent relations between the satisfaction of the needs for autonomy, for relatedness and for competence on one hand and well-being on the other hand. These relations should remain significant after controlling for safety need satisfaction.

Hypothesis 1: The association between psychological need satisfaction and well-being remains significant after controlling for safety need satisfaction.

It should be noted that Sheldon and colleagues (2001) did find significant correlations between satisfaction of the needs for environmental safety and health and event-related well-being throughout the three studies they conducted. Yet, only in Study 3, these associations appeared to be unique. Thus, one possible interpretation of the non-unique effects of these two facets of safety satisfaction in Study 1 is that the initial relationship with well-being can be accounted for by satisfaction of the psychological needs. Accordingly, we

examined whether psychological need satisfaction would serve as a mediator in the association between safety need satisfaction and well-being.

There exists some indirect evidence for this hypothesis. For instance, autonomy, relatedness and competence satisfaction has been shown to partially account for the relation job demands and exhaustion, with job insecurity representing one indicator of the assessed job demands (Van den Broeck, Vansteenkiste, De Witte, & Lens, 2008). However, to our knowledge, the theoretical question whether psychological need satisfaction can explain the relationship between the satisfaction of safety needs and well-being has not yet been investigated empirically. On the basis of the direct associations between safety need satisfaction and well-being found by Sheldon and colleagues (2001), we expect psychological needs to be a partial mediator in this relationship.

Hypothesis 2: The association between safety need satisfaction and well-being is at least partially mediated by psychological need satisfaction.

Besides examining the independent contributions and mediating effects, we want to further explore the dynamics of psychological and safety needs by focusing on the potentially moderating effect of safety. SDT (Deci & Ryan, 1985a; Deci & Ryan, 2000) suggests that the association between psychological need satisfaction and well-being is robust and not influenced by the level of satisfaction of other needs (Sheldon & Niemiec, 2006). Said differently, psychological needs should matter in the prediction of well-being regardless of one's level of perceived safety satisfaction.

Notably, Maslow (1943, 1954, 1970) did not expect such moderating effects either. Maslow (1954) postulated the deprivation concept and the principle of *relative potency* to indicate dominance within his hierarchy. Although this claim is not unique to Maslow, it implicates that lower (i.e. physiological and safety) needs in the hierarchy will dominate a person's functioning till the deprived need is met (Tracy, 1986; Wicker & Wiehe, 1999). Only after satisfying a dominating need, there will become energy available to pursue the satisfaction of the next, higher need (Wahba & Bridwell, 1976). For example, for individuals frustrated or deprived in their need for safety, the satisfaction of this need will dominate their behavior and only after relative gratification of the need for safety, the need for belongingness will be activated and desired. This dynamic cycle of deprivation-domination-gratification-activation continues until an individual reaches the ultimate goal in life: self-actualisation (Daniels, 1982; Cilliers & Coetzee, 2003).

It is of vital importance to note that Maslow did not assume that the effect of his higher (psychological) needs is dependent on the satisfaction of his lower (physiological and safety) needs. Instead, it is the desire for (instead of mere satisfaction of) higher needs that would be dependent on the satisfaction of lower needs (Maslow, 1954, 1970). For example, individuals deprived in their need for safety will not desire belongingness/relatedness (since they are dominated by the urge to be safe) but they will still benefit from the satisfaction of that need. Therefore, we can propose two different hypotheses. The first focuses on mere satisfaction and suggests that the association between psychological need satisfaction and well-being is not dependent on the satisfaction of the three safety needs.

Hypothesis 3a: The association between psychological need satisfaction and well-being is not moderated by safety need satisfaction.

The second hypothesis focuses on desire for needs (or needs strength) instead of mere needs satisfaction. Maslow (1954, 1970) predicts that the desire for higher, psychological needs is only possible when sufficient energy is available, in other words: when lower, deficiency needs are satisfied (Goble, 2004). In our case, individuals who perceive less safety needs satisfaction are preoccupied by those needs and might not have the desire to satisfy higher psychological needs such as belongingness/relatedness, autonomy or competence.

Nonetheless, Fox (1982) concluded that some of Maslow's propositions are totally rejected by empirical research, while others receive mixed and questionable support at best. Wahba and Bridwell (1976) put forward that most studies investigating the deprivation/domination proposal do not support the proposition with regards to safety, social and esteem needs. Interestingly, recent findings by Chen and colleagues (in preparation) found that individuals who perceive less physiological need satisfaction actually desire more psychological need satisfaction. This finding, which is in sharp contrast with Maslow's hypothesis, was replicated across four different countries from four different continents (Chen et al., in preparation).

In light of these recent results, we predict that individuals low on safety need satisfaction will have higher desire for psychological need satisfaction as opposed to individuals high on safety need satisfaction.

Hypothesis 3b: Individuals low on safety need satisfaction will have higher desire for psychological need satisfaction as opposed to individuals high on safety need satisfaction.

Now that we have a broad idea about which needs could be essential and critical to well-being, we can ask ourselves the question if the satisfaction of these basic needs is beneficial for all human beings everywhere in the world or if it endorses well-being only among people in certain cultures.

1.2 Are the basic needs universal or culture-specific?

A second issue of debate, which is even more provocative than the first issue about the number of basic needs, concerns the universality of the basic needs. Both Maslow (1970) and SDT (Deci & Ryan, 1985a; Deci & Ryan, 2000) claim that their basic needs are innate, inborn and inherent in all human beings and that their satisfaction will have universal beneficial effects in that they promote well-being among everyone (Ryan & Deci, 2000b). While the universality of safety need satisfaction has not yet been systematically investigated, the benefits of psychological need satisfaction have been found to emerge across age, culture and life domains (e.g. Levesque, Zuehlke, Stanek, & Ryan, 2004; Chirkov, Ryan, & Willness, 2005; Hahn & Oishi, 2005; Helwig, 2006; Vansteenkiste, Lens, Soenens, & Luyckx, 2006; Rudy, Sheldon, Awong, & Tang, 2007; Deci & Ryan, 2008b; Chirkov, Sheldon, & Ryan, 2011).

Despite the diversity in culture-specific practices that engender need satisfaction (i.e. culture-specific ways to create needs-supportive contexts), these different behavioral pathways all lead to the same outcome in that everybody should benefit from the actual experience of need satisfaction itself (Chen et al., in preparation). This claim is consistent with Tov and Diener's (2009) point that we cannot neglect the possibility of universal dynamics underlying different cultural syndromes. In this context, they argued that more research is needed exploring which influences on well-being are universal across cultures and why.

Yet, a number of cultural psychologists primarily focus on cultural particularities that influence individuals' well-being in different cultures (Heine, Lehman, Markus, & Kitayama, 1999; Oishi et al., 1999). Those researchers, adopting a more relativistic social-constructive perspective, have questioned the existence of innate and universal needs, instead arguing that needs are acquired from previous individual experiences specific to one's socio-cultural context (e.g., McClelland, 1985; Tooby & Cosmides, 1990; Oishi et al., 1999). There is particular contestation about the role autonomy and relatedness play in different cultures.

One of the main questions is whether autonomy represents a universal ingredient of well-being or whether autonomy is only beneficial for individuals living in more individualistic societies (Vansteenkiste, in preparation). Some cultural perspectives have questioned the importance, even the existence, of autonomy in collectivistic cultures (e.g. Heine et al., 1999; Iyengar & Lepper, 1999; Ford, 1992; Markus & Kitayama, 1991; Oishi, 2000; Iyengar & DeVoe, 2003). Heine et al. (1999), for instance, proposed that whereas western cultures emphasize autonomy and eastern societies value more relatedness. These differences might influence the relationships between psychological need satisfaction and well-being across cultures.

Again, a lot has to do with the difference in conceptualisation. Indeed, the two "types" of autonomy (autonomy as volitional behavior and autonomy as independence) are unrelated. Moreover, there is an orthogonal relationship between volitional behavior and independence (Ryan & Lynch, 1989; Chirkov et al., 2003; Roth, Assor, Kanat-Maymon, & Kaplan, 2006; Lynch, La Guardia & Ryan, 2009). The first dimension of autonomy versus heteronomy is perpendicular to the other dimension of independence versus dependence. As a result, it is predicted that autonomy as volitional behavior is a universal need promoting psychological well-being in every culture, while autonomy as independence is only beneficial in more individualistic cultures who value more independence rather than (inter)dependence (Vansteenkiste, Zhou, Lens, & Soenens, 2005; Rudy et al., 2007; Chen et al., in preparation).

