



# Perceptions of Aging and their Impact on Older Adults' Health Outcomes

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### Abstract

**Background:** Research suggests older adults' aging self-perceptions and others' stereotypes influence aging significantly. However, the association of self-perceptions and stereotypes with health outcomes remains unclear.

**Purpose:** The authors' primary purpose is to provide a review and commentary describing perceptions of aging and their associations with health outcomes and other determinants of health. In doing so, the authors will consider potential interventions to improve perceptions of the aging process.

**Methods:** To streamline the focus of this paper and determine relevant work in this area, the authors conducted a targeted review of literature to describe various aging perspectives. A search of online databases identified relevant publications. Search terms were tailored to select results for inclusion.

**Results:** Older adults' aging self-perceptions and others' stereotypes have not been reported extensively. No consensus exists to define these constructs, although selected measurement scales are available. Thus assessing self-perceptions, stereotypes, and their impact is challenging. Research suggests seniors place as much importance on psychosocial aspects of aging as on disease/disability, although various factors impact their views and outcomes. Generally, purpose in life, social involvement, perceived control, and resilience appear beneficial. However, interventions to enhance positive perspectives or minimize negative stereotyping are limited. Instead, initiatives tend to focus simply on assessing individuals' viewpoints or describing the outcomes of negative stereotypes, but without proven solutions.

**Conclusions:** While current research highlights the associations of aging self-perceptions and stereotypes with older adults' health outcomes and quality of life, many questions remain. Limited studies examine these views and their impacts with the purpose of developing initiatives to support positive attitudes, leaving a research gap. Future research and interventions should emphasize improved perspectives of aging, perhaps through productive engagement and community involvement (purpose), social participation (improved connections), resilience, and healthy lifestyle behaviors as potential approaches.

### Keywords

Aging self-perceptions; Aging stereotypes; Older adults; Perceptions of aging; Successful aging

**Abbreviations:** ADL: Activities of Daily Living; APQ: Aging Perceptions Questionnaire; AAQ: Attitudes to Ageing Questionnaire; ELSA: English Longitudinal Study of Ageing; IAS: Image of Aging Scale; MeSH: Medical Subject Headings

### Introduction

With rapid growth of the older population predicted to continue through 2050 and beyond [1-3], promoting positive attitudes and minimizing negative stereotypes about older adults to support successful aging and aging experiences is gaining attention and importance. Researchers, healthcare providers, caregivers/families, and older individuals have begun to recognize the impact of both positive and negative perspectives including both self-perceptions and outside stereotypes of older people, the aging process, and aging satisfaction. A various collection of factors influence these perspectives and the resulting likelihood of older individuals to age successfully with positive experiences and optimal health outcomes. Importantly, older adults' self-perceptions have shown effects on many psychosocial aspects of aging including satisfaction with life and their feelings of aging successfully, as well as physical health outcomes including overall health status, disease presence, and mobility limitations [4-7]. Overall these factors, whether psychosocial or physical, can influence the aging process and how older adults feel about that process in various significant ways. Furthermore, others' negative stereotypes about aging and common beliefs about the older population also have a considerable impact on older adults' expectations of both mental and functional capabilities as well as quality of life and successful aging.

Published research studies have described commonly held views of aging, aging stereotypes, definitions of successful aging, and similar concepts, with many of these terms and constructs overlapping and used interchangeably [8,9]. However, extensive research is very limited specifically defining these constructs and perspectives along with their impacts and possible solutions. Furthermore, clearly defining aging self-perceptions, stereotypes, and successful aging is subjective, without a consensus among researchers to describe these terms [8,9]. Thus it is challenging to standardize measures for assessment of these views, especially with very different criteria used to define them and the broad diversity of meanings applied in research [9]. For research purposes, a few general measurement tools are available to evaluate older adults' perspectives on aging. For example, the Aging Perceptions Questionnaire is a multidimensional tool to assess aging self-perceptions; the English Longitudinal Study of Ageing (ELSA) 12-Item Scale measures older adults' aging experiences [4,8,10].

