


Ageism and Psychological Well-Being Among Older Adults: A Systematic Review

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Hyun Kang¹  and Hansol Kim²

Abstract

Ageism may have harmful effects on the psychological well-being of older adults, leading to mental health issues, such as depression and anxiety. However, there are insufficient data to establish this hypothesis, and most work on the subject has appeared only in the form of conceptual or theoretical papers. This study reviewed quantitative studies of the relationship between ageism and psychological well-being of older adults. We conducted a comprehensive review using searches of academic databases, the grey literature, hand searches, and reference mining. A total of thirteen articles were selected using the inclusion criteria. All the reviewed studies showed a negative association between ageism and the psychological well-being of older adults. The study confirmed a negative association between ageism and older adults' psychological well-being, finding that older adults with a high level of psychological well-being may be less negatively affected by ageism, especially those who were proud of their age group, experienced less negative emotions, were more optimistic about aging and their future, were more self-confident about their bodies, and were flexible in setting goals. The identified mediators of the association can inform intervention development to the effects of ageism and improve older adults' psychological well-being.

Keywords

age discrimination, subjective well-being, depression, older adults

Introduction

Growing older involves gaining maturity and becoming a more responsible and respectful adult. The process of aging can be viewed unfavorably by some people, who view it pessimistically, and this reduces the pleasure they may have gained from their own growth (Kang, 2020). Aging is often considered to be a challenging process, during which individuals lose their confidence and experience a loss of productivity (Schafer & Shippee, 2009). Significant declines in social and cultural status have been observed in older adults over the past century as a result of industrialization and modernization (Aboderin, 2004; Nelson, 2005). The industrial age and technological advancements have increased the need for people to work efficiently and quickly to remain competitive (Tuomi et al., 1997). These changes have had the effect of decreasing the need for and visibility of older adults' activities (Solem, 2005).

A growing body of research has observed an increase in negative attitudes toward older individuals over the years (Nelson, 2005; Scharlach et al., 2000). Several studies have shown that members of the younger generations now exhibit more negative

views and attitudes toward older adults than was previously the case (North & Fiske, 2012). Negative beliefs and attitudes towards older adults are increasingly prevalent, which may add to the barriers that older adults face when seeking employment (Skirbekk, 2004). Consequently, older adults are often considered to be merely passive recipients of welfare, and they may even be accused of being a burden to younger generations (Hudson, 2012). The belief that older adults are less valuable or of no interest to society may contribute to ageism.

Ageism is stereotyping, prejudice, and discriminatory actions or attitudes based on chronological age (Iversen et al., 2009). Ageism, therefore, can be operationalized as stereotypes,

¹Department of Social Work, George Mason University, Fairfax, VA, USA

²National Rehabilitation Research and Training (RRT) Center on Family Support, University of Pittsburgh, Pittsburgh, PA, USA

Corresponding Author:

Hyun Kang, Department of Social Work, College of Health and Human Services, 4400 University Drive, Fairfax, VA 22030, USA.
Email: hkang31@gmu.edu



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prejudices, and discrimination, and each of those components, individually, can be seen as cognitive, affective, and behavioral (Iversen et al., 2009). Consequently, age stereotypes are fixed beliefs that overgeneralize the characteristics, attributes, and behaviors held in common by a particular group (Whitley & Kite, 2006). Age stereotypes can contribute to assumptions about a person's physical and mental capabilities, social skills, political and religious beliefs, and other traits based on their age (World Health Organization, 2021). A prejudice is a negative or positive emotional reaction to a person based on their perceived affiliation with a particular group (World Health Organization, 2021). Age prejudice is one of the most socially vocalized and institutionalized prejudices in many segments of society, and it is disregarded in numerous aspects of social life (Nelson, 2005). A discriminatory act is characterized primarily by distorted behavior that treats individuals in a non-constructive manner (Dovidio et al., 2011). Age discrimination is behavior directed at people based on their age, including actions, practices, and policies (World Health Organization, 2021).

Ageism is a very serious issue. While it can theoretically be directed toward any age group, the vast majority of studies focus on older adults or late adolescents (Nelson, 2005). Although ageism can be shown in terms of positive stereotypes or attitudes, it is most closely associated with negative stereotypes or attitudes (Palmore, 1999). Ageism can manifest in two main ways: implicitly, through unconscious thoughts, feelings, and behaviors, or explicitly, through intentional actions or verbal expressions triggered by conscious awareness (Iversen et al., 2009). Furthermore, ageism is not restricted to directed toward others but can also be self-directed (Ayalon & Tesch-römer, 2017). Exposure to ageism over time can result in the internalization of ageist attitudes and stereotypes, as described by Levy (2009) in stereotype embodiment theory. Many older adults tend to internalize the negative stereotypes of ageism that continue to be perpetuated throughout society today and tend to confine themselves to age-related stereotypes, becoming weak, unhealthy, and even less able to accept new learning opportunities (Streb et al., 2008).

Internalized age stereotypes may lead to low levels of self-esteem and self-confidence (Orth et al., 2010), and it may affect older adults' health negatively (Emile et al., 2014), especially with regard to their mental health and well-being (Bryant et al., 2012). An individual who believes that they are too old may be more susceptible to the negative consequences of ageism, which may include decreased self-efficacy and increased negative emotions (Eibach et al., 2010). The converse may also be true, as positive perceptions and attitudes on aging may have beneficial effects on psychological well-being (Bryant et al., 2012). Older adults who have experienced discrimination based upon their chronological age may be more exposed to stressors (Snape & Redman, 2003) and depression (Tougas et al., 2004), which are detrimental to their mental health (Pascoe & Richman, 2009).

Ageism is increasingly recognized as a risk factor associated with increased stress, anxiety, depression, and lowered life satisfaction (Ayalon et al., 2019). However, articles on ageism

generally take the form of conceptual or theoretical papers, and they tend to center on identifying the causes and consequences of ageism (Iversen et al., 2009). More empirical studies are needed to investigate the harm that ageism can cause to the psychological well-being of older adults. Our review examined this relationship by synthesizing the results of several studies identified in a thorough systematic search.

Purpose of the Review

This systematic review examines how the experience of ageism experience among older adults influences their psychological well-being. This study also seeks insight into successful aging by identifying factors that mediate or moderate the relationship of ageism to psychological well-being. Our overarching goal is to mitigate or eliminate the adverse effects of ageism, especially on the psychological well-being of older adults. Using a systematic review method allows the researcher to comprehensively identify relevant literature through transparent and rigorous processes (Littell et al., 2008). Several systematic reviews have examined ageism and its effects on older adults: these include assessments of how stereotypes of aging affect memory and cognitive performance (Lamont et al., 2015), ageism's broad effects, and theories that explain ageism (North & Fiske, 2012). However, no research has hitherto examined the direct effects of ageism on older adults' psychological well-being.

A new paradigm for understanding the aging society is necessary in the face of a rapidly expanding population of older adults to assess these developments in a long-term perspective. The study of ageism can be a key foundational resource for older adults. Unbiased summaries of quantitative outcome studies from our systematic review may help to develop an understanding of the potential risks of ageism on psychological well-being. Furthermore, the mediators and moderators identified between ageism and the psychological well-being of older adults will support future policy and practices.

Methods

We aimed to locate all empirical evidence that examined the relationship between ageism and older adults' psychological well-being through a comprehensive and unbiased search. The systematic review methodology was guided by two sources: *Systematic Reviews* from the Centre for Reviews and Dissemination (2009) and *Systematic Reviews and Meta-Analysis* from Littell et al. (2008). We also followed the guidelines from a review protocol, the PRISMA 2020 statement (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) developed by Page et al. (2021), to verify the validity of the steps involved in the systematic review. PRISMA is a set of standards that includes a 27-item checklist and a four-phase flow diagram describing how systematic reviews should be reported (Page et al., 2021). The completed PRISMA checklist was included in Appendix B. A critical

Table 1. PICOS Framework for Systematic Review.