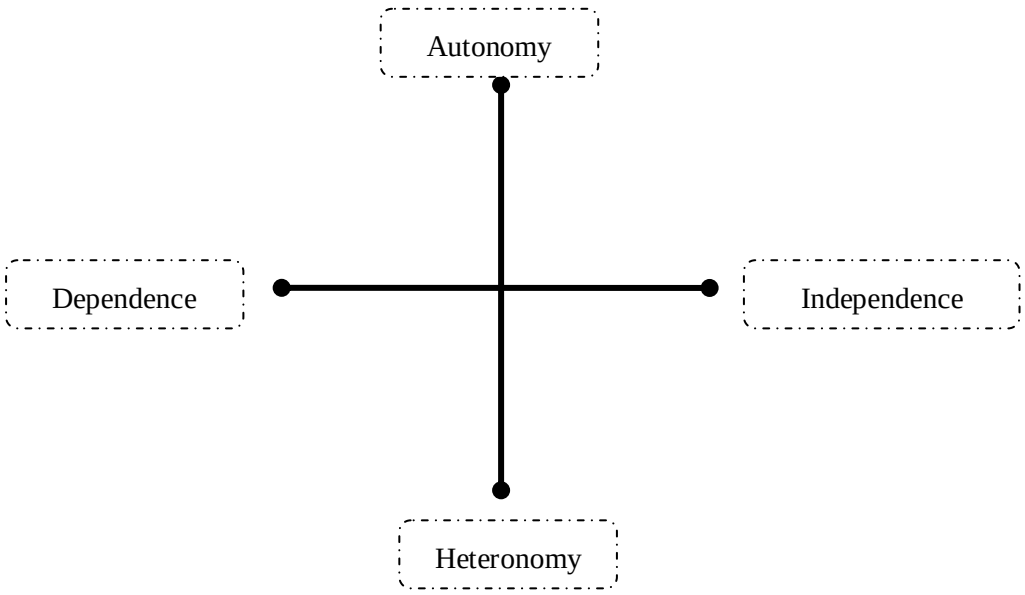

Figure 1. *Autonomy & independence: two orthogonal dimensions (see Ryan & Lynch, 1989)*

A second point of controversy concerns the universality of the relatedness need and the relationship between relatedness and autonomy (which in turn is grounded in the different definitions of the autonomy construct). Greenfield and colleagues claim that relatedness satisfaction is more beneficial in collectivistic cultures that value relatedness more (Greenfield, Keller, Fuligni, & Maynard, 2003). On the relationship between relatedness and autonomy, SDT assumes that autonomy and relatedness needs are compatible and the satisfaction of one even fosters satisfaction of the other (Hodgins, Duncan, & Koestner, 1996; Vansteenkiste et al., 2006). Such an assumption is understood from the conceptualisation of autonomy as volitional behavior (Ryan, La Guardia, Solky-Butzel, Chirkov, & Kim, 2005; Chirkov et al., 2011).

Cultural psychologists, on the other hand, believe that autonomy satisfaction hinders establishing good social relationships (Markus & Kitayama, 1991; Bao & Lam, 2008). Certainly in collectivistic cultures, where relatedness is a paramount need, the satisfaction of both needs together may cause psychological distress instead of well-being (Triandis, Brislin, & Hui, 1988; Kagitçibasi, 1996, 2005).

South Africa is defined as a relatively vertical, collectivistic society with a focus on values of interdependence, power distance and conservation (see, for example, Hofstede & Bond, 1988; Triandis, 1989; Schwartz & Bardi, 2001; Eaton & Low, 2010). From a relativistic perspective, the satisfaction of the need for autonomy would not be as beneficial to well-being as the satisfaction of the need for relatedness is. In contrast, from a universalist perspective, autonomy and relatedness should both be strongly positively associated with well-being.

We stick to the universalist perspective of SDT, assuming that the satisfaction of the psychological needs for autonomy, relatedness and competence are all associated with well-being, even in a relatively collectivistic country as South Africa. This assumption is inherently embedded in our previous hypotheses that expect direct, independent as well as mediating effects of psychological need satisfaction. For that reason, we will not propose a separate hypothesis, but rather return to this issue when globally interpreting the results.

1.3 Present study

The present study focused on need satisfaction and well-being in the specific case of South Africa. We choose to collect data in South Africa because we can assume a lot of variance in the level of satisfaction of the need for environmental safety, the need for financial

security and the need for health in this country. Also, this relatively collectivistic society can provide us with valuable information that could supplement or contradict findings from research done in mostly Western, individualistic societies. We will look at the interface between psychological and safety need satisfaction from three different angles.

Firstly, we will examine the independent relations between the satisfaction of those needs with well-being, thereby inspecting whether the associations between psychological need satisfaction and well-being stays significant even after including safety need satisfaction (Hypothesis 1). If this turns out to be the case, it would testify to the robustness of the psychological needs.

Secondly, we will examine the mediating effects of psychological need satisfaction in the association between safety need satisfaction and well-being, thereby expecting that at least part of the association between safety need satisfaction and well-being can be accounted for by the satisfaction of the needs for autonomy, relatedness and competence (i.e. partial mediation; Hypothesis 2).

Thirdly, we will examine the moderating effects of safety need satisfaction on the relationship between psychological need satisfaction and well-being, expecting the SDT needs to yield a positive association with well-being regardless of the level of experienced safety satisfaction (i.e., lack of moderation; Hypothesis 3a). Finally, contrary to Maslow's predictions, we expected that individuals low on safety need satisfaction will have higher desire for psychological need satisfaction as opposed to individuals high on safety need satisfaction (Hypothesis 3b). Although in Hypothesis 3b desire for psychological need satisfaction is the dependent variable, Hypotheses 1, 2 and 3a include well-being as an outcome.

Just like there is plenty of controversy in the field of needs, there is some debate in the field of positive psychology about what well-being actually is and what it consists of (e.g. Maslow, 1943; Reker, Peacock & Wong, 1987; Seligman, 2002). Research can be thought of as falling into two traditions: the eudaimonic and the hedonic perspective (Deci & Ryan, 2008c). In his *Ethica Nicomachea*, Aristotle equates well-being with being well and concluded that *Eudaimonia*, the innate, active tendency towards organismic integration or psychological growth, is the highest human good (Cooper, 1975; Ackrill, 1975; Keyt, 1978; Whiting, 1986). *Eudaimonia* is often translated as "human flourishing" (Robinson, 1989; Arneson, 1999; Keyes, 2002; Rothmann, 2012).

Other concepts used within the field of eudaimonic research include psychological well-being (Ryff & Singer, 1998), self-determination (Ryan & Deci, 2000a), authentic happiness (Seligman, 2002), personal expressiveness (Waterman, 1993), salutogenesis (Antonovsky, 1987), fortigenesis (Strümpfer, 2006) and flow (Csikszentmihalyi, 1990; Vittersø, 2003). The Aristotelian/eudaimonic tradition, focusing on living life towards psychological growth and integration in a meaningful and deeply satisfying way, examined a considerable influence on psychological theories from a variety of fields (Ryff & Keyes, 1995; Deci & Ryan, 2008a).

In contrast, Epicurus equalled well-being with the life of pleasure. The Epicureans believed in reaching happiness through enjoyment and the delight of simple pleasures (Annas, 1993; Peterson, Park, & Seligman, 2005; McMahon, 2006, 2008). So-called subjectivists or mentalists emphasize that the pleasant, affective side of happiness should not be overlooked or dismissed; it is perhaps more important than the object or source of happiness (Veenhoven, 2003). The Epicurian/hedonic tradition, focusing on the presence of positive affect, the absence of negative affect and life satisfaction, also influenced psychology as it is today and several new concepts have been introduced.

Diener (1984), for example, focused on subjective well-being. Other researchers investigated positive affect (Watson, Clark, & Tellegen, 1988), life satisfaction (Diener, Emmons, Larsen, & Griffin, 1985), joy (Biswas-Diener & Diener, 2006), pleasure (Kahneman, Diener, & Schwarz, 1999), happiness (Veenhoven, 1984) and optimism (Scheier, Carver, & Bridges, 2001); their distinctions in conceptualisation, their predictors and their consequences (Deci & Ryan, 2008a; Tay & Diener, 2011).

