



Featured Article

The mediating role of self-directed ageism in sexual health among Jewish-Israeli older people

Tamar Gitlitz, Ph.D. *, Liat Ayalon, Ph.D.

School of Social Work, Bar Ilan University, Israel



ARTICLE INFO

Article history:

Received 9 August 2023

Received in revised form 5 October 2023

Accepted 6 October 2023

Available online 10 November 2023

Keywords:

Ageism

Resilience

Self-directed ageism

Sexual functioning

Sexual health

ABSTRACT

This article examines the relationships between physical health, personal resilience and healthy sexuality in older adults, and the mediating role of self-directed ageism in these relationships. Healthy sexuality, which encompasses sexual partnership satisfaction, sexual behaviors, successful sexual functioning, few negative changes, and few sexual health concerns, is important in old age. Five hundred Jewish-Israeli women and men, aged 60 years and over, participated in the study. Five questionnaires were administered that examined the number of diseases, level of resilience, self-perceptions of aging, and sexual relationships and activities. The data were analyzed using multiple linear and logistic regressions, and path analysis for the mediating role of self-directed ageism. The results showed that higher levels of resilience were positively related to aspects of sexual health, while reporting more diseases and higher self-directed ageism were negatively related to sexual health. Self-directed ageism mediated the relationships between resilience and number of diseases and sexual health. The findings supported the biopsychosocial model of healthy sexuality. It was concluded that sexual health in older age may be promoted by fostering resilience, promoting good health, and reducing self-directed ageism.

© 2023 Elsevier Inc. All rights reserved.

Lay summary

This article examined the protective and risk factors for sexual health, focusing on chronic disease, resilience, and self-directed ageism among older adults. The results demonstrated that sexual health was generally higher for males than females, and higher for young than for older adults. It tended to be positively associated with resilience, and negatively associated with self-directed ageism. Self-directed ageism mediated the associations between resilience and number of diseases, and sexual health, such that higher resilience and fewer diseases were associated with lower self-directed ageism, which in turn was associated with higher sexual health.

Introduction

As people age, they are more likely to experience several physical difficulties simultaneously.¹ At the same time, aging confers considerable advantages in several psychological domains.² In particular older people report more positive daily emotional experiences and life satisfaction than younger people.^{3,4} Hence, it is important to

examine biopsychosocial factors that influence sexual health, which is reflected in sexual functioning and attraction, which continue throughout the life cycle.^{5,6}

The biopsychosocial framework is often used to describe and understand sexual health among older people. This framework relates to biological aspects (health and chronic diseases, such as heart diseases and diabetes), psychological aspects (attitudes regarding sex and the ability to cope with and overcome adversities) and social aspects (social stigma and values that may result in the cessation of sexual activity).^{7,8} By applying the biopsychosocial framework to different dimensions of sexual health among older people, the current study explored the associations between physical health and personal resilience and sexual health in older adults, and the mediating role of self-directed ageism in these associations.

Patronizing ageist attitudes of younger people, that they must safeguard the health of older people, as they are incapable to maintain their own health may lead to the internalization of these attitudes by older adults. For these reasons, it is important to explore the associations/relationships between older adults' resilience, as well as their medical condition, their sexual health and their self-ageist attitudes.

Sexual health

Human sexuality is a universal part of living, relevant to all people.^{9,10} The initial definition of sexual health¹⁷ emphasized a

*Corresponding author.

E-mail address: tamar.gitlitz@gmail.com (T. Gitlitz).

holistic view of sexuality that entails more than the absence of sexual problems or sexual functionality.¹¹ Further aspects were added, such as the inclusion of sexual responsibility, well-being as a value-defined quality, and the recognition of sexual rights as a requirement to achieve sexual health.^{10,11}

Stereotypes of older people generally ignore the significance of sexual activity and fulfillment for older people's quality of life and their emotional well-being.⁹ However, population-based surveys indicated that many older adults are engaged in intimate relationships and regard sexuality as an important part of life.^{5,6} Furthermore, sexuality in old age is expressed in various ways, from tenderness and care, through positive communication, sexual activity and eroticism.¹² Thus, older adults engage in a spectrum of sexual and physical intimate behaviors, including masturbation, vaginal intercourse, and foreplay, e.g., kissing and caressing, as the most frequently reported activities.^{13,14} The internet has also influenced sexual knowledge, norms, and behaviors. Studies have found that older adults in different countries and cultures use the internet for finding partners and seeking advice regarding sex and relationships.^{15,16} A large study undertaken by Nicolosi and colleagues,¹⁷ using a sample of 27,500 men and women aged 40 to 80 years, from 29 countries, found sexual behaviors to be essential for *self-esteem* and the will to maintain a relationship.

Another aspect of sexual health is sexual functioning, which has received little attention in research and clinical practice among older adults. Despite the fact that research has examined health variables, they lack knowledge concerning the background psychosocial factors that can explain difficulties in sexual functioning in old age. While the older adults represent a heterogeneous group, which undergoes sexual changes,¹⁸ there is evidence that well-being is higher among older adults when they are sexually active.^{6,19}

Factors promoting and hindering sexual health among older people

Chronic diseases, resilience, ageism and self-ageism and sexual health will be reviewed

Chronic diseases. Many chronic diseases are more prevalent in older individuals than in young people. Chronic physical conditions may affect sexual activity frequency and functioning among older adults.^{20,21} For example, cardiovascular, neurological, and endocrine system problems can limit sexual activity. Arthritis, heart disease, diabetes, and chronic obstructive pulmonary disease (COPD) can also lead to functional limitations, impacting people's sexual health.²² Diabetes can harden and narrow the blood vessels and cause erectile problems and reduced vaginal sensitivity.²³ Moreover, conditions that are painful, such as arthritis, may affect a person's mobility or comfort when having sex.²⁴ Sexual difficulties also can be caused by medications prescribed to manage chronic health conditions. Many common drugs can have side effects that affect sexual activity, including cardiovascular drugs, anti-epileptics, and cancer drugs, such as long-acting gonadotrophin-releasing hormone agonists, and others.²⁵

Furthermore, chronic disease, in the dyadic context, may also mean a shift in roles, as one's partner becomes dependent on his/her mate, which can reduce sexual attraction and desire.²⁶ Additionally, having to adjust to the diagnosis and body-altering treatments that can accompany certain medical conditions may harm a person's self-confidence and self-esteem, which may also limit their ability and willingness to engage in sexual activity.²⁷

Resilience. The American Psychological Association²⁸ defines resilience as "the process and outcome of successfully adapting to difficult or challenging life experiences, especially through mental, emotional, and behavioral flexibility and adjustment to external and internal demands. Resilience involves more than just enduring hard times; It

involves a dynamic process of learning, growth and positive change that can result from dealing with and overcoming age-related changes.^{29,30}

According to Bhattacharyya,³¹ utilizing the individual's and the couple's resilience is key for offering effective interventions for the problems faced by older adults and for promoting healthy aging. Furthermore, higher emotional well-being, optimism, self-related successful aging, social engagement, and fewer cognitive complaints are considered strong predictors of resilience. Higher levels of resilience can predict longevity and high quality of life among older adults.^{32–35}

The implications of resilience for older adult's sexual health have been emphasized by Banerjee and Rao.³⁶ Their research demonstrated that sexuality was "a mode of resilience" among the study participants; positive sexual perceptions were associated with better coping in adverse life situations. Accordingly, emotional bonding, better communication, and healthy aging (with a lesser focus on age-related bodily changes) influenced sexual pleasure. In addition, the researchers indicated that resilience helped couples in their relationships, with emotional connection and intimacy playing a crucial role in building resilience. Resilience in sexual health also includes alternative methods of sexual expression,³⁶ such as intercourse,¹² shifting focus away from penetrative sex acts. Von Humboldt et al.'s¹² study stressed different ways on expressing sexuality in ageing and emphasized the importance of tenderness and care and eroticism for older adults who are sexually active. Towler et al.³⁷ also discussed alternative sexual expression and the increasing meaning of romanticism, companionship, and shared memories/ experiences among older adults. In the present study, we explored whether resilience mediates sexual health.