Attribute	Inclusion Criteria
Population of interest (Problem and condition of interest)	Older people aged 60+ years Self- and other-directed ageist attitudes and discrimination
Intervention	The intervention may include but is not limited to any effective intervention; a statistically significant intervention for buffering the effects of ageism on psychological well-being
Comparator	A comparator could be any or no comparator
Outcome of interest	Psychological well-being
Settings	All settings

appraisal checklist for analytical cross-sectional studies developed by the Joanna Briggs Institute (JBI) was used to assess the methodological quality of the reviewed studies (Moola et al., 2020). Additionally, we reported our results using Pleasant et al.'s (2020) study as a guide (Pleasant et al., 2020). Our first step was to develop a search strategy to guide a thorough but rigorous systematic search by refining our research question. We also articulated and tested our complete set of search terms to decrease our chances of missing relevant literature. A number of inclusion and exclusion criteria were set to prevent bias in the selection process. We used a wide range of sources for our review, including several electronic databases, grey literature, hand searches, and reference mining.

Criteria for Considering Studies for the Review

Studies included in this review focused on the psychological well-being of older adults who have experienced discrimination based on their age. Studies had to meet several criteria to be eligible for inclusion in this review. For ensuring comprehensive and unbiased literature searches, the PICOS (Population, Intervention, Comparison, Outcomes, and Study design) framework was used to formulate literature search strategies (Table 1). The population of interest for the systematic review was older adults aged 60 and above. Our rationale behind selecting this age range was based on retirement age. The retirement age varies around the world, and it is expected to increase along with increased life expectancy (Forman & Chen, 2008). We adopted an average retirement age range from the Organization for Economic Co-operation and Development's (OECD) countries from statistics on the average retirement age (OECD, 2015). The normal retirement age of OECD countries in 2014 ranges from 60 (Luxembourg) to 67 (Iceland) (OECD, 2015).

The review included studies that measured ageism or attitudes towards older adults. Ageism can be direct or indirect, and it tends to be reproduced and unconsciously reflected in social or cultural spheres (Iversen et al., 2009). While ageism toward older adults might also be demonstrated in a positive stereotype or attitudes toward them (Palmore, 1999), ageism in this study was confined to only negative attitudes and feelings. Furthermore, we included

studies on self-directed ageism, which refers to ageism directed at oneself, in order to examine how internalized age stereotypes affect older adults' psychological well-being. The large number of words associated with ageism prompted us to choose broad and general search terms in order to avoid the omission of relevant articles and to identify all potentially relevant studies.

In this study, the psychological well-being of older adults was the outcome of interest. Psychological well-being is a multi-dimensional concept determined by multiple components and factors (Kim et al., 2017). We adopted a broader definition of psychological well-being as suggested by Diener et al. (2017). They conceptualized psychological well-being as an all-inclusive term that includes desirable psychological characteristics as well as subjective well-being; that is, the subjective perception of life that an individual experiences in their environment (Baker et al., 2005). Psychological well-being is a key indicator for measuring the subjective aspects of quality of life (Baker et al., 2005). Further, it is an integrative construct that includes diverse affective and cognitive dimensions, such as life satisfaction, positive/negative affect, mental health, self-actualization, optimal functioning, happiness, and mood (Levin & Chatters, 1998; Ryff, 1989). Depression, life satisfaction, stress, and other mental health behaviors were also considered in measuring psychological well-being. Study designs were limited to empirical quantitative studies that used statistical, rather than descriptive, analysis to present findings. Studies that met this population, predictor, outcome, and type of study criteria were eligible for review consideration.

To summarize, ageism literature was systematically reviewed using the following criteria: (a) focused solely on ageism without any other forms of discrimination; (b) measured ageism against older adults (60 years old and above); (c) examined the relationship between ageism and psychological well-being; (d) was written in English; and (e) used a quantitative design. Studies were excluded that (a) identified other sources of discrimination such as disability, race, sexuality, HIV, LGBTQ (lesbian, gay, bisexual, transgender, and questioning), and mental illness; (b) examined the relationship between ageism and physical health without psychological well-being; (c) used ageism as an outcome variable; and (d) used a literature review and qualitative design as the research method.

Search Strategy

To identify and determine all published research studies on ageism focusing on the influence on older adults' psychological well-being, we conducted a comprehensive search to identify all potentially relevant literature from the inception of each index to August 31, 2019, both published and unpublished. We searched relevant resources regardless of the country of origin but only included resources written in English. In order to find all potential studies, we established four search strategies: database searches, grey literature searches, hand searches of selected journals, and reference mining. We used three bibliographic databases: *ProQuest Research Library*, *Web of Science*, and *Academic Search Complete* for our literature search. The search included all literature from the earliest years that the databases cover to August 31, 2019. The set of search terms included Ageism (or ageist), older adults (or aged or the elderly), and psychological (or emotional) well-being (or health or satisfaction). Various combinations of terms were tested to identify all potentially relevant studies, and our final search terms used for each database were provided in [Appendix A](#).

To find possible unpublished literature on our topic, we visited websites of state/national government agencies, research centers, and both profit/nonprofit organizations that were most relevant to our topic and selection criteria. The grey literature sites included *Cochrane Library*, *ProQuest Dissertations & Theses*, *American Psychological Association (APA)*, *American Society on Aging (ASA)*, *National Center on Elder Abuse (NCEA)*, *National Committee for the Prevention of Elder Abuse (NCPEA)*, and *The Fiske Lab*. A general web search located additional studies through *google* and *google scholar*.

Four journals that were highly relevant to the search criteria were selected for a hand search to supplement unidentified literature that might have been missed through an electronic search: *Ageing and Society* (1981–present), *Ageing and Mental Health* (1997–present), *Gerontologist* (1961–present), and *Psychology and Aging* (1986–present). We searched the entire contents of the four journals to find potentially eligible studies. Backward reviews through a reverse bibliographic search were also included for the hand search. Furthermore, we scanned the relevant references from articles identified through previous search methods to identify additional literature that met the search criteria.

Data Collection and Analysis Methods

We used EndNote X9, a reference managing computer program, for data collection processes, including downloading results of electronic searches, organizing downloaded references, checking duplication, and locating full texts. The data collection process started by first retrieving abstracts or titles for all resources through the search process. The second screening process involved reviewing full texts of the initially screened resources to determine if the sources were relevant by applying exclusion and inclusion criteria. For reliability of

quality assessment and data extraction, all screening processes were undertaken by both the first author and the second author. Disagreements about screening and full-text retrieval decisions were discussed until reaching a consensus.

After the full-text review, final resources were selected for data extraction. The first author collected data from the final resources, and the second author checked and revised the data extraction by the first author and supplemented insufficient data, if needed. Disagreements among the two authors were again resolved by consensus to establish inter-rater reliability in the data extraction process. The data collection included (a) Study design: overarching goal, study site and control variables, (b) Methodology: type of data, data collection methods and statistical techniques, (c) Sample: random sampling, sample size, and sample characteristics (age, education level, race/ethnicity), (d) Predictor (ageism): data source, measures, tools used, information regarding the validity of tools, (e) Outcome (psychological well-being): data source, list of outcomes assessed, measures, tools used, information regarding the validity of tools, (f) Findings: the relationship between ageism and psychological well-being (statistically significant associated or not associated), and (g) Intervention: interventions between ageism and psychological well-being (statistically significant associated or not associated). Finally, to establish the study quality standards, information regarding (a) Internal validity (missing data and reliability and/or validity of variables) and (b) External validity (representative of the population) were extracted

Results

[Figure 1](#) illustrates the search process. The database search identified 6103 records, while additional 314 records were identified from other sources. 673 duplicates were removed from the initial sample ($n = 6417$). A screening of the remaining records' titles and abstracts ($n = 5744$) was conducted to ascertain eligibility criteria, which led to the exclusion of ($n = 5447$) records. All of the remaining articles ($n = 297$) were evaluated by full-text review, and 284 articles were excluded for the reasons outlined in [Figure 1](#). Thirteen articles were ultimately selected for data extraction.

