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OLD & SEXY:
**Investigating and Reducing Stigmatization of
Sexually-Active Older Persons**

Samantha N. Levy

A Thesis Presented to
The Faculty of the Yale School of Public Health
Yale University

In Candidacy for the Degree of
Master of Public Health
May 2019

Committee Chair: Becca Levy, PhD
Committee Member: Joan Monin, PhD
With Martin Slade, MPH
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Abstract

Media often portrays older persons as asexual or perversely sexual. This stigmatization may harm older persons' sexual, mental, and physical health and well-being. As such, our study aimed to investigate the stigmatization of sexuality in later life and see if it can be reversed. Our four hypotheses included: (1) sexually-active older persons would be more stigmatized than sexually-inactive older persons; (2) negative age beliefs would predict stigmatization of sexually-active older adults; (3) participants would think more negatively about sexually-active older men compared to sexually-active older women; and (4) a brief writing intervention would help improve participants' views towards sexually-active old persons, in addition to the sexual self-efficacy of older persons in speaking with their health care providers. 428 total participants (ages 19 to 30 and 60 to 80) were recruited via Amazon Mechanical Turk, an electronic crowdsourcing platform. Attitudes toward sexuality in later life were collected using both implicit and explicit measures, and analyses were conducted using a series of analyses of covariance models. Results supported the first three hypotheses and partially supported the fourth, namely that: (1) participants expressed more negative attitudes towards sexually-active older persons than sexually-inactive older persons; (2) negative age stereotypes and ageism predicted the stigmatization of sexually-active older persons; (3) sexually-active older men were viewed more negatively than sexually-active older women; and (4) the positive, counter-stereotype writing intervention successfully improved participants' views of sexually-active older women, sexual activity in later life, and predictions of their own sexual self-efficacy in later life or as they continue to age. To our knowledge, this study is the first to incorporate implicit and explicit measures of attitudes toward sexually-active older persons. Our results have important public health implications, including: (a) a demonstrated need for improved awareness of individual, interpersonal, and institutional sexual age stigma; and (b) that the stigmatization of sexually-active older persons varies by gender and should perhaps be targeted separately; and (c) the potential for short writing-based interventions to improve attitudes toward sexuality in later life and sexual self-efficacy among older persons.

Keywords: older person, older people, older adult, sexuality, stigma, ageism, stereotype, public health, psychology, intervention, social and behavioral sciences, elder, research, Amazon Mechanical Turk, gender, media, sex, implicit, explicit, attitude, age