Ageism and self-directed ageism. The term ageism was coined in the late 1960s and initially reflected a negative perspective toward older people.³⁸ Current definitions view it as discrimination, prejudice, and stereotypes based on human age.³⁹ Ageism can be expressed via three classical components: cognitive – refers to negative stereotypes, affective – refers to prejudice against older people, which is often accompanied by feelings of disgust and fear of the aging process and inevitable death, and behavioral components, which are expressed in a marginalization process against older people and discrimination.

Ageism is characterized by positive/negative aspects (positive ageism, negative ageism), conscious/unconscious aspects (explicit ageism, implicit ageism) and the levels at which ageism can be manifested (micro-level ageism, meso-level ageism, macro-level ageism).⁴⁰

Self-directed ageism is related to older people's internalization of stereotypes against them, based on their actual or perceived age, and is common in the lives of older people.^{1,41,42} Indeed, studies show that older people often internalize age stereotypes and behave according to the social expectations of them as "old".^{43,44} Thus, its consequences can adversely affect health and well-being.^{39,44}

Recent research has presented substantial evidence regarding the enduring effects of self-perceptions of aging (SPA) on key aspects of successful aging, such as overall health and life satisfaction. It is now widely recognized that SPA can function as a self-fulfilling prophecy, exerting influence in both unhealthy and healthy states.⁴⁵ Studies have shown the association between self-directed ageism and chronic diseases^{1,41,42} and between self-directed ageism and resilience.^{46–48} Other studies have shown associations between self-directed ageism and different aspects of sexual health, including, sexual behavior and activities, sexual functioning, negative changes in sexual behavior and function, sexual health concerns, having/not having sex in the past three months, and sexual partnership satisfaction.^{44,49}

Self-directed ageism and sexual health. Experiences of self-directed ageism are associated with poorer health outcomes, including sexual

health outcomes, as popular culture often depicts the older body as asexual, undesirable or sexually impotent,⁴⁹ thus, resulting in older adults viewing their own aging bodies and sexuality as irrelevant. Moreover, sexual roles in culture are reinforced and disseminated by the media. Recognition of the meaning and the effects of these social norms has been woven throughout the responses of older adults to the ways that media impacted their sexual expression, by limiting what they perceived acceptable in the broader society.³⁷ In addition, people who remain sexually active are stereotyped by different concepts, such as “sexy oldie” and “cougar,” which are introduced by the popular media and represent stereotypical, ageist approaches toward older people’s sexuality.⁵⁰ While these labels acknowledge sexual desire in older persons, they portray negative aspects and reinforce the concept that, as a rule, older persons are asexual, presenting sexuality in a very narrow and one-dimensional mode.^{44,51} These negative stereotypes are then internalized by older adults, who behave accordingly, by viewing themselves as a-sexual and undesirable.

Chronic diseases, resilience, and self-directed ageism

Findings have suggested that negative self-stereotypes of aging increase the tendency to have cardiovascular diseases among individuals aged 50 and older, who were interviewed in 6 waves.⁵² Self-directed ageism has also been positively correlated with poor mental health and with physical health problems among older people.⁵³ Older adults with negative perceptions about aging demonstrated poorer functional health⁵⁴ and ageism has been found to be a possible social determinant of chronic disease.¹ There is also a link between mental health and internalized ageism, as researchers have found that the mental health of aging people is harmed as a result of self-directed ageism.⁵⁵

In contrast, high levels of resilience are associated with low self-directed ageism, and resilience helps decrease older adults’ mental distress.⁵⁶ However, while resilience was found to be a mediator between self-directed ageism and loneliness, and emotional well-being during the Covid-19 pandemic,⁵⁷ it appears that in connection to healthy sexuality, self-directed ageism mediated between resilience and sexual health. In other words, in the context of sexual health, resilience does not appear to neutralize self-directed ageism. Furthermore, in a study on the gay community, it was found that self-directed ageism mediated between resilience and mental health. Among lesbian women, experiences of self-directed ageism predicted greater psychological distress and lower positive mental health. Concerns about sexuality acceptance predicted poorer outcomes on all three well-being measures in cases in which the women also had greater experiences of age discrimination.⁴⁸

Based on the above studies, in the current study, we were interested in learning if resilience is associated with sexual health and would be mediated by self-directed ageism. We explored this aspect, since there is often the perception that it is more normative to aspire to less loneliness and better well-being among older adults than to improved sexual health. We hypothesized (see below) that resilience would not serve as a buffer for self-directed ageism, but rather would be mediated by self-directed ageism, in the context of sexual health.

This study goes beyond previous studies by presenting a holistic approach that examines the different biopsychosocial variables that may contribute to older people’s sexual health. Like Levy’s⁵⁸ study, we examined the following research hypotheses:

(1) Higher levels of resilience and fewer chronic diseases will be positively associated with sexual health; (2) self-directed ageism will be negatively associated with sexual health; and (3) self-directed ageism will mediate the associations between resilience and the number of chronic diseases, and sexual health. Thus, higher levels of resilience and fewer diseases will be related to lower self-directed ageism, which will then be related to higher sexual health.

Method

Sample and procedure

From a panel of 2356 older people who were approached for this study, 609 responded (25.8 %). Five hundred of these 609 potential participants completed the questionnaire (82.1 %). Importantly, the panel method was chosen rather than a web-survey to avoid non-coverage issues.⁵⁹ Respondents were compensated a nominal amount for completing the questionnaire. Study procedures were reviewed and approved by the Tel Aviv University Institutional Review Boards.

The 500 participants were community-dwelling Jewish-Israeli older adults, at the age range of 60 to 88 years (mean age = 67.39 years, SD = 5.61), throughout the country (See Table 1). About half were female. Most were married (about 70 %), and others were mainly separated or divorced (about 21 %). Most respondents were living with another person in the household (about 77 %). They had 2.66 children on average (SD = 1.30), with the oldest children being about 40 years old on average, and the youngest about 30 years old on average. Most participants were Israeli born (about 72 %). The others were mainly born in Europe or Northern or Southern America. Most were secular (about 72 %) and had a high school (about 24 %) or academic (about 53 %) education level. About half were employed and reported income was mostly below average (about 49 %) or average (about 29 %).

