



Psychological need satisfaction and well-being in adults aged 80 years and older living in residential homes: Using a self-determination theory perspective

Claude Ferrand^{a,*}, Guillaume Martinent^b, Neriman Durmaz^a

^a Research Team of Psychology of Ages of Life (EA 2114), University François Rabelais, Tours, France

^b Center for Research and Innovation in Sport, University de Lyon–University Claude Bernard Lyon 1, Villeurbanne, France

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ABSTRACT

Based on the self-determination theory (SDT), this study aims to examine the psychological needs satisfaction of the elderly living in residential homes and their relationship with indicators of well-being, and then to test the contribution of each need on these indicators. Participants ($N = 100$; $M_{age} = 86.7$ years, $SD = 3.78$) completed the measures of psychological needs satisfaction, purpose in life, personal growth and geriatric depression. Cluster analyses showed two distinct profiles: one profile with a high satisfaction of the three basic psychological needs and another profile with a low satisfaction of the three basic psychological needs. These profiles did not differ in terms of residents' characteristics, health problems and functional limitations. Multivariate analysis of variance (MANOVA) results revealed that the participants with the profile of a high satisfaction of psychological needs have significantly higher levels of purpose in life and personal growth than participants with the profile of a low satisfaction of psychological needs, and no effect of cluster membership on depressive feelings was reported. Moreover, for all participants, relatedness need satisfaction was significantly and positively related to personal growth, and autonomy and relatedness needs satisfaction was related to purpose of life. In conclusion, our results offer evidence that old age can be fruitful and, in consistent with SDT, show that autonomy and relatedness need satisfaction is positively associated with indicators of well-being such as purpose in life and personal growth, considered as essential components of optimal functioning.

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Introduction

Older people continue to live longer and research focuses attention on an increasing longevity without disabilities, emphasizing new approaches to aging well. In this perspective, older people want to age in their own home (Löfqvist et al., 2013). However, Angelini and Laferrère (2012) and

Fernández-Carro (2012) noted changes in lifestyles among the elderly from eighty years and older. A growing number of older people now leave their own homes and opt for accommodation in public or private residential homes, either type “comfort” or type “adjustment” in function of difficulties of old age (health problems, walking difficulties, death of spouse, residential trajectories of children) (Bonvalet, 2007). Whatever the reasons, the elderly seek solutions adapted to their situations and choose residential homes to maintain their autonomy as long as possible (Granborn et al., 2014; Oswald, Wahl, Mollenkopf, & Schilling, 2003).

In the present study, we have chosen to focus on the elderly living in residential homes and on the relationship

* Corresponding author at: Université F. Rabelais, site des Tanneurs, Tours 37041 Tours Cedex 1, France. Tel.: +33 6 74 61 30 94.

E-mail addresses: claudio.ferrand@univ-tours.fr (C. Ferrand), guillaume.martinent@univ-lyon1.fr (G. Martinent), neriman.durmaz@etu.univ-tours.fr (N. Durmaz).

between psychological need satisfaction and the elderly's experience of well-being. Self-determination theory is the theoretical support for our study. This theory assumes that "what varies between people is not how much the needs are needed, but rather, how well the needs are satisfied" (Deci & Ryan, 1985). Indeed, the needs are considered as "nutrients whose satisfaction is essential to psychological growth, integrity and well-being of human" (Deci & Ryan, 2000, p. 229). When psychological needs are satisfied, individuals experience more self-determined motivation, and the satisfaction of these needs would be related to higher levels of well-being (Deci & Ryan, 2000; Ryan & Deci, 2002). In contrast, if these needs are neglected or unmet, ill-being is the predicted result (Ryan & Deci, 2008). Three innate psychological needs were identified: autonomy, competence and relatedness. The need for *autonomy* refers to the degree to which individuals feel volitional and responsible for their own behavior. It is crucial for personal development as it energizes a wide variety of adaptive behaviors and psychological processes (Deci & Ryan, 1985). The need for *competence* concerns the degree to which individuals feel effective in their ongoing interactions with the social environment and experience opportunities through which to express their capabilities (Ryan & Deci, 2001, 2002). Finally, the need for *relatedness* is defined as the extent to which individuals feel a secure sense of belongingness and connectedness to others in their social environment (Ryan & Deci, 2001, 2002).