Meanwhile, despite existing research, interventions to support positive attitudes and stereotypes toward aging and older adults are lacking. Specifically, evidence of successful attempts in targeted interventions has been inconsistent or limited by small sample sizes and generalizability, along with difficulty defining and measuring these constructs. Regarding successful aging initiatives, most related interventions among the results of this search don't truly address the ability to age successfully through increasing positive views. Instead, initiatives found in this area appear to focus on improving recruitment of older individuals for research studies and promoting independence among them-rather than developing and/or increasing positive perspectives of aging. Thus opportunities exist to develop interventions and/or educational initiatives to support positive views of aging.

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In this literature review, no published comprehensive reviews were found to specifically address the differing constructs of aging perspectives and stereotypes with the primary objective of suggesting viable approaches to enhance positive views of aging among older adults. Thus this review and commentary contributes to the existing research with a narrower scope in describing self-perceptions and aging stereotypes as distinct, as well as their impacts and potential options to promote positive perspectives of aging.

### Statement of Purpose

Our primary purpose is to provide a targeted literature review and commentary describing various positive and negative perspectives of aging and the associations between aging self-perceptions, stereotypes, and both positive and negative impacts on the aging process including health outcomes, determinants of health, and quality of life. In doing so, we will consider potentially feasible intervention approaches to support positive perspectives and/or reduce negative stereotypes about aging in order to improve the lives of older populations.

### Methods

To narrow the scope and fit the purpose of this review, a targeted literature search was conducted rather than a broader systematic review of all related topics. To begin, several common databases were considered, including PubMed and SCOPUS, along with general search engines (Google and Google Scholar). However, considering the limited results and access to publications with several resources, we decided to focus primarily on the PubMed database and a broader Google search to identify publications describing our interest areas. These were selected primarily due to the scope of publications available, current/timely research, access to full-text articles, and alignment with our usual methods of search. In addition, these are widely accepted databases used in the scientific literature thus we streamlined our search methodology while still allowing for a sufficient review of literature to fit our purpose.

Search terms were determined and subsequently streamlined to identify relevant publications. Initially, a list of terms was determined by considering our purpose, areas of interest, and common language used frequently in these areas and in research on older adult populations. In addition, from an initial search on perceptions and stereotypes of aging,

the terms that most often appeared in both academic and mainstream articles were used. As long as they were related to older adults and/or aging and fit our purpose, these terms were used in the formal search. For example, we found that the terms “aging perceptions,” “stereotypes,” and “successful aging” have become common in research and consequently used in both mainstream discussions of aging as well as in research, often interchangeably or overlapping. Thus our search was streamlined to apply not only to research per se but also to the unique needs of a growing population of older adults. The terms ultimately used in our searches are detailed in Table 1.

Several search terms returned a large number of results, many of which were outside the scope of this paper. However, these initial results provided an overview of the literature in this area. From this point several general topic categories were determined to further narrow our focus and enable a manageable search (Table 1 and Table 2). Once these categories were determined, publications describing topics outside these areas were excluded. Notably, we also chose to narrow our results to these search terms and categories in order to identify publications most closely related to our focus including viable approaches and solutions for promoting positive views on aging.

Next, we used PubMed’s advanced search feature with the Medical Subject Headings (“MeSH”) terms filter to further narrow results. Because several search phrases still returned a very large number of results, we further utilized the MeSH Major Topic filter to identify more relevant publications for several topics. Titles and selected abstracts were reviewed as needed to determine if each publication met our needs; selected reference lists of the most relevant key articles were reviewed for potentially useful research. Inclusion criteria included original research and reviews with titles and/or abstracts that fit our scope, and those focusing on older populations (i.e. primarily age 60+ but also age 50+). Research focusing strictly on topics unrelated to our primary purpose and scope were excluded, as were studies published in languages other than English and older or outdated research published around or earlier than year 2000. Table 1 displays the final search terms used in our literature search, as well as in all subsequent and streamlined searches. In addition, the results identified with the use of each search term/phrase are listed in this table. Table 2 shows the categories of final search terms created;

