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The Role of Perceived Discrimination on Active Aging

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Highlights

- Self-perception of aging is a construct that loads in active aging as a major component.
- Perceived age discrimination has negative influences on health and positive affect.
- Perceived age discrimination is a negative predictor of active aging.

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Abstract: Among older adults, perceived age discrimination is highly associated with unhealthy outcomes and dissatisfaction. Active aging is a multidimensional concept described by a set of characteristics, particularly health, positive mood and control; most importantly, active aging is currently at the core of public policies. The aim of the present study was to test to what extent perceived discrimination influences active aging. Methods A total of 2,005 older adults in three representative samples from regions of Germany, Mexico and Spain participated; they were tested on active aging and perceived discrimination. First, active aging was defined as high reported health, life satisfaction and self-perception of aging. Second, authors introduced the assumption that, in the total sample, structural equation modelling would confirm the hypothesis of a direct negative link between perceived age discrimination and active aging. Finally, multiple group comparison performed through structural equation modelling also provided support for the negative association between perceived discrimination and active aging proposed. In spite of the differences found among the three countries in both active aging variables and age discrimination perception, multiple group comparison indicates that regardless of the culture, perceived discrimination is a negative predictor of active aging.

Keywords: active ageing, ageing stereotypes, age discrimination, selfperception of aging

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Introduction

At a population level, there is extensive research indicating the risks of discrimination and social exclusion to older people as a result of stereotypes and prejudices, so-called ageism (Nelson, 2005; Nussbaum, Pitts, Huber, Krieger, & Ohs, 2005), and such negative stereotyping influences have been found across cultures (Cuddy, Norton, & Fiske, 2005) and are considered a threat for older adults.

Although discrimination refers to the objective conditions in a given society (Fernández-Ballesteros, Bustillos, Huici, & Ribera, 2016), perceived age discrimination is defined as the individuals' views and experiences reported about discrimination due to their age; thus, it refers to all older adults' perceived differentiation based on age (Macnicol, 2006).

In their study about experiencing age discrimination in 28 European countries, van den Heuvel and Santvoort (2011) showed age to be the most frequently mentioned reason for discrimination among Europeans, reporting that about a quarter of old European (older than 62 years), “sometimes” or “frequently”, experience discrimination because of their age.

The concept of perceived age discrimination is associated with ageing stereotypes. In this sense, it has been widely studied how ageing stereotypes have an impact on older people’s ageing (Fernandez-Ballesteros et al., 2016; Levy, 2009)

Based on experimental and longitudinal studies, Levy developed a psychosocial approach to ageing stereotypes called Stereotype Embodiment. In brief, the main assumption is that stereotypes assimilated by the surrounding culture lead to self-stereotype and to self-perception of ageing, and they influence functioning, health and longevity (Levy, 2009). This is a broad theoretical assumption which has not yet been empirically tested since assimilation processes require highly complex designs.

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However, according to this model, perceived age discrimination can be considered as an important threat of health ageing.

Perceived age discrimination has been studied with regard to its impact on several types of effects, mainly unhealthy conditions (physical and mental) and reduced wellbeing. Pascoe and Richman (2009), for example, performed a broad meta-analysis of 134 different samples on the effects of perceived discrimination, providing a comprehensive account of the relationships between multiple forms of perceived age discrimination in both mental and physical health outcomes. Active Aging is a multidimensional concept integrating several domains, among others health.

Finally, changes in perceived discrimination are significantly associated with changes in negative mood over time. Thus, examining data from two waves (2008 and 2012) of the Health and Retirement Study (Han & Richardson, 2015). They showed that changes in perceived discrimination were significantly associated with changes in negative mood and depressive symptoms over 4 years. These authors also showed that self-perceptions of aging mediated the relationship between perceived age discrimination and depressive symptoms.

At the same time that age discrimination perceptions are very common among older adults, policies across Europe and around the world are trying to promote healthy, successful or active aging (see: UNECE, 2003; Walker & Lowenstein, 2009). It could be asked whether perceived discrimination could be a danger or a negative influence for active aging.