Still, eudaimonic theorists as Waterman (1993) argue that well-being consist of more than just pleasure, it also comprises actualising or optimising potential. In accordance with Aristotelian philosophy and humanistic psychology, being well equals realising one's true nature, fulfilling one's virtuous potentials and living as one was inherently intended to (Maslow, 1962; Rogers, 1963). Waterman also posits that the two conceptions of well-being are related but still distinguishable. In contrast, Kashdan, Biswas-Diener and King (2008) argue that the difference is only of minor importance and that the theoretical, philosophical distinction between eudaimonic/psychological and hedonic/subjective well-being does not translate well to science. Among the problems of drawing a line between 'types' of happiness is the fact that *Eudaimonia* lacks consistent measurement (Biswas-Diener, Kashdan, & King, 2009).

Ryff (1989) also but pointed out that explorations of the complementarity of both frameworks could be valuable. Indeed, there is a certain amount of overlap and covariance between 'hedonia' and 'eudaimonia' (Deci & Ryan, 2001; Kashdan et al., 2008; Huta & Ryan, 2010; Delle Fave, Freire, Vella-Brodrick & Wissing, 2011). The Personal Expressive Activities Questionnaire (PEAQ) by Waterman (2008) can be seen as a first attempt to asses both types or viewpoints at once. In line with these recent findings, we will assess both eudaimonic and hedonic components of well-being.

2 METHOD

2.1 Participants

Two hundred and twenty-four South African participants completed the questionnaire battery. Fifty-two of them filled in the online survey, 172 completed the paper version. We collected the data ourselves at University of Pretoria, Transvaal University of Technology and the South African Police Services Prepcon. Demographic characteristics of the sample in terms of gender, age, education, family area, family income (adjusted to national levels of wealth) and ethnicity appear in Table 1.

Sample	N (%)
N	224 (100%)
Questionnaire Type	
Paper & Pencil (%)	172 (77%)
Online (%)	52 (23%)
Sample Type	
University Student (%)	166 (74%)
Police Student (%)	58 (26%)
Gender	
Male (%)	121 (54%)
Female (%)	101 (45%)
Age	
Range (years)	18-37
Mean (years)	24.01
SD (years)	4.25
Education	
Primary school (%)	0 (0%)
High School (%)	64 (29%)
University (%)	158 (71%)
Family Area	
Urban (%)	107 (48%)
Rural (%)	54 (24%)
Township (%)	62 (28%)
Family Income	
Much below average level of the country (%)	28 (13%)
Below average level of the country (%)	59 (26%)
Around average level of the country (%)	52 (23%)
Above average level of the country (%)	40 (18%)
Much above average level of the country (%)	7 (3%)
I would rather keep it private (%)	36 (16%)

Ethnicity	
African (%)	129 (58%)
Caucasian (%)	64 (28%)
Coloured (%)	20 (9%)
Other (%)	11 (5%)

Table 1. *Demographic Characteristics of the Sample*

As shown in Table 1, gender and age distribution are quite representative for the total population of South African students. As for family area, almost half of the participants come from urban areas in Gauteng province. All universities and colleges where data collection found place, are located in Pretoria, the executive capital and fifth largest city in South Africa. Other participants come from rural areas and townships around Pretoria, such as Soshanguve, Mamelodi, Atteridgeville and Mabopane.

There is a fairly normal distribution of family income. Ethnic distribution, on the other hand, is not representative of the total population of which 79.5% is African, 9% is Caucasian, 9% is Coloured and 2.5% Asian/Indian (Statistics South Africa, United Nations Development Report, 2011). The overrepresentation of Caucasians and underrepresentation of Africans is due to the sampling procedure, which focused mostly on university students. Wiese and colleagues (2009) found that the ethnic distribution in the main South African universities is as follows: 46% Caucasian, 41% African, 9% Asian and 3% Coloured (Wiese, van Heerden, Jordaan & North, 2009).

2.2 Measurements

2.2.1 Basic psychological need satisfaction (BPNS)

A BPNS-scale was recently developed based on existing questionnaires of basic psychological needs satisfaction (AFS, Reeve & Sickenius, 1994; BPNS, Gagné, 2003; Johnston & Finney, 2010; BMPN, Sheldon & Hilpert, 2012). The scale was validated across four countries and four languages (Chen et al., in preparation). We used the English translation of this scale and after pilot testing we replaced two items of which the meaning turned out to be difficult for non-native speakers. The autonomy-frustration item "*Most of the things I do feel like an obligation*" was changed by "*I have to do things against my will*" and the relatedness-frustration item "*I feel the relationships I have are just superficial*" was changed into "*I feel lonely*".

The BPNS-scale consists of 3 subscales, with 8 items in each subscale referring to one psychological need. Half of the items measure need satisfaction and the other half measures need frustration. An example item of competence satisfaction is "*I feel I can successfully complete difficult tasks*" and an example item of competence frustration is "*I have serious doubts about whether I can do things well*". Respondents answered on a 5-point Likert scale, ranging from 1 ("Completely untrue") to 5 ("Completely true"). Cronbach's alphas are .74 for the need for autonomy, .80 for the need for relatedness and .84 for the need for competence.

2.2.2 Safety need satisfaction

As noted before, we didn't select items that measure the first level of the Maslow hierarchy (i.e. physiological needs), we only assessed needs that can be placed on the second lowest level of Maslow's pyramid (need for safety; Maslow, 1954, 1970). Those three facets include the need for environmental safety (3 items), the need for financial security (1 item) and the need for health (4 items). The items of need for environmental safety and health are revised from Sheldon et al. (2001).

An example item for need for safety is "*I feel safe from threats and uncertainties*", the item for the need for financial satisfaction is "*I am satisfied with my financial condition*" and an example item for need for health is "*I feel that my body was getting the care that it needs*". Respondents answered on a five-point Likert scale ranging from 1 ("Completely untrue") to 5 ("Completely true"). Cronbach's alphas were .63 & .83 for the need for safety and the need for health respectively.

2.2.3 Desire for basic psychological needs

We chose to operationalise psychological need desire as a person's self-reported desire to reach psychological need satisfaction. This allowed us to assess the strength of all three psychological needs as conceived in SDT and to use matching items for need strength and need satisfaction. To evaluate the strength of the three psychological needs, we asked for respondents' desire for need satisfaction with nine items revised from the scale of Psychological Needs as Motives (Sheldon & Gunz, 2009). An example item for relatedness is "*If you have a chance to make change in your life, how much would you like to have the following changes? You manage to feel more liked and accepted by those you care about, and feel less separation from them*." Respondents answered on a five-point Likert scale ranging from 1 ("No desire for this change") to 5 ("Much desire for this change"). Cronbach's alphas ranged from .65 to .71.

2.2.4 Well-being

Well-being was assessed with three indicators that reflect eudaimonic (self-fulfillment) aspects of well-being and another two that have been widely used in previous studies in various cultures (e.g., Chen & Chan, 2005; Oishi, Diener, Choi, Kim-Pietro, & Choi, 2009; Diener et al., 2010). These indicators include self-acceptance, environmental mastery, vitality, life satisfaction and depression. Self-acceptance and environmental mastery were assessed by 18 items from the Psychological Well-being Scale, which was designed to assess the eudaimonic aspects of well-being (Ryff, 1989; Ryff & Singer, 2008) and has been used in South African research (e.g. Wissing & van Eeden, 2002). Cronbach's alphas of the two scales ranged from .73 to .79. Example items are "*I like most aspects of my personality*" (self-acceptance) and "*The demands of everyday life often get me down*" (mastery of environment, reverse scored).

Vitality, another component of eudaimonic well-being, was assessed by the 7-item Subjective Vitality Scale (Ryan & Frederick, 1997). Items tapped into feelings of energy, vigor and aliveness over the past few months, for example "*I have energy and spirit*". Cronbach's alpha was .81. Life Satisfaction was measured with the 5-item Satisfaction with Life Scale designed to measure hedonic aspects of well-being (Diener et al., 1985). Cronbach's alpha was .75. An example item is "*In most ways my life is close to ideal*".

Finally, depression was measured with ten items from the Centre for Epidemiological Studies-Depression (CES-D) scale (Radloff, 1977). Cronbach's alpha was .73. An example item is "*I felt depressed*". For this last scale, which assessed feelings and behavior during the past week, respondents answered on a four-point Likert scale ranging from 1 ("<1 day") to 5 ("5-7 days"). On the four other scales, respondents responded on a five-point Likert scale ranging from 1 ("Strongly Disagree") to 5 ("Strongly Agree").

We conducted Exploratory Factor Analyses with principal-axis method on these five well-being indicators and the eigenvalues and scree plot suggest one retained factor (Hair, Black, Babin, Anderson, & Tatham, 2006). We thus combined the five scales to form a composite score of well-being, being our dependent variable.