Table of Contents

LIST OF FIGURES 5

LIST OF TABLES 5

INTRODUCTION & BACKGROUND 6

AIMS & HYPOTHESES 11

METHODS 12

ETHICAL APPROVAL 12

PARTICIPANTS 12

MEASURES 15

Predictors 15

Outcomes: 17

Covariates: 21

ANALYTIC PLAN 22

RESULTS 24

HYPOTHESIS 1 24

HYPOTHESIS 2 25

HYPOTHESIS 3 26

HYPOTHESIS 4 27

DISCUSSION 32

CONCLUSION 40

REFERENCES 43

List of Figures

FIGURE 1. VIGNETTE CONDITIONS..... 19
FIGURE 2. VIGNETTE TEMPLATE INFORMATION 20
FIGURE 3. EXAMPLE VIGNETTE..... 20
**FIGURE 4. IMPLICIT STIGMATIZATION: GREATER TOWARD SEXUALLY-ACTIVE OLDER PERSONS
 COMPARED TO SEXUALLY-INACTIVE OLDER PERSONS 24**
**FIGURE 5. IMPLICIT STIGMATIZATION: GREATER TOWARD SEXUALLY-ACTIVE OLDER MEN
 COMPARED TO SEXUALLY-ACTIVE OLDER WOMEN..... 26**
**FIGURE 6. SEX-POSITIVE WRITING INTERVENTION REDUCED STIGMATIZATION TOWARD SEXUALLY-
 ACTIVE OLDER WOMEN 28**
**FIGURE 7. SEX-POSITIVE WRITING INTERVENTION INFLUENCED LESSER STIGMATIZATION OF
 SEXUALITY IN LATER LIFE 29**
**FIGURE 8. SEX-POSITIVE WRITING INTERVENTION LED TO GREATER PERCEIVED COMFORT IN
 SPEAKING WITH HEALTH CARE PROVIDERS ABOUT SEXUAL ACTIVITIES IN LATER LIFE 30**
**FIGURE 9. SEX-POSITIVE WRITING INTERVENTION LED TO GREATER PERCEIVED COMFORT IN
 SPEAKING WITH HEALTH CARE PROVIDERS ABOUT SEXUAL SATISFACTION IN LATER LIFE..... 31**

List of Tables

TABLE 1. BASELINE CHARACTERISTICS OF THE TOTAL STUDY SAMPLE AND STRATIFIED BY AGE^A.. 14

Introduction & Background

In an episode of the popular television comedy series, *Parks and Recreation*, Leslie Knope, a local government official, assembles her colleagues to plan for a sexual-education course after learning that there has been an increase in cases of chlamydia among older citizens in the town. While outlining her team's task, Leslie comments:

Lots of old people have chlamydia. *Seniors... have a lot of time on their hands*, and what they're doing with that time is *going at it hard, old-people style*. A lot of them haven't had proper sex-education, and, as a result, STDs [sexually-transmitted diseases] are having a field day. It's amazing what a few old guys can do with a little bit of charm and *a lot of crabs* (Daniels, Schur, & Yang 2012, italics added).

Although there are, of course, noteworthy exceptions – like the recent sex-positive Netflix series, *Grace & Frankie*, in which the two main characters own and operate a sex-toy business whose products are marketed to older women – depictions of older people's sexuality in popular culture are still largely absent and marginalized (Gatling, Mills, & Lindsay, 2017). When sexuality in later-life is acknowledged (like in the aforementioned *Parks and Recreation* episode), it is often portrayed in stereotypical, one-dimensional, non-normative, or deviant ways, ultimately serving as a purposeful tactic to elicit shock, laughter, disgust, or disbelief (Baurer, 2016; Rozin & Haidt, 2013; Syme & Cohn, 2016; Weller, 2015). Despite both the broad structural omission and stigmatization of older individuals' sexuality in the mainstream media and the common public perception that older persons are either asexual or oversexed and perverse, a wealth of research has shown that older Americans of varying social locations and health statuses continue to enjoy and engage in a wide range of sexual activities (e.g., Bretschnieder & McCoy, 1988; DeLamater & Moorman, 2007; Lindau *et al.*, 2007; Matthias *et al.*, 1997; Pfeffer, Verwoerdt, & Wang, 1968).

This media portrayal of older persons as either asexual or deviant can have detrimental consequences for the physical, emotional, and sexual health of older adults. Stigmatization of sexually-active older persons contributes to: (a) health care providers' inattention to the sexual health and well-being of their older patients, decisions (conscious or unconscious) to not have conversations about safe sex practices (e.g., condom use), and avoidance of taking sexual health histories due to embarrassment or perceptions that this population is asexual (e.g., Bauer *et al.*, 2015; Brenoff, 2015; Taylor & Gosney, 2011; Ports *et al.*, 2014; Tessler *et al.*, 2007); (b) older persons not receiving prescriptions that could improve their sexual health and satisfaction (e.g., Viagra, hormones, physical therapy; e.g., Butler, 2010; Calasanti & Slevin, 2001; Gott & Hinchliff, 2003; Gott, Hinchliff, & Galena, 2004; Moreira *et al.*, 2005); (c) a general