Studies' Design and Setting

All thirteen studies examined the relationship between ageism and the psychological well-being among older adults aged 60 and above. [Table 2](#) shows a summary of the study design and setting of thirteen studies. 38% ($n = 5/13$) proposed and tested interventions that buffer the relationship between ageism and psychological well-being. 31% ($n = 4/13$) adopted conceptual frameworks to explain and verify the association between ageism and psychological health. Stereotype internalization theory ([Bai et al., 2016](#)), stress process model ([Kim, 2015](#)), minority stress theory ([Lyons et al., 2018](#)), and stereotype embodiment theory ([Zhang et al.,](#)

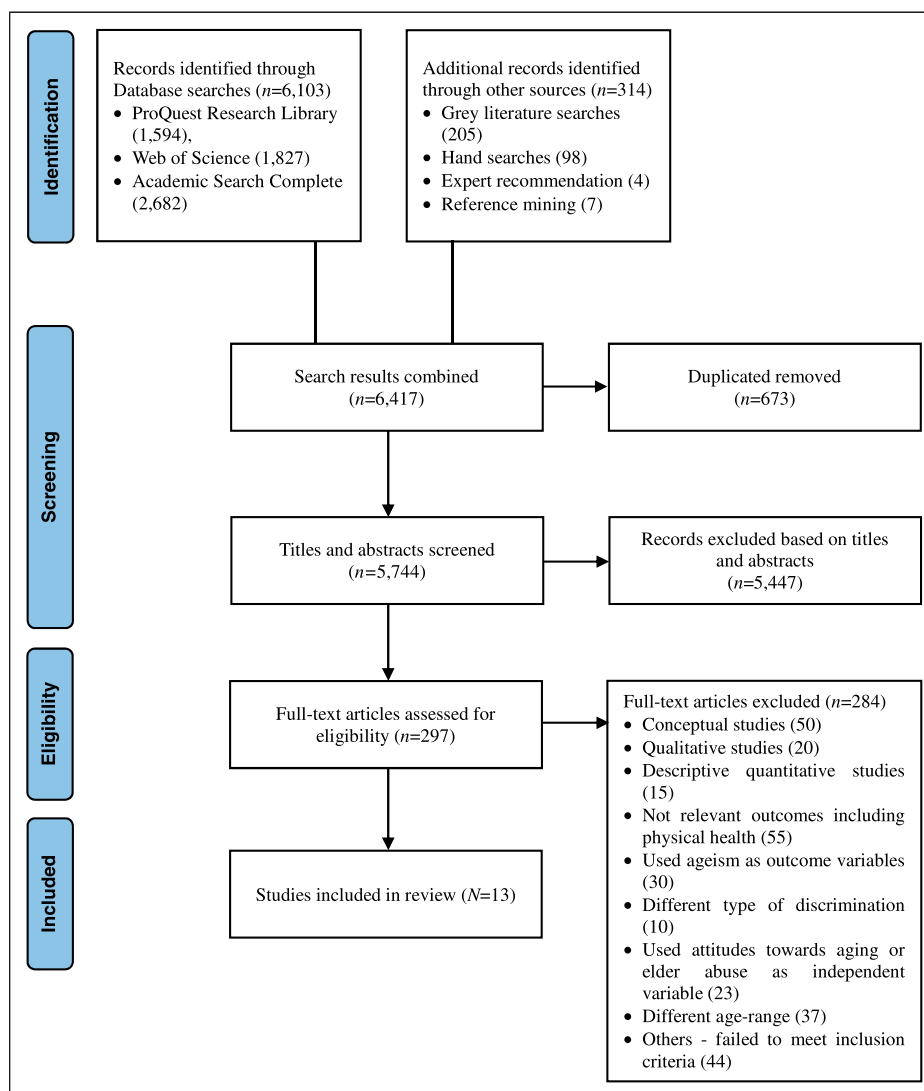


Figure 1. Systematic review flow diagram.

2019) were used as theoretical grounds to support the ageism and psychological health link.

38% ($n = 5/13$) were conducted in the US and 46% ($n = 6/13$) in Asia. There was one study conducted in Europe, and the other in Germany, Mexico, and Spain. 38% ($n = 5/13$) conducted a secondary analysis of existing data, and the samples in these studies were selected through a probability sample design. 15% ($n = 2/13$) were longitudinal panel research, whereas all the other studies were cross-sectional design. Except for one PhD dissertation (Kim, 2015), all other studies (92%) were published in peer-reviewed journals and were published between 2004 and 2019.

Studies' Participants

Table 3 provides a summary of the 13 studies included in this review, along with each of their participants' characteristics.

The number of participants in the studies varied considerably, from 60 in a non-random sampling setting (Garstka et al., 2004) to 3991 in an RCT that drew from a nationally representative survey (Kim, 2015). All of the participants in the reviewed studies were older adults aged 60 years and older. The lowest mean age was 62.49, while the highest one was 77.4. Lee and Kim (2016) and Sabik (2013) included women only, while the other studies included men and women.

Measurement

Ageism. 38% ($n = 5/13$) used established scales that have been used and evaluated. Three studies used Paltore's (1999, 2001) ageism scale (Kim et al., 2015; Lee & Kim, 2016; Lyons et al., 2018). Zhang et al. (2018) and Zhang et al. (2018) used the Image of Aging Scale developed by Levy et al. (2004). 62% ($n = 8/13$) used non-validated measures or

Table 2. Study Design and Setting.

Author (Year)	Overarching Goal	Location Details	Theory	Sampling Methods	Control Variables	Study Design	Mediator or Moderator
Avidor et al. (2017)	Examined whether age discrimination affect negatively one's subjective well-being	Germany	No	Probability sampling	Gender, age, family status, education, income, area of residence, self-rated health, and physical limitations	A longitudinal, population-based representative study	No
Bai et al. (2016)	Examined the effects of family relationship quality and aging stereotypes on Chinese older adults' depressive symptoms	China	Modernization theory and stereotype internalization theory	Probability sampling	Urban-rural residence, age, gender, living arrangement, physical health status, functional status (IADL), and quality of family relations	A cross-sectional survey	No
Fernandez-Ballesteros et al. (2017)	Examined the association between perceived discrimination influences active aging	Germany, Mexico and Spain	No	Probability sampling	No	A cross-sectional survey	No
Garstka et al. (2004)	Tested two effects of ageism: a Direct negative effect on psychological well-being and a positive indirect effect on well-being mediated by group identification	US	The rejection-identification model	Convenience sampling	No	A cross-sectional survey	Mediator (age group identification)
Kim (2015)	Examined the relationship between perceived ageism and depression in later life	US	A stress process model, Beck's (1967, 1983) cognitive theory of depression and Levy's (2009) stereotype embodiment theory	Probability sampling	Gender, race, age, education, work status, self-perceived health, and functional health status (IADL)	A longitudinal panel study	Mediators (self-perception of aging and purpose in life)
Kim et al. (2015)	Evaluated the relationship between ageism and depression, exploring the stress-mediating and stress-moderating roles of emotional reactions and coping behaviors	Korea	Stress-coping process model	Probability sampling	Gender, region (urban/rural), marital status, education, chronic disease and health, age, and economic status	A cross-sectional survey	Mediator (emotional reactions)/ Moderator (coping responses)
Lee and Kim (2016)	Studied the interplay of discrimination, stress, support, and depression among older adults in South Korea	Korea	No	Convenience sampling	No	A cross-sectional survey	No

(continued)

Table 2. (continued)