Although all authors agree that aging well is a multidimensional concept (bio-medical, psychological and social), there is no commonly accepted definition (for a review, see Fernández-Ballesteros, 2008). The most widespread conceptualization, both in older people themselves and within the scientific community, is that successful or active

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aging implies health, physical and cognitive fitness, positive affect and control, and finally social participation (e.g., Fernández-Ballesteros, 2008; Fernández-Ballesteros et al., 2013; Rowe & Kahn, 1987). Moreover, in the field of affect and control, some authors include a consideration of individuals' appraisal of their own efficacy for aging well (Fernández-Ballesteros, 2008). In sum, the aspects considered by most authors to be key indicators of active aging are good health, well-being and control (Lehr, Seiler, & Thomas, 2000; Ryff, 1989; Vaillant & Vaillant, 1990). These three characteristics of active aging are precisely those which are potentially negatively affected by perceived age discrimination.

Two questions therefore emerge from the literature on stereotypes and active aging: to what extent could perceiving age stereotypes negatively influence active aging? And can this be tested cross-culturally?

Overview of this research

The aim of the present research is twofold. Firstly, a structural equation model framework is used to study how perceived discrimination affects active aging as a second-order factor composed of life satisfaction, subjective health and self-perception of first-order aging factors. Secondly, using confirmatory factor analysis we analyse whether the measurement model of the four constructs used in this study is equivalent in the three countries: Germany, Spain and Mexico (factorial invariance model). Subsequently, the correlation structure and the latent means were compared in the three countries to discover whether the perceived discrimination is negatively influencing active aging (defined by life satisfaction, subjective health and self-perception of aging) and is invariant between them.

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Data and Method

Participants

The initial sample was made up of 2,005 participants (602 from Germany: Heidelberg-Mannheim-Ludwigshafen; 785 from Mexico: Colima; and 618 from Spain: Alicante), recruited as a random sample (through the random route procedure), being representative by age and gender of their respective population contexts (Fernández-Ballesteros, Arias-Merino, Santacreu, & Ruvalcaba, 2012). The main socio-demographic characteristics of the different samples are shown in Table 1.

--- Insert table 1 about here ---

Measures

Perceived discrimination (*Negative Social stereotypes*): This scale comprised three items ("*Older people are excluded from many areas of public life", "After finishing working life one is considered useless",* and "*The achievements of older people are not appreciated in our society"*). Responses were made on a four-point Likert-type scale ranging from 1 = Not at all to 4 = Very much; higher scores indicate a negative perception of social stereotypes (*M* = 2.38, *SD* = .79).

Life Satisfaction: The scale was made up of five items ("*In most things, my life is close to my ideal", "The conditions of my life are excellent", "I am satisfied with my life, so far I have achieved things that are important to me in life", "If I were born again I would change almost nothing in my life"*). Responses were made on a 4-point Likert-type scale, ranging from 1 = Not at all to 4 = Very much, with higher scores indicating greater Life satisfaction (*M* =2.89, *SD* = .63).

Subjective Health: The scale was composed of three items ("*Generally, how would you say your health is?", "How is your health now compared to last year?",* and *"Compared with people your own age, how do you rate your health?"*). Responses to

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the first item were made on a 4-point Likert-type scale, from 1=very good to 4=very bad, while for the other two items a 3-point Likert-type format was used, ranging from 1 = Better, to 3 = Worse. Items were recoded and averaged so that the higher the score, the better the subjective health (*M* =2.24, *SD* = .51). Higher scores in this scale were inverted denoting positive subjective health.

Self-perceptions of aging: Five items suggested by Levy, Slade and Stanislav (Levy, Slade, & Kasl, 2002) for assessing "Self-stereotypes" and taken from the Lawton scale (Lawton, 1975) were employed: "*Things keep getting worse as I get older", "I have as much pep as I did last year", "As you get older, you are less useful", "I am as happy now as I was when I was younger"*, and "*As I get older, things are (better, worse, or the same) than/as I thought they would be"*. The first four items are answered in Yes/No format and first and third items were reversed (Lawton, 1975; Levy et al., 2002). Responses to the fifth item are made on a 3-point Likert-type scale by selecting: 1 = Worse, 2 = The same or 3 = Better. Items were recoded and averaged so that higher scores denoted better self-perceptions of aging.