lack of sexuality-focused education for health care providers and sex-education programs specifically tailored to older persons (e.g., Gott, Hinchliff, & Galena, 2004; Gawande, 2007; Tinetti, 2016); **(d)** vague U.S. Preventative Services Task Force guidelines about recommendations for sexually-transmitted infections (STI) screening and HIV screening for those over age 65 (Syme & Cohn, 2016); **(e)** the older population experiencing the fastest-growing rates of sexually-transmitted diseases (STD) among all other age groups and having a higher likelihood of receiving an HIV diagnosis later in the course of their disease compared to younger patients (e.g., CDC, 2017; Lilleston, 2017; Poynten, Grulich, & Templeton, 2013; Syme, Cohn, & Barnack-Tavlaris, 2017); **(f)** a tendency for researchers to exclude or underrepresent older persons from clinical trials, like those aimed at reducing sexual behaviors tied to STD risk (e.g., Cruz-Jentoff *et al.*, 2013; Levy, 2007; Swift *et al.*, 2017); **(g)** nursing home staff members' trepidations allowing sexual activity on the premises and outright bans due to difficult (but seemingly solvable) questions of consent and the potential for sexual abuse (e.g., Elias & Ryan, 2011; Holmes, Reingold, & Teresi, 1997; Roach, 2004); **(h)** older persons feeling "uncomfortable and reluctant to raise sexuality and sexual health issues... due to negative perceptions of... health care [providers'] interests and attitudes" (Baurer *et al.*, 2006); and **(i)** possible self-stigmatization, whereby older persons may subsequently experience reduced sexual self-efficacy, lack of desire, decreased self-esteem (if they believe their sexuality is indeed deviant), reduced sexual social connections, and belief that sexual activity is no longer appropriate for them to participate in (e.g., Calasanti & Slevin, 2001; Gott & Hinchliff, 2003; Levy, 2009).

Both theoretical literature and anecdotes suggest that the default stereotype is to view older persons as asexual; that is, they are seen as no longer interested in being sexually intimate and/or are incorrectly regarded as no longer able to effectively engage in sexual activities. Asexuality among older adults is sanctioned by societal members, as it adheres to the dominant sociocultural narrative that those who are older are too physically or mentally sick, or feeble to desire sexual intimacy or engage in sexual activities (e.g., Calasanti & Slevin, 2001, Carpenter, Nathanson, & Kim, 2006; Gott & Hinchliff, 2003; Gott, Hinchliff, & Galena, 2004). However, when older persons express their sexuality, they are labeled as deviant and perverse. Older persons who express sexual desire or engage in sexual activities influence others' feelings of disgust, humor, and dislike, all of which serve to highlight this group's "moral violation" of expressing their sexuality when they are assumed and expected to have none (Holmes *et al.*, 1997; McGraw & Warren, 2010; Roach, 2004; Rozin, Haidt, & McCauley, 2008). Holding negative views toward sexually-active older individuals is a way for the public to reinforce and perpetuate the existing status-quo:

that older persons should – based on inaccurate biological and sociocultural beliefs about aging – be and stay asexual (Phelan *et al.*, 2008).

At present, there is a dearth of clinical and psychosocial research related to societal attitudes about sexually-active older persons, as well as a lack of interventions focused on improving the sexual health and well-being of the older population. Most studies have done “little more than [simply] confirm that people can and do remain sexually interested and active... well into later life” (Gott & Hinchliff, 2003). While theoretical literature posits that sexual age stigmatization occurs, very few studies have empirically examined this phenomenon (e.g., Kaas, 1981; Syme & Cohn, 2016; Allen, Petro, & Phillips, 2009). In one of the only quantitative studies to examine the stigmatization of sexually active older persons, the authors found low levels of stigmatization (Syme & Cohn, 2016). The authors wondered if the reason for this may have been the use of an explicit measure to examine the general public’s attitudes toward sexuality in later life (Syme & Cohn, 2016). In consequence, this explicit measure may not have been able to capture these respondents’ deeply-held views, especially as people may present falsely tolerant views toward sexuality with explicit measures. Syme and Cohn (2016) ultimately concluded that future research should examine implicit stigmatic beliefs related to sexuality in later life. This is a goal of the current study.