Instruments

Sexual health: The Sexual Relationships and Activities questionnaire (SRA-Q) was used.⁹ The questionnaire deals with levels of sexual activity, problems with sexual functioning, and concerns about sexual health among older adults. The questionnaire was validated by Lee et al.,⁹ and back translated to Hebrew for the current study. (The correlations between the dimensions of sexual health in the

Table 1

Demographic Characteristics: Age, Gender Family status, Living status, Number of children, Country of birth, Religiosity, Education, Income (N = 500).

Variable	
Age, mean (SD), range	67.39 (5.61), (60–88)
Gender, female, n (%)	251 (50.2)
Family status, n (%)	
Married	348 (69.6)
Separated, divorced	104 (20.8)
Widowed, single	48 (9.6)
Living status, n (%)	
With another person	387 (77.4)
Alone	113 (22.6)
Number of children, mean (SD), range	2.66 (1.30), (0–12)
Country of birth, n (%)	
Israel	351 (72.5)
Asia-Africa	30 (6.2)
Europe-America	103 (21.3)
Religiosity, n (%)	
Secular	359 (71.8)
Partly religious	99 (19.8)
Religious	42 (8.4)
Education, n (%)	
Below high school	50 (10.0)
High school	64 (12.8)
Higher education	122 (24.4)
Academic	264 (52.8)
Income, n (%)	
Below average	219 (49.3)
Average	130 (29.3)
Above average	95 (21.4)

current sample range between $r = -0.49$ and $r = 0.36$, $p < 0.001$, with one additional correlation of $r = 0.64$, $p < 0.001$.

Sexual behavior and activities is a scale of four items (e.g., during the past month... “How often did you think about sex?”), rated on a 7-point scale from 1 (“not at all”) to 7 (“more than once a day”). The total score was composed by averaging the items: a higher score represents greater sexual behavior and activities. An acceptable internal consistency was found in the current study ($\alpha = 0.76$).

Sexual functioning has one item, (during the past month... “When you had sexual stimulation, how difficult was it for you to reach orgasm?”) rated on a 5-point scale from 1 (“impossible”) to 5 (“not hard at all”). A higher score represents better sexual functioning.

Negative changes in sexual behavior and function. The questionnaire was created for this study and includes two items (e.g., compared with a year ago... “Has your sexual desire/drive changed?”), rated on a 5-point scale from 1 (“increased a lot”) to 5 (“decreased a lot”). The total score was composed by averaging the items: a higher score represents more negative changes in sexual behavior and function. A high correlation was found between the two items ($r = 0.75$, $p < 0.001$).

Sexual health concerns has three items (e.g., during the past month... “Have you been worried or concerned by your level of sexual desire?”), rated on a 5-point scale from 1 (“not at all worried”) to 5 (“extremely worried”). The questionnaire was created for this study. The total score was computed by averaging the items: a higher score represents higher sexual health concerns. High internal consistency was found in the current study ($\alpha = 0.90$). The total score was log transformed due to a positive skewness value (skewness = 1.60, SE = 0.11).

Having/ not having sex in the past three months. The questionnaire was created for this study. It includes two items: (1.) Have you had sex in the past three months? (yes/no) and (2.) Who initiated the sex? (I did, my partner, equally).

Sexual partnership satisfaction. The questionnaire was created for this study. It includes five items (e.g., during the past month... “How often did you and your partner share the same sexual likes and dislikes?”), rated on a 5-point scale from 1 (“never”) to 5 (“always”). The total score was computed from the mean of the items: a higher score represents higher sexual partnership satisfaction. Low internal consistency was found ($\alpha = 0.67$).

Number of diseases: 12 types of common diseases in older people were listed. The respondents were asked to answer “yes” or “no” to whether they had them. The common diseases were taken from The Survey of Health, Aging and Retirement in Europe (SHARE).⁶⁰ The total score for the number of diseases was computed as the sum of listed diseases, ranging from 0 to 12.

Resilience: Resilience was measured via the Connor-Davidson Resilience Scale⁶¹ – which had 25 statements. Campbell-Sills and Stein⁶² shortened the original questionnaire to 10 statements (CD-RISC10). The items were rated on a 5-point scale (0 = not true at all to 4 = true nearly all the time). The shortened questionnaire was found to have high construct validity and internal consistency. The total score for the CD-RISC10 is the sum score for all the items, ranging from 0 to 40. A higher score represents higher resilience. High internal consistency was found in the current study ($\alpha = 0.91$).

Self-directed ageism: To measure this variable, they compiled a 10-item questionnaire that was based on the Philadelphia Geriatric Center (PGC) Morale Scale.⁶³ In spite of the fact that Lawton did not use the term, “self-ageism” in the questionnaire, he did refer to “attitude toward own aging,” which captures the essence of the term “self-ageism.”

The following questions were taken (PGC) Morale Scale⁶³: “Things keep getting worse as I get older;” “I have as much pep as I had last year;” “Little things bother me more this year;” “As you get older you are less useful;” “As I get older, things are better/worse than I thought

they would be;” “I sometimes feel that life isn’t worth living;” and “I am as happy now as when I was younger.” The Self-perceptions of Aging measure⁶⁴ was also used: “So far, I am satisfied with the way I am aging;” “The older I get the more I have to stop doing things that I liked;” and “Getting older has brought with it many things that I do not like.” The items are rated on a yes (1)/no (0) scale, and the total score is their sum, ranging from 0 to 10: a higher score represents higher self-directed ageism. Good internal consistency was found in the current study ($\alpha = 0.84$). The questionnaire was validated with common diseases of old age, self-rated health, smoking status, alcohol consumption, and depressive symptoms.⁹

Data analysis

Data were analyzed with SPSS version 28. Descriptive statistics were calculated with means and standard deviations, frequencies and percentages. The relationships between the variables of sexual health and major demographic characteristics of the participants were evaluated with t-tests and Pearson correlations. Multiple linear and logistic regressions were calculated to assess the study hypotheses that resilience and physical health, and self-directed ageism, will be related to sexual health, while controlling for demographic characteristics.

The mediating role of self-directed ageism between chronic disease and resilience, on the one hand, and sexual health, on the other, was examined with path analysis, using AMOS version 28. Continuous variables were standardized. The plausibility of examining the model with structural equation modeling (SEM) was examined, and path analysis was used. The fit indices that were used were the Comparative Fit Index (CFI), Normed Fit Index (NFI), Non-normed GFI (NNFI), and Root Mean Square Error of Approximation (RMSEA) with its 90 % CI. As a rule of thumb, values of RMSEA less than 0.08 indicate a reasonable fit, and values of CFI, NFI, and NNFI larger than 0.90 indicate an acceptable fit.⁶⁵ The indirect effects for the mediator were assessed within the path analysis, and their significance (95 % CI) was evaluated with the Monte Carlo method with 20,000 bootstrap samples.⁶⁶

Results

Descriptive statistics

Significant correlations were found between sexual health and the other study variables (see Table 2). In general, higher levels of resilience, being diagnosed with fewer diseases, and lower perceptions of ageism were related to higher odds for having sex in the past three months, higher level sexual behavior and activities, better sexual functioning, and higher sexual partnership satisfaction. Similarly, they were related to fewer negative changes in sexual behavior and function, and to lower concerns about sexual health (note that most, but not all, correlations were significant). Furthermore, higher self-directed perceptions of ageism were related to being diagnosed with more diseases and lower levels of resilience.

