



How to Age More Positively? Analyzing Determinants that Shape Attitudes Towards Aging

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Abstract

A considerable amount of research has illustrated that negative attitudes toward one's own aging can directly hinder mental and physical well-being or lead to maladjustment in later stages of life (Swift et al. in *Social Issues Policy Rev* 11(1):195–231, <https://doi.org/10.1111/sipr.12031>, 2017). Research so far has focused on the analysis of individual factors related to attitudes toward aging, often related to personality traits. Our study proposes and tests a model of positive contact with aging (PCA). It analyses both individual and social antecedents of attitudes towards one's own aging, hypothesizing that individual health self-efficacy directly affects attitudes towards one's own aging and that the quality and quantity of contact with older adults indirectly impacts on attitudes towards one's own aging through attitudes towards older adults. The model was tested in a wide sample of the Italian population ($N=753$) with a varied age range. The PCA model tested showed excellent fit to the data, explaining a moderate amount of variance in attitudes toward one's own aging (12%). This model promises to offer implications for active policies that can improve attitudes towards one's own aging, promoting educational strategies to increase intergenerational exchanges and foster health-related self-efficacy.

Keywords Health-related self-efficacy · Attitude toward older adults · Attitudes toward one's aging

In one of his aphorisms, the famous Roman playwright Terenzio stated, “Senectus ipsa est Morbus” (Terenzio, *Phormio*, 160 B.C.) that is, “old age is in itself a disease”. Despite recent reports in the Global Health Estimates, by the World Health Organization (WHO), that indicate a significant increase in life expectancy globally—rising by 6 years over

the past two decades—the aging process is still seen as a challenging phase of human existence.

It would seem that the worries associated with aging are not exclusive to older adults. Younger individuals are also said to associate aging with problems and complications. Studies have shown that a negative attitude toward one's own aging modifies and influences behaviours throughout one's life. It is believed to discourage individuals from staying healthy and diminish their commitment to prevention (e.g., Hummert, 1990), which ultimately hinders the process of ‘Active Aging’—the maintenance of positive physical, social and mental health throughout the aging process (e.g., Korkmaz Aslan et al., 2017). The WHO calls for a global pledge to promote active aging, which they define as “the process of optimizing health, participation and safety opportunities in order to improve the quality of life while people get older” (WHO, 2002, p. 12). Hence, the scientific community has accepted the challenge of designing strategies for active and positive aging by undertaking studies on the prevention of negative attitudes—and relevant individual behaviors—that affect the aging processes (Korkmaz Aslan et al., 2017). Despite evidence showing the role of mindset in aging, literature

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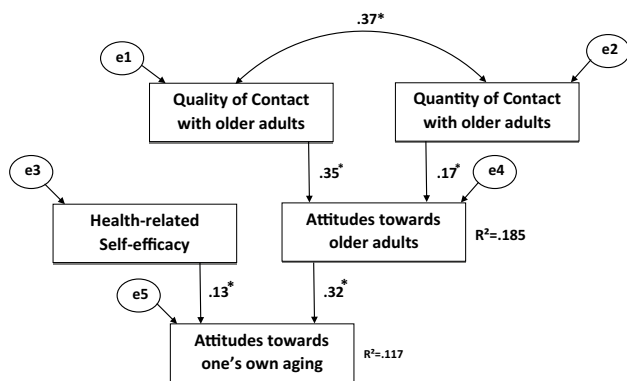


Fig. 1 Path coefficients and R^2 of the proposed model

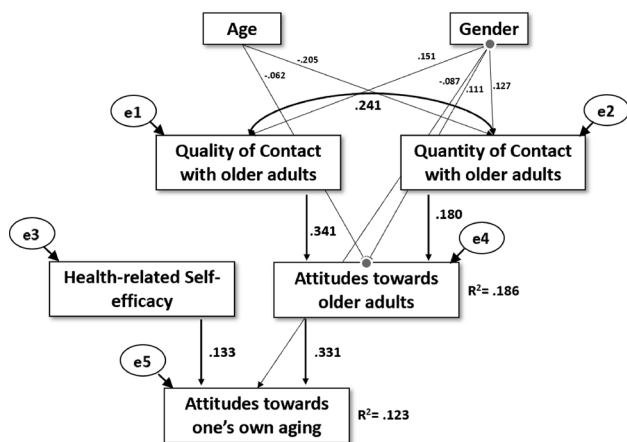


Fig. 2 Standardized coefficients and R^2 of the proposed model. Only significant path are depicted

thus far has mainly focused on investigating the effects of negative attitudes, often limiting its scope of research to analyzing individual factors (e.g., Bryant et al., 2016; Kornadt et al., 2019).