**Table 1:** Number of results returned through PubMed searches.

Search terms	Initial search	MeSH terms filter	MeSH major topic filter	MeSH major Topic+Date
Older adults view of aging	883	546	457	238
Seniors and perceptions of aging	133	63	Filter not used	Filter not used
Subjective views of aging	29	Filter not used	Filter not used	Filter not used
Objective views of aging	163	73	53	Filter not used
Positive perceptions of aging	1171	718	570	347
Positive view of aging	344	279	157	79
Optimism in older adults	289	248	12	Filter not used
Aging stereotypes	470	5	Filter not used	Filter not used
Stereotype impacts on aging	3	Filter not used	Filter not used	Filter not used
Viewpoints of aging	109	57	Filter not used	Filter not used
Cultural perspectives of aging	231	115	87	Filter not used
Cultural perspectives of elderly	1372	681	24	Filter not used
Models of aging stereotypes	38	Filter not used	Filter not used	Filter not used
Interventions for perceptions of aging	149	62	Filter not used	Filter not used
Successful aging intervention	2310	127	35	Filter not used

**Table 2:** Number of final references selected for inclusion by major topic category.

Major topic category	Number of references selected
Older Adults-General	4
Perceptions of Aging	9
Stereotypes of Aging	9
Definitions and Measures	10
Factors and Outcomes	17
Interventions	5
TOTAL	54

**Table 3:** Key factors involved in self-perceptions of aging.

Key psychosocial factors	Key physical factors
Resilience	Longevity
Positive attitude	Healthy weight
High self-esteem	Absence of disease
Overall well-being	Fewer chronic conditions
High cognitive functioning	Frequent physical activity
Engagement/purpose in life	High physical functioning
Social support and social activity	Better physical health status
Lower loneliness and social isolation	Felt age vs. actual chronological age
Realistic self-appraisal and acceptance	Maintained healthy lifestyle behaviors

similar and/or related topics were combined to show the final results obtained in each general category once final searches were complete.

## Results of Search

Notably, we were unable to identify any comprehensive reviews specifically describing and comparing common perspectives and stereotypes of aging as distinct constructs, with the primary objective of identifying potentially effective intervention approaches to enhance and support positive views of aging. Thus this commentary adds to the existing field of research on options to address aging self-perceptions and stereotypes.

PubMed provided the majority of published research for our purpose; thus for brevity and relevance, primarily those results from PubMed searches are detailed. To narrow our initial results (over 1,200 publications) and identify those most closely aligned with our purpose, PubMed’s advanced search features were used as previously described. Search results appear in Table 1, which displays the initial number of articles identified by search term, along with the number of publications found with additional filters applied (MeSH Terms and MeSH Major Topics).

After reviewing these publication titles/abstracts and applying exclusion criteria, the most relevant publications were selected. The final number of references ultimately included in this review totals 54. Articles were grouped into topic categories based on their content and the search terms used to identify them. Table 2 displays a list of the final number of publications cited and the distribution of final references selected in each category, with similar or overlapping categories combined where appropriate.

## Overall Summary of Findings

### Definitions and measures

In the literature, definitions of various aging perspectives and stereotypes are vague and in many cases overlapping [9]. Commonly used terms in this area of research include aging self-perceptions, aging stereotypes, ageism, views of aging, images of aging, self-

perceived age, desired age, and successful aging, although no standard consensus exists to define them, in part because criteria differ and tend to be subjective [6,8,9]. Many traditional descriptions of successful aging have previously focused on the presence (or lack) of cognitive and/or physical decline along with chronic health conditions, limited mobility, walking and/or gait difficulties, physical functioning, and general physical health along with chronological age [6,9,11]. Some research especially emphasizes cognitive difficulties, dementia, and Alzheimer’s disease as primary determinants of successful aging; these factors have influenced others’ views of the aging process as a time of declining health as well [6,9]. However, more recent research on these perspectives describes how the concept of successful aging has evolved over time with extended life expectancies, from a strong focus on physical aspects of health to highlight positive personal growth, productive engagement, vitality, social support and activity, and other psychosocial aspects rather than just the absence of physical disease and disability [6,9,12-14]. For instance, one frequently cited model highlights the relationship and overlap of social engagement with life and physical health and functioning as required for positive and successful aging experiences [12,14]. Similarly, descriptions of successful aging in related literature now encompass satisfaction with life, mastery and growth, active engagement, and independence/independent functioning [15].

Assessment tools for aging self-perceptions, satisfaction, and stereotyping are limited, with no widely accepted or standard scales [4,16,17]. Commonly accepted scales are lacking in part because these constructs remain primarily used for research purposes rather than applied, with individual researchers often using their own scales developed to closely align with their study objectives [4,6,18]. In addition, individuals’ perceptions and views are often subjective and vary greatly, influenced by multiple factors that impact their views of these constructs.