3 RESULTS

3.1 Preliminary analyses

Preliminary analyses included a power analysis to indicate necessary sample size, a missing data analysis, several one-way ANOVAs to select our controlling variables for the primary analyses and a descriptive analysis of our regressors and outcome variable. The power analysis, with a desired statistical power of .90, indicated that the sample size was supposed to be at least 75 in order not to make a false negative decision (i.e. a type II error, that is, to conclude that there is no association while there actually is; Kraemer & Thiemann, 1987; Cohen, 1988, 1992). Our sample of 224 should be sufficient to observe an association if there actually is one. Missing data analysis revealed that the maximum percentage of missing values per item was 4%, or 9 out of 224 persons. This should not impede valid interpretation of the results (Rubin, 1976).

Further, we explored the associations between our background variables and the assessed outcome. Independent ANOVA-analyses showed no gender-effect and there were no significant differences in well-being between ethnic backgrounds, nor between living areas. We did find a significant relation between education and well-being, with $F(1,207)=12.44$, $p=.001$, suggesting that university students scored slightly lower than students with a high school degree. As shown in Table 2, for the continuous background variables, age was negatively associated with well-being, $F(18,174)=2.16$, $p<.01$, and family income was not significantly associated with well-being. Consequently, we should only control for education and age in our primary analyses. Yet, we also controlled for family income as it might have covariance with financial security in the analysis. Additionally, we considered it useful to also control for social desirability.

Finally, in Table 2, associations between background and study variables are displayed. As can be noticed, age and autonomy desire are significantly negatively correlated with well-being, while the satisfaction of all safety and psychological needs is positively correlated with the composite well-being. Furthermore, health, relatedness and competence satisfaction seem to decrease with age, whereas desire for relatedness increases with age. Lastly, some interesting dynamics between the needs appear. Safety needs are positively correlated with each other and with all psychological needs, which are also strongly interrelated within their cluster. Desire for a specific psychological need seems unrelated or even negatively related to mere need satisfaction, whether considering safety or psychological needs.

Measure	Mean	SD	2	3	4	5	6	7	8	9	10	11	12	13
1. Age	24.13	4.25	.33**	.11	-.07	.00	-.23**	-.09	-.17*	-.24**	.11	.25**	.12	-.19**
2. Family Income	2.67	1.09	-	-.03	.11	.16*	-.01	-.02	-.03	-.08	-.02	.09	.02	.01
3. Social Desirability	3.22	0.47		-	-.01	-.07	-.04	-.14	-.15	-.21*	-.01	.20**	-.05	.01
Safety Need Satisfaction														
4. Environmental Safety	3.55	0.89			-	.40**	.60**	.28**	.44**	.38**	-.13	-.07	-.13	.63**
5. Financial Security	3.01	1.33				-	.34**	.21**	.13*	.14*	-.19**	-.06	-.18**	.39**
6. Health	3.64	1.12					-	.39**	.48**	.43**	-.17*	-.06	-.15*	.66**
SDT Need Satisfaction														
7. Autonomy	3.97	0.65						-	.57**	.57**	-.15*	-.08	-.10	.65**
8. Relatedness	4.25	0.66							-	.55**	-.16*	-.17*	-.11	.69**
9. Competence	4.21	0.63								-	-.10	-.11	.12	.64**
SDT Need Desire														
10. Autonomy	3.24	1.10									-	.66**	.62**	-.18*
11. Relatedness	3.21	1.13										-	.57**	-.10
12. Competence	3.48	1.05											-	-.11
Well-Being														
13. Composite well-being	2.63	0.57												-

Table 2. *Means, Standard Deviations and Correlations among Background Variables and Study Variables*

Note: ([1]): (0=high school,1=university)

([2]): (1=lowest, 5=highest)

*: $p<.05$

**: $p<.01$

3.2 Primary analyses

3.2.1 Robustness of the associations between psychological need satisfaction and well-being

To explore the first research question concerning the robustness of the associations between the satisfaction of the 3 psychological needs and well-being, we ran a stepwise hierarchical linear regression with 3 steps. In the first step, we introduced age, education, relative family income and social desirability. The next step included the three basic psychological needs proposed by SDT (Deci & Ryan, 1985a; Deci & Ryan, 2000): the need for autonomy, for relatedness and for competence. In the third and final step the three safety components, namely the needs for environmental safety, financial security and health as proposed by Maslow (1954, 1970) and Kasser (2002) were introduced.

As shown in Table 3 (Step 3) and Figure 2, all needs seem to have a significant relationship with well-being. Autonomy satisfaction (t=2.87, p<.01), relatedness satisfaction (t=3.81, p<.001) and competence satisfaction (t=2.82, p<.01) appear to promote well-being among South African students. Interestingly, the associations between the satisfaction of these SDT needs diminishes but remains significant when safety need satisfaction is added to the model in Step 3.

Hypothesis 1 is thus supported: the associations between psychological need satisfaction and well-being is robust and stays significant, even after controlling for safety need satisfaction. Importantly, there is also a significant link between well-being and the satisfaction of environmental safety (t=2.34, p<.05), of financial security (t=2.12, p<.05) and of health (t=2.03, p<.05). Intriguingly, people who tend to answer more socially desirable also tend to report higher well-being, but only when psychological need satisfaction comes into play (t=2.26, p<.05).

Next, the cluster of control variables cannot explain a significant amount of variance in our well-being outcome measure. The cluster of the 3 psychological needs explains 61% of variance in well-being, after controlling for age, education, family income and social desirability, with F(7,61)=16.12, p<.001. The cluster of safety needs also contributes significantly above and beyond the variance explained by psychological needs satisfaction, explaining an extra 13% of variance in well-being, F(10,58)=20.10, p<.001. In sum, our model accounts for 74% of variance in well-being.

	Step 1	Step 2	Step 3
Background Variables			
1. Age	-.12	-.06	-.04
2. Education	-.20	-.04	-.01
3. Family Income	.10	.08	.01
4. Social Desirability	.01	.17*	.15*
Psychological Need Satisfaction			
5. Autonomy		.29**	.25**
6. Relatedness		.38***	.26**
7. Competence		.29**	.20*
Safety Need Satisfaction			
8. Environmental Safety			.20*
9. Financial security			.15*
10. Health			.17*
Adjusted ΔR^2	.01	.61**	.74**

Table 3. *Hierarchical Regression Analysis Regressing Well-Being upon Background Variables, Psychological Need Satisfaction and Safety Need Satisfacton*

Note: *: $p<.05$
**: $p<.01$
***:$p<.001$

Figure 2. *Standardised Betas of Psychological and Safety Needs in their Association with Well-Being*

3.2.2 The mediating role of psychological need satisfaction

To explore the second hypothesis regarding the mediation effect of psychological need satisfaction in the association between safety need satisfaction and well-being, we made a combined score of the satisfaction of the three SDT needs. This has been done effectively in previous studies, as the three psychological needs are interrelated and the collective effect of their satisfaction may yield even more beneficial outcomes than their separate effects (Ryan, 1995; Vansteenkiste et al., 2006). Next, we conducted three Sobel tests of mediation (Sobel, 1982).

A variable (composite score of psychological need satisfaction) may be considered a mediator to the extent to which it carries the influence of a given independent variable (environmental safety satisfaction, financial security satisfaction or health satisfaction) to a given dependent variable (a composite score of well-being). Generally speaking, mediation can be said to occur when the independent variable significantly affects the mediator, the independent variable significantly affects the dependent variable in the absence of the mediator, the mediator has a significant unique effect on the dependent variable and the effect of the independent variable on the dependent variable shrinks upon the addition of the mediator to the model (Baron & Kenny, 1986).

Since the simple Sobel test does not tell whether partial or full mediation has occurred, we conducted a stepwise hierarchical regression with three steps to gather more information about this question. In the first step, we introduced our controlling variables. The next step included the three safety needs for environmental safety, financial security and health. In the third and final step the three psychological needs for autonomy, relatedness and competence were introduced. If the association between safety need satisfaction and well-being diminishes but stays significant after introducing psychological need satisfaction, there is a partial mediation effect of psychological need satisfaction. If the association disappears (i.e. becomes insignificant) after introducing psychological need satisfaction, there is a full mediation effect.