The present study aims to supplement this literature by testing a model of positive contact with aging (PCA), which analyses both individual and social antecedents of attitudes towards one's aging, hypothesizing that individual health self-efficacy directly affects attitudes towards one's own aging and that the quality and quantity of contact with older adults indirectly impacts on attitudes towards one's own aging through attitudes towards older adults. The role of sociodemographic variables (namely, gender and age) were also examined. Figures 1 and 2 depicts the model and the following paragraph will explain its theoretical basis. This model promises to offer implications for active policies that can improve attitudes towards aging, promoting educational strategies for a positive aging process.

Attitudes Toward One's Own Aging, Attitudes Toward Older Adults, and the Contact Hypothesis

Attitudes towards one's own aging describe individuals' expectations about the outcome and process of getting older (Wolff et al., 2018). Negative attitudes about one's aging reflect undesirable losses associated with that process. They may include loss of independence, deteriorating health, and loneliness (Bousfield & Hutchison, 2010); all playing an important role in one's own aging process (Levy, 2002). It has been speculated that this kind of perception influences outcomes through behavioural, physiological, and psychological processes which, in turn, may affect health outcomes too (Levy, 2009).

In recent years, a significant amount of literature has documented the association of negative attitudes toward one's own aging with various health outcomes, such as a broad range of physical health, including cardiovascular diseases, circulatory problems, back or joint conditions, diabetes, gastrointestinal diseases and respiratory diseases (Gale & Cooper, 2018; Levy, 2009; Wurm et al., 2007). They also affect cognitive functioning (Schönstein et al., 2021), depression and anxiety (Lai, 2009; Wurm & Benyamini, 2014), and mortality rate (Kotter-Grühn et al., 2009; Sargent-Cox et al., 2014).

The 'Risks of Ageism Model' (RAM, Swift et al., 2017) suggested that a possible theoretical explanation of how negative attitudes toward aging affects the aging process is the result of stereotype processes. It is proposed that representations about aging are implicitly internalized throughout life (Levy, 2009; Swift et al., 2017). Thus, over time, stereotypically shared beliefs about old age can become detrimental to the individuals who embrace them and can ultimately lead to poorer physical and social health (Levy, 2003; Nussbaum et al., 2005; Robertson et al., 2015; Wurm et al., 2013).

Evidence suggested that people who expect worse outcomes from aging hold stereotypes about older adults (Levy, 2009). Thus, attitudes toward older adults can be one of the main predictors of negative attitudes toward one's own aging. Negative attitudes toward older adults is a serious international concern. According to Swift et al. (2017), there can be economic and sociological explanations that have caused society to evolve in ageist ways. For example, capitalist societies may have contributed to the marginalization of older people by considering them as economically unproductive (Cowgill, 1974; Macnicol, 2006). Intergroup threat theory consistently suggests that older people are perceived as a burden on health care and welfare resources (Stephan & Stephan, 2000). Alternatively, the terror management theory suggests that age prejudices arise out of a fear of our own mortality (Chonody & Teater, 2016; Greenberg et al., 2002).

Notwithstanding the complexity of negative prejudices about older people, it has been shown that one successful strategy to reduce negative attitudes toward older adults is through intergenerational contact (Hagestad & Uhlenberg, 2005; Kotter-Grühn, 2015). This strategy is based on the ‘contact hypothesis’ which posits that contact between groups reduces prejudice by decreasing anxiety, while increasing empathy and knowledge about the other group (Allport, 1954). Contact between various age groups can be extended to everyday intergenerational contact within families, at the workplace, and in health and social service settings. A significant number of empirical studies highlight that ‘quality’ intergenerational interactions aid the formation of positive attitudes towards older adults (Gaggioli et al., 2014; Harwood et al., 2005; McKeown et al., 2006; Pinquart & Forstmeier, 2012; Roodin et al., 2013; Adorni et al., 2022).

Based on the literature mentioned above, the model of Positive Contact with Aging (PCA) that we propose in the current study suggests that negative attitudes toward one’s own aging are a direct consequence of negative attitudes toward older people, which in turn are derived from the (lack of) quality and quantity of contact with older adults (Fig. 1). Several studies have already reported that positive contact with older adults is associated with reduced negative attitudes toward older people (Drury et al., 2017; Hawkey et al., 2019). In addition, the ‘Positive Education on Aging and Contact Experience’ (PEACE; Levy, 2018) model presented the argument that the quality and quantity of positive contact with adults improve attitudes towards older people and attitudes toward one’s own aging (Levy, 2018). Nevertheless, to our knowledge, our proposed mediational hypothesis has never been tested. In analyzing this hypothesis, we will also take into consideration another individual factor: the perception of control people has over their own health, defined as health-related self-efficacy.

