



Motives to practice exercise in old age and successful aging: A latent class analysis



Melchor Gutiérrez^{a,*}, Pablo Calatayud^b, José-Manuel Tomás^b

^a Department of Educational and Developmental Psychology, Faculty of Psychology, University of Valencia, Av. Blasco Ibáñez, 21, 46010 Valencia, Spain

^b Department of Methodology for the Behavioral Sciences, Faculty of Psychology, University of Valencia, Av. Blasco Ibáñez, 21, 46010 Valencia, Spain

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ABSTRACT

Purpose: The aim was to classify motives for exercising trying to find sets of related cases that share common motivations, and to relate these latent classes to markers of successful aging.

Methods: 725 old adult aged 55 to 97 years were sampled in several Spanish towns. Instruments: Successful Aging Inventory (SAI), International Physical Activity Questionnaire (IPAQ), Health Survey SF-8, Satisfaction with Life Scale (SWLS), and motives to practice exercise, were used. Latent Class Analyses (LCAs) were estimated. The classes obtained were compared on markers of successful aging.

Results: Three latent classes were deemed optimal. Significant differences for several markers of successful aging were found.

Conclusion: A main conclusion derived from the results is that not all old people do exercise for the same motives, and the class of motives you are in had an impact/relation on markers of successful aging. Motives related to internal rather than external pressures should be promoted in the old age.

1. Introduction

As Barber, Forster, and Birch (2015) stated, life expectancy has increased dramatically over the last century, leading to changes in the world's demography. It is predicted that by the year 2050, about 2 billion people, accounting for 20% of the global population, will be 60 years or older (OMS, 2015; United Nations, Department of Economic & Social Affairs, 2012). This has generated, among other things, a growing interest focused on successful aging factors for obtaining a healthy and happy life in old age and in an aging society (Paskulin, Vianna, & Molzahn, 2009; Pinto, Fontaine, & Neri, 2016).

Many authors affirm that one of the most important non-pharmaceutical ways towards healthy aging is exercise (Müller, Ansari, Ebrahim, & Khoo, 2016; Södergren, 2013; Van Alphen, Hortobágyi, & van Heuvelen, 2016). There is evidence that high levels of physical functioning are fundamentally important to healthy aging, and participation in exercise is a strong predictor of aging well (Kolt, Driver, & Giles, 2004). Exercise can act as a health protective factor among older individuals. Regular participation in exercise can decrease the occurrence of diseases, falls, and disability as well as improve independence (Young & Dinan, 2005). Furthermore, regular exercise not only has many physical benefits but can also contribute to psychological well-being among older adults (Chung, Zhao, Liu, & Quach, 2017; Ferrand,

Nasarre, Hautier, & Bonnefoy, 2012; Fox, Stathi, McKenna, & Davis, 2007; Kolt et al., 2004).

Despite the physical and psychological health benefits of exercise, many old people do not exercise enough to gain health benefits (Patel, Schofield, Kolt, & Keogh, 2013; Schutzer & Graves, 2004). Therefore, knowing the motives why old people exercise, as well as barriers that limit them such practices, has become a target of interest for research (Biedenweg et al., 2014; Kolt, Chadha, Giles, & Driver, 2002; Patel et al., 2013; Stephan, Boiché, & Le Scanff, 2010; Stubbs et al., 2014; Victor et al., 2016). In the older population, barriers and motivators often intertwine, making it difficult to isolate factors specific to this cohort (Schutzer & Graves, 2004; Van Alphen et al., 2016).

Kolt et al. (2004), investigating the motives for practicing exercise in a sample of Australian older adults, found that the predominant reasons reported related to health, fitness, enjoyment of the activity, and relaxation. In this study, women rated medical, social, and involvement reasons as significantly more important than did their male counterparts. More recently, Patel et al. (2013) carried out a study with the aim to identify perceived barriers, benefits, and motives for exercising in a sample of people 65 years old or older. They found that the main motives for participation in exercise were: being active for enjoyment reasons; being active for health and medical reasons; and engaged in exercise for the purpose of wanting to be physically active. The

* Corresponding author.

E-mail addresses: Melchor.Gutierrez@uv.es (M. Gutiérrez), pablocalatayudnavarro@hotmail.com (P. Calatayud), Jose.M.Tomas@uv.es (J.-M. Tomás).

benefits of exercise participation were: personal benefits (like self-confidence), and physical benefits (like feeling fitter). As barriers to participation in exercise, they identified three factors: personal barriers (like lack of motivation); perceptual barriers (like feeling too old to be physically active); and time constraints (for example, family responsibilities). Cleland et al. (2015) explored the environmental factors that act as barriers or facilitators to exercise participation among rural adults, and found four key themes: functionality, diversity, spaces and places for all, and realistic expectations. In the study carried out by Patay, Patton and Parker (2015), four main categories emerged: (a) acknowledgment and knowledge of exercise, (b) environmental factors, (c) cultural aspects, and (d) social aspects of exercise.

Many researchers agree that it is vital to ensure that the population ages healthily and that longevity is accompanied by better quality of life (Rennemark, Lindwall, Halling, & Berglund, 2009; Troutman, Nies, Small, & Bates, 2011). Reyna, Castruita, Zamarripa, Gurrola, and Valtier (2016) concluded that self-efficacy and perceived benefits of exercise were positively associated with the level of physical activity.

