ISSNe: 2182.2883 | ISSNp: 0874.0283
Available: https://doi.org/10.12707/RIV17070

RESEARCH PAPER (ORIGINAL)
ARTIGO DE INVESTIGAÇÃO (ORIGINAL)

Psychosocial adjustment and health in older people: cluster analysis

Ajustamento psicossocial e saúde em idosos: análise de *clusters*
Ajuste psicosocial y salud en ancianos: análisis de *clusters*

Lígia Maria Monteiro Lima*; Célia Samarina Vilaça de Brito Santos**;
Maria Celeste Bastos Martins de Almeida***; Maria Manuela Ferreira Pereira da Silva Martins****

Abstract

Background: Healthy aging has both a physical and a psychosocial dimension, which justifies the need to better understand older people's psychosocial adjustment.
Objectives: To study the psychosocial adjustment process in older people and explore its association with sociodemographic and clinical variables.
Methodology: A quantitative, cross-sectional, and exploratory study was conducted with 922 community-dwelling older people aged 64 to 99 years. The following sociodemographic and clinical variables were analyzed: perceived health; positive and negative affect; perceived social support; and medication adherence.
Results: Three psychosocial adjustment profiles were identified. The profile with the lowest scores in all indicators, called the *worst adjustment*, was composed of intermediate-age older people (M = 74.7; SD = 7.08), who also reported more symptoms and diseases.
Conclusion: This study suggests the existence of a group of particularly vulnerable older people and highlights the need to develop nursing interventions focused on adaptive resources that can improve their health and psychosocial adjustment.

Keywords: aged; social adjustment; health; cluster analysis

Resumo

Enquadramento: O envelhecimento saudável tem uma dimensão física e psicossocial, o que justifica a necessidade de melhor compreender o ajuste psicossocial das pessoas idosas.
Objetivos: Estudar o processo de ajustamento psicossocial em idosos e explorar a sua associação com as variáveis sociodemográficas e clínicas.
Metodologia: Estudo exploratório, quantitativo e transversal. Participaram 922 idosos residentes na comunidade, com idades entre os 64 e 99 anos. Foram estudadas as variáveis sociodemográficas e clínicas, perceção de saúde, afeto positivo e negativo, suporte social percebido e adesão aos medicamentos.
Resultados: Identificou-se a existência de 3 perfis de ajustamento psicossocial. O perfil caracterizado pelos piores resultados em todos os indicadores, denominado de *pior ajustamento*, agrega os idosos com uma idade intermédia (M = 74,7; DP = 7,08) e que relatam mais sintomas e patologias.
Conclusão: Este estudo sugere a existência de um grupo mais vulnerável de idosos, apontando para a necessidade de se desenvolverem intervenções de enfermagem focadas em recursos adaptativos promotores de uma melhor saúde e capacitação psicossocial.

Palavras-chave: idoso; ajustamento social; saúde; análise por conglomerados

Resumen

Marco contextual: El envejecimiento sano, además de un componente físico, contiene también un componente psicosocial, lo que justifica la necesidad de conocer mejor el ajuste psicosocial de las personas mayores.
Objetivos: Estudiar el proceso de ajuste psicosocial en ancianos y explorar su asociación con las variables sociodemográficas y clínicas.
Metodología: Estudio exploratorio, cuantitativo y transversal en el que participaron 922 ancianos residentes en la comunidad, con edades comprendidas entre los 64 y 99 años. Se estudiaron las variables sociodemográficas y clínicas, la percepción de la salud, el afecto positivo y negativo, el soporte social percibido y la adhesión a los medicamentos.
Resultados: Se identificó la existencia de 3 perfiles de ajuste psicosocial. El perfil caracterizado por los peores resultados en todos los indicadores, denominado como de *peor ajuste*, incluye a los ancianos con una edad intermedia (M = 74,7, DP = 7,08) y que indican más síntomas y patologías.
Conclusión: Este estudio sugiere la existencia de un grupo más vulnerable de ancianos, y apunta a la necesidad de desarrollar intervenciones de enfermería enfocadas en recursos adaptativos que promuevan una mejor salud y capacitación psicosocial.