Sexual health and demographic characteristics

The relationships between the main demographic characteristics and the study variables were examined. This examination was undertaken to assess whether some demographic variables should be considered as covariates in the regression analyses, to control their effects.

Age: Participants who reported having sex in the past three months were somewhat younger ($M = 66.61$, $SD = 5.13$) than participants who reported not having sex ($M = 68.64$, $SD = 6.12$; $t(353.23) = 3.82$, $p < 0.001$). Age was further negatively related to

Table 2Means, standard deviations and inter-correlations for the study variables ($N/0 = 500$).

	M (SD)	2.	3.	4.	5.	6.	7.	8.	9.
1.Had sex	0.62 (0.49)	0.64***	0.28***	-0.29***	0.15**	—	0.22***	-0.18***	-0.23***
2.Sexual behavior and activities	3.00 (1.34)		0.36***	-0.41***	0.13***	0.24***	0.27***	-0.04	-0.24***
3.Sexual functioning	4.17 (1.13)			-0.34***	-0.31***	0.42***	0.22***	-0.20***	-0.28***
4.Negative changes in sexual behavior and function	3.48 (0.81)				0.12**	-0.28***	-0.18***	0.08	0.24***
5.Sexual health concerns	1.55 (0.85)					-0.49***	-0.10	0.04	0.19***
6. Sexual partnership satisfaction	4.07 (0.66)						0.28***	0.01	-0.34***
7.Resilience	29.20 (6.84)							-0.02	-0.48***
8.Number of diseases	1.56 (1.36)								0.16***
9.Self-directed ageism	3.51 (2.95)								

Note. Had sex in past three months (1=yes, 0=no), Sexual behavior and activities (1–7), Sexual functioning (1–5, $n = 384$), Changes in sexual behavior and function (1–5), Sexual health concerns (1–5), Sexual partnership satisfaction (1–5, $n = 307$), Resilience (10–40), Number of diseases (0–7), Ageism (0–10). * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

sexual behavior and activities ($r = -0.15$, $p = 0.001$), as well as to sexual functioning ($r = -0.14$, $p = 0.005$). That is, older participants reported less sexual behavior and activities and lower-level sexual functioning. The other sexual dimensions were unrelated to age ($p = 0.340$ to $p = 0.794$).

Gender: A higher percentage of males ($n = 187$, 75.1 %) than females ($n = 121$, 48.2 %) reported having sex in the past three months ($Z = 6.18$, $p < 0.001$). Significant gender differences were found in the dimensions of sexual health, as shown in Table 3. Sexual behavior and activities, as well as sexual functioning, were higher for males than females. Along the same lines, negative changes in sexual behavior and functioning were higher for females than males. Sexual health concerns were overall low and were somewhat higher for males than females.

Multiple and logistic regressions for sexual health

The relationships between the study variables and sexual health were calculated with a series of multiple regressions (for the dimensions of sexual health) and a logistic regression (for having/not having sex). Six models were calculated. Age and gender were entered as control variables and, in addition, resilience, number of diseases, and self-directed ageism were entered. The regression results are presented in Table 4.

The logistic model for having sex in the past three months was significant; it explained about 24 % of the variance. Being a male, of a younger age, with higher levels of resilience, and having fewer diseases were related to higher odds for having sex in the past three months. Approximately 22 % of the variance in sexual behavior and

activities was explained by the study variables. Being a male, of a younger age, and having higher levels of resilience were related to more sexual behavior and activities. About 12 % of the variance in sexual functioning was explained by the study variables. Being a male, of a younger age, with higher levels of resilience, reporting fewer diseases, and having lower self-directed ageism related to better sexual functioning. About seven percent of the variance in negative changes in sexual behavior and function were explained. Being a female with higher self-directed ageism was related to reporting more negative changes in sexual behavior and functioning. Next, about 11 % of the variance in sexual health concerns was explained by the study variables. Being a male with higher self-directed ageism was related to reporting more sexual health concerns. Finally, about 13 % of the variance in sexual partnership satisfaction was explained by the study variables. Higher levels of resilience and lower self-directed ageism were related to higher sexual partnership satisfaction.

The mediating role of self-directed ageism

To assess the mediating role of self-directed ageism, they first examined the feasibility of assessing it with structural equation modeling (SEM). For that purpose, a confirmatory factor analysis (CFA) was assessed for the dimensions of sexual health, including the sub-scales as latent variables with their respective items (as observed variables). The CFA model was not found to fit the data ($NFI = 0.834$, $NNFI = 0.785$, $CFI = 0.855$, $RMSEA = 0.103$ [90 % CI = 0.094, 0.111]). Moreover, a model with one latent variable did not fit the data. Thus, the mediating role of self-directed ageism was examined with path

Table 3Multiple and logistic regressions for sexual health ($N = 500$).

	Had sex OR (SE)	Sexual behavior and activities β (SE)	Sexual functioning β (SE)	Negative changes in sexual behavior and function β (SE)	Sexual health concerns β (SE)	Sexual partnership satisfaction β (SE)
Gender (male)	3.61 (0.21)***	0.34 (0.11)***	0.11 (0.11)*	-0.11 (0.07)**	0.30 (0.04)***	-0.06 (0.07)
Age	0.93 (0.02)***	-0.16 (0.01)***	-0.12 (0.01)*	0.02 (0.01)	-0.01 (0.01)	-0.01 (0.01)
Resilience	1.05 (0.02)**	0.20 (0.01)***	0.13 (0.01)*	-0.08 (0.01)	-0.02 (0.01)	0.16 (0.01)*
Number of diseases	0.77 (0.08)***	-0.01 (0.04)	-0.13 (0.04)**	0.05 (0.03)	-0.01 (0.01)	0.08 (0.03)
Self-directed ageism	0.93 (0.04)	-0.08 (0.02)	-0.18 (0.02)**	0.17 (0.01)***	0.22 (0.01)***	-0.28 (0.02)***
R^2	Nag. $R^2 = 0.24$	Adj. $R^2 = 0.22$	Adj. $R^2 = 0.12$	Adj. $R^2 = 0.07$	Adj. $R^2 = 0.11$	Adj. $R^2 = 0.13$
F, χ^2	$\chi^2(5) = 96.20$ ***	$F(5, 494) = 28.44$ ***	$F(5, 378) = 11.83$ ***	$F(5, 494) = 8.25$ ***	$F(5, 494) = 13.78$ ***	$F(5, 301) = 10.04$ ***

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Sexual functioning - $n = 384$, Sexual partnership satisfaction - $n = 307$. Nag. $R^2 =$ Nagelkerke's R^2 .

Table 4
Indirect Relationships between Resilience, Number of Diseases and Sexual Health (N = 500).