Health-Related Self-efficacy

Self-referential processes operate by enabling individuals to function as agents of self-regulation, allowing control over personal experiences. Among the most influential self-referential mechanisms of personal agency, the perception of self-efficacy is certainly the most influential motivational engine in enabling people to achieve desired outcomes by reinforcing the belief that they are producing positive effects with their actions (see Bandura, 1997, 2001; Caprara et al., 2006).

It turns out that perceived self-efficacy plays a key role not only in directly influencing actions and self-regulatory processes, but also (and especially) through its positive impact on cognitive, motivational, decision-making and

affective determinants (e.g., Lunenburg, 2011; Opoku et al., 2022). It is therefore conceivable that, just as self-efficacy is known to have a positive impact in domains related to learning, work, well-being, and health (for a review, see Bandura, 1997, 2001), then it may also have a positive impact on the attitudes and evaluations people have toward aging.

Individual views on aging are closely connected with control beliefs (Heckhausen & Baltes, 1991). Health-related self-efficacy refers to beliefs about one’s ability to take appropriate action to produce positive health outcomes (Sheeran et al., 2016). Empirical evidence has often shown that self-efficacy is one of the most significant predictors of behavioural intentions and health behaviours (DiClemente et al., 1995). People of different health states, ages and ethnic groups decide whether to adopt healthy behaviours by exercising their self-efficacy evaluations (Måsse & Anderson, 2003; Resnick et al., 2004; Sohng et al., 2002).

Indeed, as several studies have shown, the perception—positive or negative—of one’s own efficacy impacts variables related to health, success and relationships. For example, the lack of a positive perception of self-efficacy in the major domains of their lives, and thus a sense of ineffectiveness, leads young adults to be more vulnerable to stress (Flammer, 1995; Schneewind, 1995). Just as there is evidence that a sense of self-efficacy also positively impacts the quality of communication with parents and family members (Caprara et al., 2005).

However, self-efficacy theory does not specifically address the impact of self-efficacy on attitudes. Nonetheless, research findings show a positive impact of self-efficacy on attitudes in different areas (Laganà, 2008; Valencia-Vallejo et al., 2016).

Longitudinal data have, for example, shown that adolescents’ perceptions of self-efficacy across multiple domains of life exert a positive influence on positive thinking, particularly the positive view they have of themselves and their lives, as well as their positive expectations about their futures (Caprara et al., 2011). As far as the aging process is concerned, Brandtstädter (1992) suggested that self-efficacy beliefs are regarded as having vital importance in maintaining an optimistic perspective on personal development in middle and later adulthood (see also Rejeski et al., 2001). This leads us to hypothesize that perceived self-efficacy may also improve not only individual health self-efficacy by improving preventive behaviours and attention to one’s own physical health, but also by improving attitudes toward one’s own and others’ perceptions of aging. If an individual has a positive perception of his or her own health-related efficacy and positive contact with adults increases positive attitudes toward older adults, then these two variables together will greatly improve attitudes toward one’s own aging. That said, the direct impact of health-related self-efficacy and attitudes toward one’s own aging has never been empirically tested.

When analyzing individual factors that affect attitudes toward one's own aging, the available literature has mainly focused on personality factors and emotions (Vize et al., 2022; Wahyuni & Krisnatuti, 2022). Through the PCA model, we analysed health-related self-efficacy beliefs for the first time, which might be regarded as a more effective tool for identifying the true barriers to positive aging and hence designing strategies to promote it.

The role of the sociodemographic variables (namely, gender and age) will be also examined. As for the association between these variables and attitudes toward one's own aging, previous studies have reported that the attitudes toward one's own aging become more negative with increasing age (Bryant et al., 2016; Cummings et al., 2000; Schelling & Martin, 2008) and that women report greater anxiety related to their own aging process than men (Barrett & von Rohr, 2008; Cummings et al., 2000). In relation to attitudes toward older people, a systematic review on this topic (Marques et al., 2020) attests that the age and gender of respondents are the two individual-level determinants most commonly explored, though the majority of studies did not find a consistent age or gender effect. In testing our model, we controlled the age and gender of the participants to explore their effect on the variable of the model tested and to see if the effects on the hypothesized model could vary in function of these variables (see Fig. 2).