Author (Year)	Overarching Goal	Location Details	Theory	Sampling Methods	Control Variables	Study Design	Mediator or Moderator
Lyons et al. (2018)	Examined relationships between experiences of ageism and mental health outcomes among older Australian adults	Australia	Minority stress theory	Convenience sampling	Age, gender, sexual orientation, education, employment, income, country of birth location, relationship status, and self-rated health	A cross-sectional survey	No
Sabik (2013)	Examined the associations between perceptions of age discrimination, body esteem, health, and psychological well-being	US	Social expectancy theory	Convenience sampling	Subjective health and body mass index	A cross-sectional survey	Mediator (body esteem)
Shin et al. (2018)	Examined whether older patients have experienced any discrimination based on their age in the course of their cancer care and explored the associated factors and potential outcomes of age discrimination	Korea	No	Probability sampling	Age, gender, education, and income	A cross-sectional survey	No
Siguaw et al. (2017)	Examined effects of confirmation of retirement expectations on satisfaction with life in retirement	US (Texas)	Expectation confirmation theory and resource perspective	Convenience sampling	No	A cross-sectional survey	No
Zhang et al. (2018)	Examined the effects of positive age stereotypes (PAS) and negative age stereotypes (NAS) on the well-being of Chinese older adults	China (Beijing)	No	Convenience sampling	Age, gender, education, income, and marital status	A cross-sectional survey	Moderator (flexible goal adjustment)
Zhang et al. (2019)	Studied the association between future time perspective (FTP) and well-being among older adults, and examined the moderating role of age stereotypes in the associations	China (Chongqing)	Stereotype embodiment theory	Convenience sampling	Age, gender, education, income, marital status, and physical health	A cross-sectional survey	No

¹IADL: Instrumental Activities of Daily Living.

Table 3. Sample Characteristics.

Author (Year)	Sample Size	Gender	Age (Mean: In Years)	Race/Ethnicity
Avidor et al. (2017)	n=615	Male 62.0% Female 38.0%		German 100%
Bai et al. (2016)	n=954	Male 51.0% Female 49.0%	72.73	Chinese 100%
Fernandez-Ballesteros et al. (2017)	n=2005	Male 43.0% Female 57.0%	71.8	German 30.0% Mexican 39.2% Spanish 30.8%
Garstka et al. (2004)	n=60	Male 37.0% Female 63.0%	75.0	White 78.4% Others 21.6%
Kim (2015)	n=3991	Male 39.8% Female 60.2%	75.45	Caucasian 86.3% African American 11.9% Other 1.8%
Kim et al. (2015)	n=812	Male 49.0% Female 51.0%	72.86	Korean 100%
Lee and Kim (2016)	n=207	Female 100.0%	77.42	Korean 100%
Lyons et al. (2018)	n=2119	Male 68.0% Female 32.0%	66.71	Australian 100%
Sabik (2013)	n=244	Female 100.0%	63.44	European American 66.7% African American 33.3%
Shin et al. (2018)	n=439	Male 64.0% Female 36.0%	70.8	Korean 100%
Siguaw et al. (2017)	n=543	Male 64.0% Female 36.0%	69.5	American or Canadian (not specified)
Zhang et al. (2018)	n=279	Male 51.3% Female 48.7%	67.09	Chinese 100%
Zhang et al. (2019)	n=331	Male 51.7% Female 48.3%	67.93	Chinese 100%

developed their scales to measure ageism. Avidor et al. (2017), Kim (2015), and Shin et al. (2018) used a dichotomous variable to measure age-based discriminations. Bai et al. (2016) used a measure of perceptions of aging as a burden to examine the self-directed ageism of older adults. Fernandez-Ballesteros et al. (2017) used three questions with a 4-point Likert-type scale to measure negatively perceived age discrimination. Garstka et al. (2004) measured ageism through four different items: victims of age discrimination as an individual, age group victimized by society according to age, deprivation of opportunities, and discrimination due to old age. Siguaw et al. (2017) used four items that were developed by Garstka et al. (2004). Sabik (2013) used five questions to assess ageism: individual/age group deprivation of opportunities, exclusion from many sectors of public life, considered to be worthless after retirement, achievements not properly appreciated because of chronological old age. All measures of ageism in the included studies provided Cronbach's alpha, and 85% ($n = 11/13$) were above .75.

Psychological Well-being

92% ($n = 11/13$) used validated outcome measures to evaluate older adults' psychological well-being. Reviewed studies measured psychological well-being with different measurement instruments such as depression, subjective well-being through life satisfaction, and mental health. The outcome

variable for 54% of the studies ($n = 7/13$) was depression. 38% ($n = 5/13$) used the concept of subject well-being by measuring life satisfaction. Ballesteros et al.'s (2017) study included a life satisfaction measure as a component of measuring active aging. Garstka et al. (2004) assessed self-esteem in addition to life satisfaction as outcome measures. Sabik (2013) used the 5-item Mental Health subscale from the MOS 36-Item Short-Form Health Survey, which assesses general mental health and well-being. Cronbach's alphas of all the measures of psychological well-being in the included studies were all above. Seventy-seven except the life satisfaction measure (Cronbach's α : 0.57) of Garstka et al. (2004).

Relationship between Ageism and Psychological Well-being

All of the studies indicated that an increase in experiences of ageism was a statistically significant predictor of decreased psychological well-being in older adults (Table 4). 62% ($n = 8/13$) examined ageism as a predictor that influences the psychological well-being of older adults through the regression analysis. All regressions include many control variables such as sociodemographic, socioeconomic, and physical health status. 38% ($n = 5/13$) conducted structural equation modeling tests to look at direct or indirect effects of ageism.

Depression was an outcome assessed in 54% ($n = 7/13$). An increase in experiences or perceptions of ageism (or age

discrimination) was associated with an increase in depressive symptoms as well as stress and anxiety. The study by Lyons et al. (2017) showed that ageism experience is significantly related to the prevalence of stress and anxiety disorders, as well as depression. In Lee and Kim's (2016) study, ageism was found to affect stress directly and had an indirect effect on depression through stress. Zhang et al. (2019) indicated that negative age stereotypes were associated with higher levels of depression and loneliness and lower morale.

Life satisfaction was included as an outcome measure in 38% of the total studies ($n = 5/13$). The results of these studies indicated that perceived ageism and ageism experience was negatively associated with life satisfaction. The study by Fernandez-Ballesteros et al. (2017) found that perceived ageism negatively affects active aging, which includes life satisfaction, subjective health, and self-perceptions of aging. Garstka et al. (2004) showed a direct negative effect of age discrimination on self-esteem as well as life satisfaction. Lastly, Sabik's (2013) study indicated that perceived age discrimination is negatively associated with general mental health and well-being.

Interventions Between Ageism and Psychological Well-being

38% ($n = 5/13$) proposed and tested mediating and moderating variables between ageism and older adults' psychological well-being (Table 5). Garstka et al. (2004) examined the mediating effect of age group identification, which refers to an individual's internal perception of their own age group. It was based on the rejection-identification theory, which suggests that perceived discrimination deteriorates the psychological well-being in low-status groups, but that group identification partially alleviated this effect. Age group identification attenuated the negative effect of ageism on well-being. The total effect of ageism on the psychological well-being decreased ($\beta = -.36, p < .05$) compared to its direct effect ($\beta = -.54, p < .05$).

Kim (2015) tested the mediating effects of self-perception of aging and purpose in life on the relationship between ageism and depression. The overall indirect effect of ageism on depression mediated by self-perception of aging and purpose in life was statistically significant ($\beta = .124, p < .001$). The mediating effect of self-perception of aging ($\beta = .112, p < .001$) was larger than that of purpose in life ($\beta = .012, p = .048$).