To date, few studies on psychological need satisfaction have been conducted among the elderly. Most research concern the elderly in nursing homes and have focused on different viewpoints. Custers, Westerhof, Kuin, Gerritsen, and Riksen-Walraven (2010) highlighted some reasons that enable them to explain why need satisfaction could be difficult to achieve in nursing homes. For instance, they indicated that the autonomy need could be under pressure in an institutionalized environment. They cited De Klerck (2005)'s works which indicate that "residents of nursing homes did not have the possibility to decide for themselves" (p. 733). The ability to get up and go to bed according to residents' own preferences is often curtailed in the institutional environment. The same is true for the choice of menus for meals. Moreover, residents are often confronted with physical limitations and depend on others, which may decrease their feeling of competence. Finally, the satisfaction of the need for relatedness is under strain, due to the changed social situation: an impersonal care environment, and/or visits from friends and family becoming more difficult. All environments that would be controlling, that would impose strict rules, and/or that would constrain self-expressivity would be likely to lead to non-self-determined motivation, and decreased need satisfaction would lead to a variety of negative outcomes, including mortality (Deci & Ryan, 1985). For some researchers, therefore, nursing homes do not give older people the opportunity to contribute to the design of their living conditions, and these older people may be at risk for low well-being (e.g., Hellstrom & Sarvimaki, 2007). Other research, however, showed that older people living in high self-determination-oriented nursing homes were comparable in their life satisfaction to those still in regular and low-cost community housing, whereas those residing in low self-determination nursing homes evidenced significantly

poorer psychological outcomes (Vallerand, O'Connor, & Blais, 1989). O'Connor and Vallerand (1994) showed that across their sample of nursing-home residents, greater self-determination was associated with higher levels of psychological adjustment. In this sense, Philippe and Vallerand (2008) confirmed that a supportive environment allowed satisfaction of these needs which, in turn, led to a better psychological adjustment of the elderly in their nursing home. Given the divergent results, the fact that need satisfaction is largely contextually determined (Deci & Ryan, 2008), and only a minority of older people live in nursing homes, studying need satisfaction in a context other than nursing homes may help us to develop a clearer understanding of how these needs contribute to well-being in the elderly aged 80 years and over.

To better understand well-being, research in this area has increasingly recognized the value of considering two perspectives: the hedonic approach, which focuses on the quest of pleasure, satisfaction and subjective happiness and defines well-being as an indicator of quality of life, and the eudaimonic approach, which focuses on the use and development of the best in oneself (Huta & Ryan, 2010). Eudaimonia is a multifaceted concept, and different authors have focused on different facets. Ryan and Deci (2001) considered that eudaimonia can be characterized in terms of four motivational concepts: (1) pursuing intrinsic goals and values for their own sake, including personal growth, relationships, community and health, rather than extrinsic goals and values, such as wealth, fame, image and power; (2) behaving in autonomous, volitional or consensual ways, rather than heteronomous or controlled ways; (3) being mindful and acting with a sense of awareness; and (4) behaving in ways that satisfy basic psychological needs for autonomy, competence and relatedness. The first three of these aspects of eudaimonia have positive effects of well-being because they facilitate satisfaction of the psychological needs (Ryan, Huta, & Deci, 2008). Need satisfaction fosters well-being by maximizing one's potential. In this conception, well-being is defined in terms of the degree to which a person is fully functioning (Ryan & Deci, 2001).

Ryff (1989b) developed an integrated theoretical framework that included six dimensions of well-being at a psychological level (autonomy, purpose in life, environment mastery, positive relationships with others, personal growth and self-acceptance). Psychological well-being is viewed as a complex construct that involves fulfilling one's true self (*daimon*) through the actualization of human potentials and includes growth and meaning-related processes (Ryff, 1989a). Psychological well-being scales were designed as a means for assessing positive psychological functioning and the different dimensions of psychological well-being are considered as outcomes of a life well lived (Ryff & Singer, 1998b). Two dimensions of Ryff's psychological well-being (purpose in life and personal growth) have been identified as the core components of positive psychological functioning and widely recognized as integral components of eudaimonia (Ryff & Singer, 1998a). To be living well, the elderly must have goals and projects that give dignity and meaning to daily activities for the realization of their individual potential (Ryff & Singer, 1998b). On a developmental perspective, Ryff (1989b) indicated that purpose in life and personal growth showed decremental profiles from young adulthood to old