The Current Study

The purpose of this study is to test the PCA model, which specifically states that positive attitudes toward aging and a positive perception of health-related self-efficacy directly predicts a positive attitude toward one's own aging. This, indirectly, is determined by the quality and quantity of contact one has with older adults, which, in turn, enhances attitudes toward one's own aging.

In other words, attitudes toward one's own aging are predicted directly by attitudes toward older adults and health-related self-efficacy and indirectly by the quality and quantity of contact with older people. Contact, through its quality and quantity, improves attitudes toward older people, and these positive attitudes, together with perceived health-related self-efficacy, improve attitudes toward one's own aging (Fig. 1).

Socially shared beliefs that aging produces exclusively negative physical and psychosocial consequences can be changed by being in contact with older adults. It thus allows people to get in touch with the positive characteristics of older adults, generalizing it to attitudes toward older people in general and, in particular, improving attitudes toward their own aging. The same positive effect is produced by

perceived self-efficacy, which is itself a predictor of good attitudes toward one's own aging.

Materials and Methods

Participants

The data were collected via an anonymous online survey using a snowball sampling method between March and November 2020. The volunteers were recruited among the researchers' pool of acquaintances, word of mouth, and online social networks. Eligible participants were between 18 and 65 years old and were all native Italian speakers. 753 participants took part in the online survey, 32% males and 68% females, with a mean age of 34.39 (SD = 13.33, range 18–64). The majority of respondents were educated to high school diploma level (45%) and lived in the north-west of Italy (52%). A detailed description of the sociodemographic characteristics of the sample is reported in Table 1.

The sample size adequacy was established by using Power Analysis (Cohen, 1988) and G*Power Version 3.1.9.7 (Faul et al., 2007). We calculated the sample size requested to perform ANCOVA with the following parameters—Effect size $f = 0.25$, $\alpha = 0.05$, Power = 0.95. The first parameter indicates a medium effect size (Cohen, 1988). The following two parameters reflect the most widely used significance criterion and the generally accepted power level, respectively (Cohen, 1988). The sample comprised 386

Table 1 Sociodemographic characteristics of the sample (n = 753)

Sociodemographic variables	
Age	
Mean (SD)	34.39 (13.33)
Range	18–64
Skewness (SE)	0.73 (0.09)
Kurtosis (SE)	– 0.99 (0.18)
Gender, n (%)	
Female	513 (68%)
Male	239 (32%)
Education, n (%)	
Middle school	26 (4%)
High school	336 (45%)
Bachelor's degree	164 (22%)
Master's degree	151 (20%)
First professional advanced degrees or doctor's degree	63 (9%)
Geographical area, n (%)	
North-east	85 (11%)
North-west	387 (52%)
Center	98 (13%)
South and Islands	177 (24%)

individuals. Based on these considerations, the sample size of the study was adequate to determine medium-size effects. The study received the approval of the Ethical Committee of the Università Cattolica del Sacro Cuore of Milan, and all methods were performed following the relevant guidelines and regulations.

Procedure and Measures

The online survey was created and administered using the Qualtrics Platform. The first page of the online survey detailed the objective of the study and asked participants to provide their informed consent digitally, declaring to have read and accepted the confidentiality regulation. Participation was anonymous and participants could stop the research at any time without any consequences. The first part of the questionnaire collected information about socio-demographic indicators. After that, the participants responded to a series of scales described below.

Quantity of contact with older adults was measured through two items adapted from the Italian scale of Voci and Hewstone (2003), which focused on the frequency of contact with older adults in general and during a single day (“How many opportunities for contact do you have with people over 70? On a typical day, how often do you deal with people over 70?”). The scale ranged from 1 (*rarely*) to 5 (*very often*). A mean score between the two items was calculated (Pearson $r=0.63$; $p<0.001$), with a higher score reflecting higher frequency of contact.

Quality of contact with older adults was assessed using a semantic differential scale based on a validated Italian scale (Maggino & Mola, 2007). Participants were asked to rate their relationship with people over 70 they were in contact with using four pairs of opposite adjectives. The scale ranged from 1 (e.g., *Cold*) to 7 (e.g., *Warm*). The items were ‘Cold-Warm’, ‘Indifferent-Engaging’, and ‘Unfriendly-Friendly’, ‘Formal-Informal’. A mean score between the four items was calculated, with a higher score reflecting the depth of contact. In line with Cronbach’s recommendations (Cronbach, 1951), the scale showed an adequate internal consistency (Cronbach’s $\alpha=0.86$).