Statistical analysis

In the first place, a confirmatory factor analysis (CFA) was conducted to validate the factorial structure of the four scales used in the study. The polychoric correlation matrix was analyzed using Mplus 7.0 latent software (Muthén, 1998), given the categorical metric of our data (polytomous items). Robust weighted least squares was used as the estimation method (WLSMV, see for example (Abad, Olea, & Ponsoda, 2011; Brown, 2015)). Several goodness of fit statistics were also used to assess the quality of the models: absolute fit index χ^2 was presented. Additionally, the parsimony correction index root mean square of approximation (RMSEA) and its 90% confidence interval were applied. Finally, two comparative indices were also used: the Tucker-Lewis index

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(TLI, (Tucker & Lewis, 1973)) and comparative fit index (CFI;(Hu & Bentler, 1999)). Acceptable model fit was defined as RMSEA < .08, CFI (> .95), and TLI (> .95) (Abad et al., 2011; Brown, 2015). Secondly, multiple-group CFA analysis was applied in order to check the measurement invariance of the four instruments in the three different countries. The main purpose of the invariance measurement study was linked to the first objective: that is, to test if latent means and latent covariances can be assumed to be equal across the three states (i.e. Spain, Mexico and Germany). Finally, structural equation modelling (SEM) was performed in order to test our second hypothesis.

Results

Measurement model

A CFA was conducted in order to see the factorial structure of the four instruments in the three countries conjointly (N = 2,005 observations). The four-factor measurement model fit the data well: $\chi^2(98) = 554.94$, $p < .01$; RMSEA = .048 90%CI[.044 - .052]; CFI = .966 and TLI = .959. Table 2 shows the completely standardized factor loadings.

--- *Insert Table 2 about here* ---

The standardized factor loadings were strong and statistically significant. Only one factor loading was below .50 (*How is your health now compared to last year*?). All factor correlations were also significant ($p < .001$). *Self-perceptions of aging* correlated negatively with *Perceived discrimination* (-.423, thus people who perceived their aging as good also perceived less discrimination). The correlation between *Self-perceptions of aging* and *Subjective health* was positive and high (.699) and between *Self-perceptions of aging* and *Life satisfaction* was also positive and moderately high (.537). *Life satisfaction* and *Perceived discrimination* correlated negatively (-.212), *Life satisfaction* with *Subjective health* also correlated positively (.460) and, finally, *Subjective health*

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correlated negatively with *Perceived discrimination* (-.206). Thus, correlations were coherent with the expected results.

The second order model was also fitted. As introduced above, active aging was defined as a second order factor that accounts for the life satisfaction, subjective health and self-perception of primary aging factors. The model fitted well to the data ($\chi^2(100) = 566.95$, $p < .001$; RMSEA = .048 90%CI[.044 - .052]; CFI = .966; TLI = .959). In this model, the primary factors are well explained by *Active aging* second order factor. *Life satisfaction* second order loading was .577, *Subjective health* second order loading was .731 and *Self-perceptions of aging* second order factor was .962.

Factorial invariance study between the three countries

Subsequently, the factorial invariance study was carried out with the aim of analyzing whether the same factorial structure (four-factor solution) were replicated in the three countries and to compare latent means and latent factor covariances between the three countries. In the first place, the four-factor solution was conducted separately in each country. Next, equal form analysis (configural invariance) was analyzed, scalar and metric invariance was tested, and finally, latent variances, latent covariances, and latent means were compared. Table 3 shows the steps of the analysis. The four-factor solution in each country fitted reasonably well. In the Mexican sample a modification index suggested freeing a residual covariance between item 2 (*As I get older, things are (worse, the same or better) than/as I thought they would be*) and item 5 (*Things keep getting worse as I get older*) from *Self-perception of aging* factor. Similarly, in the German sample a modification index suggested freeing a residual covariance between item 1 (*I have as much pep as I did last year*) from *Self-perception of aging* factor and item 2 (*How your health is now compared to last year?*) from low *Subjective health*

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factor. Configural invariance (where factor loadings and thresholds are freely estimated across countries) also showed a reasonable fit to the data. Metric and scalar invariance resulted in a significantly degrade of fit ($\Delta\chi^2(24) = 110.10$, $p < .001$). According to modification indices, the factor loadings and thresholds of item 2 from *Self-perception of aging* were freely estimated in the three countries). No other model modification was necessary to reach invariance. The partial metric and scalar invariance showed a reasonably fit ($\Delta\chi^2(20) = 25.42$, $p = .186$).