age. Recent longitudinal studies have strengthened the evidence that age differences, especially the downward aging profiles on purpose in life and personal growth, represent actual losses in well-being that many experience as they grow older (Springer, Pudrovska, & Hauser, 2011). However, a high degree of purpose in life and personal growth has been described among older people living in their own homes (Bondevik & Skogstad, 2000). Ryff and Singer (2008) emphasized that well-being was profoundly influenced by the surrounding contexts of people's lives and the opportunities for self-realization were not equally distributed. Moreover, these authors focused on socio demographic variables associated with well-being (age, gender, socioeconomic status, income, educational attainment, ethnicity, culture). Thus, higher education attainment has been linked to high levels of well-being for both men and women, although the patterns were stronger for women and more particularly with purpose in life and personal growth (Ryff & Singer, 2008). In the present study, purpose in life and personal growth were targeted as indicators of well-being because of their interest in considering optimal human functioning. Some studies suggested that people who are low in well-being may be at risk of developing depressive feelings (Wood & Joseph, 2010). Although depressive feelings can be found at any stage of life, they are frequently encountered in aging (Chen & Copeland, 2010). So, in the present study we have added a geriatric depression scale.

The present research

The purpose of the study was to provide a better understanding of the satisfaction of the three psychological needs of the elderly, then to link this information with well-being and finally to test the contribution of each need on the indicators of well-being. First, cluster analysis was used in order to categorize individuals into homogeneous groups whose members share similar characteristics of level of satisfaction of the basic psychological needs, and to examine how the three basic psychological needs are combined to produce different profiles. Second, these profiles were related to well-being. It was hypothesized that the group with a high degree of satisfaction of the three psychological needs would have a higher level of purpose of life and personal growth and no depressive feelings compared to those with a low degree of satisfaction of the three psychological needs. Finally, much of the SDT research has found that, although the three needs are essential, they are also distinct psychological "nutrients" (Deci & Ryan, 2002; Ryan, 1995; Ryan & Deci, 2008), and that each need contributes uniquely in predicting individuals' well-being (Deci & Ryan, 2002; Patrick, Knee, Canevello, & Lonsbary, 2007). It was hypothesized that autonomy and relatedness needs would have an independent positive effect on purpose in life and personal growth.

Method

Participants

A sample of 100 older adults, (80 women, 20 men, $M_{age} = 86.7$ years, $SD = 3.78$, age range: 80–96 years)

were recruited in two urban private residential services in France to participate in this study (54 of 70 for the first establishment and 46 of 115 for the second). These residences offer co-owned or rented studios or one-bedroom apartments for a majority of autonomous seniors. They are managed by the residents themselves through an association and a union. These residences are not nursing homes "organized, staffed, regulated and reimbursed by the medical model of care" (Ronch, 2004, p.67), but enjoy a continuous monitoring (nursing practice, night watchman, auxiliary service life and administrative support), a catering service, many leisure activities and common areas (lounges, dining rooms, library and hairdresser). These residences are located in the city close to shops (bakery, grocery shops and shopping center) and bus station.

The characteristics of participants for the total sample are: 11% of participants were single, 24% were still married, 61% were widows or widowers and 4% were divorced/separated. With respect to participants' education level, 22% of participants had a certificate of elementary education, 48% had a high school education and 30% were university graduates. On a professional level, 18% of participants were housewives, 26% were artisans/shopkeepers, 39% were employees, officers or middle executives and 17% were top executives. They live in their residential homes for an average of 6 to 7 years ($M = 6.54$, $SD = 4.63$). They have relatively few chronic illnesses ($M = .91$, $SD = 1.05$, range 0–4) and relatively few functional limitations ($M = .49$, $SD = .72$, range 0–3). These last data show that participants are relatively healthy for old age.

Permission to conduct the study was granted by the University of Human Research Ethics. Prior to investigation, each subject completed a written informed consent. Participants responded individually and anonymously to a comprehensive questionnaire assessing the satisfaction of the psychological needs, the level of purpose in life, personal growth and depressive feelings.

Measures

Psychological need satisfaction

Three different questionnaires were used to assess the perception of each psychological need experienced in general on a scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). To assess satisfaction of the need for autonomy, five items collated by Standage, Duda, and Ntoumanis (2003) were used (e.g., "I feel free to express ideas and opinions"; score of 25). Satisfaction of the need for competence was assessed using five items (e.g., "I often feel very competent", score of 25) from the Competence subscale of the Intrinsic Motivation Inventory (IMI; Mc Auley, Duncan, & Tammen, 1989). Finally, satisfaction of the need for relatedness was assessed using the six items from the scale of the "Need for Relatedness Scale" (NRS-10; Richer & Vallerand, 1998; score of 30). This scale assessed how important it was for people to be related to others with items such as "It is important for me to be close to others". In this study, Cronbach's alphas for satisfaction of needs for autonomy, competence and relatedness are .74, .82 and .68 respectively.