What is successful aging? Rowe and Kahn (1987, 1998) defined successful aging as the avoidance of disease and disability, maintenance of physical and cognitive function, and engagement in social and productive activities. Later, Crowther, Parker, Achenbaum, Larimore, and Koenig (2002) added a fourth component, spirituality. The most commonly proposed definition of successful aging has been satisfaction with one's life (Bowling & Dieppe, 2005). From an initial approach with a purely biomedical perspective, the focus has been changing towards a more holistic vision, attending to more subjective aspects of the aging process (Pruchno, Wilson-Genderson, & Cartwright, 2010). There are multidimensional theories of successful aging that propose components of both biomedical and psychosocial theories (Bowling & Dieppe, 2005). Psychosocial models emphasize aspects like life satisfaction, well-being, social engagement, or personal resources (Cosco, Prinq, Perales, Stephan, & Brayne, 2014). Troutman and Staples (2014) have studied the interpretation of successful aging from the viewpoint of older adults raising the question: What does successful aging mean to you? Eight broad themes emerged: active independence, relationships with people, relationship with God, comfort resources, health, beneficial contribution, positive perspective/coping, and freedom. Further, Troutman and Staples (2014) referred that, derived from the content analysis, the literature have supported six headings of successful aging: health; independence, the construct of active engagement; connectedness; attitude, adaptability, and coping; sense of purpose; and appropriate resources. A few years earlier, Troutman et al. (2011) created an instrument to measure successful aging, and they found four dimensions: functional performance mechanisms; intrapsychic factors, spirituality, and gerotranscendence. Lee, Lan and Yen (2011) proposed a model of successful aging composed by four factors: physical, psychological, social, and leisure.

As literature has shown, in addition to exercise, other important variables have been related along the time to aging successfully, as perceived health and life satisfaction (Hilton, Gonzalez, Saleh, Maitoza, & Anngela-Cole, 2012; Troutman et al., 2011). Li et al. (2014) suggested that self-reported health measures may be the most appropriate measures for comparing cross-national differences in successful aging. They found that successfully aging old people had significantly more favorable health status than those who were not successful. Physical functioning is one aspect of health-related quality of life and it is often considered a component of successful aging (Cené et al., 2016). In the same vein, life satisfaction has been identified as an indicator of successful aging (Troutman et al., 2011). Rowe and Kahn (1998) stated that successful aging involves individuals' physical health, psychological well-being, and social engagement with life. According to Feng, Son, and Zeng (2015), successful agers are those who are free from major illnesses and disabilities, having no depressive symptoms, participating in social or productive activities, and being satisfied with life.

Based on the above mentioned, the aim of this research was twofold:

a) to elaborate a classification of motives for exercising trying to find sets of related cases (latent classes) that share common motivations using latent class analysis; b) to relate these latent classes to markers of successful aging. Specifically several hypotheses were raised:

- a) There will be, at least, three latent classes among the motives to practice exercise: medical or health reasons, fitness, and to socialize (having social relationships).
- b) Medical or health class will have lowers levels of successful aging as measured in the four dimensions of the Successful Aging Inventory-SAI (functional performance, intrapsychic factors, spirituality, and gerotranscendence) compared to the other two classes.
- c) Fitness class will have higher levels of exercise, given that fit is an intrinsic motivation
- d) Medical or health class will have lower levels of perceived health and life satisfaction.

2. Methods

2.1. Participants

The sample under study consisted of 725 older adults aged 55 to 97 years ($M = 68.28$; $SD = 8.62$), 478 were women (66%) and 247 men (34%). The sample was collected in three areas: sport centers, day centers, and public areas of several Spanish towns.

2.2. Instruments

- (a) To measure successful aging, the *Successful Aging Inventory* (SAI; Troutman et al., 2011) was used. The scale is a 20-item instrument with four dimensions: Functional performance, Intrapsychic factors, Spirituality, and Gerotranscendence. Example items of each factor are: I have been able to cope with the changes that have occurred to my body as I have aged; I am in a positive, pleasant mood; I spend time in prayer or doing some kind of religious activity; I feel interest in/concern for the next generation. Internal consistencies for the four dimensions were respectively, 0.62, 0.87, 0.80 and 0.81. A 5-point response scale was adopted, from (1) strongly disagree to (5) strongly agree.
- (b) The short form of the *International Physical Activity Questionnaire* (IPAQ; Craig et al., 2003) referred to the last 7 days. It is an indicator of time spent per week on different intensities of physical activity (vigorous, moderate, walking...). Physical activity was converted into metabolic equivalents (METs), according to the conversion factors applied in IPAQ.
- (c) To examine the health perception of old people, the *SF-8 Health Survey* (Ware, Kosinski, Dewey, & Gandek, 2001) was used. This scale has eight items that assess health related quality of life, as perceived within the last month. Examples of items are: How much energy have you had?, How many physical pains have you had?, or How much have you been bothered by emotional problems? Participants could answer in a Likert-type scale from (1) none or nothing to (5) much or many. Internal consistency estimate was 0.75.
- (d) *Satisfaction with Life Scale* (SWLS; Diener, Emmons, Larsen, & Griffin, 1985). This scale is composed of five items assessing global life satisfaction, ranging from (1) totally disagree to (5) totally agree. Example items are: In most ways my life is close to my ideal; If I could live my life over, I would change almost nothing. Reliability was 0.86.
- (e) The checklist of motives to practice exercise was developed *ad hoc* for the research purposes. Several scales and questionnaires existed to tap motives for exercising and related aspects such as barriers and benefits. Among them the Participation Motivation Questionnaire for Older Adults (PMQOA; Kirkby, Kolt, & Habel, 1998; Kirkby, Kolt, Habel, & Adams, 1999) with 31 items or the

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