Kim et al. (2015) examined the mediating effect of emotional reactions and the moderating effect of coping responses. The duration of many negative emotional reactions was examined, including being hurt, angry, frustrated, humiliated, discouraged, terrified, foolish, or ashamed. Coping responses included problem-focused responses such as formal action, confrontation, and seeking support, and emotion-focused such as passive acceptance and emotional discharge. Although the results did not confirm the

moderating effect of coping responses, the effect of ageism on depression ($\beta = -.01, p > 0.05$) was no more statistically significant after adding emotional reactions.

Sabik (2013) tested the mediating effect of body esteem on the relationship between ageism and the psychological well-being of older adults. Sabik assumed that a high level of body esteem might mediate the association between ageism and psychological well-being. The results suggested that body esteem partially mediated the association (indirect effect: $\beta = -0.047, p < .05$); that is, the effect of ageism on psychological well-being was decreased from $-.29$ ($\beta, p < .001$) to $-.24$ ($\beta, p < .001$).

Lastly, Zhang et al. (2018) examined a moderating role of flexible goal adjustment (FGA) between age stereotypes and the well-being of older adults. FGA implies that individuals pursue their own personal goals, disengaging from goals that are incompatible with their preferences and altering their goals in response to unique conditions. Zhang et al. (2018) found that the interaction term, including FGA, was significant in predicting well-being ($\beta = .19, p < .01$). Negative age stereotypes decreased the positive effect of positive age stereotypes on well-being for older adults with low FGA conditions, but the effect remained the same for individuals with high FGA.

Methodological Quality

Methodological quality was assessed using the JBI's checklists. Table 6 presents a summary of the methodological qualities of the articles we reviewed. A total of eight methodological qualities were examined to assess the possibility of bias in the design, conduct, and analysis of reviewed studies. An inter-rater review process was implemented between two co-authors to assess the methodological quality of the reviewed studies. The total score of the Methodological qualities ranged from 0 to 8. Our reviewed articles ($N = 13$) scored between 3 and 8, with mean scores of 6.1 ($SD = 1.3$) and a median score of 7. Kim et al.'s (2015) study received all eight points, whereas Siguaw et al.'s (2017) study received three points. All studies met two of the criteria (b and h). All articles provided a clear explanation of how the study participants were selected or recruited. Additionally, the methods section was sufficiently detailed to enable us to identify the analytical techniques utilized. However, only 38% ($n = 5/13$) successfully measured ageism in a valid and reliable manner.

Discussion

The first goal of this study was to locate studies that examined the relationship between ageism and older adults' psychological well-being. A total of 13 studies were identified through a comprehensive search, and all of them empirically showed the negative effects of ageism on the psychological well-being of older adults. That is, older adults who perceived

Table 4. Summary of Results (Relationship between Ageism and Psychological Well-being).

Author (year)	Sample	Methods	Measures		
			Independent (Ageism)	Dependent	Key Findings
Avidor et al. (2017)	Older adults aged 65–93 years drawn from the German ageing survey (n=615)	Hierarchical multiple regression analysis	A dichotomous variable: Participants were asked whether they had been discriminated against or placed at a disadvantage due to their age, in the past 12 months	Subjective well-being (1) the five-item satisfaction with life scale on a 5-point scale (Cronbach's α for T1: .98 and T2: .84); (2) the 10-item positive affect scale drawn from the positive and negative affect schedule on a 5-point scale (Cronbach's α for T1: .99 and T2: .86)	The direct path between age discrimination and the well-being of older adults ($\beta = -.32, p < .01$) was negative while except for demographic, economic, and physical health status variables
Bai et al. (2016)	Chinese adults aged 60 years and older in Jiangsu province (n=954)	Hierarchical multiple regression analysis	Participants' burden views toward older people: Two items on a 3-point scale Cronbach's α : 0.84 (1) the extent to which they perceived older people as a burden to society	15-Item short form of the Chinese version of the GDS ² short form. (Cronbach's α : 0.80)	Those who held burden view had more depressive symptoms ($\beta = .23, p < .001$) controlling for sociodemographic variables, physical and functional health status and quality of family relations
Fernandez-Ballesteros et al. (2017)	Older adults aged 62 years and older from Germany, Mexico and Spain in 2005 (n=2005)	Structural equation modeling	Three questions with a 4-point Likert-type scale used to measure negatively perceived age discrimination	Active aging (a latent variable) was defined to include (1) life satisfaction: Five items with a 4-point Likert-type scale; (2) subjective health: Three items with a 4-point Likert-type scale; and (3) self-perception of aging: Five items from Levy, Slade, and Kasl, (2002)	A negative direct effect of perceived ageism on active aging that was found $\beta = -.384, p < .001$
Garstka et al. (2004)	Older adults aged 64–91 years recruited from the community (n=60)	Structural equation modeling	Age discrimination: Four items by using a 7-point Likert scale Cronbach's α : 0.77 (1) a victim of society; (2) deprived of the opportunities that are available to others; (3) victimized by society and (4) discriminated against more than members of other age groups	Psychological well-being (two dimensions) (1) self-esteem: Positive self-regard by using a 10-item personal self-esteem scale (Cronbach's α : 0.77) (2) life satisfaction using a 5-item scale derived from Schmitt et al. (2002) and two new items (Cronbach's α : 0.57)	Perceived age discrimination had direct negative effects on the well-being of older adults ($\beta = -.54, p < .05$)
Kim (2015)	Older adults aged 65 and overdrawn from the health and retirement study (n=3991)	Hierarchical multiple regression analysis	A dichotomous variable based on two concepts: (1) perceived everyday discrimination, and (2) attributions of daily discrimination. Cronbach's α : 0.82	Eight questions from the CES-D ¹ scale (Cronbach's α : 0.81)	Perceived ageism had a statistically significant effect on depression ($\beta = .029, p < .05$) controlling for demographic, socioeconomic, and physical health status variables

(continued)

Table 4. (continued)

Author (year)	Sample	Methods	Measures			Key Findings
			Independent (Ageism)	Dependent		
Kim et al. (2015)	Older adults aged 60–89 years in South Korea from the 2013 ageism and health study (n=812)	Hierarchical multiple regression analysis	The Palmore ageism scale (2001) Cronbach's α : 0.83	The CES-D scale (Cronbach's α : 0.92) <	An increase in experiences of ageism was significantly associated with increased depressive symptoms ($\beta = 0.12, p < .001$) while controlling for age, sex, education, marital status, economic status, health condition	
Lee and Kim (2016)	Older women aged 65 or above, who lived in rural areas and attended senior community centers (n=207)	Structural equation modeling	Used Palmore's (2001) ageism survey to assess experienced ageism. It consists of 20 items with a 4-points Likert scale Cronbach's α : 0.93	(1) Depression: The Korean translation of GDS ² -SF—15 items with a dichotomous scale (yes or no) (Cronbach's α : 0.84) (2) stress—stress recognition scale (Lee & Lee, 2002)—21 items with a 4-points scale (Cronbach's α : 0.85)	Ageism had a direct effect on stress ($\beta = .49, p < .01$) and had an indirect effect on depression through stress ($\beta = .34, p < .01$)	
Lyons et al. (2018)	Australians aged 60 and over were recruited through various recruitment strategies both online and offline (n=21119)	Hierarchical multiple regression analysis	Used Palmore's (2001) ageism survey to assess experienced ageism. It consists of 20 items with 4 points Likert scales Cronbach's α : 0.83	Depression, anxiety, and stress scale (DASS-21) (Antony, Bieling et al. 1998)—21 items with a 4-point Likert scale	Ageism experience had statistically significant effects on depression ($\beta = .022, p < .001$), anxiety ($\beta = .023, p < .001$), and stress ($\beta = .026, p < .001$) while controlling for demographic, socioeconomic, and physical health status variables	
Sabik (2013)	European American and African American women in 60s (University of Michigan alumnae in 2008) (n=244)	Structural equation modeling	The five questions used to assess perceptions of age discrimination (adapted from measures of racial and gender discrimination) Cronbach's α : 0.75 (1) deprived of the opportunities (2) my age group have been deprived of the opportunities (3) older people are excluded from many sectors of public life (4) after ending one's working life, one is considered to be worthless (5) the achievements of older people are not appreciated in our society	The five-item mental health subscale from the MOS ⁴ 36-item short-form health survey Cronbach's α : 0.82	Perceived age discrimination was directly associated with lower psychological well-being. (Direct effect: $\beta = -.29, p < .001$)	

