



Latent constructs of adjustment to aging and subjective age in Portugal and Romania: a comparative multiple correspondence analysis

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Abstract

Objective: To analyze the determinants of adjustment to aging (AtA) and subjective age (SA) identified by older adults and to investigate the differences of latent constructs that can work as major determinants in AtA and SA in an older Portuguese and Romanian population. *Method:* Measures were completed, including demographics and interviews. Complete data were available for 38 older adults aged between 74-90 years ($M=80.6$; $SD = 5.4$), from Portugal and Romania. Data was subjected to content analysis. Representation of the associations and latent constructs were analyzed by a Multiple Correspondence Analysis (MCA). *Results:* The most prevalent response of the interviewed participants for determinants to AtA was ‘health status, physical and intellectual functioning’ (18.1%). ‘With apprehension’ and ‘good enough’ (both 27.0%) were identified as the most frequent SA responses. Findings showed a model for each nationality. AtA and SA for Portuguese elderly were explained by a three-factor model: ‘regardful’, ‘engaged’ and ‘conciliated’. A three-dimension model formed by ‘perseverant’, ‘congruent’ and ‘enjoyers’ was indicated as a best-fit solution for Romanian elderly. *Conclusion:* AtA and SA are strongly explained by increased likelihood of specific constructs in its definition. AtA is related to SA in older adults in both countries, although in different degree.

Keywords: adjustment to aging; older adults; Portugal; Romania; subjective age; aging well.

Introduction

One hardly needs to resort to census data to know that more people aged 60 to 100 are alive today than ever before in the history of the world. In Portugal, people older than 65 years of age account for 17.1% of the almost 11 million Portuguese, with projections suggesting a increase to 31% by 2050 (INE, 2005; WHO, 2011). Portuguese enjoy one of the longest life expectancies, 77 years for men and 83 years for women. As the population ages, there will be increased demands on the health system and increased expectations of older

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people to have control of how and where they live their lives (WHO, 2011). Conversely, in Romania, population aging has started late but has increased rapidly in the last few decades. The share of the population aged 60 and over reached 17% in 1992 and the decline in fertility after 1989 will considerably increase this share (Radulescu, 1993). Further, Romanian elderly often enfold low prestige and social segregation (Popa, 2000)

Adjustment was described by Cattell (1950) as the goodness of internal arrangements by which an adaptation is maintained. Williams, Tibbitts, and Donahue (1966) proposed that this concept was dependent on the individual's state of mind and subjective psychological reactions. More specifically, the adjustment of older adults depends largely upon their present happiness, much more than it does for younger people (Havighurst & Albrecht, 1953). Yet, to date, being satisfied with one's own ageing has been the only construct used in studies of self-perceptions on ageing (Levy, 2003).

Furthermore, how old a person feels, designates subjective age (perceived age) (Barak, 2009; Barrett, 2005; Montepare, 2009). It is a multidimensional construct that derives from a process of adjusting personal age perceptions that guide the age, individuals across the lifespan perceive themselves to be (Kleinspehn-Ammerlahn, Kotter-Grühn, & Smith, 2008; Montepare, 2009).

Regardless of the findings described above, the study of AtA specifically remains at the periphery of current research on aging and older adults (Kozma, Stones, & McNeil, 1991). In addition, to date, no research has yet focused on the association between AtA and SA.

Instead of being measured based on the theoretical assumptions or on the researchers' own definitions, we assert that to have a better understanding of what actually constitutes one's perception of AtA and SA it is essential to listen and to explore older adults' narratives.

Therefore, this study aims to make a unique contribution to the existing literature by: (a) eliciting categories that had impact on Portuguese and Romanian older adults' AtA and SA; (b) investigating latent constructs that can work as major determinants in AtA and SA (c) examining the potential explanatory mechanisms of the cited concepts and (d) understanding the relationship of AtA and SA. Results suggest that this hypothesized link may exist.



Method

Participants

Thirty-two eligible non-institutionalized individuals, aged 74 and over ($M = 80.6$; $SD = 5.4$; range 73-90), 71.1% female, 50.0% Portuguese, 55.3% married and 65.8% pensioners, comprised the sample for the current study. The sampling of participants was based on the availability of respondents, and they were recruited by a non-probabilistic sampling through senior universities message boards, local and art community centres list-serves, in Lisbon and Bucharest regions. Older adults were included when not diagnosed concurrent severe mental disorders according to DSM-IV and excluded if they had difficulty completing the Mini-Mental State Examination (MMSE) (Folstein, Folstein, & McHugh, 1975). Table 1 shows the characteristics of the interview informants.