Perhaps the most commonly used measure is the Aging Perceptions Questionnaire (APQ) and its shortened versions [4,7,19]. The APQ was initially developed to assess aging self-perceptions through eight different domains each addressing multiple items. One shortened version of the scale, focusing on seven of those domains rather than eight, examines personal views on aging: timelines-chronic and cyclical; consequences-positive and negative; control-positive and negative; and emotional representation [4,7].

Another measure, the Attitudes Toward Own Aging Scale, adapted from the Philadelphia Geriatric Center Morale Scale, has been used in various studies specifically to assess personal perspectives on aging satisfaction [16,20,21]. Participants are asked whether they agree or disagree with the following statements or similar versions:

- “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.”

Meanwhile, the Attitudes to Ageing Questionnaire (AAQ) was developed to assess older adults’ attitudes toward the aging process; it has been used with older populations primarily outside the US [17,22]. This 24-item measure includes questions on psychological growth, psychosocial losses, and physical changes related to aging, while also incorporating cultural, economic, and other social factors [17,22]. The AAQ attempts to examine both positive and negative attitudes about aging as a process rather than as a steady state, with less focus on common stereotypes of others [17].

Elsewhere, the ELSA measure has been used outside the US to gather information on the well-being of the English population age 50 and older [10,23]. ELSA assesses older adults' experiences of older age and aging; their views of perceived and desired age; self-perceived differences between middle/old age; and the aging stereotypes they hold [8]. Statements with agree-disagree options prompt respondents about their aging experiences and determine whether those experiences are mostly positive or negative [8]. Examples include: "We can learn a lot from old people," "Old age is a time of ill-health," "I don't think of myself as old," "Old people do not get respect in society," and "Growing older doesn't bother me."

Meanwhile, one primary measure applied in research on age stereotyping is the Image of Aging Scale (IAS), which assesses personal stereotypes, self-stereotypes, and self-perceptions of aging [18,24-26]. Older and younger respondents' personal beliefs and stereotypes about seniors as a group are assessed, with two subscales comprised of positive and negative traits [18,24]. Specifically, the IAS asks about views of older people, highlighting both positive and negative terminology as applied to older people. The positive traits include: *Will to Live, Capable, Active, Positive Outlook, Full of Life, Groomed, Healthy, Wise*; in the negative scale, the terms used include *Slowly, Helpless, Lonely, Grumpy, Sick, Senile, Given Up, Dying*. Studies using the IAS have focused primarily on the positive aspects of aging, comparing different age groups (older versus younger) to determine how those views, along with their consequences, are typically attributed to older adults [25].

Several publications describe studies focusing on assessment of older and younger adults' perceptions of aging and perceived discrimination or stereotypes. For example, one recent study examined perceived age discrimination among older adults, with over 35% of participants who were age 65 or older reporting they experience age discrimination [10]. Elsewhere, multiple studies using qualitative interviews have aimed to assess older adults' self-perceptions of successful aging with consideration of various physical and psychosocial factors, including late-life disability, physical function, and younger versus older age. However, these studies have focused only on assessment with small samples, rather than addressing the negative views or attempting to test solutions.

## Factors

Research indicates that a combination of factors and personal characteristics influence self-perceptions of aging. One literature review describing the key components impacting aging self-perceptions identified seven major factors that tend to support positive views the most: life satisfaction, longevity, freedom from disability, mastery/self-growth, active engagement with life, independent/high functioning, and positive adaptation (resilience) [11,19]. Control over one's life and a strong purpose have also been described as significant factors of positive views of aging; consequently, control over one's situation is highlighted in the APQ measure used in research studies [19]. Similarly, additional literature confirms that the specific psychosocial influences most important for positive aging perceptions include resilience, positive attitude, high self-esteem, perceived well-being, productive engagement/purpose, social support, larger social networks, lower loneliness/isolation, self-acceptance, and realistic self-appraisal (Table 3) [13,27,28]. In addition, younger "felt" age and feelings of content with current actual age are factors associated with better self-perceptions of aging [8].

Conversely, low levels of cognitive functioning and well-being, greater loneliness, low social support, lack of purpose, higher self-perceived/felt age, unhappiness, and depression have been shown to support or enhance negative self-perceptions of aging and compromise late-life health [16,29]. Research evidence supports the important role of these psychosocial aspects in older adults' views, confirming that aging self-perceptions are developed from more than just physical health characteristics and absence of disease [8,9].