(continued)

Table 4. (continued)

Author (year)	Sample	Methods	Measures		
			Independent (Ageism)	Dependent	Key Findings
Shin et al. (2018)	Patients with cancer who were 60 years or older recruited from the National Cancer Center and 10 other regional cancer centers in Korea (n=439)	Multivariate linear regression	Yes/no dichotomous variables measuring seven discriminations based on their age in the course of their cancer care: disease information, treatment information, the daily mile (TDM) participation, attention from healthcare providers (HCPs), supportive care, and treatment Cronbach's α : 0.82	Mental health and quality of life were assessed with the Geriatric depression scale (GDS) 15 items with binary response options (yes = 1, No = 0)	Ageism experience was associated with a higher depression score (all $p < 0.001$) while controlling for age, gender, education, and income
Siguaw et al. (2017)	Retired seniors obtained from mostly an online survey (n=543)	Structural equation modeling	Garstka et al.'s (2004) 4-item perceived age discrimination scale	Diener, Emmons, Larsen, and Griffin's (1985) 5-item SWL scale	Ageism was significant in predicting SWL ⁵ and its direction was negative ($\beta = -0.10, p < .05$)
Zhang et al. (2018)	Recruited participants aged 60 or over from 17 neighborhoods in Beijing, China (n=279)	Hierarchical multiple regression analysis	18-Item Image of ageing scale (Levy et al., 2004), with nine positive words and nine negative words-7-point Likert scale Cronbach's α : 0.78 (PAS ⁶) Cronbach's α : 0.87 (NAS ⁷)	Well-being was measured using 20-item life satisfaction Index-A (LSI-A) (Neugarten, Havighurst, and Tobin, 1961)—5-point Likert scale Cronbach's α : 0.82	Well-being was negatively influenced by NAS ⁷ ($\beta = -0.14, p < .01$) and positively influenced by PAS ⁶ ($\beta = .21, p < .001$) while controlling for age, gender, education, income, and marital status
Zhang et al. (2019)	Recruited participants aged 60 or over from 21 communities Chongqing, China (n=331)	Hierarchical multiple regression analysis	18-Item Image of ageing scale (Levy et al., 2004), with nine positive words and nine negative words-7-point Likert scale Cronbach's α : 0.85 (PAS ⁶) Cronbach's α : 0.87 (NAS ⁷)	Older adults' well-being was measured (1) morale (15-item Philadelphia Geriatric Center morale scale—Cronbach's α : 0.89), (2) depression (10-item Center for Epidemiologic Studies depression scale—Cronbach's α : 0.86), and (3) loneliness (the 8-item form of the University of California, Los Angeles loneliness scale—Cronbach's α : 0.85)	PAS ⁶ had positive effect on well-being ($\beta = .20, p < .001$) and NAS ⁷ had negative effect on well-being ($\beta = -.29, p < .001$) while controlling for age, gender, education, income, marital status, and physical health

¹T1: Time 1, 2008; T2: Time 2, 2011²GDS: Geriatric Depression Scale.³CES-D: Center for Epidemiologic Studies Depression.⁴MOS: Medical Outcomes Study.⁵SWL: The Satisfaction with Life Scale.⁶PAS: Positive Age Stereotypes.⁷NAS: Negative Age Stereotypes.

Table 5. Summary of Results (Interventions between Ageism and Psychological Well-being).

Author (year)	Sample	Interventions (Hypothesis)	Measures	Method	Key Findings
Garstka et al. (2004)	Older adults aged 64–91 years recruited from the community (n=60)	By promoting a sense of inclusion (support), group identification can partially alleviate the negative effects of perceived discrimination on well-being	Age group identification is measured by five age group identity items using a 7-point Likert scale Cronbach's α : 0.82 (1) I like being a member of my age group. (2) I am proud to be a member of my age group. (3) my age group membership is central to who I am (4) I believe that being a member of my age group is a positive experience, and (5) I have a clear sense of my age group identity and what it means to me	Structural equation modeling	After the addition of age group identification, the total effect of perceived age discrimination on well-being lessened ($\beta = -.36, p < .05$)
Kim (2015)	Older adults aged 65 and overdrawn from the health and retirement study (n=3991)	Self-perception of aging and purpose in life can be a potential pathway that mediates between perceived ageism and depression	(1) self-perception of aging: The Philadelphia Geriatric Center morale scale Cronbach's α : 0.72 (2) purpose in life: measured based on a multi-dimensional model of psychological well-being constructed by Ryff (1989) Cronbach's α : 0.76	Hierarchical multiple regression and structural equation modeling	(1) the results of the regression perceived ageism on depression ($\beta = .017, p = .197$), disappeared when self-perception of aging was included, and was marginally significant when purpose in life was entered ($\beta = .022, p = .095$) (2) the results of structural equation modeling the impact of the indirect path from perceived ageism to depressive symptoms mediated by self-perception of aging ($\beta = .112, p < .001$) the impact of the indirect path from perceived ageism to depression mediated by purpose in life through self-perception of aging ($\beta = .012, p = .048$)
Kim et al. (2015)	Respondents who reported ageism experiences (n=390)	Emotional reactions and coping responses can alleviate or exacerbate the impact of ageism on depressive symptoms	(1) emotional reactions (mediator): 16 items, including feeling hurt, angry, sad, frustrated, humiliated, discouraged, terrified, foolish, or ashamed. Cronbach's α : 0.901 (2) coping responses (moderator): Problem-focused (taking formal action, confrontation, seeking social support) and emotion-focused (passive acceptance, emotional discharge). Cronbach's α : 0.627 to 0.851	Hierarchical multiple regression (A bootstrap procedure)	(1) after including emotional reactions, ageism did not predict depressive symptoms ($\beta: -0.01, p > 0.05$) (2) none of the coping strategies significantly buffered the association between ageism and depression

(continued)

Table 5. (continued)

Author (year)	Sample	Interventions (Hypothesis)	Measures	Method	Key Findings
Sabik (2013)	European American and African American women in 60s (N=244)	Body esteem would mediate the relationship between perceptions of age discrimination and psychological well-being	Body esteem: The appearance esteem (10 items) and weight esteem (8 items) subscales from the body esteem scale Cronbach's α : .94	Structural equation modeling	Body esteem partially mediated the association between perceptions of age discrimination and psychological well-being (indirect effect: $\beta = -0.047, p < .05$) the effect of age discrimination on psychological well-being decreased (direct impact = $\beta = -.29 \rightarrow \beta = -.24$)
Zhang et al. (2018)	Recruited participants aged 60 or over from 17 neighborhoods in Beijing, China (n=279)	NAS ¹ would weaken the positive effect of PAS ² on the well-being of those people with low levels of flexible goal adjustment (FGA ³)	FGA ³ was measured using the 15-item FGA ³ scale (Brandstädter and Renner, 1990)—5-point Likert scale	Hierarchical multiple regression (interaction)	The interaction term of PAS ² x NAS ¹ x FGA ³ was significant in predicting well-being ($\beta = .19, p < .01$) the positive effect of PAS ² on well-being declined for those participants with low FGA ³ condition, but the effect remained the same for individuals with high FGA ³

¹NAS: Negative Age Stereotypes.²PAS: Positive Age Stereotypes.³FGA: Flexible Goal Adjustment.

Table 6. Review of Methodological Quality.