	Step 1	Step 2	Step 3
Background Variables			
1. Age	-.12	-.04	-.04
2. Education	-.20	-.07	-.01
3. Family Income	.10	-.02	-.01
4. Social Desirability	.01	.04	.15*
Safety Need Satisfaction			
5. Environmental Safety		.33**	.20*
6. Financial Security		.14	.15*
7. Health		.39**	.15*
Psychological Need Satisfaction			.59***
Adjusted ΔR^2	.01	.49**	.77**

Table 4. *Hierarchical Regression Analysis Regressing Well-Being upon Background Variables, Safety Need Satisfaction and Psychological Need Satisfaction*

Note: *: $p<.05$
**: $p<.01$
***: $p<.001$

Results show that the relation between environmental safety satisfaction and well-being is partially mediated by global psychological need satisfaction. Environmental safety satisfaction has a direct, independent association with combined psychological needs satisfaction, controlled for age, education, family income and social desirability (t=3.75, p<.001) and psychological needs satisfaction has a direct, independent association with well-being (t=7.75, p<.001). Environmental safety satisfaction has a direct, independent association with well-being (t=6.20, p<.001) in the absence of the mediator and this relationship drops, but remains significant, when psychological need satisfaction comes into play (*Sobel* statistic: 3.39, p=.001; also see Step 2 and 3 of the hierarchical regression analysis).

Psychological need satisfaction is no mediator in the relationship between financial security satisfaction and well-being since the Sobel test of mediation was insignificant. Financial security satisfaction does not have a significant independent association with combined psychological need satisfaction, controlled for age, education, family income and social desirability. This means the first requirement for a mediating effect, the independent variable having a significant influence on the mediator, is not met (Baron & Kenny, 1986).

Also, there is no significant independent association between financial security satisfaction and well-being, which means the second requirement for a mediating effect (the independent variable having a significant influence on the dependent variable) is not met either. Interestingly, only when psychological need satisfaction is added to the model, financial security satisfaction becomes significantly associated with well-being.

Finally, psychological needs satisfaction is a partial mediator in the relationship between health satisfaction and well-being. Health satisfaction has a direct, independent association with combined psychological need satisfaction, controlled for age, education, family income and social desirability (t=4.36, p<.001) and psychological need satisfaction has a direct, independent association with well-being (t=6.43, p<.001). Health satisfaction has a direct, independent association with well-being (t=6.20, p<.001) in the absence of the mediator and this relationship drops, but remains significant, when psychological need satisfaction comes into play (*Sobel* statistic: 3.79, p<.001; also see Step 2 and 3 of the hierarchical regression analysis).

In conclusion, Hypothesis 2 is supported for two out of three safety needs: psychological needs satisfaction accounts for a part of the association between environmental safety satisfaction and well-being and it accounts for part of the association between health satisfaction and well-being.

Two other interesting findings seem worth reporting. Firstly, the cluster of the three safety needs explains 49% of variance in well-being, after controlling for age, education, family income and social desirability, $F(3,61)=20.61$, p<.001. The cluster of psychological needs contributes significantly above and beyond the variance explained by safety need satisfaction, explaining an extra 28% of variance in well-being, $F(1,60)=60.00$, p<.001. Secondly, combining autonomy, relatedness and competence yields 3% more explained variance in well-being compared to the variance explained by a model including their separate influences. In sum, this model accounts for 77% (instead of 74%) of variance in well-being.

3.2.3 The moderating role of safety need satisfaction

To explore Hypothesis 3a with regards to the moderating effects of safety need satisfaction on the association between psychological need satisfaction and well-being, we created 3 interaction terms. Then, we explored in a stepwise hierarchical linear regression whether each of these terms explains incremental variance in well-being above and beyond

the independent variance explained by the separate needs, controlling for age, education, relative family income and social desirability. The first 2 steps were similar to the previous procedures, the third step again introduced the composite score of psychological need satisfaction and the fourth step introduced each interaction term: "environmental safety x psychological composite score", "financial security x psychological composite score" and "health x psychological composite score". In order to avoid multicollinearity, we centered all variables at a mean of zero.

	Step 1	Step 2	Step 3	Step 4
Background Variables				
1. Age	-.12	-.04	-.03	-.03
2. Education	-.20	-.07	-.01	-.02
3. Family Income	.10	-.02	.01	.01
4. Social Desirability	.01	.04	.15*	.15*
Safety Needs Satisfaction				
5. Environmental Safety		.33**	.20*	.20*
6. Financial Security		.14	.15*	.15*
7. Health		.39**	.18*	.17
Psychological Needs Satisfaction			.59***	.59***
Interaction effects				
8. Environmental Safety x SDT				.01
9. Financial Security x SDT				.04
10. Health x SDT				-.02
Adjusted ΔR^2	.01	.49**	.77**	.77

Table 5. *Hierarchical Regression Analysis Regressing Well-Being upon Background Variables, Safety Need Satisfaction, Psychological Need Satisfaction and their Interactions*

Note: *: $p<.05$

**: $p<.01$

***: $p<.001$

As Table 5 shows, the addition of 3 interaction terms does not increase predicted variance in the outcome measure above and beyond the model of background variables and independent contributions of the satisfaction of the three safety needs and the combined satisfaction of the 3 psychological needs. The final model adds no change in adjusted R^2 as opposed to the model in the third step which accounts for 77% of variance in well-being. As a

result, none of the interaction effects are significant, suggesting that the associations between the satisfaction of the three psychological needs and well-being are not moderated by the satisfaction of environmental safety, financial security and health satisfaction. This supports Hypothesis 3a. Interestingly, the independent association between health satisfaction and well-being becomes insignificant when the interaction terms are added to the model.

3.2.4 Desire for psychological need satisfaction

To explore the fourth research question about individual differences in the desire for psychological needs satisfaction, we first split our sample into a segment of individuals who scored lower than one standard deviation below the mean level of safety need satisfaction and a section of individuals who scored higher than one standard deviation above the mean. We performed this procedure for each safety need separately. Next, we conducted nine independent one-way ANOVAs to investigate significant differences in the desire for autonomy, relatedness and competence between the low and high group on the satisfaction of each safety need (environmental safety, financial security and health). Results are presented in Figure 3, 4 and 5.

As Figure 3 shows, there is no significant difference in the desire for autonomy, relatedness or competence between students in the group labeled ‘low environmental safety satisfaction’ and students in the group labeled ‘high environmental safety satisfaction. Figure 4 indicates that between those low and those high on financial security satisfaction there is a significant difference in desire for autonomy ($F(1,69)=6.50$, $p<.05$) and desire for competence ($F(1,69)=4.74$, $p<.05$), but not in desire for relatedness. It appears that individuals who perceive less financial security satisfaction have a stronger desire for autonomy and competence satisfaction. As Figure 5 shows, between persons low and persons high on health satisfaction there was a similar pattern as found for financial security satisfaction: a significant difference in desire for autonomy ($F(1,84)=4.04$, $p<.05$) and desire for competence ($F(1,84)=4.01$, $p<.05$) emerged, but not in desire for relatedness satisfaction. Individuals who perceive low health satisfaction seem to have more desire for autonomy and competence satisfaction than individuals who perceive high health satisfaction. Concluding, Hypothesis 3b is supported in four out of nine comparisons.

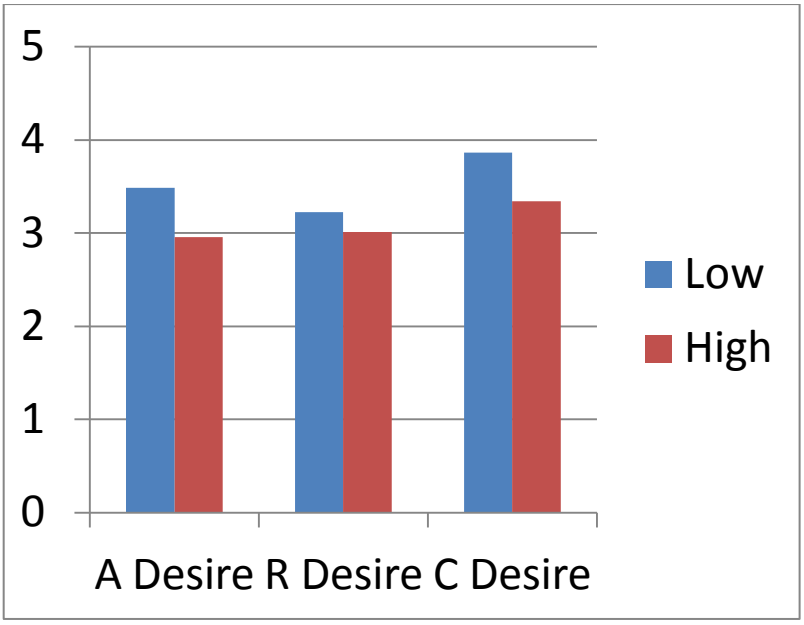

Figure 3. *Differences in desire for psychological need satisfaction between students low and high in environmental safety satisfaction*