--- *Insert table 3 about here* ---

Given the measurement model invariance (partial invariance), test of population heterogeneity was carried out. There were significant differences between factor variances ($\Delta\chi^2(8) = 86.15$, $p < .001$), which contraindicates comparison between factor covariances (Brown, 2015). Thus, the latent factor variances were fixed to 1 for identification purposes in order to compare factor correlations between countries. The results showed a significant degrade of fit when factor correlations were constrained to be equal between countries ($\Delta\chi^2(12) = 42.88$, $p < .001$). Table 4 shows latent correlations between factors for each country. It is observed that in Germany the correlations of *Perceived discrimination* factor are lower than in Mexico or Spain, where this factor has significant correlations with *Life satisfaction* and *Subjective Health* factors. Modification indices suggested freeing *Perceived discrimination* and *Life satisfaction* correlation in the German sample, and *Perceived discrimination* and *Subjective Health* correlation also in Germany. The resulting nested model did not suffer significant degrade of fit ($\Delta\chi^2(10) = 18.900$, $p = .042$). The latent correlations can thus be assumed to be equal (with the exception of the two correlations in Germany). The first conclusion was that the relationships between latent factors in the three countries were similar (with the only exception of two correlations in Germany).

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--- *Insert table 4 about here* ---

Finally, as shown in Table 5, *observed* and *latent means* (Germany was the reference group for latent means, thus means are set at zero) of the four constructs assessed were compared among the three countries. Regarding *perceived discrimination,* Mexico yielded significant higher scores than Germany and Spain in observed means, but latent mean differences showed that older Mexicans perceived higher discrimination than Germans (d = .729), and that Spaniards also differed slightly from Germans (d = .195). Regarding *Life Satisfaction,* Spain was the country where older adults reported the lowest latent (medium latent effect size; d = -.492) and observed means while Germany and Mexico did not significantly differ. *Subjective health* latent means were significantly lower in Mexico and Spain than in Germany (medium effect sizes). Thus, in Spain and Mexico, *subjective health* was perceived as significantly worse than in Germany, taking into consideration both observed and latent means. Finally, latent means of *Self-perception of aging* (this factor measures positive self-perception) were clearly lower in Mexico and Spain than in Germany.

--- *Insert table 5 about here* ---

Finally, with regard to the main objective of the study, whether and to what extent perceived discrimination affects active aging (a second-order factor composed of life satisfaction, subjective health and self-perception of first-order aging factors), the SEM analysis conducted shows a good fit of the model to the data ($\chi^2(99) = 515.52$, $p < .01$; RMSEA = .046 90%CI[.046 - .050]; CFI = .969 and TLI = .963). Standardized estimations of the model are shown in Figure 1. For greater clarity, residual variances are not shown in Figure 1. As can be seen in Figure 1, the *Perceived discrimination* factor is a negative predictor ($p < .001$, $R^2 = .15$) of the second-order factor *Active Aging*. These results are in line with the hypothesized results.

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--- Insert Figure 1 about here ---

Discussion

First of all, the CFA conducted revealed that our measurement model of four instruments fit well in the three countries conjointly (N = 2,005 observations), while active aging also fits as a second order factor accounting for life satisfaction, subjective health and self-perception of primary aging factors. Regarding our investigation into the role of perceived age discrimination in active aging, results are in agreement with our hypothesis showing metric and scalar factorial invariance among countries. As can be seen in Figure 1, the *Perceived* d*iscrimination* factor is a negative predictor ($p < .001$, $R^2 = .15$) of the second-order factor *Active Aging*. These results are in line with our main hypothesis and congruent with other extensive research findings, supporting the negative role of older adults' perceived discrimination (Nelson, 2005; Nussbaum et al., 2005) in active aging components. Also, cross-cultural factorial invariance is also in agreement with other published results regarding age stereotypes across countries as reported by Cuddy et al. (2005).