Few studies have examined determinants of stigmatization of older persons, and no studies to our knowledge have directly measured how negative age stereotypes and ageism, in particular, may shape how people view sexually-active older persons (e.g., Carpenter, Nathanson, & Kim, 2006; Elias & Ryan, 2011; Estill *et al.*, 2018; Gott & Hinchliff, 2003). Problematically, the few studies that have investigated people’s views towards sexuality in later life have predominantly recruited college-aged participants or health care providers (i.e., out-group members, perhaps due to “fear of causing offense”), despite qualitative research suggesting that older persons are open and willing to discuss matters and topics related to their sexuality (e.g., Gott & Hinchliff, 2003; Kessler, 2001; Tupy, Schumann, & Xu, 2015). Therefore, in our study, we included participants from across the lifespan, and we examined ageism and age stereotypes as determinants of stigmatization of sexually active older persons.

In addition, the question of whether the stigmatization of sexually-active older women and men differs has gone largely unexamined in empirical literature. Because stereotypes toward and perceptions of older women and men tend to differ, it is plausible that the stigmatization of sexually-active older women and sexually active older men also differs (e.g., Blaine & McClure, 2017; Calasanti & Slevin, 2001; Kite, Deaux, & Miele, 1991; Kornadt, Voss, & Rothermund, 2013; West & Zimmerman, 1987). Because older

women are often stereotyped as “grandmotherly,” adverse attitudes towards this group’s sexuality may consciously or unconsciously result from thoughts related to incest or a faulty, innate evolutionary response that recognizes these women are infertile (e.g., Blaine & McClure, 2017; Lyons, 2009; Phelan *et al.*, 2008; Kurzban & Leary, 2001; Rozin, Haidt, & McCauley, 2008; Sharpe, 2004). It could also be that the stigmatization of older women’s sexuality relates to perceptions of this group’s unattractiveness (Blaine & McClure, 2017; Calasanti & Slevin, 2001). As such, older women’s bodies “increasingly [deviate] from cultural beauty ideals,” such that they no longer fit the societal norm of what is considered beautiful (i.e., young) and are ultimately rendered undesirable. Older women’s bodies, in particular, may function as a marker of their limited status, power, and resources (Calasanti & Slevin, 2001; Kenny, 2013; Link & Phelan, 2001; North & Fiske, 2013). In addition, it is possible that older women and their sexuality are stigmatized more than older men and their sexuality because of the *double-jeopardy hypothesis* (Chappell & Havens, 1980, Francioli & North, 2019, in press). This hypothesis suggests that because sexually-active older women (and older women, more generally) belong to two subordinate groups (i.e., being of the female gender and being old), the “negative effects of occupying two stigmatized statuses are greater than occupying either status alone;” in effect, this could lead to worse stigmatization of older women’s sexuality compared to that of their older sexually-active male counterparts (Chappell & Havens, 1980; Cole, 2009; Francioli & North, 2019, in press).

Conversely, it seems likely that sexually-active older men are stigmatized more than sexually-active women. If not viewed as strictly asexual, sexually-active older men are sometimes stereotyped as “dirty grandpas” or “dirty old men” – ultimately condemned for having sexual desires, wanting sexual intimacy, or being sexually active (Blaine & McClure, 2017; Kessel, 2001; Saporta, 1991). The *intersectional invisibility* or *intersectional escape hypothesis* posits that older men – who are simultaneously members of a powerful group (male gender) and subordinate group (older age) – may “more heavily bear the burden of discrimination” than older women because their subordinate identity (age) threatens “the established relation of dominance” (i.e., their male gender; Francioli & North, 2019, in press; Purdie-Vaughns & Eibach, 2008). Not only may this hypothesis help explain why sexually-active older men may be stigmatized more than older women, but it also could be that the current socio-cultural-political climate in the United States contributes to this group being seen as perverse. For example, the #MeToo Movement that became widely-publicized in 2017 has simultaneously illuminated and fought against sexual harassment and sexual assault (Me Too, 2018). Many of the resulting allegations have involved high-