Health-related self-efficacy was assessed using a 9-item scale adapted from a validated Italian scale created by one of the authors of the present study (Steca et al., 2015). The items of the original scale were about self-efficacy referring to a specific medical condition. The reference to that disease was removed from the items used for the present study. Participants were asked to indicate how inclined they were to engage in a range of health-related behaviours. An example item is, “I feel capable of understanding when it is appropriate to seek medical attention for a physical condition.” The scale ranged from 1 (*not at all capable*) to 5 (*completely capable*). The final score was the mean

score across the 9 items. A higher score reflected greater health-related self-efficacy. Because we used an adapted version of this scale, we performed Confirmatory Factor Analysis (CFA) to test the validity of the scale. The results indicated that the one-factor solution fit the data adequately (Chi-squared = 131.61, $df=24$, $p<0.001$; CFI = 0.956; SRMR = 0.038; RMSEA = 0.077, 90% CI [0.07, 0.09]). The scale showed an adequate internal consistency (Cronbach’s $\alpha=0.85$).

Attitudes towards older people and attitudes towards one’s own aging were measured using a brief version of the Anxiety about Aging Scale (AAS, Lasher & Faulkender, 1993). Participants were asked to indicate their agreement through a set of statements. The scale of attitudes toward older people was made up of three items (e.g., “I feel very comfortable when I am close to an older adult”); the scale of attitudes toward one’s own aging was made up of seven items (e.g., “It does not bother me at all to imagine myself as an older adult”). The scale ranged from 1 (*strongly disagree*) to 5 (*strongly agree*). The final score of each scale was represented by the mean score between items. A higher score reflected a more positive attitude towards older people and attitudes toward one’s own aging, respectively. The original items were translated from English to Italian. First, one of the authors carried out an independent forward translation. Secondly, the authors of the study organized a focus group to discuss the results of the translation and produce the final version of the scale. As we used a brief Italian version of this scale, not previously validated in the Italian context, we performed Confirmatory Factor Analysis (CFA) to test its validity. The results indicated that the two-factor solution fit the data adequately (Chi-squared = 117.79, $df=32$, $p<0.001$; CFI = 0.968; SRMR = 0.037; RMSEA = 0.060, 90% CI [0.05, 0.07]). The two scales (attitudes towards older adults and attitudes toward one’s own aging) showed good internal consistency (Cronbach’s $\alpha=0.89$ and 0.78 respectively).

Data analysis

The items of the scales created ad hoc for the present study underwent a preliminary analysis to check the normal distribution by calculating mean, standard deviation (SD), and indices of skewness and kurtosis through SPSS. Following Barbaranelli (2007), we considered skewness $>|1|$ and kurtosis $>|1|$ as indicative of asymmetrical distribution. Confirmatory Factor Analysis (CFA) was performed through SPSS (AMOS module) to test the validity of the scales created ad hoc or adapted for the present study. Hu and Bentler’s guidelines (1999) were used to determine if the expected model was plausible based on the data. Parameter estimates were computed using a maximum likelihood estimation method, while an optimal model fit was evaluated using the following criteria: a comparative fit index (CFI) of 0.95 or

more, a standardized root mean squared residual (SRMR) of 0.05 or less, and a root mean square error of approximation (RMSEA) of 0.05 or less. Cronbach's α was calculated through SPSS to examine internal consistency. Cronbach's α higher than 0.60 was considered acceptable (Nunnally & Bernstein, 1994). Before running the analyses, data were screened through SPSS for the presence of multivariate outliers and tested for univariate normality, examining box plots, skewness and kurtosis values, and the Mahalanobis distance (Tabachnick & Fidell, 2007).

We tested our hypothesis on the predictive effect of the sociodemographic (gender, age) and psychological variables (quantity and quality of contact with older adults, health-related self-efficacy, and attitude toward older people) on attitudes towards one's own aging, through a path model, by means of Jamovi (Version 2.2.5, The Jamovi project, 2021, retrieved from <https://www.jamovi.org>). Parameter estimates

were computed using the method mentioned above. The non-parametric bootstrapping method (based on 5000 replications) was used to calculate standard error and confidence intervals of indirect effects (Cheung & Lau, 2008). The size of the standardized regression weights was evaluated according to guidelines ($\geq .10$, small; $\geq .30$ medium; $\geq .50$ large; Cohen, 1988). All statistical tests were two-tailed, and a $p \leq .05$ was considered statistically significant.