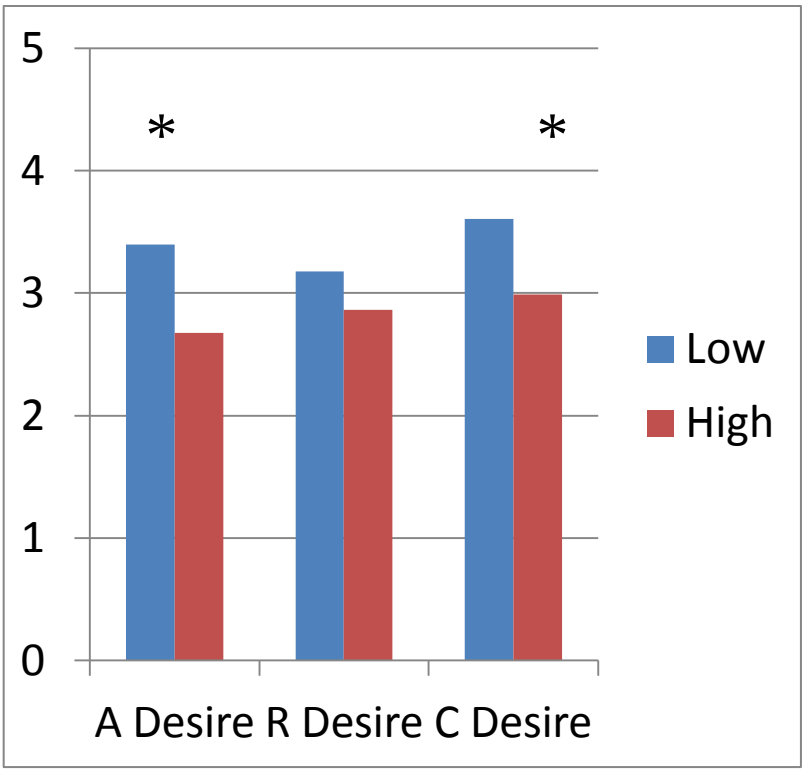

Figure 4. *Differences in desire for psychological need satisfaction between students low and high in financial security satisfaction*

Note: *: $p<.05$

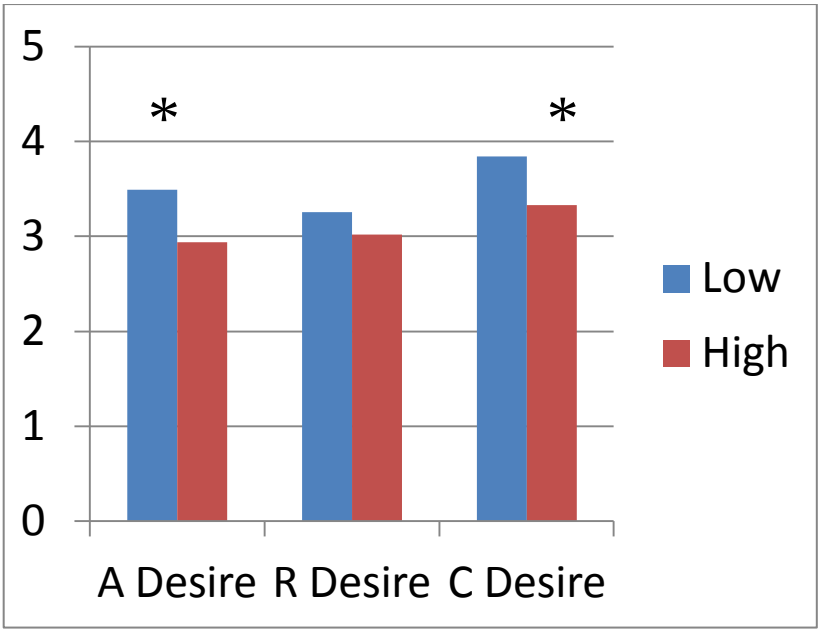

Figure 5. *Differences in desire for psychological need satisfaction between students low and high in health satisfaction*

Note: *: $p<.05$

4 DISCUSSION

The aim of this study was to add valuable emprirical information to two issues of debate in the field of need satisfaction. Firstly, we studied three safety and three psychological needs and their dynamics in predicting well-being. The interface between those two types of need satisfaction was investigated in three ways: a) by examining the independent relationships between the satisfaction of the six needs and well-being, b) by examining mediating forces between those needs and well-being and c) by examining moderating dynamics among the basic needs in their association with well-being. Secondly, by investigating the positive associations between the satisfaction of autonomy, relatedness and competence and well-being among South African students, we indirectly contributed to the debate concerning the universality of SDT (Deci & Ryan, 1985a; Deci & Ryan, 2000).

4.1 Interpretation of the results

4.1.1 Robustness of the associations between psychological need satisfaction and well-being

Hypothesis 1 tapped into the associations between psychological need satisfaction and well-being. To begin with, all psychological needs appeared to be significantly associated with well-being. South African students could thus benefit from the satisfaction of their need for autonomy, relatedness and competence. We controlled for age, education and family income, since those variables could contribute to well-being. Besides that, we controlled the influence of response tendency by including a scale of social desirability as well. These methodological considerations reinforce our confidence in the good support this study yields for the functional role of basic psychological need satisfaction. Although this was the first time these needs were studied in South Africa, the results are comparable to other collectivistic cultures

Also, all safety needs proved to be significantly associated with well-being. Consequently, satisfaction of the needs for environmental safety, financial security and health may also improve well-being among South African university and police students. In practice, social contexts should be created that support and promote safety and psychological need satisfaction in order to give maximal opportunities for every South African to activate their innate tendency towards psychological growth and to endorse a meaningful and deeply satisfying life. Although South Africa is still a developing country, these implications should be achievable in real-life. As Mahub Al Haq, the founder of the U.N. Human Development Report, declared: “The basic purpose of development is to enlarge people’s choices and to

create an enabling environment for people to enjoy long, healthy and creative lives". For instance, the South African government could try to reduce crime levels in order to promote safety satisfaction or it could encourage health satisfaction by developing campaigns with regards to healthy eating habits and physical exercise. Also, South African schools could stimulate relatedness and competence satisfaction by allowing pupils to work together on meaningful and challenging group tasks. Similarly, a South African parent could provide a logical rationale when commanding his or her child to perform certain household tasks in order to offer a sense of autonomy or volition (versus coercion or pressure).

Next, the second and third column of Table 3 tells us more about the robustness of the connection between psychological need satisfaction and well-being. Although the associations between each psychological need and well-being diminished slightly when safety need satisfaction is added to the model, the relationships remain significant. This is a strong indication of the robustness of the beneficial effects of autonomy, relatedness and competence satisfaction. Another indication of the strong relationship between psychological need satisfaction and well-being would be that this association is not influenced (or moderated) by the level of safety need satisfaction. This is embedded in the discussion of Hypothesis 3a.

Despite the evidence in favor of strong, essential psychological needs, it could be that the association between psychological need satisfaction and well-being runs partly through safety need satisfaction, as the hierarchical regression analysis indicates. Theoretically, it could be that the influence of psychological need satisfaction on well-being, although robust, is partly explained by safety need satisfaction. The fact that South African students benefit from contexts that support psychological need satisfaction might be partly due to the fact that these contexts also stimulate feelings of environmental safety, financial security and health. Future studies should definitely further explore this possibility.

4.1.2 The mediating role of psychological need satisfaction

The fact that the satisfaction of safety needs does have a significant, positive association with well-being raises the question how this relationship can be explained from an SDT-perspective. SDT (Deci & Ryan, 1985; Deci & Ryan, 2000) emphasises that the context promoting the satisfaction of the needs for autonomy, relatedness and competence specifies the necessary condition for psychological growth, integrity, and well-being (Deci & Ryan, 2000). The direct, independent associations between safety need satisfaction and well-being might be an indication that safety is also a critical need. Another possibility is that the

relationship between safety need satisfaction and well-being is only partly a direct one, whereas another part of the association is accounted for by satisfaction of the psychological needs. This was explored by Hypothesis 2.

Indeed, Sobel mediation tests indicated that the relationships between satisfaction of two safety needs (environmental safety and health) and well-being are partly mediated by the combined satisfaction of the three psychological needs, supporting Hypothesis 2 for two out of three safety needs. The fact that South African students benefit from perceiving a safe environment and a healthy personal condition might be partly due to the fact that these perceptions also stimulate feelings of autonomy, relatedness and competence. However, we should be careful with those implications, since the method of analysis we used is not the best currently available.