Palabras clave: anciano; ajuste social; salud; análisis por conglomerados

*Ph.D., Coordinating Professor, Nursing School of Porto, 4200-072, Porto, Portugal [ligia@esenf.pt]. Contribution to the article: study design; statistical analysis and data interpretation; article writing and revision. Address for correspondence: Rua António Bernardino de Almeida, 4200-072, Porto, Portugal.
**Ph.D., Coordinating Professor, Nursing School of Porto, 4200-072, Porto, Portugal [celiasantos@esenf.pt]. Contribution to the article: data analysis and interpretation; article writing and revision.
***Ph.D., Adjunct Professor, Nursing School of Porto, 4200-072, Porto, Portugal [cbastos@esenf.pt]. Contribution to the article: literature search; article writing and revision.
****Ph.D., Coordinating Professor, Nursing School of Porto, 4200-072, Porto, Portugal [mmartins@esenf.pt]. Contribution to the article: study design; data collection; and article revision.

Received for publication: 04.09.17
Accepted for publication: 12.11.17

Introduction

The population in Europe has been gradually aging (Almeida & Apóstolo, 2014). Hence, given the increase in longevity that has occurred in recent years and the fact that old age can now extend for 30 years or more, the different phases or stages of old age in the human life cycle should be explored. In a systematic review on the adaptation to the aging process, von Humboldt and Leal (2014) proposed three distinct periods: the young-old, the middle-aged old, and the old-old. It is, therefore, important to further analyze older people's psychosocial adjustment process and analyze the changes or transitions that reflect in groups with different characteristics or profiles. Within the scope of health and nursing sciences, this study aimed to contribute to the development of interventions for promoting healthy aging, taking into account the needs and specificities of potential groups.

The objective of this study was to understand older people's psychosocial adjustment process and explore its association with sociodemographic and clinical variables.

Background

Healthy aging has both a physical and a psychosocial dimension, and the process of adjustment to aging has been addressed by multiple studies (von Humboldt & Leal, 2014).

Psychosocial adjustment is often conceptualized and assessed as a multidimensional construct which involves variables that reflect the extent to which individuals are capable of dealing effectively with the demands of their lives or the changes imposed by normative or non-normative life events (Osswald et al., 2009). One of this variables is perceived health, which describes one's assessment of one's own health, based not only on the physical and mental health status, but also on the expectations and comparisons with others (Cho, Martin, Margrett, MacDonald, & Poon, 2011). It is, therefore, a generic health indicator that provides person-centered information and that has been analyzed as a predictor of health, well-being, morbidity, and mortality in old and very old populations (Arnadottir, Gunnarsdottir, Stenlund, & Lundin-Olsson, 2011; Cho et al., 2011).

Therapeutic adherence is another dimension of quality of life and psychosocial adjustment, since the vast majority of older people has a chronic disease that requires medication (Almeida & Apóstolo, 2014). There is currently enough evidence on the importance of medication adherence in chronic disease management processes, and community-dwelling older adults seem to be particularly at risk given the presence of factors that may lead to poor medication self-management (Marek & Antle, 2008).

The emotional component of subjective well-being is another indicator of older people's adjustment. It is represented by affect, which describes the intensity and the frequency with which people experience emotions that are a source of subjective pleasure and satisfaction or displeasure and distress (Cho et al., 2011). Positive affect is associated with positive self-reported health and well-being (Ong & Ram, 2017), as well as with coping strategies to deal with aging (Dockendorff, 2014). In turn, negative affect is associated with health complaints and problems, thus reducing the capacity for disease management (Stahl & Patrick, 2011). Perceived social support is another variable that is often associated with psychosocial adjustment, which has been widely studied as an important determinant of health and well-being in all stages of the life cycle, particularly in old age (Melchiorre et al., 2013; White, Philogene, Fine, & Sinha, 2009).