Meanwhile, the commonly described physical factors involved in more positive aging self-perceptions are not surprising: longevity, absence of disease, fewer chronic conditions, frequent physical activity, healthy lifestyle, high physical functioning/mobility, younger "felt" age, better vision, and better physical health [17,28,30,31]. Research suggests that maintenance of healthy lifestyle behaviors supporting physical health help promote positive self-perceptions; those with better self-perceptions are more motivated to take care of themselves through controllable behaviors. The opposite also appears true; those with negative views tend to have poorer self-care and worse health habits. Older adults with fewer physical problems report more positive attitudes about aging; those with poorer physical health tend to hold more negative views [17,30].

Regarding demographic characteristics, age itself is a factor in self-perceptions of aging, overlapping both physical and psychosocial areas: while actual age is biological, self-perceived and desired age can be considered psychosocial contributors. Certain older population segments, specifically those age 55-59 and 80+, report more negative perceptions of aging than others, indicating less optimal views among pre-retirement and very old groups [8]. In fact, actual age seems to greatly influence self-perceptions; younger pre-retirement groups (age 50+) are worried about declining health as they age, while the older old (75+) are most concerned about loneliness [8]. These findings indicate that perhaps there is a window of time when it may be possible to change stereotypes or otherwise positively impact aging self-perceptions through research or targeted interventions. Actual age is also strongly associated with self-perceptions of when "old age" begins among older individuals. Younger adults (50+) have reported they believe old age begins at 68; for the oldest old (80+), it begins at age 75, with a median between the two groups at 71 years [8]. Self-perceived age is also associated with, and acts as a predictor of, self-perceived health; consequently, those in better overall health tend to report that they feel old age begins later-at 71-73 years compared to age 68-71 for those in poorer health [8].

## Health outcomes

Notably, many factors impacting aging perceptions are also associated with an increased risk of adverse outcomes, thus it appears there is a bidirectional association with both physical and psychosocial health [16]. The various factors of aging perceptions impact and often overlap with older adults' health outcomes; this relationship has been confirmed through a number of research studies with various populations [4,21,32-36]. Positive and negative aging self-perceptions, attitudes, and others' stereotypes can impact the aging process; in fact, individual perspectives later in life have shown to be important predictors of many health outcomes including mortality and quality of life [19,37-39].

There is a general consensus that positive self-perceptions of aging are linked to more successful aging and better overall physical health among older adults [7]. Research studies confirm that older adults' self-perceptions have significant impacts on physical

outcomes including longevity, falls, hospitalizations, disability, mobility, activities of daily living (ADL), physical health status, and physical functioning [4,7,8,16,21,32,34,38,40-44]. The relationship also appears to be bidirectional, with better physical health outcomes supporting positive views of the aging process. Meanwhile, psychological health outcomes including perceived quality of life, aging satisfaction, loneliness, depression, well-being, mental health functioning, lifestyle behaviors, and self-perceived age have also been linked to self-perceptions of aging [4,5,7,8,32-35,39,44]. In one study of adults age 65-70 years, negative self-perceptions of aging among participants indicated a risk for future ADL limitations and disability as well as a short-term association with increased hospitalizations, emphasizing the bidirectional nature of these relationships [16]. Elsewhere, negative self-stereotypes among older adults, or their personal beliefs about their peers, have demonstrated impacts on both physical and cognitive function [21]. In this longitudinal study, older participants' long-held aging stereotypes were shown to contribute to how they formed their self-perceptions of aging.

Regarding others' stereotypes about older adults, research indicates that recent and longer-term exposure to representations of seniors and older age can impact late-life outcomes [45]. Others' aging stereotypes appear to affect both physical and psychosocial outcomes, including recovery from disability, cardiovascular stress response, balance and mobility, mortality, physical and cognitive decline, self-efficacy, health behaviors, social engagement, and subjective or felt age [39,40,46]. As an example, older adults exposed to positive aging stereotypes demonstrated better memory, greater mobility, motivation, and lower cardiovascular stress responses as compared to those exposed to negative stereotypes [40]. Elsewhere, the noted beneficial effects of positive aging stereotypes include improved recovery from disability and balance, enhanced self-efficacy, and increased participation in healthy behaviors [47]. Although results have been somewhat inconsistent, additional findings suggest that exposure to positive portrayals of aging result in less negative self-perceptions as well as reduced stress responses [45].