A Sobel test is more accurate and highly recommended over the Baron & Kenny (1986) method, but it is still very conservative and it has low power (MacKinnon, Warsi, & Dwyer, 1995; MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002). Another disadvantage is that the simple Sobel test does not tell whether partial or full mediation has occurred. We solved this problem by examining a stepwise hierarchical linear regression and exploring how the standardised Betas of each safety need change when psychological need satisfaction is added to the model.

Nevertheless, future research should try to replicate our findings with more advanced methods, such as The Preacher & Hayes (2004) Bootstrapping Method. Moreover, the mediating effects of the psychological needs should also be explored separately. For instance, it could be that satisfaction of the need for relatedness is a stronger mediator in the association between environmental safety satisfaction and well-being than satisfaction of the need for autonomy is, since a the feeling of a person perceiving his or her environment as safe is probably more associated with feeling related with people in that environment than with feeling his or her behavior in this environment is volitional. This tentative reasoning should theoretically and empirically be further explored, together with other specific hypotheses.

Finally, we recommend a particular focus on SDT needs' mediating effects in the association between financial security satisfaction and well-being. Although we did not find a mediation effect, it is possible that with better measures of financial security satisfaction we do find a significant association between financial security satisfaction and well-being

(partly) going through psychological need satisfaction. Also, the finding that financial security satisfaction only relates significantly to well-being after introducing psychological need satisfaction in the model is bizarre. No theory would predict this result, so we suspect that our measure of financial security satisfaction might be too limited to measure this relation adequately.

4.1.3 The moderating role of safety need satisfaction

Hypothesis 3a further explored the robustness of the relation between the satisfaction of psychological needs and well-being and found that this association is not dependent on the satisfaction of environmental safety, nor financial safety satisfaction, nor health satisfaction. This supports Hypothesis 3a and giving extra support to Hypothesis 1 with regards to the robustness of the link between psychological need satisfaction and well-being in South Africa. Psychological need satisfaction will enhance well-being, even for people whose safety needs are not always met. South African students are likely to have a high sense of self-acceptance, environmental mastery, vitality and life satisfaction and a low level of depression when their needs for autonomy, relatedness and competence are satisfied, even though they might regularly experience criminality, violence and rape in their environment (e.g. Le Roux, 1996; Jewkes & Abrahams, 2002; Demombynes & Özlerb, 2003; Powdthavee, 2005; Moffett, 2006).

Future research can include other possible moderators and examine their (lack of) influence on the association between psychological need satisfaction and well-being. A new research stream recently started to examine the interactions between need satisfaction and need strength (or the desire for those needs). For instance, Schüler, Sheldon, & Fröhlich (2010) found that need for achievement moderates the relationship between competence need satisfaction and motivation and Hofer and Busch (2011) found the motives for achievement and affiliation to moderate the relation between competence and job satisfaction and between relatedness and partnership satisfaction, respectively.

This might be an indication that there are certain moderators influencing the association between mere psychological need satisfaction and well-being. Yet, although the acquired needs for achievement and affiliation generally correspond to the innate, basic needs for competence and relatedness, there are notable differences (Deci & Ryan, 2000). Further studies will be necessary to validate this moderating claim among different samples in different cultures.

4.1.4 Desire for psychological need satisfaction

While Hypothesis 3a focused on mere need satisfaction, Hypothesis 3b focused on need strength. Maslow (1954, 1970) hypothesised that although individuals deprived in lower needs will benefit from the satisfaction of higher needs, they will not desire them (because they are preoccupied by the satisfaction of the lower needs and they don't have energy to actively pursue higher needs). We tested this premise on the second level of Maslow's hierarchy and we did not find evidence for his argument.

In contrast, individuals who perceive a low level of financial security satisfaction have a stronger desire for autonomy and competence satisfaction compared to individuals who perceive a high level of financial satisfaction. In the same way, persons who perceive low health satisfaction have more desire for autonomy and competence satisfaction than persons who perceive high health satisfaction. Hypothesis 3b is thus supported in four out of nine comparisons. Other comparisons showed no significant differences between the 'high safety satisfaction' and the 'low safety satisfaction' group in desire for psychological need satisfaction, providing no support for both Maslow's and our assumption.

All together, the findings from this analysis are a contra-indication of the deprivation-domination-gratification-activation-cycle; since individuals whose safety needs are deprived are not dominated by the process of satisfying this need, but rather find energy to activate other (higher) needs at the same time. A drawback here is that we split our sample into a group lower than 1 SD under the mean and a group higher than 1 SD above the mean. The remaining samples (N=54-85) are maybe too small to draw definite conclusions.

Further research is needed to replicate these findings in other samples in other societies, for instance in safe and wealthy countries where safety needs are relatively well met for most of the population, or in other nations with a lot of variance in safety needs satisfaction where larger samples in the 'low' and 'high' groups can be drawn. For now, we can tentatively put forward the hypothesis that a lack of safety satisfaction (or safety frustration) might be an indicator of a global desire for more need satisfaction of both safety and psychological needs.

4.1.5 Conclusion: should safety be the fourth need in SDT?

The satisfaction of the three needs within the safety cluster (environmental safety, financial security and health) is significantly associated with well-being. As shown in Table 3, safety need satisfaction explains 13% of variance above and beyond the variance

accounted for by background variables and psychological need satisfaction. Hence, the cluster of safety needs might be suggested as an extra basic need that, if satisfied, promotes well-being among university and police students in South Africa. If this safety cluster appears to be strongly related to well-being in other samples in other cultures, they could be included in SDT or a different unifying theory.

SDT follows the law of parsimony, but nonetheless, the theory is open to the addition of other needs if there is sufficient empirical evidence for their existence and their predictive validity (Vansteenkiste et al., 2010). Is this result sufficient to include the need for safety as a basic, innate, universal need in SDT? No, therefore we need to explore this relationship in other samples in other cultures, perhaps even setting up a longitudinal design.

Maybe, there are even other dynamics operating. The partial mediation effects that we found might suggest so: at least part of the association between environmental safety satisfaction and well-being and between health satisfaction and well-being is accounted for by psychological need satisfaction. This may indicate that safety needs are only derivative with regards to well-being and the psychological growth of the self, whereas the needs for autonomy, relatedness and competence are fundamental, essential, critical nutrients of well-being, flourishing and thriving (Ryan & Deci, 2000b).

Nonetheless, Table 1 to some extent also contains evidence for partial mediation of safety need satisfaction in the relations between the satisfaction of SDT needs and well-being, since the effect of the psychological needs drops after taking into account the three facets of need for safety. Based on cross-sectional data, it is hard, if not impossible, to conclude that the one need is derivative from the other need.

Finally, it is worth emphasising that safety is a deficiency need, while the SDT needs are growth-oriented enhancement needs. One possible consequence, as Sheldon and colleagues (2001) suggest, is that satisfying the need for safety relates to a lack of negative affect but might not necessarily relate to the experience of positive affect, thriving or flourishing. To examine this possibility, we would have to look at positive and negative outcomes separately (instead of combining them to one outcome as we did here). An interesting hypothesis to investigate would be the correlates of safety satisfaction with positive and negative affect in other settings such as a hospital, a convalescent home, or a rehabilitation centre.

On the other hand, it is not sure this logic applies for all three facets of safety. Perhaps financial security satisfaction is related to the lack of feeling depressed but not to vitality, whereas health satisfaction might be related to both outcomes. To conclude, Kasser (2002) advocates that more research should draw attention to on the importance of the safety cluster. This study wants to transmit the same message, especially calling for more cross-cultural and/or longitudinal investigations of safety and psychological satisfaction and their interface, further stimulating and nourishing this fascinating debate.

4.1.6 A broader perspective: implications for the universality-debate

To conclude this paper, we want to put our findings in light of the other issue currently dividing the field of cross-cultural motivational psychology, namely the question whether basic human needs are innate and universal or whether they are acquired and culture-specific. First, we will discuss implications on a national level, then we will consider a global viewpoint.

To begin with, the fact that psychological need satisfaction endorses well-being in an extraordinary country as South Africa is quite remarkable (Devey & Møller, 2002). The new multicultural South Africa is now one of the most diverse nations worldwide and few indigenous studies investigated the relations between need satisfaction and well-being (for exceptions, see Mostert & Rothmann, 2006 and Rothman, 2012). Still, we found a strong association between psychological need satisfaction and well-being. Since a preliminary one-way ANOVA indicated that students from all ethnic backgrounds (African, Caucasian, Coloured and Asian/Indian) did not differ significantly in their level of well-being, we can suggest that South Africans from various backgrounds will benefit from the satisfaction of autonomy, relatedness and competence. Within-ethnic group differences herein might even be larger than between-ethnic group differences.