Results

Descriptive statistics for all variables of interest are reported in Table 2. Zero-order correlations among all variables of the path analysis are reported in Table 3. All variables were

Table 2 Descriptive statistics of the scales used in the study

	Quantity C	Quality C	HR self-efficacy	At. older adults	At. ageing
N	751	747	751	751	751
Mean	2.53	5.58	3.68	3.46	3.32
SD	1.15	1.24	0.61	0.87	0.72
Skewness	0.44	- 1.07	- 0.03	- 0.19	- 0.25
SE	0.09	0.09	0.09	0.09	0.09
Kurtosis	- 0.75	1.27	0.13	- 0.26	0.06
SE	0.18	0.18	0.18	0.18	0.18

Quantity C quantity of contact with older adults, *Quality C* quality of contact with older adults, *At. Older Adults* attitudes towards older adults, *At. Ageing* attitudes towards one's own ageing

Table 3 Bivariate correlations for all variables of the Path Analysis on Attitudes towards One's Own Aging

	Age	Gender	Quantity C	Quality C	HR Self-efficacy	At. Older Adults	At. Aging
Age	Pearson's r	-					
	p value	-					
Gender	Pearson's r	- 0.045					
	p value	< .001					
Quantity C	Pearson's r	0.188***	0.098	-			
	p value	< .001	0.007	-			
Quality C	Pearson's r	0.044	0.142***	0.273***	-		
	p value	0.230	< .001	< .001	-		
HR self-efficacy	Pearson's r	- 0.038	0.074*	0.075*	0.101**	-	
	p value	0.300	0.043	0.040	0.006	-	
At. older adults	Pearson's r	- 0.058	0.190***	0.267***	0.405***	0.053	-
	p value	0.116	< .001	< .001	< .001	0.148	-
At. aging	Pearson's r	- 0.042	- 0.010	0.078*	0.100**	0.143***	0.326***
	p value	0.256	0.788	0.033	0.006	< .001	< .001

Gender is coded as 1 = male, 2 = female

Quantity C quantity of contact with older adults, *Quality C* quality of contact with older adults; *HR Self-efficacy* health-related Self-efficacy, *At. Older Adults* attitudes towards older adults, *At. Aging* attitudes towards one's own aging

* $p < .05$, ** $p < .01$, *** $p < .001$

normally distributed. We found 2 multivariate outliers, which were subsequently removed from the dataset.

We then tested our proposed model (see Fig. 1) through path analysis. In the tested model we also modelled covariance between quantity and quality of contact with older adults ($r = 0.37, p < 0.001$). No other covariances were estimated. The model showed an optimal fit to the data ($X^2 = 10.199, df = 5, p = 0.070; RMSEA = 0.037, 90\% CI [0.00, 0.07]; CFI = 0.983; SRMR = 0.035$).

Regarding the direct effects, we found that the quality and quantity of contact with older adults were significantly associated with attitude toward older people. Moreover, attitude toward older adults and attitude toward one’s own aging were significantly associated. Finally, health-related self-efficacy was significantly associated with attitudes toward one’s own aging—greater self-efficacy corresponded to a more positive attitude towards one’s own aging. Regarding the indirect effects, we found that quality and quantity of contact with older people were associated with attitudes toward one’s own aging through a mediating effect of attitude toward older people.

To assess for the effects of age and gender, we tested a further model where age and gender were related to all the variables in the model. The results found in the basic model did not change when adding age and gender to it. Table 4 report unstandardized regression weight, standard errors and standardized regression weights for the direct and indirect paths, respectively. Figure 2 shows the path coefficients and R^2 of the model.

Regarding the role of age, we found that the older the age of the respondents, the greater the quantity of contact ($\beta = 0.205; p < 0.001$). We also found a significant path ($\beta = -0.091; p = 0.007$) between age and a negative attitude towards older adults.

Regarding the role of gender (1 = male and 2 = women), we found that women had a greater quantity and quality of contact with older adults than men ($\beta = -0.128; p < 0.001$ and $\beta = -0.150; p < 0.001$, respectively); they also showed a more positive attitude towards older adults than men ($\beta = -0.113; p < 0.001$), and a more negative attitude ($\beta = -0.113; p < 0.001$) towards their own aging than men ($\beta = -0.087; p = 0.014$).