The existing associations between these variables emphasize the importance of using the above-mentioned indicators as different dimensions of psychosocial adjustment. An example is the association between older people's perceived health, perceived social support, and negative affect (Klabbers et al., 2014). Social support also seems to depend on sociodemographic variables such as gender, age, and education level (Melchiorre et al., 2013).

Therefore, considering that the different indicators of adjustment are often interrelated, the need emerged to develop a participant-centered study to explore different adjustment profiles that combine potential

interaction effects or synergies between these variables. This study aimed at improving the knowledge about psychosocial adjustment and health during the aging process, with a view to developing nursing interventions tailored to the specificities of different groups of older people.

Research questions

Is it possible to identify different psychosocial adjustment profiles in older people?
What is the association between psychosocial adjustment profiles and sociodemographic and clinical variables?

Methodology

This study is a quantitative, cross-sectional, exploratory study with a descriptive and correlational design. It is part of a wider research study entitled *Viver bem com mais idade: do contexto familiar ao apoio institucional* (Living well in an older age: from the family context to institutional support) which is a joint project between the Nursing School of Porto (*Escola Superior de Enfermagem do Porto*, ESEP) and the City Hall of Vila Nova de Famalicão (*Câmara de Vila Nova de Famalicão*, CM-VNF).
The older people were selected by the CM-VNF among the population living in Vila Nova de Famalicão. Using an intentional sample technique, participants' data were collected at their homes by interviewers who had received specific training.
The study followed the Declaration of Helsinki and was approved by the Ethics Committee of the Center for Health Technology and Services Research (CINTESIS, no. 244-14). After being duly informed about the study objectives, participants agreed to participate and signed an informed consent form.
A total of 922 community-dwelling adults participated in the study. Participants were aged 64 (turning 65 until the end of the calendar year of data collection) to 99 years (M = 74.4, SD = 7.0), and 379 (41.1%) were men and 543 (58.9%) were women. Most of them were married (n = 569; 61.7%), although a significant percentage were widowed (n = 247; 26.8%). Around 70% (n = 651) of participants had completed the first cycle of basic education.
Data were collected using four instruments. The first instrument was a questionnaire which was developed by the researchers for this study for sociodemographic (gender, marital status, education) and clinical characterization (diseases and symptoms). It also included an item for assessing perceived health. The Portuguese version of the Reported Adherence to Medication (RAM) Scale, which was validated by Pereira and Silva (1999), was also used to measure medication adherence. This scale is composed of four items rated on a 5-point Likert-type scale. The total score of medication adherence is obtained by summing the answers to all four items (4-20), where higher scores indicate higher levels of adherence. The Cronbach's alpha coefficient of the Portuguese version (Pereira & Silva, 1999) and that of this study was 0.71 and 0.83, respectively. The Portuguese version of the Positive and Negative Affect Schedule (PANAS), which was adapted by Galinha and Pais-Ribeiro (2005), was also used to assess positive and negative affect. This scale is composed of 20 descriptors of emotions divided into two subscales: 10 items for positive emotions (Cronbach's α = 0.87) and 10 items for negative emotions (Cronbach's α = 0.89). The items are rated on a 5-point Likert-type scale. Mean scores are calculated for each subscale (ranging from a minimum of 10 to a maximum of 50), and higher scores indicate higher levels of positive or negative emotions, respectively. The last instrument was the Social Support Scale, the Portuguese version of the Instrumental-Expressive Social Support Scale which was adapted by Guerra (1995) and previously adapted to the elderly population within the scope of this study. It is composed of 16 items which are divided into three subscales: Lack of control (Cronbach's α = 0.79); Financial support (Cronbach's α = 0.83), and Emotional and family support (Cronbach's α = 0.87). Items are rated on a 5-point Likert-type scale. The sum of all item between 16 and 80, and higher scores indicate higher perceived social support in each domain.