profile, now-older men, including Harvey Weinstein (age 67), Bill Cosby (age 81), Les Moonves (age 69), Richard Meier (age 84), Charlie Rose (age 77), Chuck Close (age 78), Peter Martins (age 72), Jeffrey Tambor (age 74), and Michael Oreskes (age 64), among others (North *et al.*, 2019).

Similarly, interventions designed to improve the perceptions and views of sexually-active older adults are almost entirely lacking. Of course, far-reaching institutional changes are needed, such as improved geriatrics-focused education and training in existing health care and residential facilities (Hinchliff & Gott, 2011; Tinetti, 2016). A review of the literature found just one related education-based intervention specifically targeted to older adults, which involved graduate students teaching 10 older participants about sexuality in later life via workshops and small group discussions (Adams, Rojas-Camero, & Clayton, 1990). As Adams, Rojas-Camero, and Clayton (1990) found in this study – and as others have noted – educational interventions are often not effective in reducing public stigmatization (e.g., Cook *et al.*, 2014; Corrigan *et al.*, 2012; Livingston *et al.*, 2014; Thornicroft *et al.*, 2016).

To our knowledge, no research has examined the effectiveness of short-term, non-educational interventions aimed at reducing stigmatization of sexuality in later life. That said, existing counter-stereotypic (positive-stereotype-based) interventions that have previously been shown to be successful could offer an exciting, efficient avenue by which to influence people's attitudes towards sexually-active older persons or their own sexuality as they age (Meisner, 2011). A meta-analysis on age-stereotype priming effects among older persons discovered that although negative age primes have been shown to have effect sizes almost three times larger than those of positive age primes when compared to neutral age primes, positive age primes do have the potential to promote behavior and are an “appropriate agent to offset the harmful effects of negative age stereotypes” (Meisner, 2011). In Levy *et al.*'s (2014) experiment, older participants wrote about a hypothetical “senior citizen who is mentally and physically healthy” once a week for four weeks. Results indicated that these participants' age stereotypes significantly improved over the course of the study period. The current study examined whether this intervention extends to reducing stigmatization of sexually-active older persons.

Aims & Hypotheses

This web-based experiment aims to build on and address existing gaps in the literature on sexuality in later life and sexual age stigma. As such, the four goals of this study are: (1) to measure people's implicit and explicit attitudes towards sexuality in later life; (2) to examine determinants of stigmatization of older persons. (3) to assess whether sexually-active older women and sexually-active older men are viewed and/or stigmatized differently; and (4) to use a positive counter-stereotype intervention to assess whether negative attitudes toward sexual activity in later life can be changed and reduced.

Corresponding to our four research goals, our study had four main hypotheses. (1) First, we believed that sexually-active older persons are stigmatized more than sexually-inactive older persons (who fit the sanctioned asexual stereotype). (2) Second, we anticipated that people's negative age stereotypes and ageism will predict their views towards sexual age stigma, such that those with more negative age beliefs will stigmatize sexually-active older persons more than sexually-inactive older persons. This hypothesis is based on *Stereotype Embodiment Theory* (SET). According to the SET, negative age beliefs are internalized and reinforced as we age, come to operate consciously and unconsciously, and are ultimately carried into old age, when they “gain salience from self-relevance” and “generate expectations that act as self-fulfilling prophecies” (Levy, 2009). Negative age stereotypes – when coupled with separation (or designation of in- and out-groups), prejudice and discrimination, and the exertion of power and control over by other members of society – contribute to ageism, such that older individuals' “life chances,” health, and well-being are ultimately adversely affected (Levy, 2017; Phelan *et al.* 2008; Hatzenbuehler, Phelan, & Link, 2013). (3) Third, based on the *intersectional escape hypothesis*, we predicted that sexually-active older men will be viewed more negatively than sexually-active older women (Francioli & North, 2019, in press; Purdie-Vaughn & Eibach, 2008). (4) Fourth, we aimed to expand upon successful positive-stereotype interventions by adapting Blair, Ma, & Lenton's (2001) intervention involving writing about a strong woman and Levy *et al.*'s (2014) intervention involving writing about healthy aging to *now* subsequently writing about sexually-healthy older persons – with the hopes that this could improve people's implicit and explicit attitudes towards sexually-active older persons.