Table 4 Standardized regression weights for the path analysis on attitudes towards one’s own aging

Direct effects						
Dependent variable	Predictor	Estimate	S.E	Standardized Estimate	t value	p value
Quantity C	Age	0.018	0.003	0.205	5.737	<0.001
Quality C	Age	0.006	0.003	0.062	1.718	0.086
Quantity C	Gender	0.317	0.088	0.127	3.585	<0.001
Quality C	Gender	0.400	0.096	0.151	4.169	<0.001
At. Older Adults	Quality C	0.240	0.024	0.341	10.019	<0.001
At. Older Adults	Quantity C	0.135	0.026	0.180	5.195	<0.001
At. Older Adults	Age	-0.006	0.002	-0.090	-2.710	0.007
HR Self-efficacy	Age	-0.001	0.002	-0.026	-0.703	0.482
At. Older Adults	Gender	0.208	0.062	0.111	3.353	<0.001
HR Self-efficacy	Gender	0.093	0.048	0.071	1.931	0.053
At. Aging	At. Older Adults	0.274	0.029	0.331	9.504	<0.001
At. Aging	HR Self-efficacy	0.156	0.040	0.133	3.882	<0.001
At. Aging	Age	-0.002	0.002	-0.028	-0.827	0.408
At. Aging	Gender	-0.134	0.054	-0.087	-2.485	0.013
Indirect effects						
Dependent variable	Predictor ⇒ mediator	Estimate	S.E.	Standardized estimate	t value	p value
At. aging	Quantity C ⇒ At. Older Adults	0.037	0.008	0.059	4.650	<.001
At. aging	Quality C ⇒ At. Older Adults	0.066	0.009	0.113	6.940	<.001

Quantity C quantity of contact with older adults, *Quality C* quality of contact with older adults, *HR Self-efficacy* health-related Self-efficacy, *At. Older Adults* attitudes towards older adults, *At. Aging* attitudes towards one’s own Aging

Discussion

A considerable amount of research has illustrated that negative attitudes toward one's aging can directly hinder mental and physical well-being or lead to maladjustment in later stages of life (Swift et al., 2017). With the aim of analyzing how to help people to grow old positively, we focus our attention on attitudes toward one's own aging. Research so far has focused on the analysis of individual factors, often related to personality traits. Our study has analysed aspects both at the individual level (such as health-related self-efficacy and attitude toward older adults) and at the social level (the quantity and quality of contact with older people) that could be changed and therefore promoted by socio-political interventions. The model was tested in a wide sample of the Italian population with a varied age range.

The PCA model tested showed an excellent fit to the data, explaining a moderate amount of attitudes toward one's own aging (12%). Hence, based on the results obtained to prevent the formation of negative attitudes toward one's own aging, it is necessary, first and foremost, to foster contact with the people who are going through that change: older people. Exposure and contact with older adults may contribute to diluting some prejudices which are seen as obstructing one's own positive aging process.

Typically, the most common stereotypes about older people refer to a decrease in both physical and cognitive competence (Fiske et al., 2002; Lamont et al., 2015). Other commonly shared perceptions are that older people are fragile, overly dependent on their family, asexual, and socially isolated as well as lacking creativity and unable to learn new skills (Hummer et al., 1994; Swift et al., 2013). Furthermore, it appears that people tend to overestimate the effects of aging on memory, the likelihood and incidence of Alzheimer's disease, and the rates of poverty and depression among older adults (Cherry et al., 2014; Palmore, 1990). Through positive contact with older people, some of these stereotypes are challenged and may result in a deeper level of understanding of the complexity of the aging process which, in turn, can equip individuals with the psychological tools to anticipate a healthier older age, and thus develop less negative attitudes towards their own aging. In dealing with older adults, younger people can foster the notion that aging is a process that can cross people's lives unevenly and lead to different outcomes; developing a better awareness of one's ability to cope with old age and its relevant challenges. In other words, achieving a higher degree of health-efficacy would become particularly important at that point. It is necessary to specify that the model presented can be conceived as circular, rather than directional, because a better attitude toward one's own aging may improve the attitude toward older people and vice versa.

Finally, consistent with the findings in other studies (e.g., Faudzi et al., 2020), negative attitudes toward one's own aging are significantly related to gender in that women report more negative attitudes toward their ageing. We also found significant gender and age differences about attitudes toward older people—women and older participants show more positive attitudes toward older people (Hawkins, 1996; Rupp et al., 2005). Moreover, age and gender were also significantly associated with the quantity of contact with older people. It appears that young people and men seem to have lower chances of being in contact with older adults and are at particular risk of holding negative attitudes toward them.