Data were analyzed using the cluster analysis method (Mooi & Sarstedt, 2011). It aimed to intra-group variability in the psychosocial adjustment process with the purpose of identifying distinct adjustment profiles, which were established through the similarity (proximity) of the characteristics being evaluated. The number of clusters was chosen using an exploratory cluster analysis - Ward's hierarchical agglomerative clustering method. A confirmatory cluster analysis was then performed using the K-means algorithm to consecutively assign cases to clusters, based on several iterations, until reaching the final solution with all subjects assigned to three distinct groups. The mean scores and standard deviations of the analyzed variables were also calculated, as well as their mean differences, using ANOVA F-test and Bonferroni post-hoc test.

In addition, the chi-square test was used to analyze the association between the characteristics of each cluster and the sociodemographic and clinical variables.

Results

Three clusters, or profiles, were identified with an approximate number of participants (Figure 1). All variables significantly contributed to the clusters´ determination. A more detailed characterization of the three clusters shows that, cluster 1 aggregates the smaller group of participants (n = 246), which had the lower scores in all psychosocial variables, with the exception of positive affect (in which they had intermediate scores); As such, this cluster, was named of *worst adjustment* profile. Moreover, the older people in this cluster scored lowest in the three social support subscales, scored highest score in negative affect (although not significantly different from the score obtained by cluster 3), scored lowest in medication adherence, and scored lowest in perceived health (which was also not significantly different from the score obtained by cluster 3). Cluster 1 included the middle-age elders (mean age of 75 Years).

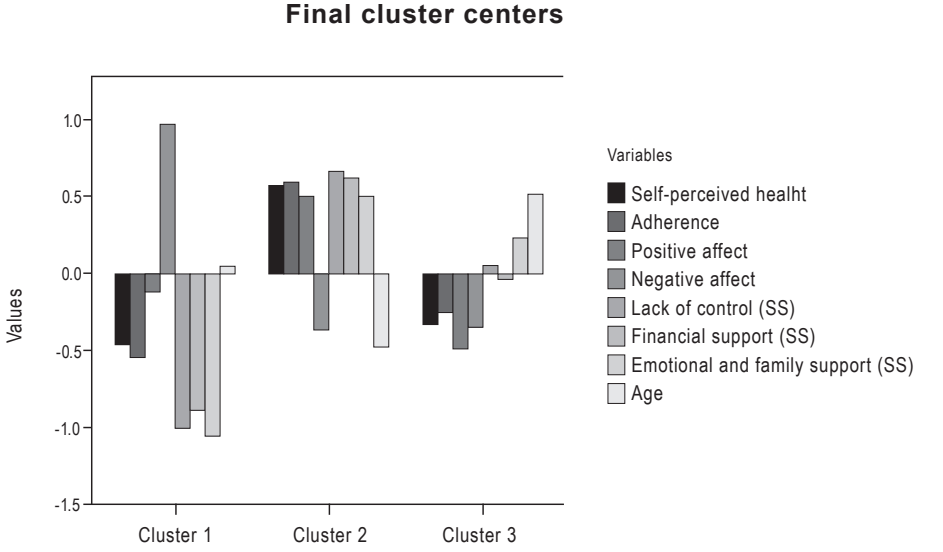

Figure 1. Cluster sampling diagram.

In cluster 2, which was composed of 366 participants, older people scored highest in terms of psychosocial adjustment, with statistically significant differences from the other two profiles. For this reason, this cluster corresponds to the *best adjustment* profile. It included the young-old people (mean age of 71 years), who scored highest in the three social support subscales (lack of control, financial support, and emotional and family support), scored lowest in negative affect, scored highest in positive affect, and

scored highest in medication adherence and perceived health.

Cluster 3, which was composed of 310 participants, had the highest mean age (78 years). The older people in this cluster obtained intermediate scores, with the exception of the lowest scores in positive affect when compared to the other two groups. This group represents the *intermediate adjustment* profile.

The association between the three psychosocial adjustment profiles and the sociodemographic and clinical variables was also analyzed. Results showed that the mean differences in all studied variables were very significant, which confirms the existence of distinct profiles in the study sample (Table 1).