Taking into consideration other studies on the negative effects of perceived discrimination, our results are in agreement with research yielding negative influences on health and positive affect (above described in the Introduction) and reported in Pascoe and Richman's (2009) meta-analysis. Regarding self-perception of aging, it has been considered as a mediational variable in the relationship between perceived age discrimination and depressive symptoms in the study by Han and Richardson (2015). This was based on data from two waves (2008 and 2012) of the Health and Retirement Study, which tested longitudinal models using a nationally representative sample of 3921 participants who perceived everyday changes in discrimination and attributions of

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discrimination were significantly associated with changes in depressive mood over time. It was also found that self-perceptions of aging mediated the relationship between perceived age discrimination and depressive mood. In our study, the effect of perceived discrimination directly influences Self-perception of aging.

However, as is well known, cross-cultural factorial invariance does not mean construct score equivalence. Testing our theoretical model yielded significant differences in most of the assessed variables among the three cultural contexts, Mexico, Germany and Spain. At an observed level, older Mexican adults perceived significantly higher levels of *Perceived age discrimination* than Germans and Spaniards, but no significant differences were found between Germany and Spain. This latter finding is supported by the results from van den Heuvel and van Santvoort (2011), who, in comparing 28 European countries, did not find differences between Germany and Spain.

Regarding *Life satisfaction*, older Germans and Mexicans reported significantly higher Life Satisfaction than Spaniards, and this is in line with other results in the field of positive affect, such as those by Diener and Suh (2003), who reported higher life satisfaction in Mexico (7.40) and Germany (7.22) than in Spain (7.13); however, they are not in accordance with the World Value Survey (Inglehart, 1997) findings reporting higher positive affect in Spain (6.20) than in Germany (5.81). Even so, it should be borne in mind that data on positive affect (satisfaction, happiness, or well-being) across different countries are not comparable because different verbal labels with different semantic meaning in different countries are reported.

With respect to *subjective health*, Germans reported higher levels than Mexicans, who reported significantly better subjective health than Spaniards. This finding is in accordance with other results –both at population and individual levels– which found higher subjective health results in Mexico than in Spain but higher objective health

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results in Spain than in Mexico (Fernández-Ballesteros et al., 2012). However, other studies found that Spaniards reported better perceived health status than Mexicans, followed by Germans (OECD, 2011).

The results regarding **self-perception of aging** indicated that older Germans showed significantly better perceptions of aging than Mexicans and Spaniards, but that Spaniards showed better self-perceptions of aging than Mexicans, this last result being congruent with other studies comparing Mexico with Spain (Caprara et al., 2013; Santacreu, Bustillos, & Fernandez-Ballesteros, 2016).

Perhaps the most important results regarding self-perception of aging is that this construct loads active aging as a major component. It should be borne in mind that control is one of the most important variables, having been considered for many years as linked to healthy aging (e.g., Rodin, 1986); there are also recent results indicating how improve aging by improving control (e.g., Langer, 2009). Sense of control is present as a factor in several studies on successful and healthy aging (for a review, see Fernández-Ballesteros, 2008), and also in the four domains model of active aging already tested using data from lay conceptualizations of aging (Fernández-Ballesteros et al., 2013), and through Structure Equation Modeling with objective data from the longitudinal study of active aging ELEA (Fernández-Ballesteros, Molina, Schettini, & Santacreu, 2013). Moreover, in our ELEA study, "self-efficacy for aging" predicts most of the combined and simple definitions developed for testing active aging (Fernández-Ballesteros et al., 2010). Finally, perception of aging is one of the factors trained in promoting active aging (e.g., Caprara et al., 2013), and can also be considered as a positive effect of University Programmes for Older Adults developed in Cuba, Chile, Mexico and Spain (Fernández-Ballesteros et al., 2012). Therefore, it can be concluded

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that self-perception of ageing should be included among the outcome variables of active aging in the "Affect and Control" domain.

The importance of the fact that age discrimination exerts a strong influence on active aging must be taken into account by policy-makers. Any policy actions for promoting active aging should consider the potential threat and negative effects of cultural stereotypes, discrimination and perceived discrimination, and there should be much more research on age discrimination and ageism around the world, at least in those countries where active aging is a political issue; indeed, this has been recommended by the II International Plan of Action on Aging (United Nations, 2002) and the European Strategy (UNECE, 2003).