Therefore, the issue requires a twofold approach. Firstly, increasing intergenerational exchanges is vital especially for young people, as it has been shown in a systematic review (Burnes et al., 2019). In particular the family context seems to play a pivotal role. To that end, studies have shown that close and intimate contact with grandparents results in a greater ability to take on his or her point of view, developing feelings of empathy for that person and, consequently, a greater understanding and more positive affection toward older people (Harwood et al., 2005). This is consistent with research showing that an out-group member (and, in turn, his or her out-group) can be included in an extended notion of the self (Aron et al., 2001). In addition, other studies have shown that individuals that have nurtured strong relationships with their grandparents hold more conspicuous political support for policies that are geared toward the enhancement of life of older adults (Silverstein & Parrott, 1997). As far as gender, it is well known that it is women who take care of the older adults in the family and thus have more contact with the older generation (Pinquart & Sorensen, 2003). This may explain why women are less victims of ageism than men. A more equal distribution of care burdens in the family in relation to the needs of the older adults could therefore also lead to a better attitude towards the older adults on the part of men.

Outside the family context, programmes designed around longer-term, more sustained contact with older people at work and other social contexts have resulted in more positive perceptions of older adults (Hernandez & Gonzalez, 2008). Thus, the research suggests that policymakers should investigate the potential for developing close intergenerational relationships over time. By facilitating an information-sharing process that aims at developing empathy and a shared desire to live in a mixed society in which 'old age' is seen as a resource, we can generate positive interactions and successfully challenge the stereotypes brought about by negative attitudes toward older adults (Harwood et al., 2005; Soliz & Harwood, 2006; Tam et al., 2006).

At the same time, it is necessary to foster a perception of health-related self-efficacy. Bandura (1977) presented four sources of self-efficacy: performance

accomplishments, vicarious experience, verbal persuasion and physiological states. The former two have been used successfully in trial intervention as a way of fostering self-efficacy related to health behaviours (e.g., Bouwman et al., 2020; Parent & Fortin, 2000). Performance accomplishments, or mastery, refer to instances in which individuals have successfully applied positive behaviour which, consequently, boosted self-efficacy. Vicarious experiences, or modeling, are those in which an individual witnesses others successfully perform the desired behaviour. Seeing people perform the behaviour and succeed confirms to others that they all have the potential to perform that desired behaviour and provides vital information about how success can be achieved. According to meta-analyses studies, the types of intervention related to performance accomplishments and vicarious experience, particularly effective in health-related contexts, are those that use self-monitoring techniques: reinforcement and positive feedback, modeling and/or informing an individual how to act (Prestwich et al., 2014; Williams & French 2011).

Finally, we have to acknowledge that some meso-level aspects must be kept in mind when developing health self-efficacy and positive contact between generations. Institutional support for intergenerational exchange in all areas of social life should be fostered and promoted at institutional level. Conversely, there are many economic and care-related factors that can weigh on the formation of health-related self-efficacy. Being able to rely on an efficient local health care system that can respond to citizens' health problems in a timely manner is certainly a necessary and indispensable factor.

Lastly, some limitations of the present study must be mentioned. As we explored psychological indicators and attitudes in a sample of adults aged 19 to 65 enrolled through a snowball sampling method, our convenience sample was not representative of the general Italian population. Also, our results are specific to the Italian cultural context. Considering that cultural differences play an important role in attitude formation, it would be desirable to replicate this study to test the validity of our model in other cultural settings. Indeed, some recent research has indicated that population aging and socioeconomic development may play an important role in aging attitudes and that the effects may differ among individual cultures based on specific beliefs about aging (Lockenhoff et al., 2015). In particular, historical and ecological determinants in many Eastern cultures result in a higher likelihood of building stable relationships with people outside one's "group" (Voronov & Singer, 2002) and that values such as filial piety and respect for older people are more commonly practiced in Eastern cultures (Lin & Bryant, 2009). One last consideration is the cross-sectional design, which makes it difficult to establish accurately the causal relationship between variables. Similar studies adopting a

longitudinal and experimental approach may address this limitation.

However, notwithstanding its weaknesses, the PCA model provides a highly applicable method for reducing negative attitudes toward one's own aging which would not only improve the life of older adults, but also promote an active aging process among all adults.

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Data Availability Data is available upon request to the first author.

Declarations

Conflict of interest The author(s) declared no potential conflicts of interest concerning the research, authorship, and/or publication of this article.

Informed Consent All study participants provided informed consent prior to participation in the study.

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