Table 1

Mean scores and standard deviations of the variables under analysis for each profile identified in the cluster analysis

	Cluster 1 *N* = 246 *Worst adjustment*		*Cluster* 2 *N* = 366 *Best adjustment*		*Cluster* 3 *N* = 310 *Intermediate adjustment*			
	M	*SD*	*M*	*SD*	*M*	*SD*	*F*	*Sig*
Age	74.71_a	7.08	71.02_b	5.22	78.09_c	6.86	104.97	.000
Perceived health	2.41_a	0.59	3.00_b	0.38	2.45_b	0.60	129.36	.000
Medication adherence	14.59_a	3.50	18.36_b	2.13	15.58_c	3.15	142.83	.000
Positive affect	22.05_a	5.48	26.14_b	5.89	19.9_c	5.84	102.87	.000
Negative affect	21.99_a	6.52	14.21_b	4.38	14.31_b	3.61	230.81	.000
Lack of control	10.17_a	2.23	14.00_b	1.26	12.62_c	1.76	358.14	.000
Financial support	8.49_a	2.38	12.71_b	2.25	10.80_c	2.34	244.4	.000
Emotional and family support	31.49_a	5.20	40.69_b	4.22	39.31_c	4.19	337.3	.000

Note. ^{a,b,c} Mean scores in the same line, which have different letters in subscript text, are statistically different based on the Bonferroni post-hoc test. *M* = Mean; *SD* = Standard deviation; F = Anova Test.

The characterization of the older people assigned to each profile was complemented with an analysis of the association between belonging to each cluster and the sociodemographic and clinical variables that did not contribute to the definition of the clusters. This analysis was performed using the Chi-square test (Table 2) and found statistically significant associations between the different profiles and all the studied variables, with the exception of cancer diseases.

Table 2 shows that, in comparison to the other two profiles, the *worst adjustment* profile groups a higher percentage of elders that are women, who do not have a partner and that reportied suffering from various diseases and having a significant number of symptoms.

Table 2

Association between belonging to different profiles and the sociodemographic and clinical variables

	Cluster 1 Worst adjustment	*Cluster 2 Best adjustment*	*Cluster 3 Intermediate adjustment*	X^2	*p*
Gender					
Male	32.2%	48.1%	39.7%	15.12	0.001
Female	67.5%	51.9%	60.3%		
Marital status					
Single, divorced, and widowed	46.0%	29.4%	37.5%	19.94	0.000
Married	24.0%	70.6%	72.5%		
Education					
Illiterate/no formal education	26.5%	6%	17.1%	65.448	0.000
Basic education (4 years)	59.6%	74.8%	74.8%		
Intermediate education (6-9 years)	9%	13.2%	6.8%		
Secondary education (12 years)	3.7%	3.6%	1.0%		
Higher education (≥15 years)	1.2%	2.5%	0.8%		
Diseases					
Cerebrovascular disease	17.2%	5.5%	10.5%	20.173	0.000
Cardiovascular disease	30.6%	12.1%	17.2%	29.212	0.000
Neurological disease (e.g., Parkinson's disease)	6.4%	0.3%	2.3%	20.688	0.000
Musculoskeletal and osteoarticular disease	63.7%	26.6%	51.5%	80.291	0.000
Cancer disease	7.9%	3.9%	8.3%	5.752	0.218
Respiratory disease (COPD, asthma, bronchitis)	30.5%	17.2%	26.7%	15.267	0.004
Endocrine disease (diabetes)	38.9%	17.9%	25.5%	31.495	0.000
Symptoms					
Involuntary urine loss	30.0%	5.0%	20.4%	63.198	0.000
Osteoarticular pain	66.7%	36.2%	59.1%	58.316	0.000
Walking difficulties	62.6%	22.2%	52.1%	102.133	0.000
Constant imbalance	35.2%	4.9%	16.3%	85.503	0.000
Hearing loss	59.0%	29.6%	47.2%	50.278	0.000
Vision loss	75.2%	44.3%	66.8%	62.014	0.000
Persistent sadness	44.3%	9.9%	18.0%	101.199	0.000

Note. X^2 = Chi-squared test; *p* = level of significance.