Table 1

Participant characteristics

	<i>N</i>	<i>%</i>	<i>M(SD)</i>
Gender			
Male	11	28.9	
Female	27	71.1	
Educational Level			
Mandatory School Education	0	0.0	
High school Education	22	57.9	
Some college	5	13.2	
College Graduate	11	28.9	
Marital Status			
Married	21	55.3	
Widowed	16	42.1	
Single	1	2.6	
Professional Status			
Pensioners	25	65.8	
Specialised Profession	7	18.4	
Artists	6	15.8	
Non-specialised Work	0	0.0	
Nationality			
Portuguese	19	50.0	
Romanian	19	50.0	
Age			
73-90			80.6 (5.4)

Note: Total sample, $n = 38$; $SD =$ standard deviation.

Measures and Procedure

Semi-structured interviews based upon an interview guide in participants' own homes were used. Each interview was performed individually. Participants were provided with brief description of the study over the phone and invited to participate in an in-person interview.

As a general outline for the interviews, we considered AtA as a broad-ranging function of the dynamic interaction of subjective and objective elements encompassing a state of physical, mental, and social well-being, and not merely the absence of disease (Bauer & McAdams, 2004; Keyes, Shmotkin, & Ryff, 2002; Ryff, 1989) and SA as the age felt by the participants (Barak, 2009; Barrett, 2005; Montepare, 2009).

Data was analyzed, employing content analysis and using the following procedure: a) development of major emergent categories, mutually exclusive, that reperussed the 38 interviews, for each one of the two pre-existing categories: SA ("How do you feel about your age?") and 'contributors to AtA' ("I would like to understand what in your point of view, contributes to your adjustment to ageing in this phase of your life"); b) creation a list of coding cues; c) analysis of verbatim quotes and characterizations for best fit for a given emergent category; and e) derivation of major emergent categories until the point of theoretical saturation was reached (Bardin, 2007; Morse, 1995). Only emergent categories which were mentioned by at least 10% of the sample were considered. Our structure of categories was then subjected to an external review and critical feedback was obtained from reviewers with experience with older adults. An independent analysis of the 38 interviews was performed by a jury of two psychologists (both faculty) and a final group co-resolution regarding the domains was made.

Representation of the associations between the emergent categories obtained from the narrative analysis, and latent constructs that can work as major determinants in older adults' recognized SA and contributors to AtA, were assessed by a Multiple Correspondence Analysis (MCA). Data were analyzed using SPSS for Windows (version 19.0; SPSS Inc., Chicago, IL).

Ethics

The Portuguese Science and Technology Foundation (FCT), Instituto Superior de Psicologia Aplicada and Romanian Association of Person-Centered Psychotherapy approved the study. Informed consent was received from all participants and the study protocol was approved by the Research Unit in Psychology and Health's coordination.



Results

Content analysis: emergent categories of AtA and SA

Results from content analysis suggest seven emergent categories of answers for AtA namely, (a) ‘accomplishment, personal fulfilment, and future projects’, (b) ‘occupation, profession, autonomy and leisure’, (c) ‘health status, physical and intellectual functioning’, (d) ‘valorisation of time and age’, (e) ‘family, social and interpersonal attachment’, (f) ‘stability, quality and financial situation’ and (g) ‘sense of limit and existential issues’. ‘Health status, Physical and Intellectual Functioning’ was the most mentioned contributor to AtA by participants (18.1%), as seen in Table 2.

As regards to the SA, the jury identified a total of five categories: (a) ‘in congruence’, (b) ‘without concern’, (c) ‘with apprehension’, (d) ‘young-at-heart’ and (e) ‘good enough’. ‘With apprehension’ and ‘good enough’ (both 27.0%) were the most mentioned SA for both Portuguese and Romanian participants (see Table 2).

Multiple correspondence analysis (MCA) of the emergent domains

MCA assesses the correlational structure the pre-categories in our study: AtA and SA. Thus, findings indicate a model for both pre-category, with diverse factors and factor loadings.

When representing all together a model that assembles the concepts of adjustment and age, we considered the correlational structure of the two pre-categories in our study (AtA and SA). Findings evidenced a three-dimension model (accounting for 72.1% of total variance) composed by: ‘regardful’, ‘engaged’, and ‘conciliated’, as a best-fit solution (see Table 3) for Portuguese participants and a three-dimension model (accounting for 74.8% of total variance) composed by: ‘perseverant’, ‘congruent’, and ‘enjoyers’, as a best-fit solution (see Table 4).