Dependent variable:	Sexual behavior and activities		Sexual functioning (n = 384)		Negative changes in sexual behavior and function		Sexual health concerns		Sexual partnership satisfaction (n = 307)	
Independent variable:	Indirect effect (SE)	95 %CI	Indirect effect (SE)	95 %CI	Indirect effect (SE)	95 %CI	Indirect effect (SE)	95 %CI	Indirect effect (SE)	95 %CI
Resilience	0.097 (0.023)	0.033, 0.165	0.113 (0.023)	0.053, 0.177	-0.076 (0.020)	-0.118, -0.037	-0.038 (0.019)	-0.061, -0.016	0.086 (0.020)	0.049, 0.126
Number of diseases	-0.031 (0.015)	-0.060, -0.009	-0.036 (0.015)	-0.065, -0.014	0.025 (0.009)	0.010, 0.044	0.012 (0.006)	0.004, 0.022	-0.028 (0.009)	-0.048, -0.012

Note. SE = Standard error, 95 %CI = 95 % confidence interval.

analysis (using observed variables): resilience and number of diseases were the independent variables, self-directed ageism was the mediator, and the dimensions of sexual health were the dependent variables. They controlled age and gender. Moreover, since two dimensions of sexual health had incomplete data (sexual functioning and sexual partnership satisfaction), they could not examine the significance of the indirect effects in the model with bootstrapping. As a result, the indirect effects were assessed in the path analysis model and their significance (95 % CI) was evaluated with the Monte Carlo method with 20,000 bootstrap samples.⁶⁶

Figure 1 presents the results of the path analysis for the mediating role of self-directed ageism. The model was found to fit the data (NFI = 0.987, NNFI = 0.991, CFI = 0.999, RMSEA = 0.015 [90 % CI = 0.00, 0.054]). (It should be noted that control variables and non-significant relationships are excluded from the figure for purposes of clarity). Furthermore, local fit was analyzed with the d-separation criterion⁶⁷ and the model fit was found to be good. Significant relationships were found between the independent variables (resilience and number of diseases) and self-directed ageism, and between self-directed

ageism and the dependent dimensions of sexual health. Indeed, self-directed ageism was found to mediate the relationships between resilience and number of diseases, and sexual health. Since all confidence intervals for the indirect effects in Table 5 were either positive or negative, it may be concluded that self-directed ageism mediates the relationships between the independent variables and sexual health. In other words, higher levels of resilience and fewer diseases are related to lower self-directed ageism, which, in turn, is related to higher sexual health (i.e., more sexual behavior and activities, higher sexual functioning, fewer negative changes in sexual behavior and function, fewer sexual health concerns, and higher sexual partnership satisfaction).

Discussion

This study examined the links between physical health, resilience and healthy sexuality in older adults, and the mediating role of self-directed ageism in these links. The model confirmed the hypotheses. The findings highlight the important role that self-directed ageism

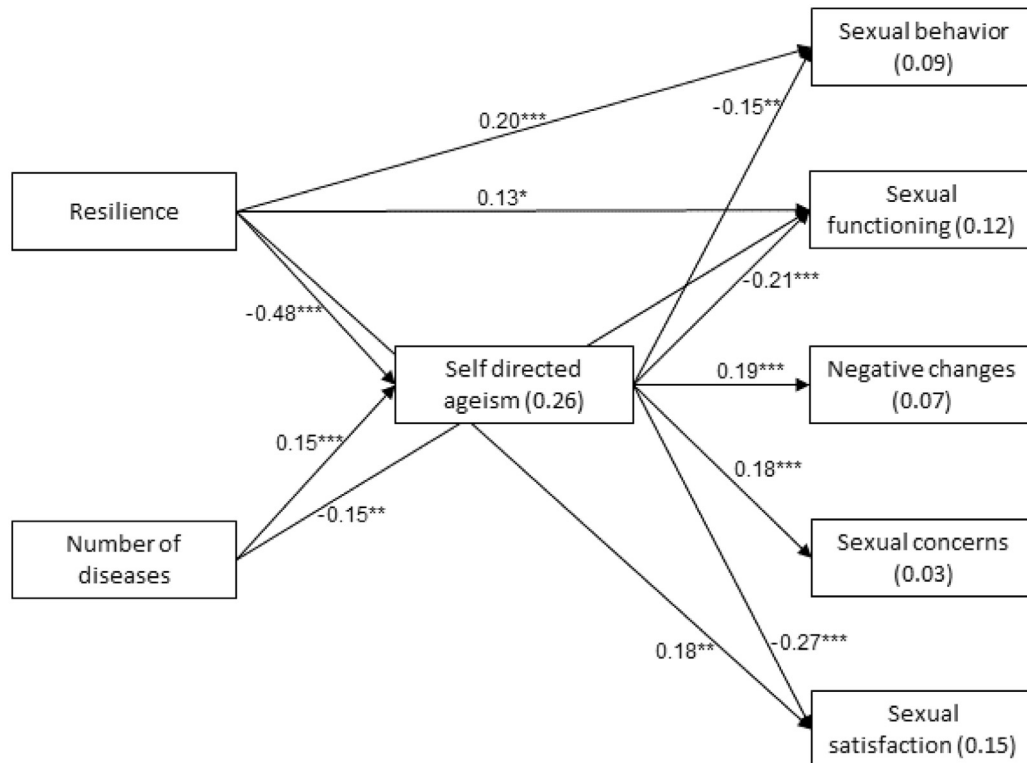


Fig. 1. Path analysis for the mediating role of self-directed ageism.

*p < 0.05, **p < 0.01, ***p < 0.001.

Note. Control variables and non-significant relationships are excluded from the figure for purposes of clarity. Values on arrows - β values; values within the rectangles - R².

Table 5

Indirect relationships between resilience, number of diseases, and medicine overuse, and sexual health (N = 500).

Dependent variable:	Resilience		Number of diseases		Medicine overuse	
	Indirect effect (SE)	95 %CI	Indirect effect (SE)	95 %CI	Indirect effect (SE)	95 %CI
Sexual behavior and activities	0.09 (0.022)	0.029, 0.153	−0.028 (0.015)	−0.055, −0.007	−0.035 (0.015)	−0.067, −0.010
Sexual functioning (n = 384)	0.098 (0.022)	0.042, 0.158	−0.03 (0.015)	−0.057, −0.010	−0.038 (0.015)	−0.069, −0.014
Negative changes in sexual behavior and function	−0.07 (0.018)	−0.111, −0.033	0.022 (0.008)	0.008, 0.040	0.027 (0.009)	0.011, 0.048
Sexual health concerns	−0.025 (0.017)	−0.046, −0.005	0.008 (0.005)	0.001, 0.016	0.01 (0.007)	0.002, 0.019
Sexual partnership satisfaction (n = 307)	0.073 (0.018)	0.038, 0.111	−0.023 (0.008)	−0.041, −0.009	−0.029 (0.009)	−0.049, −0.012

Note. SE = Standard error, 95 %CI = 95 % confidence interval.

has regarding older people's sexual health. Thus, the results reveal an interesting, yet disturbing, picture of the role self-directed ageism has in older people's sexual health.