Inspired by prior research and theory, this study is novel for its (a) utilization of both younger and older participants (who have largely been excluded from research involving sexual age stigma); (b) inclusion of psychosocial determinants of aging health used to better understand views towards sexuality in later life, as well as use of implicit and explicit outcome measures to assess participants' attitudes; and

(c) goal of trying to extend the field by incorporating a writing intervention and assessing its effectiveness for changing the ways that people think about sexuality in later life.

Thus, we predicted:

1. Participants will think more negatively about older persons who are sexually active compared to those who are not.
2. Negative age beliefs and ageism will predict stigmatization of sexually-active older adults.
3. Participants will think more negatively about sexually-active older males than sexually active older females.
4. A brief, web-based writing intervention can reduce negative attitudes about sexuality in later life and improve sexual self-efficacy of older persons in talking to health care providers.

Methods

Ethical Approval:

This study was approved by the Yale University's Institutional Review Board prior to initiation.

Participants:

Participants were recruited using Amazon Mechanical Turk (M-Turk), an online crowdsourcing platform commonly used by social-science researchers (e.g., Berinsky, Huber, & Lenz, 2017; Crump, McDonnell, & Gureckis, 2013; Follmer, Sperling, & Suen, 2017; Syme & Cohn, 2016). Existing evidence suggests that the quality of data collected from Amazon M-Turk participants is reasonably high, and participants are considered both more diverse and better representative of the general U.S. population than are other types of convenience samples (Berinsky, Huber, & Lenz, 2017; Crump, McDonnell, & Gureckis, 2013). Additional findings suggest that Amazon M-Turk data collected from workers are both accurate and valid, and prior examinations suggest that Amazon M-Turk is a useful participant recruitment tool (Buhrmeister *et al.*, 2011; Crump *et al.*, 2013; Mason & Suri, 2012).

Eligibility criteria for this study included: (a) being an English-speaker; (b) currently living in the United States; and (c) belonging to one of two age groups (i.e., those younger, or ages 18 to 30, and those older, or ages 60 and older). We restricted participation to those living in the United States to increase the likelihood that respondents would be exposed to similar societal and cultural norms that influence perceptions of aging, sexuality, and sexuality in later life. In light of existing studies that frequently only

include either younger participants, we elected to include both younger and older participants – so as to better represent the age range of the general population (Gott & Hinchliff, 2003; Tupy, Schumann, & Xu, 2015).

To increase the quality of survey responses, we restricted participation to users who completed at least 50 HITs (or tasks) and who had an Amazon M-Turk “approval rating” of at least 95% (i.e., their participation on surveys or tasks resulted in a disapproval rating from the Amazon M-Turk requestor fewer than 5% of the time; Berinsky, Huber, & Lenz, 2017; Buhrmester *et al.*, 2011; Crump, McDonnell, & Gureckis, 2013; Goodman, Cryder, & Cheema, 2013; Lovett *et al.*, 2017; Paolacci & Chandler, 2014).