Discussion

In this study, which was conducted with community-dwelling older people, the results of the cluster analysis suggest the existence of three groups that reflect different levels of psychosocial adjustment, which is in line with the recent literature that emphasizes the heterogeneity within this age group (Almeida & Apóstolo, 2014; Foguet-Boreu et al., 2015; von Humboldt & Leal, 2014).

The profile of *worst adjustment* is characterized by the lowest scores in all indicators (with the exception of positive affect) and includes middle-aged older people. The participants in this profile reported lower levels of perceived social support and its components of emotional and family support, financial support, and lack of control. Given that the perceived social support is a protective factor for coping with life transitions, the older people in this profile lack psychosocial adaptation resources. The literature shows that social support has the potential to reduce vulnerability (Melchiorre et al., 2013) and that its affective dimension seems to be particularly important for older people's well-being and health status (White et al., 2009). The older people included in this profile also reported higher levels of negative affect, which may be associated with the greater incidence of health-related complaints. This association was already found

in other studies (Cho et al., 2011; Stahl & Patrick, 2011). In particular, negative affect can influence older people's cognitive functioning, thus limiting their ability to deal with health threats (Stahl & Patrick, 2011). As regards positive affect, despite the lower results when compared to older people with the *best adjustment*, the scores of the older people *worst adjustment* were higher than those found in the *intermediate adjustment* profile. It should be noted that this variable is the least discriminating variable between clusters. However, according to Ong and Ram (2017), this result may also reflect the complexity of assessing the positive affect variable. When compared to health and well-being indicators, the predictive power of this construct can be incremented if, in addition to the global level of positive affect (as was done in this study), its dynamic nature is also considered (Ong & Ram, 2017). These authors argue that positive affect also includes a more unstable dimension with short-term fluctuations and that the understanding of its association with physical and psychological health outcomes is essential to assess this component.

The *worst adjustment* profile had the lowest levels of perceived health and medication adherence. These data are particularly relevant to the extent that this profile includes older people who reported a higher incidence of symptoms and diseases, many of which are chronic in nature. These variables are expected to mutually influence each other (Arnadottir et al., 2011) given that older people who have a more negative perception about their health tend to value more their age-related limitations, especially if they have not yet adjusted to them.

With regard to the low levels of therapeutic adherence, the literature indicates that non-adherence is more common in the old-old period, particularly given the fact that older people aged over 75 years have more difficulties in adhering to medication, namely in understanding instructions for use (Marek & Antle, 2008).

This profile also included a higher number of women, which is in line with the studies that found worst scores in the subjective measures of health and quality of life among women (Rodrigues et al., 2014). The number of single, widowed, and divorced older people is also significantly higher in this group. This result may explain, at least in part, the lowest levels of perceived social support, which was already demonstrated in a previous study (Melchiorre et al., 2013).

The *best adjustment* profile is characterized by indicators of greater psychosocial adjustment in all variables under analysis and includes the young-old people. The older people in this profile had higher levels of perceived social support and positive affect and lower levels of negative affect. In addition, improved perceived health, greater medication adherence, and fewer symptoms and diseases were also observed, an association which was already confirmed in other studies (Arnadottir et al., 2011). Similarly to the study by Melchiorre et al. (2013), a larger number of participants in this profile were married and had a higher educational level.

Overall, the third profile - *intermediate adjustment* - scored between the other two profiles in all adjustment indicators, except for positive affect (which had lower scores). Since this profile included the old-old, this result confirms the tendency for positive affect to decrease with age, which is in line with other studies (Ong & Ram, 2017).

Evidence suggests that the prevalence of diseases and symptoms tends to increase age (Foguet-Boreu et al., 2015). However, the results of this study did not confirm this tendency, which may suggest that older people are healthier and more physically robust or, possibly, describe their functional status while focusing on aspects of their life other than losses after having already overcome the adaptation period.