Psychological well-being (PWB)

Two subscales of Ryff's Psychological Well-Being scales (Ryff & Essex, 1992; 14 items for each scale) translated and

validated in French by Lapierre and Desrochers (1997) were used. The personal growth scale refers to a sense of continuous development, self-improvement, update of its potential and openness to new experiences (e.g., “For me, life has been a continuous process of learning, changing, and growth”). The purpose of life scale indicates whether the respondent has goals and an orientation toward the future and gives meaning to its present and its past (e.g., “Some people wander aimlessly through life, but I am not one of them”). Participants were asked to rate their agreement with each statement using a 6-point Likert scale ranging from 1 (*totally disagree*) to 6 (*totally agree*). Negatively worded items were reverse scored. Higher scores reflected greater levels of purpose in life and personal growth. Cronbach's alphas for purpose in life and personal growth are .74, .73 respectively.

Geriatric depression scale

The 4-item Geriatric Depression Scale was used. This instrument is a self-report measure of specific manifestations of geriatric depression and is an excellent alternative to the 15-item version (Cheng et al., 2010). Participants respond in a “Yes/No” format (e.g., “are you basically satisfied with your life? Do you feel that your life is empty? Are you afraid that something bad is going to happen to you? Do you feel happy most of the time?”). The total score indicates 0 = not depressed, 1 = uncertain, 2 to 4 = depressed. Cronbach's alpha for depressive feelings is .79.

Demographic data

Participants filled out a questionnaire gathering demographic data (age, gender, education level, marital status, professional occupations, and area of residence, length of stay in residence, number of chronic illnesses and physical limitations). Level of education was coded in three categories according to the highest certification obtained (primary school, high school, university or equivalent). Professional occupations were coded in four categories (housewives, artisans/shopkeepers, middle executives and top executives). To define their marital status, subjects were asked if they were single, married, widowed or separated/divorced.

Analysis procedure

Analyses were performed with SPSS version 21 for Windows, and statistical significance was set at $p = .05$. First, a cluster analysis using the procedure recommended by Hair, Anderson, Tatham, and Black (1998) was conducted in

order to identify some profiles of the participants regarding need satisfaction. Then, a multivariate analysis of variance (MANOVA) was used to identify the content of each cluster. Second, we performed MANOVAs with demographic variables and indicators of well-being entered as dependent variables to explore differences between cluster groups. Third, hierarchical multiple regression analyses were conducted in total sample to explore the role of basic psychological needs in the prediction of purpose in life and personal growth. Partial eta-squared (η^2) was calculated as a measure of effect for all variables between and within group differences.

Results

Preliminary analyses

Correlations, means and standard deviations for all study variables are presented in Table 1. The three need satisfaction measures were moderately correlated to each other ($r = .36$ to $.58$, $p < .001$) and were moderately positively correlated with purpose in life and personal growth. As shown in Table 1, the mean score of each need satisfaction, measured on a scale from 1 to 5, was around 3.5, indicating that the residents' needs are moderately satisfied. Moreover, participants reported high levels for purpose in life and personal growth (from 55.94 to 56.68/84), and there is a modest positive correlation between these two variables ($r = .39$) emphasizing that these are two independent constructs. The score of depressive feelings varies from 0 to 4 ($M = .59$, $SD = .92$) indicating that participants are not depressed. Depressive feelings score was negatively correlated with all variables, and more particularly with purpose in life ($r = -.31$, $p < .01$). See Table 1.

Cluster analyses

The three psychological needs were standardized and z scores were used in the cluster analyses. Both hierarchical and non-hierarchical cluster analyses were conducted in an attempt to provide the most stable solution. A hierarchical approach using Ward's linkage method and squared Euclidean distance as the similarity measure was first taken to aid in assessing the most appropriate number of clusters represented in the data. Agglomeration coefficients from the hierarchical analysis were examined and the percentage change in coefficient indicated two profiles. Next, a non-hierarchical k-means cluster analysis using simple Euclidean

Table 1
Correlations, means and standard deviations for all study variables.