Criteria Quality Index	Avidor et al. (2017)	Bai et al. (2016)	Fernandez-Ballesteros et al. (2017)	Garstka et al. (2004)	Kim (2015)	Kim et al. (2015)	Lee and Kim (2016)	Lyons et al. (2018)	Sabik (2013)	Shin et al. (2018)	Siguaw et al. (2017)	Zhang et al. (2018)	Zhang et al. (2019)
a	Y	Y	Y	Y	Y	Y	Y	U	U	Y	U	U	U
b	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
c	N	N	N	N	N	Y	Y	Y	U	N	U	Y	Y
d	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y
e	Y	Y	N	N	Y	Y	N	Y	Y	Y	N	Y	Y
f	Y	Y	N/A	N/A	Y	Y	N/A	Y	Y	Y	N/A	Y	Y
g	N	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y
h	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Score	6	6	5	5	7	8	6	7	5	7	3	7	7

a Were the criteria for inclusion in the sample clearly defined?

b Were the study subjects and the setting described in detail?

c Was the exposure measured in a valid and reliable way?

d Were objective, standard criteria used for measurement of the condition?

e Were confounding factors identified?

f Were strategies to deal with confounding factors stated?

g Were the outcomes measured in a valid and reliable way?

h Was appropriate statistical analysis used?

*Y: Yes; N: No; U: Unclear; N/A: Not applicable.

or experienced ageism were more likely to show lower levels of psychological well-being than those who did not perceive or experience ageism. Moreover, the psychological well-being of older people was adversely affected if they held internalized ageist thoughts.

The second goal of the study was to identify mediating or moderating factors between ageism and the psychological well-being of older adults. Five of the reviewed studies tested mediating or moderating effects of interventions between ageism and psychological well-being. Except for the coping responses, all mediating variables buffered the negative effects of ageism on psychological well-being in older adults. Age group identification (Garstka et al., 2004), emotional reactions (Kim et al., 2015), self-perception of aging and purpose in life (Kim, 2015), body esteem (Sabik, 2015), and flexible goal adjustment (Zhang et al., 2018) were all identified as effective mediators to mitigate the negative effects of ageism on the psychological well-being.

To briefly synthesize the interventions, the psychological well-being of older adults (1) who were proud to be a member of their age group, (2) who experienced less negative emotions (i.e., feeling hurt, angry, sad, frustrated, humiliated, discouraged, terrified, foolish, or ashamed), (3) who considered aging process positively and held a positive view of their future, (4) who had greater body esteem, and (5) who had high levels of flexible goal adjustment were less negatively influenced by ageism. These mediators can inform intervention developments that will lessen the effects of ageism and improve older adults' psychological well-being.

Scholars who investigate the extent of the detrimental impacts of ageism on older adults have focused on

developing effective interventions in recent years (Bujang, Sa'at, & Bakar, 2017). For instance, Burnes et al.'s (2019) systematic review of interventions to reduce ageism against older adults found that aging education toward young people and intergenerational contact were effective approaches for adolescents and young adults. However, it remains a question whether education and intergenerational contact can fully reduce the effects of ageism on older adults. In addition, during the COVID-19 pandemic, maintaining contact between generations has been an increasingly challenging endeavor. Thus, it is important to discuss how the negative effects of ageism among older adults during the pandemic. We believe that the intervention results of our study can be used as a basis for implementing innovative strategies to reduce ageism's pernicious effects among older adults during periods of social distancing. These effects may result in a necessity for effective interventions in older adults, such as education for positive aging, emotional management, boosting body confidence, and flexible goal setting that may serve as downstream factors to mitigate or perhaps reverse negative effects of ageism on their psychological well-being. Our review also provides theoretical frameworks that enable a deeper understanding of the role of ageism in psychological well-being. One of these is the stress process model (Kim, 2015). Recurrent experiences of ageism can be a stressor, and exposure to these stressful events could lead to depressive symptoms (Kim, 2015). Unlike other stressors, ageism cannot be resolved only at the individual level. All age groups should be involved in addressing issues regarding ageism because it is one of the most socially condoned and institutionalized forms of prejudice that is reflected in many

areas of society (Nelson, 2005). The stereotype embodiment framework also helps us understand how ageism inhibits the psychological well-being of older adults. Stereotype embodiment refers to a person's internalization of age stereotypes through life-long exposure (Levy, 2009). This tends to adversely affect older adults psychologically, behaviorally, and physiologically. That is, when older adults endorse negative stereotypes, they are more likely to experience a broader range of adverse health outcomes.

Through the review process, we found that the research on the relationship between ageism and the psychological well-being of older adults is at an early stage with ample room for development. The number of identified quantitative studies was small, and most studies identified were conceptual. Considering that ageism is an immediate societal issue, more quantitative studies that provide generalizable empirical evidence are needed. Additionally, very few interventions regarding mediating or moderating factors between ageism and psychological well-being have been identified. That is, no definitive answer has been given for an effective method to deal with the negative effects of ageism. The need to develop an effective intervention as a buffer against the negative effects of ageism has increased due to the pervasive ageism in current society. Finding a way to mitigate or end the negative effects of ageism, especially on the psychological well-being of older adults, would provide additional insight into successful aging.

We also found the measurement of ageism to be insufficient. Among our identified studies, Kim et al. (2015), Lee and Kim (2016), and Lyons et al. (2018) used Palmore (2001)'s ageism measure, and Zhang et al. (2018) and Zhang et al. (2019) used the Levy's et al. (2004) Image of Aging Scale. Palmore's (2001) measure and Levy's et al. (2004) measure assess ageism from different perspectives. While Palmer examined discrimination experienced by older adults, the Images of Aging Scale by Levy et al. (2004) could be completed by respondents of any age and asked to rate the degree to which the words or phrases are representative of older adults. That is, Zhang et al. (2018) and Zhang et al. (2019) adopted and revised ageism scales that were specifically designed to measure the attitudes of younger people toward older people. Similarly, Bai et al. (2016) employed a measure of "perceptions of aging as a burden" to examine internalized ageism of older adults. Palmore's (2001) scale was the only one to examine how older adults felt and responded to being perceived as a stereotype. However, Palmore's (2001) scale is inadequate since it does not account for all aspects of ageism, and because of the ambiguous terminology, it is difficult to determine how the original meaning of the items was meant to be understood (Kang, 2020). Except for the five studies, other studies in this review used not established scales such as uni-dimensional or simple measures.

Ageism is a subjective concept, which requires considerable effort to measure accurately. Considering that ageism can be assessed using cognitive, behavioral, and informative components, a comprehensive set of constructs is necessary, as these constructs contain reliable and valid indicators.

Several limitations were identified in this systematic review. In our search, we identified a limited number of studies; whereas a comprehensive search was conducted, we found only thirteen studies that met the criteria for inclusion. Although we aimed to include all potentially relevant studies through a comprehensive search using a wide range of search strategies, some literature could not be included. For example, we were not able to include studies in languages other than English. Further, we found several articles that discussed the ageism of older adults aged 50+ or 55+. Our review also found many qualitative studies on ageism. Therefore, we suggest that future researchers might consider setting an age cutoff of 50 for the review, which would provide a larger number of studies to consider. In addition, research will be conducted to review more diverse forms of evidence, both quantitatively and qualitatively. Using qualitative research methods can also help to deepen the understanding of ageism, which is an extremely subjective concept.

Conclusion

From our review, we found that ageism can be a significant threat to the well-being of older adults. Ageism is negatively associated with older adults' psychological health, causing mental health issues such as depression and anxiety and well-being in a negative way. Considering the growing mental health needs of older adults, future research needs to focus on establishing an effective preventive intervention against ageism. The importance of reducing or preventing ageism is often noted (Nelson, 2005; Raposo & Carstensen, 2015), but few specific methods or variables have been presented that might help to reduce ageism, especially from the perspective of older adults. The results from the systematic review contribute to building a literature base that can be used to guide future research on developing interventions for older adults.