Our study has several limitations that should be considered in future research. First, the data comes from a cross-sectional study in which perceived discrimination is analysed, rather than discrimination itself. In other words, despite the fact that we obtain the same model in three countries, in order to test this finding properly data on discrimination in those countries and on the extent to which real discrimination is linked to perceived discrimination would be required so as to reveal what is behind the perceived discrimination. Thus, it would be necessary to know more about cultural stereotypes and age discrimination against older adults in the different cultures, and to observe their influence on perceived discrimination, active aging, and self-perception in aging patterns in those cultures.

Secondly, given that measures of active aging have been limited to subjective health assessed through self-report, it would be useful to repeat this type of analysis using a broader concept of healthy aging which also included objective domains such as intellectual functioning, physical fitness or functional abilities. In this sense, as pointed out by Pascoe and Richman (Pascoe & Richman, 2009), if the experience of

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discrimination is a powerful stressor, other variables, such as intellectual functioning, may be affected by that experience.

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Table1. Demographic characteristics of the three samples

State	*N*	M_{age}	SD_{age}	Male	Female
Germany	602	72.6	7.1	37%	63%
Mexico	785	71.0	8.6	44%	56%
Spain	618	71.8	8.0	47%	53%
Total	2,005	71.8	8.0	43%	57%

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Table 2. CFA solution for the four variables measured (N = 2,005)

Item	*Perceived Discrimination*	*Life Satisfaction*	*Subjective Health*	*Self-perceptions of aging*
Older people are excluded from many areas of public life	**.714**			
After finishing working life one is considered useless	**.843**			
The achievements of older people are not appreciated in our society	**.650**			
In most things, my life is close to my ideal		**.699**		
The conditions of my life are excellent		**.788**		
I am satisfied with my life		**.814**		
So far I have achieved things that are important to me in life		**.738**		
If I were born again I would change almost nothing in my life		**.497**		
Generally, how would you say your health is?			**.843**	
How is your health now compared to last year?			**.482**	
Compared with people your own age, how do you rate your health?			**.588**	
I have as much pep as I did last year				**.650**
As I get older, things are (worse, the same or better) than/as I thought they would be				**.558**
As you get older, you are less useful*				**.646**
I am as happy now as I was when I was younger				**.735**
Things keep getting worse as I get older*				**.710**

Note: Confirmatory factor analysis conducted by robust weighted least squares, significant standardized factor loading are in bold; *recoded in the same direction

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Table 3. Factorial invariance study

Models	χ^2	*Df*	$\Delta\chi^2$	Δdf	RMSEA (90% CI)	CFI	TLI
Germany (*N* = 602)	250.71	97			.051 [.044 - .059)	.945	.932
Spain (*N* = 618)	216.62	98			.044 [.036 - .052)	.974	.968
Mexico (*N* = 785)	373.67	97			.060 [.054 - .067)	.961	.951
Measurement invariance							
Configural invariance	1010.48	326			.056[.052 - .060]	.949	.944
Metric and scalar invariance	1106.75	350	110.10 (*p* < .001)	24	.057[.053 - .061]	.944	.942
Partial metric and scalar invariance	1008,80	346	25.42 (*p* = 186)	20	.054[.050 - .057]	.951	.949
Population heterogeneity							
Equal factor variances	1160.67	354	86.15 (*p* < .001)	8	.058[.055 - .062]	.940	.939
Latent means	2228.93	354	424.96 (*p* < .001)	8	.089[.086 - .093]	.861	.859

Note: Fit indices between the different nested models were implemented with Mplus 7.0. Estimator = WLSMV.