Variables	M/T	SD	1	2	3	4	5	6
1. Autonomy need satisfaction	3.68	.70	–	.36**	.58**	.13	.26**	–.17
2. Competence need satisfaction	3.35	.74	.36**	–	.38**	.20*	.26**	–.18
3. Relatedness need satisfaction	3.47	.88	.58**	.38**	–	.11	.26**	–.16
4. Personal growth PWB	56.68	9.7	.13	.20*	.11	–	.39**	–.08
5. Purpose of life PWB	55.94	10.2	.26**	.26**	.26**	.39**	–	–.31**
6. Depressive feelings	.59	.92	–.17	–.18	–.16	–.08	–.31**	–

N = 100.

* $p < .05$.

** $p < .01$.

distance as the similarity measure was conducted, specifying a two-cluster solution and the initial cluster centers that were generated from the hierarchical cluster analysis. This approach is recommended because it eliminates the case order effect that random cluster centers can produce (Hair et al., 1998). These two analyses supported the stability of the two-cluster solution. Consistent with previous research using cluster analyses (e.g., Hair et al., 1998), we employed a standardized score of $\pm .50$ to indicate high and low levels, with scores in between (i.e., $+.50$ to $-.50$) to indicate moderate levels.

The first cluster was labeled “high satisfaction” and represented 55% of the sample ($N = 55$). Participants in this cluster showed high degrees of perceived satisfaction of autonomy, competence and relatedness needs. The second cluster was labeled “low satisfaction” and represented 45% of the sample ($N = 45$). Participants in this cluster had low degrees of perceived satisfaction of autonomy, competence and relatedness needs. See Fig. 1.

A MANOVA was conducted on the three psychological needs as a function of group membership to test whether the satisfaction scores of the basic psychological needs differed across the clusters. Results revealed a significant effect of cluster membership on psychological need satisfaction, Wilks' Lambda = .37, $F(3,96) = 54.41$ $p < .001$ $\eta^2 = .63$ (large effect size). Follow up ANOVAs indicated that each construct (autonomy, competence, relatedness need satisfaction) differed as a function of profile. So these results provide support for the distinctiveness of the two profiles. See Table 2.

Cluster group differences on demographic variables

Demographic variables for the two clusters are shown in Table 3. A MANOVA was conducted to determine if cluster group differences existed on demographic variables. We examined differences on the basis of age, gender, marital status, professional occupations, education level, and area of residence, length of stay in residence, health problems and

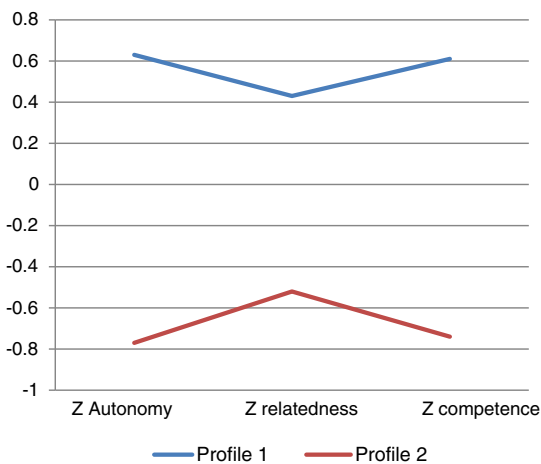


Fig. 1. Standardized scores of three psychological need satisfaction across two profiles. Profile 1* “High satisfaction”; Profile 2** “Low satisfaction”.

Table 2
Descriptive analyses of two profiles.

	Profile 1*		Profile 2**		$F(1,98)$	p	η^2
	M	SD	M	SD			
$N = 100$							
Z autonomy need satisfaction	.63	.72	-.77	.70	96.27	<.001	0.50
Z competence need satisfaction	.61	.65	-.74	.84	81.51	<.001	0.45
Z relatedness need satisfaction	.43	.78	-.52	.99	28.82	<.001	0.23

Profile 1* “High satisfaction”.
Profile 2** “Low satisfaction”.

physical limitations. There was no significant effect of cluster membership, Wilks' Lambda = .91, $F(9,90) = 1.12$, $p = .45$. No significant differences were found among the two clusters for age, gender, marital status, professional occupations, education level, and area of residence, length of stay in residence, health problems and physical limitations.