Negative aging stereotypes, often considered ageism, have also shown harmful effects on older adults, including both physical and psychological impacts [18,36,48]. These negative stereotypes held and expressed openly by others can be particularly harmful especially regarding how older adults perceive themselves and view their quality of life, aging satisfaction, roles in society, and late-life health [39]. Negative stereotypes about older adults and expressed ageism have been linked to decreased levels of physical fitness, higher waist circumference, depression, lower self-rated health, increased rates of physical and cognitive decline, higher mortality, reduced mobility, and higher subjective (felt) age [46]. A bidirectional relationship also appears to be true: older felt age has been associated with ageism and perceived age discrimination, as well [46].

### Interventions

Published evidence of success in designed interventions in this area is lacking, with little work describing focused efforts to address and/or improve aging self-perceptions or to reduce negative stereotypes. Notably, initiatives related to self-perceptions versus outside stereotypes of aging have been overlapping and indistinct; attempted interventions have targeted perceptions and stereotypes in more general terms rather than as separate constructs or views. As one example, in a study involving a small designed intervention, researchers evaluated college-age dental students' overall perceptions about older adults, and then delivered education regarding those

perceptions toward older people intended to increase their knowledge [49]. Another study in this area examined the impacts of negative age stereotypes on health outcomes among older adults, including decreased physical function [50]. The study intervention delivered positive age stereotype sessions to older adults over four weeks, with the goal of reversing this process. Results showed that the intervention strengthened and improved positive age stereotypes, positive self-perceptions of aging, and physical function. Furthermore, negative aging stereotypes and self-perceptions weakened.

Elsewhere, one community-wide program was designed to enhance positive aging perspectives [27]. The study identified six actionable themes important for successfully highlighting positive areas of aging and supporting older adults: meaningful involvement (purpose); aging in place; respect and inclusion (addressing stereotypes); communication; transportation/mobility (independence); and overall health/well-being [27]. The authors emphasized that these themes can help to enhance the roles of older individuals as an important social contributing resource, and discussed future similar options for communities to promote positive aging perspectives.

### Discussion

Positive aging self-perceptions and perspectives of successful aging have evolved to become the idea of personal growth, productivity, engagement, and social support, as well as aging acceptance, contrary to more traditional views of successful aging as good physical health status with an absence of physical disability [6,8,9]. In fact, research confirms that when descriptions of successful aging consider physical health alone, only a small portion (about one-third) of older adults meet the parameter of absence of disease and disability; in contrast, a majority of older individuals feel they are aging successfully and otherwise have positive views of the aging process [8,9,51]. However, individual self-perceptions of aging among older adults, themselves, have not been adequately considered or incorporated into traditional definitions of successful aging; this gap impacts the ability to design effective interventions to enhance more positive views [8,9]. However, assessment of aging self-perceptions remains difficult; better measures, including standardized and/or widely accepted scales of varying self-perceptions and stereotypes of aging, would help to improve understanding among all age groups and within research settings.

The literature reviewed confirms that a range of factors influence aging self-perceptions held by older adults as well as the stereotypes among others. In addition to physical health, psychosocial factors do play an important role: self-perceived health and felt age, personal aging experiences, and overall life satisfaction, among many others. These factors tend to fit within two broader themes that primarily influence aging perceptions and views on successful aging: 1) self-acceptance/self-contentment (with 3 sub-themes); and 2) engagement with life/self-growth (with 4 sub-themes) [6]. Achieving a balance between these two main themes is a key to having positive self-perceptions of aging, thus these themes may provide direction for approaches to future interventions.

The need for developing effective interventions to address aging self-perceptions and stereotypes has become apparent with growing research evidence that the views formed across a lifetime impact aging expectations and actual late-life health outcomes [16,21,40]. Research demonstrates the multiple benefits of having positive self-perceptions, self-stereotypes, and experiencing positive stereotypes

of others; these benefits encompass both physical and psychosocial health including quality of life [16,21,40]. Similarly, negative self-perceptions of aging are known to be predictors of suboptimal outcomes [8,32,52].