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Table 4. Correlations between latent factors in the three countries

	Perceived Discrimination	*Life Satisfaction*	*Subjective Health*
Germany			
Life Satisfaction	-.091		
Subjective Health	.066	-.373**	
Self-perception of Aging	-.262**	.523**	-.699**
Spain			
Life Satisfaction	-.324**		
Subjective Health	.254**	-.440**	
Self-perception of Aging	-.456**	.555**	-.597**
Mexico			
Life Satisfaction	-.319**		
Subjective Health	.244**	-.485**	
Self-perception of Aging	-.445**	.630**	-.809**

Note: ** $p < .01$

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Table 5. Latent and observed mean comparisons across the three countries

Latent means	*Perceived Discrimination*	*Life Satisfaction*	*Subjective Health*	*Self-perception of Aging*
Germany	.000	.000	.000	.000
Mexico	.729 ($p < .001$)	.011 (n.s)	-.514 ($p < .001$)	-.701 ($p < .001$)
Spain	.195 ($p = .011$)	-.492 ($p < .001$)	-.508 ($p < .001$)	-.634 ($p < .001$)
Observed means	*Perceived Discrimination*	*Life Satisfaction*	*Subjective Health*	*Self-perception of Aging*
Germany	6.40	14.92	7.08	8.40
Mexico*	8.03 (p < .001)	14.75 (n.s)	6.73 (p < .001)	7.43 (p < .001)
Spain*	6.68 (n.s)	13.51 (p < .001)	6.37 (p < .001)	7.44 (p < .001)

*Comparison are with respect Germany (Bonferroni control error type I was used)

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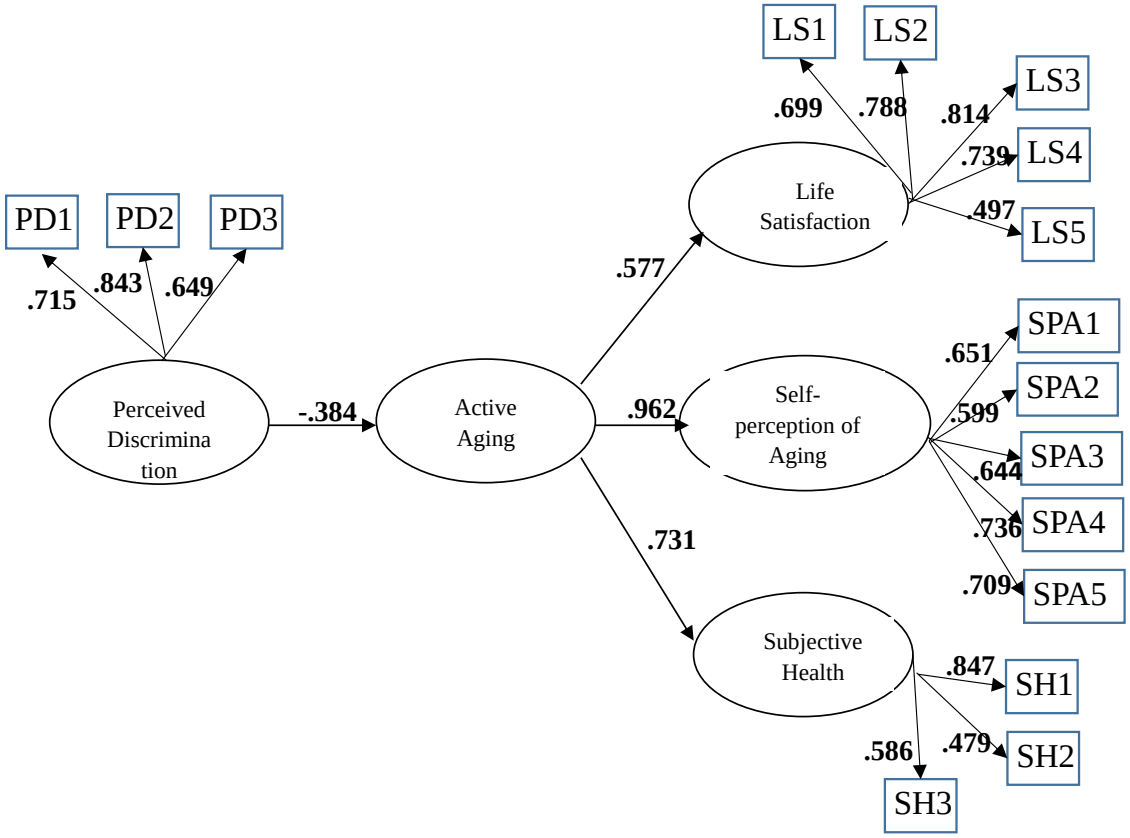
Figure 1: Standardized estimations for the total sample model