Cluster group differences on indicators of well-being

A MANOVA was conducted to determine if cluster group differences existed on different variables. Analyses revealed a significant effect of cluster membership on indicators of well-being, Wilks' Lambda = .89, $F(4,95) = 2.88$ $p = .03$ $\eta^2 = .11$, with medium effect size. Anovas indicated a significant effect of cluster membership on personal growth score ($F(1,98) = 4.56$, $p = .03$, $\eta^2 = .04$), purpose in life score ($F(1,98) = 6.25$, $p = .01$, $\eta^2 = .06$) and no effect of cluster membership on depressive feelings score ($F(1,98) = 3.48$, $p = .06$, $\eta^2 = .03$). In other words, participants with high satisfaction profile have significantly higher levels of

Table 3
Socio-demographics variables in function of profiles.

Variables	Profile 1*		Profile 2**		$F(9,90)$	p
	$N = 55$		$N = 45$			
	M	$SD/\%$	M	$SD/\%$		
Age	87.05	4.07	86.73	3.40	.90	.34
Gender	10 men		10 men		.25	.62
	45 women		35 women			
Marital status					2.6	.11
Single	8	14.5%	3	6.7%		
Married	14	25.5%	10	22.2%		
Widowed	32	58.2%	29	64.4%		
Separated/divorced	1	1.8%	3	6.7%		
Education level					1.09	.32
Primary school	10	18.2%	12	26.6%		
High school	27	49.1%	21	46.7%		
University	18	32.7%	12	26.7%		
Professional occupations					1.4	.24
Housewives	9	16.4%	9	20%		
Artisan/shopkeepers	12	21.8%	14	31.1%		
Middle executives	23	41.8%	16	35.6%		
Top executives	11	20%	6	13.3%		
Area of residence					.27	.60
Residence 1	24		22			
Residence 2	31		23			
Length of stay in residence	6.11	4.17	7.07	5.13	1.06	.31
Health problems	1.02	1.13	.78	.95	1.29	.26
Physical limitations	.55	.79	.42	.62	.73	.40

personal growth and purpose in life than participants with low satisfaction profile. See Table 4.

Basic psychological need satisfaction and well-being

Multiple linear regression analyses (backward selection) were conducted to explore the role of each basic need satisfaction in the prediction of purpose in life and personal growth. Results showed, for all participants, that relatedness need satisfaction was significantly and positively related to personal growth ($F_{(1,99)} = 3.98, p = .05; \beta = .20, t = 1.99, p = .05$), and both autonomy and relatedness needs were positively related to purpose in life ($F_{(2,99)} = 5.45, p = .006; \beta = .19, t = 1.84, p = .07$ et $\beta = .19, t = 1.88, p = .06$ respectively).

Discussion

The purpose of the study was to provide a better understanding of three psychological need satisfaction in the elderly living in residential homes, then to link this information with indicators of well-being, and finally to test the contribution of each need on these indicators. First, results showed that two profiles, in roughly equivalent numbers, have been identified: one profile with a high satisfaction of the three basic psychological needs and another profile with a low satisfaction of the three basic psychological needs. A lot of factors may play a role in the need satisfaction of the individuals (Freudiger, Pittet, & Christen-Gueissaz, 2007). The results showed that the profiles did not differ in terms of residents' characteristics (age, gender, marital status, professional occupations, education attainment, area of residence, length of stay in residence), health problems, functional limitations and depressive feelings. We can suggest that our population of predominantly female, rather highly educated, urban and without major disabilities is a particular group. Nevertheless, additional variables can be addressed. Research shows that the elderly are not a homogeneous group, and there are large differences in the demographic characteristics according to the place of residence (rural, peri-urban, urban areas) or accommodation choice (private/public) (Granborn et al., 2014; Oswald et al., 2003). Moreover, we did not have information about the expectations concerning need satisfaction of the residents and their ability to satisfy them, and the organization and the management of the two residential homes that participated (Custers, Kuin, Riksen-Walraven, & Westerhof, 2011). Future research should take into account and deepen all these variables for a better understanding of need satisfaction in the elderly.

Table 4

Means, standard deviations and statistics tests related to well-being for the two profiles.