A stratified recruitment strategy was followed in order to recruit similar numbers of younger and older participants. This led to 428 individuals who met eligibility criteria and completed the survey. Of the 428 participants, 215 were younger (aged 19 to 30), and 213 were older (aged 60 and older). Table 1 presents the baseline characteristics of the study sample. Most participants identified as women (58.9%), were white (84.8%), had attained at least a four-year college degree (52.6%), and rated their health status as “very good” (36.7%). Younger participants had a mean age of 26.3 (SD = 2.6 years), and older participants had a mean age of 66.0 (SD = 4.7 years). Older and younger participants significantly differed by race and self-esteem. Compared to younger participants, more older participants were white, had higher self-esteem, and held less negative age beliefs. Variables presented in Table 1 were used as covariates in this study’s fully-adjusted models (see *Analytic Plan* section).

TABLE 1. Baseline characteristics of the total study sample and stratified by age^a

	<i>Age Groups</i>			<i>p</i> ^c
	All (n = 428)	Older Participants (n = 213) ^b	Younger Participants (n = 215) ^b	
Age	46.0 ± 20.2	66.0 ± 4.7	26.3 ± 2.6	<0.001
Gender				0.059
<i>Female</i>	250 (58.9)	134 (63.2)	116 (54.2)	
<i>Male</i>	176 (41.3)	78 (36.8)	98 (45.8)	
Race / Ethnicity				<0.001
<i>White</i>	363 (84.8)	195 (91.6)	168 (78.1)	
<i>Black or African American</i>	28 (6.5)	11 (5.2)	17 (7.9)	
<i>Other</i>	37 (8.6)	7 (3.3)	30 (14.0)	
Educational Attainment				0.500
<i>Less than a 4-year college degree</i>	202 (47.4)	104 (49.1)	98 (45.8)	
<i>4-year college degree or greater</i>	224 (52.6)	108 (50.9)	116 (54.2)	
Self-Rated Health				0.160
<i>Excellent</i>	59 (13.8)	24 (11.3)	35 (16.3)	
<i>Very Good</i>	157 (36.7)	74 (34.7)	83 (38.6)	
<i>Good</i>	148 (34.6)	75 (35.2)	73 (34.0)	
<i>Fair</i>	56 (13.1)	35 (16.4)	21 (9.8)	
<i>Poor</i>	8 (1.9)	5 (2.4)	3 (1.4)	
<i>Mean score</i>	2.5 ± 0.9	2.6 ± 1.0	2.4 ± 0.9	0.014
Self-Esteem^d	28.3 ± 5.9	30.3 ± 4.7	26.3 ± 6.3	<0.001

^a Table values are mean ± SD for continuous variables and n (column %) for categorical variables.

^b Numbers may not sum to total due to missing data, and percentages may not sum to 100% due to rounding.

^c P-value is for t-test (continuous variables) or χ^2 test (categorical variables). Statistical significance determined at the $\alpha = 0.05$ level.

^d Self-esteem scores range from 9 to 36, with higher scores indicating a greater sense of self-worth.

Measures:

Predictors:

Sex-Positive Writing Intervention. Participants who opted into the survey were randomly assigned via Qualtrics to one of two experimental conditions: (1) sex-positive writing or (2) neutral writing. Following baseline questions, all participants completed a short writing activity. Instructions on the writing activity specified that there were no right or wrong answers, and that the research team was interested in reading their opinions. Participants were asked to write at least two sentences for each prompt to ensure adequate thought, contemplation, and exposure. The short writing activity was presented at the same point in the survey for all participants.

Participants in the sex positive-writing condition were asked to describe healthy older persons, based on an explicit positive aging intervention in Levy *et al.*'s (2014) stereotype intervention which successfully reduced negative age stereotypes among older adults. Inspired by the successful counter-stereotypic mental imagery technique used in Blair, Ma, and Lenton's (2001) study that weakened negative stereotypes about women by asking young participants to imagine a strong woman, Levy *et al.* (2014) instructed participants to "imagine a senior citizen who is mentally and physically healthy." This study extends Levy *et al.*'s (2014) intervention to sexuality in later life.