These findings are consistent with previous studies showing that older people often internalize stereotypes and myths regarding late-life sex and sexuality, and are often hesitant to express their sexuality, which is ultimately related to their sexual health.^{43,44,68–70} This study also showed that resilience and the number of chronic diseases were related directly to certain aspects of sexual health. It was found that self-directed ageist perceptions strengthen the role that disease has in people's lives, significantly reducing their chances of performing or enjoying sex, thereby hampering their sexual relations.^{37,49,51,71,72}

In addition, self-ageism is known for its complex nature, which includes different manifestations.^{40,44} One manifestation is the presence of ageist perceptions among key players in all levels of health care systems (hospital administrators, physicians, nurses, associated health professions, etc.) that treat older adults' health issues, and among people working in other contexts with older people. As a result, caregivers may perceive older adults' illnesses as a "natural process" of decaying, which also relates to their sexual health, while not perceiving them as having sexual desires. It is the way older adults refer to their own aging which mediates between their medical condition and their potential to enjoy their sexual relations. When they perceive themselves as less vital and more depressed due to their aging process, they have difficulties benefiting from their sexual health. Consequently, older adults may self-direct these perceptions, and avoid asking for assistance in areas related to their sexual health.^{44,73} Therefore, ongoing, and improved education and training is vital for reducing age bias from caregivers too. It is important that older adults learn that they have permission to talk about sexual health and to ask for information and therapy about this issue as they can find in "PLISSIT" stands for four progressive levels of intervention: Permission, Limited Information, Specific Suggestions, and Intensive Therapy, to guide discussions and address clients' concerns in a sensitive and effective manner.⁷⁴

The biopsychosocial model can provide an insightful approach to older adults' sexual health. According to Ayalon and Tesch-Römer⁴⁴ and Gewirtz-Meydan and colleagues,⁷¹ older adults' sexual issues are more likely to be addressed through medical technology, whereas younger adults are more likely to be offered interventions which are in line with the biopsychosocial model that is currently advocated for sexual issues. It is important to emphasize that the model's (emotional, biological, and social) variables also relate to sexual health among older people, and not only among younger people. Therefore, the needed response should not only focus on medication, but rather on a holistic view, as is the case with younger adults today.

We assert that it may be possible to improve sexual health in old age, based on the model's three aspects. The first is the biological aspect, reflected by the need to reduce the amount and level of

chronic diseases. This decrease can be accomplished by raising awareness of healthy lifestyles and, specifically, healthy sexuality, which can be further explored and implemented. The second aspect is psychological: sexual health may increase resilience among older adults through intervention methods on all levels – from the micro-level, in terms of treatment methods, up to the macro-level, in acknowledging older adults' rights and wishes for positive sexual health. The third aspect is the social one. Placing sexual health at the center of analysis of aging and later life can provide insights into the possibilities of changing the stereotypes and social practices that shape attitudes and subsequent actions when providing services and support. This is important because older people internalize these stereotypes and discriminatory behaviors and operate accordingly. Moreover, it is essential to ensure that positive sexual health is a fundamental right at any age. Older adults who have difficulties with their sexuality should be aware of their entitlement to treatment, within the framework of the Israeli government's Health Law, for example, that will cover costs of mental health care, subsidized medications, etc.

Limitations and recommendation for future studies

The criteria used in this study for defining sexual health may not encompass all possible components. Moreover, the study was conducted in Israel and caution is necessary when generalizing its findings to other cultures and countries. For example, it would be interesting to compare these results to findings from Asia and Europe in future research, to learn about similarities and differences. The sample, moreover, reflects the Jewish population of Israel, and future studies are advised to widen it to non-Jewish sectors, as well. In addition, the study applied a cross-sectional design; thus, future longitudinal research is recommended.

Self-directed ageism was assessed using the PGC Morale Scale, which was designed nearly 50 years ago.⁶³ The measure does not employ the term "self-directed ageism." Therefore, it is also recommended that future studies employ a questionnaire that directly taps self-directed ageism in relation to sexuality, rather than a questionnaire that assesses self-directed ageism, in general. Finally, since this study was based on self-reports, it is recommended that future work cross-reference self-reports with other sources of information.

Declaration of Competing Interest

The authors declare that they have no conflict of interest.

References

- Allen JO. Ageism as a risk factor for chronic disease. *Gerontologist*. 2016;56(4):610–614. <https://doi.org/10.1093/geront/gnu158>.