N = 100	Profile 1		Profile 2		$F_{(1,98)}$	p	η^2
	T/M	SD	T/M	SD			
Personal growth PWB	58.53	9.19	54.42	10.01	4.56	.03	.04
Purpose of life PWB	58.22	10.54	53.15	9.12	6.25	.01	.06
Depressive feelings	.44	.81	.78	1.02	3.48	.06	

Second, the results showed that participants whose psychological needs are satisfied reported a greater level of personal growth and purpose in life compared to participants who experience less psychological need satisfaction. This finding is congruent with SDT research (Ryan & Deci, 2002). According to Golant (2011), older people who move voluntarily into residential environments that are congruent with their needs and goals live in the comfort and mastery zones. They experience pleasurable feelings about where they live, continued personal growth and a sense of meaning in life. This aspect could reflect a portion of our population. Other research is needed.

Third, the present study provides a fuller understanding of how each need satisfaction is related to purpose in life and personal growth. The results showed that both autonomy and relatedness needs significantly contributed to the prediction of purpose in life, and relatedness need was related to personal growth. These results are consistent with ideas from positive psychology and from SDT research in particular (Deci & Ryan, 2000) indicating that freedom to choose on issues of personal importance and quality of interaction supports are particularly important psychological inputs leading to the experience of well-being (Molix & Nichols, 2013). More precisely, our study shows that autonomy need satisfaction does not yield a more beneficial effect than relatedness need satisfaction on purpose in life. These results suggest that the participants perceived that they felt supported and understood in the pursuit of their goals and the sense of meaning in their life, and feeling autonomous in one's relationship contributed to the felt security in that relationship (La Guardia, Ryan, Couchman, & Deci, 2000). Relatedness need is not only the feeling connected to others but also includes a general sense of being integral to a social organization that lies beyond the individual (Ryan & Sapp, 2007). The results support that point of view insofar as having warm and positive social relations with different social supports fosters personal growth in opportunities for continued development and confrontation with new challenges. Moreover, contrary to Ryff and Keyes (1995), both purpose in life and personal growth do not show low scores in these participants. Having life goals, perceiving present and past life as meaningful, and holding beliefs that give living a reason and an objective are the fundamental challenges of living well (Ryff & Singer, 1998a, b). In a meta-analysis, Pinquart (2002) synthesized 70 cross-sectional studies on purpose in life in middle and old age and showed that high purpose in life was associated with good physical health, social integration and a good quality of relationships, and confirmed that this aspect of well-being would be an important resource for aging well. As suggested by the results, it can be concluded that old age can be fruitful and, in consistence with SDT, the present study shows that autonomy and relatedness need satisfaction foster purpose in life and personal growth, considered as essential components of an optimal functioning.

Some limitations of the present study need to be addressed. First, by choosing a cross-sectional design, we do not attempt to infer the direction of the relationship between satisfaction of basic psychological needs and the two indicators of well-being. Another study limitation is the fact that all measures were self-reported. Participants may have

responded in ways that are socially desirable as over-estimating their needs could make things more acceptable and give them an increased feeling of self-esteem (Freudiger et al., 2007). This limitation emphasizes the need for caution with respect to interpretation. Moreover, this sample of elderly volunteers is a geographically-select sample so that participants are not statistically representative of the larger population of elderly. This limits the generalizability of the findings to the elderly population. Finally, the choice of two indicators of psychological well-being can be considered as arbitrary given the broader model defined by Ryff (1989a). Despite its popularity, the Ryff's PWB scales are not free of problems and controversies. One of the most frequently cited in the literature refers to its structural validity (Guindon, O'Rourke, & Cappeliez, 2004; Springer, Hauser, & Freese, 2006). For this reason, and because purpose in life and personal growth are widely recognized as integral components of eudaimonic well-being (Ryff & Singer, 1998a) and linked to needs (non)satisfaction (Ryff, 1989b), in the present study we have chosen to focus on these two indicators of well-being.

Notwithstanding these limitations, this study has a number of strengths which provide some insights for future research. The present study identifies the profiles of need satisfaction by adopting a person-centered approach. From an applied social perspective, it is instructive to gain insight into the percentages of older adults characterized by the same amount of need satisfaction. Our study did not focus on differences in terms of residents' characteristics and depressive feelings in these two profiles. This particular result confirms the interest and the complexity to the better studying of need satisfaction in the elderly. The present study also contributes to the current literature by providing insight into the relationship between need satisfaction and well-being. Relatedness need promotes personal growth, and autonomy and relatedness are two compatible basic psychological needs that foster purpose in life. Nevertheless the relationship between need satisfaction and well-being is weak. This may possibly be due to other factors that may influence well-being such as intellectual abilities, personality, important life events. In future research it is of importance to pay attention to these variables and so provide answers for a better understanding of well-being in the elderly.

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