While various studies describe aging self-perceptions and their impacts, there is little proven success in interventions to promote positive views of aging to subsequently improve older adults' outcomes. Studies identified in this area have generally reported small sample sizes with little if any evaluations; depression management programs and care coordination have been successful but not specifically applied to improving self-perceptions of aging. Instead, related research tends to focus primarily on assessing older adults' views on aging, improving recruitment of older adults for research, and promoting their independence. However, based on existing findings, potentially useful approaches have been suggested for use in supporting or boosting positive aging self-perceptions and reducing negative stereotypes.

Based on the search results described here, it would be reasonable to suggest interventions targeting the most powerful predictors of positive perceptions of aging, such as resilience and/or coping skills; purpose in life and productive engagement; social involvement and social connectedness; and physical activity along with healthy lifestyle behaviors. For the negative predictors, worthwhile approaches that may help to reduce or prevent negative views and stereotypes could target loneliness and social isolation; anxiety, depression, and stress; and perhaps falls prevention.

Along with these suggestions, recommendations in the literature have highlighted multidimensional initiatives focusing on education and better understanding of aging populations [28,36]. Effective approaches might ideally target a range of age segments and encompass educational campaigns; greater sensitivity to aging among healthcare providers; increased intergenerational opportunities in work, volunteering, and social settings; and greater support for productive engagement among older adults [13,28,36,53]. There is limited evidence that it is possible to strengthen positive aging stereotypes through multiple educational sessions focusing on positive views of older individuals and the aging process overall. As one possibility, brain health initiatives could positively impact cognition and thus support positive perceptions of the aging process and its cognitive effects. Notably, education has been used as a prevention strategy in reducing the risk of dementia. By combining several of these components, a better understanding of age discrimination may be useful in the process of developing effective interventions [10].

Elsewhere, research specifically examining productive aging describes strategies to support positive aging self-perceptions, emphasizing engaging older adults in volunteering, paid work, caregiving, social connections, and other fulfilling activities [53,54]. Furthermore, perceived control of one's situation has been described as a factor in aging self-perceptions. Perceived control has not been pursued extensively in research studies; however, enhancing older adults' perceptions of control over their lives may be effective in boosting their positive views of aging as a part of multidimensional intervention strategies [54].

In regard to traditionally highlighted physical health influences on aging perceptions, consideration of the physical factors involved remains important, despite more recent emphasis on the psychosocial aspects important to many older individuals. As the physical factors and characteristics of aging impact felt age, physical health outcomes,

self-perceived health, quality of life, and overall aging perceptions, healthy lifestyle behaviors (eating well; exercising; maintaining weight) could feasibly contribute to positive self-perceptions. Educational wellness programs could help to boost participation and maintenance of healthy behaviors. Again, however, the studies identified in this review have not executed successful interventions with older adults designed specifically for this purpose.

One primary limitation of this review was the broad range of topics and terminology related to aging self-perceptions and stereotypes, with a large number of publications returned while searching for focused subjects. Since stereotyping comprises a broad area of research, results had to be narrowed to those focused on older adults and aging; however, relevant research may have been excluded while focusing on these topics. Furthermore, one challenge is the lack of standard definitions and measures to describe aging self-perceptions and stereotypes in research; thus assessment remains difficult.

## Conclusions

The results of this review indicate an association between aging self-perceptions and stereotypes with health outcomes, although it remains difficult to infer causality. Gaps in the research are most apparent regarding the most useful metrics; the bi-directional relationships present; and the efficacy of intervention approaches. Despite the lack of designed interventions, however, opportunities exist to develop stronger positive aging self-perceptions and stereotypes, while reducing commonly held negative stereotypes of older individuals. Research suggests that the approaches described here could be useful, with a primary focus on multidimensional components related to both the physical and psychosocial factors of aging. Through tailored initiatives targeting both older and younger individuals, these efforts could have positive implications for improved health outcomes, quality of life, active engagement, and life satisfaction within a growing older population. Additionally, positive changes in overall societal views may help to reduce and prevent continued negative stereotyping of older adults, along with improved health-related and quality of life outcomes. Future research initiatives may find success by emphasizing multidimensional components including educational sessions, productive engagement, social activity, community involvement, and maintenance of healthy behaviors as potential approaches.

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