2. North MS, Fiske ST. Modern attitudes toward older adults in the aging world: a cross-cultural meta-analysis. *Psychol Bull.* 2015;141(5):993–1021. <https://doi.org/10.1037/a0039469>.
3. Burr DA, Castellon JJ, Zald DH, Samanez-Larkin GR. Emotion dynamics across adulthood in everyday life: older adults are more emotionally stable and better at regulating desires. *Emotion.* 2021;21(3):453–464. <https://doi.org/10.1037/emo0000734>.
4. Galambos NL, Krahn HJ, Johnson MD, Lachman ME. The U shape of happiness across the life course: expanding the discussion. *Perspect Psychol Sci.* 2020;15(4):898–912. <https://doi.org/10.1177/1745691620902428>.
5. Kolodziejczak K, Rosada A, Drewelies J, et al. Sexual activity, sexual thoughts, and intimacy among older adults: links with physical health and psychosocial resources for successful aging. *Psychol Aging.* 2019;34(3):389–404. <https://doi.org/10.1037/pag0000347>.
6. Smith L, Yang L, Veronese N, Soysal P, Stubbs B, Jackson SE. Sexual activity is associated with greater enjoyment of life in older adults. *Sex Med.* 2019;7(1):11–18. <https://doi.org/10.1016/j.esxm.2018.11.001>.
7. DeLamater J, Koepsel E. Relationships and sexual expression in later life: a biopsychosocial perspective. *Sexuality & Ageing.* Routledge; 2016:37–59.
8. Hillman J. A call for an integrated biopsychosocial model to address fundamental disconnects in an emergent field: an introduction to the special issue on "Sexuality and Aging. *Ageing Int.* 2011;36(3):303–312. <https://doi.org/10.1007/s12126-011-9122-3>.
9. Lee DM, Nazroo J, O'Connor DB, Blake M, Pendleton N. Sexual health and well-being among older men and women in England: findings from the English Longitudinal Study of Ageing. *Arch Sex Behav.* 2016;45(1):133–144. <https://doi.org/10.1007/s10508-014-0465-1>.
10. World Health Organization. Defining sexual health document series. Report of a Technical Consultation on Sexual Health 28–31 January 2002. Geneva; 2006. https://www3.paho.org/hq/dmdocuments/2009/defining_sexual_health.pdf.
11. Pan American Health Organization, World Health Organization, World Association For Sexology. Promotion of Sexual Health: recommendations for action. Published online 2000. <https://iris.paho.org/bitstream/handle/10665.2/42416/promotionsexualhealth.pdf?sequence=1&isAllowed=y>.
12. von Humboldt S, Ribeiro-Gonçalves JA, Costa A, Low G, Leal I. Sexual expression in old age: how do older adults from different cultures express sexually? *Sex Res Soc Policy.* 2021;18(2):246–260. <https://doi.org/10.1007/s13178-020-00453-x>.
13. Schick V, Herbenick D, Reece M, et al. Sexual behaviors, condom use, and sexual health of Americans over 50: implications for sexual health promotion for older adults. *J Sex Med.* 2010;7(Supplement_5):315–329. <https://doi.org/10.1111/j.1743-6109.2010.02013.x>.
14. Waite LJ, Laumann EO, Das A, Schumm LP. Sexuality: measures of partnerships, practices, attitudes, and problems in the national social life, health, and aging study. *J Gerontol Ser B Psychol Sci Soc Sci.* 2009;64B(Supplement 1):i56–i66. <https://doi.org/10.1093/geronb/gbp038>.
15. Fileborn B, Lyons A, Hinchliff S, Brown G, Heywood W, Minichiello V. Learning about sex in later life: sources of education and older Australian adults. *Sex Educ.* 2017;17(2):165–179. <https://doi.org/10.1080/14681811.2016.1273829>.
16. Træen B, Carvalheira A, Kvale IL, Hald GM. European older adults' use of the Internet and social networks for love and sex. *Cyberpsychol J Psychosoc Res Cybersp.* 2018;12(3). <https://doi.org/10.5817/CP2018-3-1>.
17. Nicolosi A, Laumann EO, Glasser DB, Moreira ED, Paik A, Gingell C. Sexual behavior and sexual dysfunctions after age 40: the global study of sexual attitudes and behaviors. *Urology.* 2004;64(5):991–997. <https://doi.org/10.1016/j.urology.2004.06.055>.
18. Jackson SE, Yang L, Koyanagi A, Stubbs B, Veronese N, Smith L. Declines in sexual activity and function predict incident health problems in older adults: prospective findings from the English longitudinal study of ageing. *Arch Sex Behav.* 2020;49(3):929–940. <https://doi.org/10.1007/s10508-019-1443-4>.
19. Kleinstäuber M. Factors associated with sexual health and well being in older adulthood. *Curr Opin Psychiatry.* 2017;30(5):358–368. <https://doi.org/10.1097/YCO.0000000000000354>.
20. Lewis RW, Fugl-Meyer KS, Corona G, et al. Definitions/epidemiology/risk factors for sexual dysfunction. *J Sex Med.* 2010;7(4):1598–1607. <https://doi.org/10.1111/j.1743-6109.2010.01778.x>.
21. Nicolosi A, Moreira ED, Shirai M, Ismail Bin Mohd Tambi M, Glasser DB. Epidemiology of erectile dysfunction in four countries: cross-national study of the prevalence and correlates of erectile dysfunction. *Urology.* 2003;61(1):201–206. [https://doi.org/10.1016/S0090-4295\(02\)02102-7](https://doi.org/10.1016/S0090-4295(02)02102-7).
22. Shen S. Chronic disease burden, sexual frequency, and sexual dysfunction in partnered older adults. *J Sex Marital Ther.* 2019;45(8):706–720. <https://doi.org/10.1080/0092623X.2019.1610127>.
23. Kouidrat Y, Pizzol D, Cosco T, et al. High prevalence of erectile dysfunction in diabetes: a systematic review and meta-analysis of 145 studies. *Diabet Med.* 2017;34(9):1185–1192. <https://doi.org/10.1111/dm.13403>.
24. Hinchliff S, Lewis R, Wellings K, Datta J, Mitchell K. Pathways to help-seeking for sexual difficulties in older adults: qualitative findings from the third National Survey of Sexual Attitudes and Lifestyles (Natsal-3). *Age Ageing.* 2021;50(2):546–553. <https://doi.org/10.1093/ageing/afaa281>.
25. Conaglen HM, Conaglen JV. Drug-induced sexual dysfunction in men and women. *Aust Prescr.* 2013;36(2):42–45. <https://doi.org/10.18773/austprescr.2013.021>.
26. Taylor B. Does the caring role preclude sexuality and intimacy in coupled relationships? *Sex Disabil.* 2015;33(3):365–374. <https://doi.org/10.1007/s11195-015-9394-8>.
27. Merghati-Khoei E, Pirak A, Yazdkhasti M, Rezasoltani P. Sexuality and elderly with chronic diseases: a review of the existing literature. *J Res Med Sci.* 2016;21(1):136. <https://doi.org/10.4103/1735-1995.196618>.
28. American Psychological Association. Resilience. In: APA Dictionary of Psychology; 2023. <https://dictionary.apa.org/resilience>.
29. Manning LK. Navigating hardships in old age: exploring the relationship between spirituality and resilience in later life. *Qual Health Res.* 2013;23(4):568–575. <https://doi.org/10.1177/1049732312471730>.
30. Manning LK. Enduring as lived experience: exploring the essence of spiritual resilience for women in late life. *J Relig Health.* 2014;53(2):352–362. <https://doi.org/10.1007/s10943-012-9633-6>.
31. Bhattacharyya R. Anxiety, Uncertainty and Resilience during the Pandemic Period—Anthropological and Psychological Perspectives. In: Gabrielli F, Irtelli F, eds. *Anxiety, Uncertainty, and Resilience During the Pandemic Period - Anthropological and Psychological Perspectives.* IntechOpen; 2021. <https://doi.org/10.5772/intechopen.98841>.
32. Chew-Graham CA, Ray M, eds. *Mental Health and Older People.* Springer; 2016.
33. Lakomý M, Kafková MP. Resilience as a factor of longevity and gender differences in its effects. *Sociol Cas.* 2017;53(3):369–392. <https://doi.org/10.13060/00380288.2017.53.3.336>.
34. de Mendonça Lima CA, Vbizaro G. *Primary Care Mental Health in Older People.* Springer; 2019.
35. MacLeod S, Musich S, Hawkins K, Alsgaard K, Wicker ER. The impact of resilience among older adults. *Geriatr Nurs (Minneapolis).* 2016;37(4):266–272. <https://doi.org/10.1016/j.gerinurse.2016.02.014>.
36. Banerjee D, Rao TS. Love in the later years...": perceptions of sex and sexuality in older Indian adults—A qualitative exploration. *Consort Psychiatr.* 2022;3(1):62–75. <https://doi.org/10.17816/CP153>.
37. Towler LB, Graham CA, Bishop F, Hinchliff S. Older adults' embodied experiences of aging and their perceptions of societal stigmas toward sexuality in later life. *Soc Sci Med.* 2021;287. <https://doi.org/10.1016/j.socscimed.2021.114355>.
38. Butler RN. Age-ism: another form of bigotry. *Gerontologist.* 1969;9:243–246.
39. Officer A, de la Fuente-Núñez V. A global campaign to combat ageism. *Bull World Health Organ.* 2018;96(4):295–296. <https://doi.org/10.2471/BLT.17.202424>.
40. Iversen TN, Larsen L, Solem PE. A conceptual analysis of ageism. *Nord Psychol.* 2009;61(3):4–22. <https://doi.org/10.1027/1901-2276.61.3.4>.
41. Prince MJ, Wu F, Guo Y, et al. The burden of disease in older people and implications for health policy and practice. *Lancet.* 2015;385(9967):549–562. [https://doi.org/10.1016/S0140-6736\(14\)61347-7](https://doi.org/10.1016/S0140-6736(14)61347-7).
42. Stokes JE, Moorman SM. Sticks and stones: perceived age discrimination, well-being, and health over a 20-year period. *Res Aging.* 2020;42(3–4):115–125. <https://doi.org/10.1177/0164027519894875>.
43. Levy B. Stereotype embodiment: a psychosocial approach to aging. *Curr Dir Psychol Sci.* 2009;18(6):332–336. <https://doi.org/10.1111/j.1467-8721.2009.01662.x>.
44. Ayalon L, Tesch-Römer C. Taking a closer look at ageism: self- and other-directed ageist attitudes and discrimination. *Eur J Ageing.* 2017;14(1):1–4. <https://doi.org/10.1007/s10433-016-0409-9>.
45. Wurm S, Warner LM, Ziegelmann JP, Wolff JK, Schüz B. How do negative self-perceptions of aging become a self-fulfilling prophecy? *Psychol Aging.* 2013;28(4):1088–1097. <https://doi.org/10.1037/a0032845>.
46. Clemson L. Relevance, resilience, and ageism: a bright future for occupational therapy and healthy ageing. Sylvia Docker Lecture 2021. *Aust Occup Ther J.* 2022;69(1):3–14. <https://doi.org/10.1111/1440-1630.12783>.
47. Fullen MC, Granello DH, Richardson VE, Granello PF. Using wellness and resilience to predict age perception in older adulthood. *J Couns Dev.* 2018;96(4):424–435. <https://doi.org/10.1002/jcad.12224>.
48. Lyons A, Alba B, Waling A, et al. Assessing the combined effect of ageism and sexuality-related stigma on the mental health and well-being of older lesbian and gay adults. *Ageing Ment Health.* 2022;26(7):1460–1469. <https://doi.org/10.1080/13607863.2021.1978927>.
49. Heywood W, Minichiello V, Lyons A, et al. The impact of experiences of ageism on sexual activity and interest in later life. *Ageing Soc.* 2019;39(4):795–814. <https://doi.org/10.1017/S0144686X17001222>.
50. Alarie M, Carmichael JT. The "cougar" phenomenon: an examination of the factors that influence age-hypogamous sexual relationships among middle-aged women. *J Marriage Fam.* 2015;77(5):1250–1265. <https://doi.org/10.1111/jomf.12213>.
51. Montemurro B, Siefken JM. Cougars on the prowl? New perceptions of older women's sexuality. *J Aging Stud.* 2014;28:35–43. <https://doi.org/10.1016/j.jaging.2013.11.004>.
52. Levy BR, Hausdorff JM, Hencke R, Wei JY. Reducing cardiovascular stress with positive self-stereotypes of aging. *J Gerontol Ser B Psychol Sci Soc Sci.* 2000;55(4):P205–P213. <https://doi.org/10.1093/geronb/55.4.P205>.
53. Lyons A, Alba B, Heywood W, et al. Experiences of ageism and the mental health of older adults. *Ageing Ment Health.* 2018;22(11):1456–1464. <https://doi.org/10.1080/13607863.2017.1364347>.
54. Levy BR, Slade MD, Kasl SV. Longitudinal benefit of positive self-perceptions of aging on functional health. *J Gerontol Ser B.* 2002;57(5):P409–P417. <https://doi.org/10.1093/geronb/57.5.P409>.
55. Pramanik S, Biswal S. Ageism, psychological capital and life satisfaction: a study on elderly women. *Int J Indian Psychol.* 2020;8(2). <https://doi.org/10.25215/0802.139>.
56. Xu Y, Lin X, Chen S, Liu Y, Liu H. Ageism, resilience, coping, family support, and quality of life among older people living with HIV/AIDS in Nanning, China. *Glob Public Health.* 2018;13(5):612–625. <https://doi.org/10.1080/17441692.2016.1240822>.