The most interesting result of this study that should be discussed is the association between psychosocial adjustment indicators and different age periods. Given the most common conceptions on aging, one may think that a person's psychosocial adjustment worsens with age. However, the lowest adjustment indicators were found in the middle-age period. In Portugal, the full-benefit retirement age is 66 years and 4 months many citizens cease their professional activity. For some people, this transition to retirement may pose a serious threat to their well-being and perceived

social support, because their professional contacts and daily routines may be replaced by social isolation and inactivity. For others, it may represent a period of more freedom and more time available for activities that had been neglected in the past, namely a greater investment in family life (Loureiro, Ângelo, Silva, & Pedreiro, 2015). However, most of the transitions associated with the aging process, such as widowhood, functional losses that compromise autonomy, cognitive difficulties, among others, which require older people to leave their homes to go and live with their children or in nursing homes (Almeida, 2014), usually occur at a later stage in the lifecycle. These are some of the possible explanations for the middle-aged period (*M* = 75 years) to be a critical phase in the psychosocial adaptation process, perhaps because it is the first time older people have to deal with changes to which they are not yet prepared. Successful aging is an adaptation process in which limitations and losses are accepted as natural and dealt with using adaptive coping strategies (Dockendorff, 2014), but it is a process in which older people need time to naturally process this adaptation and acceptance and contemplate life in a satisfactory way.

One of the limitations of this study was the sampling method, which limited the generalization of the results to the elderly population in Portugal. Another limitation was the exploratory nature of the data analysis methods. Further research should be conducted on this topic, namely longitudinal studies, which will enable a better understanding of the heterogeneity in older people's psychosocial adjustment processes, particularly taking into account the dynamic nature of some indicators, such as positive affect.

Conclusion

This study aimed to characterize older people's psychosocial adjustment and health throughout the aging process. This study identified three psychosocial adjustment profiles associated with different age groups. The *worst adjustment* profile was characterized by the worst results in all indicators included middle-aged older people and individuals who reported more symptoms and diseases. In contrast, the *best adjustment* profile included young-old older people and individuals with higher scores of perceived social support, positive affect, perceived health, and medication adherence. These results emphasize the heterogeneity among age groups and reflect older people's different levels of physical, emotional, and psychosocial health.

The results of this study are innovative when compared to previous studies because they show that psychosocial adjustment changes throughout the aging process. The Intermediate age period in old age, which is often associated with the loss of family members and lower levels of self-care autonomy, seems to be particularly challenging, having a negative impact on older people's perceptions of health and well-being.

Therefore, taking into account that old age covers a long period of time, the study contributes to support the change in nursing care delivery to this population group. In line with WHO guidelines, the need emerges for more comprehensive nursing interventions, thus moving away from a curative model focused on diseases and symptoms to a comprehensive and person-centered care model focused on and adjusted to the specificities of older people. The implementation of nursing interventions aimed at the different determinants of aging-related adaptive processes enables older people to strengthen their resources and allows them to move from a situation of vulnerability to improved health and psychosocial empowerment.

This study should also be replicated in different contexts and with a greater representation of Portuguese older people in order to understand if the adjustment profiles found in this study truly reflect their experience of the aging process.

References

Almeida, M. & Apóstolo, J. (2014). *Envelhecimento, Saúde e Cidadania*. Coimbra, Portugal: UICISA:E.

Almeida, M. (2014). A identidade na velhice. In M. Almeida, & J. Apóstolo (Eds), *Envelhecimento, Saúde e Cidadania* (pp.13-37). Coimbra, Portugal:

UICISA:E.