In light of the rapid growth of aging people, research on ageism should receive greater attention. While ageism, unlike sexism or racism, is a problem that all individuals may potentially face (Nemmers, 2005), its importance has been neglected, and there is much less research on ageism than on sexism and racism (Kim, 2009). Significant scholarly attention should be given to ageism, considering its importance and universality, as it encompasses every generation and the growth of the population of older adults. At this important moment, this systematic review lays the foundation for future work on ageism against older adults.

Appendix A

Search Strategy

Section and Topic	Item #	Checklist Item	Reported on Page #
Title			
Title	1	Identify the report as a systematic review	1
ABSTRACT			
Abstract	2	Provide a structured summary including, as applicable: Background: Main objectives methods: Data sources; study eligibility criteria, participants, and interventions; study appraisal; and synthesis methods, such as network meta-analysis. Results: Number of studies and participants identified; summary estimates with corresponding confidence/credible intervals; treatment rankings may also be discussed. Authors may choose to summarize pairwise comparisons against a chosen treatment included in their analyses for brevity. Discussion/Conclusions: Limitations; conclusions and implications of findings. Other: Primary source of funding; systematic review registration number with registry name	1
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of existing knowledge	2–3
Objectives	4	Provide an explicit statement of the objective(s) or question(s) the review addresses	4–5
METHODS			
Eligibility criteria	5	Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses	6–8
Information sources	6	Specify all databases, registers, websites, organizations, reference lists and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted	8–9
Search strategy	7	Present the full search strategies for all databases, registers and websites, including any filters and limits used	8–9, AppendixA
Selection process	8	Specify the methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process	9–10
Data collection process	9	Specify the methods used to collect data from reports, including how many reviewers collected data from each report, whether they worked independently, any processes for obtaining or confirming data from study investigators, and if applicable, details of automation tools used in the process	9–10
Data items	10a	List and define all outcomes for which data were sought. Specify whether all results that were compatible with each outcome domain in each study were sought (e.g., for all measures, time points, analyses), and if not, the methods used to decide which results to collect	7
	10b	List and define all other variables for which data were sought (e.g., participant and intervention characteristics, funding sources). Describe any assumptions made about any missing or unclear information	6–7
Study risk of bias assessment	11	Specify the methods used to assess risk of bias in the included studies, including details of the tool(s) used, how many reviewers assessed each study and whether they worked independently, and if applicable, details of automation tools used in the process	10
Effect measures	12	Specify for each outcome the effect measure(s) (e.g., risk ratio, mean difference) used in the synthesis or presentation of results	10

(continued)

(continued)

Section and Topic	Item #	Checklist Item	Reported on Page #
Title			
Synthesis methods	13a	Describe the processes used to decide which studies were eligible for each synthesis (e.g., tabulating the study intervention characteristics and comparing against the planned groups for each synthesis (item #5))	10
	13b	Describe any methods required to prepare the data for presentation or synthesis, such as handling of missing summary statistics, or data conversions	N/A
	13c	Describe any methods used to tabulate or visually display results of individual studies and syntheses	N/A
	13d	Describe any methods used to synthesize results and provide a rationale for the choice(s). If meta-analysis was performed, describe the model(s), method(s) to identify the presence and extent of statistical heterogeneity, and software package(s) used	N/A
	13e	Describe any methods used to explore possible causes of heterogeneity among study results (e.g., subgroup analysis, meta-regression)	N/A
	13f	Describe any sensitivity analyses conducted to assess robustness of the synthesized results	N/A
	Reporting bias assessment	14	Describe any methods used to assess risk of bias due to missing results in a synthesis (arising from reporting biases)
Certainty assessment	15	Describe any methods used to assess certainty (or confidence) in the body of evidence for an outcome	N/A
RESULTS			
Study selection	16a	Describe the results of the search and selection process, from the number of records identified in the search to the number of studies included in the review, ideally using a flow diagram	10–11, Figure 1
	16b	Cite studies that might appear to meet the inclusion criteria, but which were excluded, and explain why they were excluded	10–11
Study characteristics	17	Cite each included study and present its characteristics	11–12 Table 1 and 2
Risk of bias in studies	18	Present assessments of risk of bias for each included study	19–20 Table 5
Results of individual studies	19	For all outcomes, present, for each study: (a) Summary statistics for each group (where appropriate) and (b) an effect estimate and its precision (e.g., confidence/credible interval), ideally using structured tables or plots	Table 3 and 4
Results of syntheses	20a	For each synthesis, briefly summarize the characteristics and risk of bias among contributing studies	11–12
	20b	Present results of all statistical syntheses conducted. If meta-analysis was done, present for each the summary estimate and its precision (e.g., confidence/credible interval) and measures of statistical heterogeneity. If comparing groups, describe the direction of the effect	15–18
	20c	Present results of all investigations of possible causes of heterogeneity among study results	N/A
	20d	Present results of all sensitivity analyses conducted to assess the robustness of the synthesized results	19–20 Table 5
Reporting biases	21	Present assessments of risk of bias due to missing results (arising from reporting biases) for each synthesis assessed	19–20 Table 5
Certainty of evidence	22	Present assessments of certainty (or confidence) in the body of evidence for each outcome assessed	N/A
DISCUSSION			
Discussion	23a	Provide a general interpretation of the results in the context of other evidence	20–21
	23b	Discuss any limitations of the evidence included in the review	19–20 Table 5
	23c	Discuss any limitations of the review processes used	24
	23d	Discuss implications of the results for practice, policy, and future research	21–23

(continued)

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Section and Topic	Item #	Checklist Item	Reported on Page #
OTHER INFORMATION			
Registration and protocol	24a	Provide registration information for the review, including register name and registration number, or state that the review was not registered	N/A
	24b	Indicate where the review protocol can be accessed, or state that a protocol was not prepared	N/A
	24c	Describe and explain any amendments to information provided at registration or in the protocol	N/A
Support	25	Describe sources of financial or non-financial support for the review, and the role of the funders or sponsors in the review	N/A
Competing interests	26	Declare any competing interests of review authors	N/A
Availability of data, code and other materials	27	Report which of the following are publicly available and where they can be found: Template data collection forms; data extracted from included studies; data used for all analyses; analytic code; any other materials used in the review	N/A

Note. The PRISMA 2020 item checklist is from [Page et al. \(2021\)](#).

Appendix B

PRISMA 2020 Item Checklist

ProQuest Research Library—August 31, 2019

1. All (“prejudice” or “stigma” or “labelling” or “stereotyp*”) in anywhere except full text-ALL
2. All (“age*” or “age-related”) in anywhere except full text-ALL
3. All (“ageism” or “ageist” or “age discrimination”) in anywhere except full text-ALL
4. All (“older*” or “elder*” or “senior*” or “aged” or “old age”) in anywhere except full text-ALL
5. All (“psycholo*” or “emotion*” or “mental” or “stress” or “isolation” or “satisfaction”) in anywhere except full text-ALL
6. All (“well-being” or “outcome” or “impact*” or “result*” or “health”) in anywhere except full text-ALL
7. All (“quality of life” or “life satisfaction”) in anywhere except full text-ALL
8. 1 and 2
9. 3 or 8
- 10.4 and 9
- 11.5 and 6
- 12.7 or 11
- 13.10 and 12

Web of Science—August 31, 2019

1. Topic: (“prejudice” or “stigma” or “labelling” or “stereotyp*”)
 2. Topic: (“age*” or “age-related”)
 3. Topic: (“ageism” or “ageist” or “age discrimination”)
 4. Topic: (“older*” or “elder*” or “senior*” or “aged” or “old age”)
 5. Topic: (“psycholo*” OR “emotion*” OR “mental” OR “stress” OR “isolation” OR “satisfaction”)
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(continued)

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Academic Search Complete—August 31, 2019

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ORCID iD

Hyun Kang  <https://orcid.org/0000-0003-3804-7165>

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