Table 2

Summary of major categories resulting from content analysis of the pre-categories 'subjective age' and 'contributors to AtA'

Category	Category frequency of occurrences	Category Percent overall respondents (n=38)
With congruence	32	25.4
Without concern	12	9.5
With apprehension	34	27.0
Young-at-heart	14	11.1
Good enough	34	27.0
Score of pre-category 'subjective age'	126	100.0
Family. Social and Interpersonal Attachment	24	16.7
Health status. Physical and Intellectual Functioning	26	18.1
Occupation. Profession. Autonomy and Leisure	17	11.8
Accomplishment. Personal Fulfilment. and Future Projects	16	11.1
Stability. Quality and Financial Situation	19	13.2
Valorisation of Time and Age	22	15.3
Sense of Limit and Existential Issues	20	13.9
Score of pre-category 'sources of stress'	144	100.0

Discussion

In addition to the multi-dimensionality feature of the AtA concept, this study indicated the emergence of objective (e.g. climate) and subjective themes (e.g. rhythm), as contributors to AtA. The naming of these themes, within the context of having a good life and successful ageing, seemed to indicate the impact these can have on AtA for the respondents and supported existing literature (Bauer & McAdams, 2004; Brodsky, 1988; Keyes, Shmotkin, & Ryff, 2002; Ryff, 1989; Ryff & Keyes, 1995). As to SA, overall older adults expressed positive subjective age (73.0% of overall narratives).



Table 3

Three-dimensional representation for 'subjective age' and 'contributors to AtA' for Portuguese older adults: factor loadings for each dimension, mean loadings and % inertia (variance) explained

Domains	Dimensions			Mean
	Regardful	Engaged	Conciliated	
With congruence	.760	.003	.050	.271
Without concern	.136	.496	.005	.212
With apprehension	.763	.052	.044	.287
Young-at-heart	.008	.609	.001	.206
Good enough	.763	.052	.044	.287
Family. Social and Interpersonal Attachment	.491	.031	.013	.178
Health status. Physical and Intellectual Functioning	.486	.116	.029	.211
Occupation. Profession. Autonomy and Leisure	.059	.443	.377	.293
Accomplishment. Personal Fulfilment. and Future Projects	.050	.260	.443	.251
Stability. Quality and Financial Situation	.009	.340	.162	.170
Valorisation of Time and Age	.000	.283	.491	.258
Sense of Limit and Existential Issues	.000	.283	.491	.258
Eigenvalue	3.525	2.969	2.151	2.882
Inertia	.294	.247	.179	.240
% of Variance	29.377	24.740	17.928	24.015

For Portuguese participants, the largest factor 'regardful' accounted for 29.4% of total variance, whereas for Romanian participants, 'perseverant' represented 30.5% of total variance. 'Conciliated' was the least representative factor for Portuguese elderly (17.9% of total variance) and 'enjoyers' for the Romanian participants (20.6% of total variance).

Table 4

Three-dimensional representation for 'subjective age' and 'contributors to AtA' for Romanian older adults: factor loadings for each dimension, mean loadings and % inertia (variance) explained

Domains	Dimensions			Mean
	Perseverant	Congruent	Enjoyers	
With congruence	.026	.421	.248	.232
Without concern	.194	.123	.543	.287
With apprehension	.825	.047	.006	.293
Young-at-heart	.267	.100	.499	.289
Good enough	.629	.043	.008	.227
Family. Social and Interpersonal Attachment	.129	.211	.353	.231
Health status. Physical and Intellectual Functioning	.067	.001	.417	.161
Occupation. Profession. Autonomy and Leisure	.825	.047	.006	.293
Accomplishment. Personal Fulfilment. and Future Projects	.484	.035	.112	.210
Stability. Quality and Financial Situation	.045	.510	.052	.202
Valorisation of Time and Age	.085	.686	.080	.284
Sense of Limit and Existential Issues	.085	.686	.080	.284
Eigenvalue	3.661	2.909	2.402	2.991
Inertia	.305	.242	.200	.249
% of Variance	30.508	24.245	20.017	24.924

The representation of the latent constructs of adjustment and age suggested that these are largely explained by an all-together three-factor model for each nationality. Thus, for Portuguese participants, 'with congruence', 'with apprehension', 'good enough', 'family, social and interpersonal attachment' and 'health status, physical and intellectual functioning', constituted the first factor ('regardful'). Previous studies suggest that significant social relationships are relevant for older adults (Low & Molzahn, 2007; Strawbridge et al., 1996).