Arnadottir, S. A., Gunnarsdottir, E. D., Stenlund, H., & Lundin-Olsson, L. (2011). Determinants of self-rated health in old age: A population-based, cross-sectional study using the International Classification of Functioning. *BMC Public Health, 11*(1), 670. doi:10.1186/1471-2458-11-670

Cho, J., Martin, P., Margrett, J., MacDonald, M., & Poon, L. W. (2011). The relationship between physical health and psychological well-being among oldest-old adults. *Journal of Aging Research, 2011,*1-8. doi:10.4061/2011/605041

Dockendorff, D. C. (2014). Healthy ways of coping with losses related to the aging process. *Educational Gerontology, 40*(5), 363-384. doi:10.1080/03601277.2013.822203

Foguet-Boreu, Q., Violán, C., Rodriguez-Blanco, T., Roso-Llorach, A., Pons-Vigués, M., Pujol-Ribera, E., . . . Valderas, J. M. (2015). Multimorbidity patterns in elderly primary health care patients in a south Mediterranean European region: A cluster analysis. *PLoS One, 10*(11), e0141155. doi:10.1371/journal.pone.0141155

Galinha, I. C., & Pais-Ribeiro, J. L. (2005). Contribuição para o estudo da versão portuguesa da Positive and Negative Affect Schedule (PANAS): II – Estudo psicométrico. *Análise Psicológica, 2(23)*, 219-227.

Guerra, M. P. (1995). Uma escala de avaliação do suporte social: Sua aplicação numa população seropositiva ao vírus HIV. *Avaliação Psicológica, 3*, 25-34.

Klabbers, G., Bosma, H., Kempen, G. I., Benzeval, M., Van den Akker, M., & van Eijk, J. T. (2014). Do psychosocial profiles predict self-rated health, morbidity and mortality in late middle-aged and older people? *Journal of Behavioral Medicine, 37*(3), 357-368. doi:10.1007/s10865-013-9493-x

Loureiro, H., Ângelo, M., Silva, M., & Pedreiro, A. (2015). Como as famílias portuguesas perceciona m a transição para a aposentação. *Revista de Enfermagem Referência*, *4(*6), 45-54. doi:10.12707/RIV14073

Marek, K. D., & Antle, L. (2008). Medication management of the community-dwelling older adult. In Hughes RG (Ed.), *Patient safety and quality: An evidence-based handbook for nurses* (pp. 499-536): Rockville, MD: Agency for Healthcare Research and Quality.

Melchiorre, M. G., Chiatti, C., Lamura, G., Torres-Gonzales, F., Stankunas, M., Lindert, J., . . . Soares, J. F. (2013). Social support, socio-economic status, health and abuse among older people in seven European countries. *PLoS One, 8*(1), e54856. doi:10.1371/journal.pone.0054856

Mooi, E., & Sarstedt, M. (2011). *Cluster analysis: A concise guide to market research: The process, data, and methods using IBM SPSS Statistics* (pp. 237-284). Berlin, Germany: Springer.

Ong, A. D., & Ram, N. (2017). Fragile and enduring positive affect: Implications for adaptive aging. *Gerontology*, *63*(3), 263-269. doi:10.1159/000453357

Osswald, S., Frey, D., Greitemeyer, T., Shapiro, I., Bilali, R., Vollhardt, J., . . . Feldman, D. B. (2009). *The Encyclopedia of Positive Psychology*. Malden, MA: Wiley-Blackwell.

Pereira, M. G., & Silva, N. S. (1999). Escala de adesão aos medicamentos. *Avaliação Psicológica: Formas e Contextos, 6*, 347-351.

Rodrigues, V., Mota-Pinto, A., Sousa, B., Botelho, A., Alves, C., & Oliveira, C. R. (2014). The aging profile of the Portuguese population: A principal component analysis. *Journal of Community Health, 39*(4), 747-752. doi:10.1007/s10900-014-9821-9822

Stahl, S., & Patrick, J. (2011). Perceived functional limitation and health promotion during mid-to late life: The mediating role of affect. *New School Psychology Bulletin, 8*, 26-33.

von Humboldt, S., & Leal, I. (2014). Adjustment to aging in late adulthood: A systematic review. *International Journal of Gerontology, 8*(3), 108-113. doi:10.1016/j.ijge.2014.03.003

White, A. M., Philogene, G. S., Fine, L., & Sinha, S. (2009). Social support and self-reported health status of older adults in the United States. *American Journal of Public Health, 99*(10), 1872-1878. doi:10.2105/AJPH.2008.146894