57. Ribeiro-Gonçalves JA, Costa PA, Leal I. Loneliness, ageism, and mental health: the buffering role of resilience in seniors. *Int J Clin Heal Psychol*. 2023;23(1): 100339. <https://doi.org/10.1016/j.ijchp.2022.100339>.
58. Levy BR. The inner self of the Japanese elderly: a defense against negative stereotypes of aging. *Int J Aging Hum Dev*. 1999;48(2):131–144. <https://doi.org/10.2190/E9GL-UULD1-XMJY-LTTF>.
59. Hoogendoorn AW, Daalmans J. Nonresponse in the recruitment of an internet panel based on probability sampling. *Surv Res Methods*. 2009;3(2):59–72.
60. Börsch-Supan A. Survey of Health, Ageing and Retirement in Europe (SHARE) Wave 1. Published online 2022. doi:10.6103/SHARE.w1.800.
61. Connor KM, Davidson JRT. Development of a new resilience scale: the connor-davidson resilience scale (CD-RISC). *Depress Anxiety*. 2003;18(2):76–82. <https://doi.org/10.1002/da.10113>.
62. Campbell-Sills L, Stein MB. Psychometric analysis and refinement of the connor–davidson resilience scale (CD-RISC): validation of a 10-item measure of resilience. *J Trauma Stress*. 2007;20(6):1019–1028. <https://doi.org/10.1002/jts.20271>.
63. Lawton MP. The Philadelphia Geriatric Center Morale Scale: a revision. *J Gerontol*. 1975;30(1):85–89. <https://doi.org/10.1093/geronj/30.1.85>.
64. Ailshire JA, Crimmins EM. Psychosocial factors associated with longevity in the United States: age differences between the old and oldest-old in the Health and Retirement Study. *J Aging Res*. 2011;2011:1–10. <https://doi.org/10.4061/2011/530534>.
65. Hu L, Bentler PM. Cutoff criteria for fit indexes in covariance structure analysis: conventional criteria versus new alternatives. *Struct Equ Model A Multidiscip J*. 1999;6(1):1–55. <https://doi.org/10.1080/10705519909540118>.
66. Selig J.P., Preacher K.J. Monte Carlo method for assessing mediation: an interactive tool for creating confidence intervals for indirect effects. Published online 2008. <http://quantpsy.org/>.
67. Thoemmes F, Rosseel Y, Textor J. Local fit evaluation of structural equation models using graphical criteria. *Psychol Methods*. 2018;23(1):27–41. <https://doi.org/10.1037/met0000147>.
68. Levy BR, Myers LM. Preventive health behaviors influenced by self-perceptions of aging. *Prev Med (Baltim)*. 2004;39(3):625–629. <https://doi.org/10.1016/j.ypmed.2004.02.029>.
69. Author. 2017.
70. Quinn KM, Laidlaw K, Murray LK. Older peoples' attitudes to mental illness. *Clin Psychol Psychother*. 2009;16(1):33–45. <https://doi.org/10.1002/cpp.598>.
71. Gewirtz-Meydan A, Hafford-Letchfield T, Benyamini Y, Phelan A, Jackson J, Ayalon L. Ageism and sexuality. In: Ayalon L, Tesch-Römer C, eds. *Contemporary Perspectives on Ageism*. International Perspectives on Aging. Springer; 2018. <https://doi.org/10.1007/978-3-319-73820-8>.
72. PUNCHIK B, TKACHEVA O, RUNIKHINA N, et al. Ageism among physicians and nurses in Russia. *Rejuvenation Res*. 2021;24(4):297–301. <https://doi.org/10.1089/rej.2020.2376>.
73. Kydd A, Touhy T, Newman D, Fagerberg I, Engstrom G. Attitudes towards caring for older people in Scotland, Sweden and the United States. *Nurs Older People*. 2014;26(2):33–40. <https://doi.org/10.7748/nop2014.02.26.2.33.e547>.
74. Annon JS. The PLISSIT Model: a proposed conceptual scheme for the behavioral treatment of sexual problems. *J Sex Educ Ther*. 1976;2(1):1–15. <https://doi.org/10.1080/01614576.1976.11074483>.