Some correlational results are quite obvious: the relationship between relatedness satisfaction and well-being is to be expected in a relatively collectivistic society valuing interdependence (e.g. Hofstede & Bond, 1988; Triandis, 1989; Schwartz & Bardi, 2001; Eaton & Low, 2010). More strikingly is the strong relationship we found between autonomy satisfaction and well-being. The satisfaction of autonomy, defined as the intrapersonal and phenomenological experience of volition, has beneficial effects on well-being, even in a relatively collectivistic culture as South Africa.

From an international perspective, the South African linkage between psychological need satisfaction and well-being is a replication of other cross-cultural SDT research, adding another fitting piece to the puzzle (e.g. Ryan & Deci, 2001; Chirkov & Ryan, 2001; Chirkov et al., 2003; Gough, 2004; Sheldon, 2004; Chirkov et al., 2005; Vansteenkiste et al., 2005; Vansteenkiste et al., 2006; Sheldon & Tan, 2007; Chirkov, 2007; Deci & Ryan, 2008b; Ryff & Singer, 2008; Chen et al., in preparation).

Now, inserting this study into the solid body of previous research findings and anticipating on replications in other cultures, it can be stated that the universalist argument that the 3 basic psychological needs as defined by SDT are innate in all humans and therefore their satisfaction is beneficial across cultures is gaining accumulating support (Ryan & Deci, 2000b). As a consequence, this debate should be further stimulates, especially encouraging investigations of the association between psychological need satisfaction and well-being in other African countries.

4.2 Limitations

One shortcoming of this study is the fact that this is cross-sectional design, which does not allow causality interpretations. We can only conclude that there are relationships between need satisfaction and well-being, these may be in the predicted or in the opposite direction, or they might be reciprocal. For instance, besides need satisfaction promoting well-being as an outcome, well-being as a condition might also create vigour and energy within an individual to create need-supporting environments by him- or herself. Longitudinal or experimental designs can answer this causality-question in the future.

A second limitation lies in the use of self-reports. In particular, measuring need strength via self-reports can be problematic. There is a strong possibility that what is measured in self-reports will not be need strength but will instead reflect the strength or salience of a loosely related motive (Ryan & Deci, 2000a). In addition, since our research question on need desire involved small samples, we must be very careful in interpreting those results. It would be desirable to include informant reports or neurological assessments of needs satisfaction and need strength and investigate their associations with more objective measures of well-being or with measures of long-term intra-individual variations therein.

A third limitation exists in our sampling method. First of all, we made exclusive use of students. Although age distribution was quite widespread (18-37) and although we controlled for age, perhaps children or older adults will benefit more from the satisfaction of

other needs or perhaps some needs are not important at all for certain age groups. Secondly, although all individuals were studying, there might be a difference in experience (and therefore maybe in need satisfaction as well) between students from university and those from police colleges. Previous research investigated work-related well-being among South African police officials (Mostert & Rothmann, 2006; Rothmann & Jorgensen, 2007), but not among South African police students. For this reason, we should further explore the dynamics of needs and well-being in the specific contexts of police students. Thirdly, drawing conclusions from a sample university students might be disastrous, since university students usually have a high socio-economic status (Currie, Elton, Todd & Platt, 1997). Although we controlled for education and relative family income, we might have missed out on the impoverished part of the South African population.

A fourth drawback is the use of English questionnaires, while the percentage of native English-speaking people in South Africa is only 8.2% (Van der Merwe & Van der Merwe, 2006; Da Silva, 2008). Most people do understand English and we did change two items of which the abstract phrasing might have caused difficulties in interpretation, but nevertheless, future research should translate and validate the English version of this questionnaire battery in the ten other official languages and then try to replicate our findings (Kim, Park & Park, 2000). Future research should also expand to other parts of (Southern) Africa in order to directly compare the magnitude of the psychological need satisfaction – well-being relations across those (sub)cultures.

Fifthly, more advanced measures should be developed and validated to measure the safety needs more accurately. For instance, we only used one item to assess financial security satisfaction. This could explain three rather unexpected findings: a) why financial security satisfaction only became significantly related with well-being when satisfaction of the psychological needs was added to the model, b) why financial security satisfaction did not have a direct significant influence on combined psychological needs satisfaction and c) why we didn't find significant differences between those low and high on financial security satisfaction in the desire for relatedness satisfaction. In the future, a financial satisfaction scale (perhaps in combination with measures of other physiological or safety needs) should be developed and validated across different samples and different cultures. A good starting point could be found in Kasser and Ryan's (1996) revised Aspiration Index.

A final limitation might be that we combined components of eudaimonic and hedonic well-being into one outcome variable. Even though there is a certain amount of overlap

between the two 'types' of well-being and although preliminary EFA pointed out that the five subscales loaded on one single factor, we might have found dissimilar results when taking apart the five components as five separate dependent variables (Deci & Ryan, 2000; Huta & Ryan, 2010; Delle Fave et al., 2011). Further explorations of the complementarity of both frameworks of well-being would be valuable (Samman, 2007).

4.3 Conclusion

The current study investigated the relatively unexplored pathway of dynamics between safety and psychological needs. By further unravelling the interface of safety and psychological needs, we shed light on a sharp issue of debate. The results consistently suggested the important contribution to well-being from the satisfaction of autonomy, relatedness and competence. Their satisfaction is independent of safety need satisfaction and it may even partly account for some of the associations between safety need satisfaction and well-being.

Further, a supplementary analysis indicated that Maslow's assumption that individuals low on a deficiency need have less desire for higher-level need satisfaction is not supported. In contrast, we found some evidence in the opposite direction. Finally, the robustness of the associations between satisfaction of psychological needs and well-being in the South African context provides another piece of evidence for the potentially universal beneficial effects of autonomy, relatedness and competence satisfaction.

All these findings enclose important theoretical implications that could be applied in different domains of practice. If these practical repercussions can be implemented concretely in universities, schools, organisations and other institutions in South Africa, the long-term effects of psychological need satisfaction could again be investigated empirically and may even raise new research questions and issues which could be further explored in the future... or maybe not... Remember what Camus (1942) wrote: "You will never be happy if you continue to search for what happiness consists of; and you will never live if you are looking for the meaning of life".

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6 SAMENVATTING

Voor deze cross-sectionele studie selecteerden we op basis van een uitgebreide literatuurstudie zes menselijke basisbehoeften. Binnen de cluster veiligheidsbehoeften (Maslow, 1954, 1970) bestudeerden we omgevingsveiligheid, financiële veiligheid en gezondheid en binnen de psychologische behoeftecluster kozen we voor autonomie, relationele verbondenheid en competentie (zelf-determinatie theorie; Deci & Ryan, 1985a; Deci & Ryan, 2000). We onderzochten de relaties tussen de bevrediging van deze behoeften en welbevinden bij 224 Zuid-Afrikaanse studenten uit verschillende achtergronden. De resultaten tonen aan dat psychologische behoeftebevrediging bevorderlijk is voor welzijn, zelfs na controle voor bevrediging van veiligheidsbehoeften. De data vertellen ons echter meer dan dat.

Ten eerste vonden we enkele partiële mediatie-effecten, wat erop wijst dat de associaties tussen bevrediging van de behoefte aan omgevingsveiligheid en welzijn en de relatie tussen bevrediging van de behoefte aan gezondheid en welzijn gedeeltelijk kunnen worden verklaard door psychologische behoeftebevrediging.

Ten tweede vonden we geen moderatie-effecten, wat suggereert dat de associatie tussen psychologische behoeftebevrediging en welzijn niet afhankelijk is van het niveau van veiligheidsbevrediging.

Tot slot vonden we, in tegenstelling tot de aannames ingebed in Maslows behoeftenhiërarchie dat personen die lage bevrediging van omgevingsveiligheid en van gezondheid rapporteren net meer behoefte hebben aan autonomie- en competentiebevrediging in vergelijking met personen die hoge bevrediging van die veiligheidsbehoeften rapporteren.

We besluiten dit proefschrift met een bespreking van de beperkingen van het onderzoek en we suggereren enkele theoretische en praktische implicaties betreffende de universaliteit van psychologische behoeftebevrediging zoals gedefinieerd door de zelf-determinatie theorie.

Trefwoorden: behoeftebevrediging, veiligheid, Maslow, zelf-determinatie theorie, welzijn