Yet, age associated attrition in social networks is partially attributed to functional loss, health disparities and the discontinuation of personal relationships (Lang, 2001).

The second factor ('engaged') assembled 'without concern', 'young-at-heart', 'occupation, profession, autonomy and leisure' and 'stability, quality and financial situation'. Moreover, this latter (.340) has a low loading in the second factor, which indicates that this category is not very significant in this factor. Growing literature indicate that older adults feel conscientious, driven and more agreeable than middle-aged and younger adults (Allemand, Zimprich, & Hendriks, 2008).

Furthermore, in our study, the third factor ('conciliated') comprised 'valorisation of time and age', 'sense of limit and existential issues' and 'accomplishment, personal fulfilment, and future projects'; therefore these older adults reflected and balanced time, age, sense of limit and other existential issues, corroborating literature that indicates that older individuals search for existential meaning and conscious aging (Malette & Oliver, 2006). As indicated in related studies, success in fulfilling challenges may yield more positive perceived age (Kleinspehn-Ammerlahn, Kotter-Grühn, & Smith, 2008; Ward, 2010). Additionally, awareness of mortality and limit for living is associated to older adults' concerns about end-of-life issues (Brodsky, 1988; Lockhart et al., 2001).

For Romanian participants, the first factor ('perseverant') gathered 'with apprehension', 'good enough', 'occupation, profession, autonomy and leisure' and 'accomplishment, personal fulfilment, and future projects'. Previous studies indicate that on the decision-making style measures, older individuals reported more behavioural coping and more rational styles (Parker, Bruin, & Fischhoff, 2007). Literature suggests that productive activities contribute to well-being of older adults (Wahrendorf & Siegrist, 2010) and that professional engagement especially with peers (Stevens-Ratchford, 2005; Stevens-Ratchford & Diaz, 2003), productive creativity (Brodsky, 1988), status (Hatch, 2000) contributes to AtA and to successful ageing.

'With congruence', 'stability, quality and financial situation', 'valorisation of time and age', 'sense of limit and existential issues', constituted the second factor ('congruent'). In fact, Kotter-Grühn, Grühn, and Smith (2010) suggested that particularly very old adults seem to have quite accurate perceptions of their nearness to death, and additionally, emphasize spiritual dimensions (Mueller, Plevak, & Rummans, 2001).

The third factor ('engaged') assembled 'without concern', 'young-at-heart', 'family, social and interpersonal attachment' and 'health status, physical and intellectual functioning'. Yet, third category (.353) had a low loading in this factor, which indicated that this category

is not very significant in this factor. It must be noted that older adults live within a relatively steady social network which provides regular contact over time (Lang, 2001). AtA can be increased by improving the fit between the person and the environment. Still, Romanian elderly often enfold low prestige and social segregation (Popa, 2000), thus when family support was not available, more varied forms of support were tapped to meet their needs (e.g., neighbours). Moreover, Bowling (1995), Birren and Schaie (1996), and Whitbourne and Weinstock (1986) reported health and interpersonal relationships to be relevant for elderly people.

Limitations to the study also need to be discussed. Although a diverse sample of participants was recruited, the use of a convenience sample method could have resulted in some selection bias. Additionally, there is no certainty that different researchers would not come up with different categories. Qualitative research thus, was necessary to maximize validity and to emphasize the need for researchers and health professionals to be perceptive to the varying needs of older adults.

Further research is needed into the conceptual framework of AtA for older adults. Moreover, this study represents a previous step in the development of an evaluative instrument designed to measure adjustment of older adults to ageing and is part of a larger-scale quantitative investigation examining subjective well-being, sense of coherence and quality of life. Subsequent work will report the evaluation and psychometric testing of the measure. The results of this study can form part of a broad assessment for older adults. The evidence on variety of aging well presented in this paper is an important contribution to the under-developed potential of the concept of AtA in this population and its association with SA. At the same time, the emerging science of positive psychology, gerontology and geriatrics is demonstrating that the potential of older people for AtA and well-being is relatively unexplored. These user-driven outcomes can be useful in clinical practice and service planning. Maybe the patterns of social reference towards older adults as a detached social category may not be pertinent in the next years. What the researchers presently know already altered the perspective on how future older adults will look and sound.



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