Participants in the sex-positive condition were told they could either write about someone they know or create a hypothetical example. Each question was presented on a new page in the survey. The prompts were:

- Please write about an older person who is mentally and physically healthy.
- Please write about a female older person who is sexually healthy.
- Please write about a male older person who is sexually healthy.

Participants in the neutral-writing condition were asked to respond to a series of three neutral prompts, or those unrelated to sexuality in later-life. Like the positive-writing condition, each question was presented on a new page in the survey. The prompts were:

- Please write about what the weather is like where you live today.
- Please write about what the weather is like where you live yesterday.
- Please write about what the weather is usually like where you live.

Participant characteristics did not statistically significantly differ between those in the sex-positive writing group (n = 210) compared to those in the neutral-writing group (n = 218) by age, gender, race or

ethnicity, education, self-rated health, self-esteem, and age beliefs, suggesting successful randomization by experimental condition.

Age Stereotypes. Negative age stereotypes were measured using the Image of Aging Scale, which asked participants to rate how much each item matched the “kinds of images that come to mind when you think of old people in general (not including yourself)” on a Likert scale ranging from 1 = *does not match my image at all* to 5 = *completely matches my image* (Levy, Kasl, & Gill, 2004). Half of the items were associated with positive images of aging (e.g., wise), while half were associated with negative images of aging (e.g., senile). The overall measure for age stereotypes used in this study was determined by reverse-scoring the positive items and summing the scores of all individual items from the Image of Aging Scale. Instead of treating missing values as zero, any missing values rendered a participant’s entire score missing. Scores ranged from 20 to 100, with higher scores indicating more negative images of aging. The Image of Aging Scale has been shown to have “good one-week test-retest reliability, internal consistency, and convergent validity with older individuals” (Levy *et al.*, 2014; Levy, Kasl, & Gill, 2004).

Ageist Views. All participants responded to a brief version of the Fraboni Scale of Ageism, designed to assess participants’ ageist behaviors, thoughts, or actions (Fraboni, Saltstone, & Hughes, 1990). This scale has been shown to have high internal reliability and adequate construct validity (Fraboni, Saltstone, & Hughes, 2010). Of the items pulled from the original Fraboni Scale of Ageism, 3 items were positive (e.g., “Most old people are interesting, individualistic people”) and 7 were negative (e.g., “Most old people would be considered to have poor personal hygiene”). Participants were instructed to rate how much they agreed or disagreed with each statement using a Likert-scale ranging from 1 = *strongly disagree* to 4 = *strongly agree*. The overall measure for this scale was determined by reverse-scoring the positive items and summing all items (excluding those that were missing). Ageism scores ranged from 10 to 40, with higher scores indicating greater or more ageist views.

Experiences of Ageism. Older participants responded to a brief version of the Palmore Ageism Scale, which measures the prevalence of experienced ageism and has been shown to have satisfactory reliability and validity (Palmore, 2004). Older participants were presented with a list of events (e.g., “I was rejected as unattractive because of my age”) and were asked to indicate how frequently they have experienced each

event, with 0 = *never*, 1 = *once*, and 2 = *more than once*. The overall summary measure for this scale was determined by summing all items (excluding those that were missing). Summary scores ranged from 0 to 20, with higher summary scores indicating that older participants have more frequently been a target of ageism than those with lower scores.

Outcomes:

Implicit Attitudes toward Sexually Active Older Adults: In order to create an implicit, ecologically-valid measure of participants' views of sexually-active older persons, we designed a series of 12 vignettes that varied by age, gender, and sexual activity level. Following presentation of each vignette character, participants were asked to rate their "initial or gut reaction" (i.e., a 'dislike rating') related to how much they liked or disliked the hypothetical individual using a scale from 1 = *very much like* to 4 = *very much dislike*.

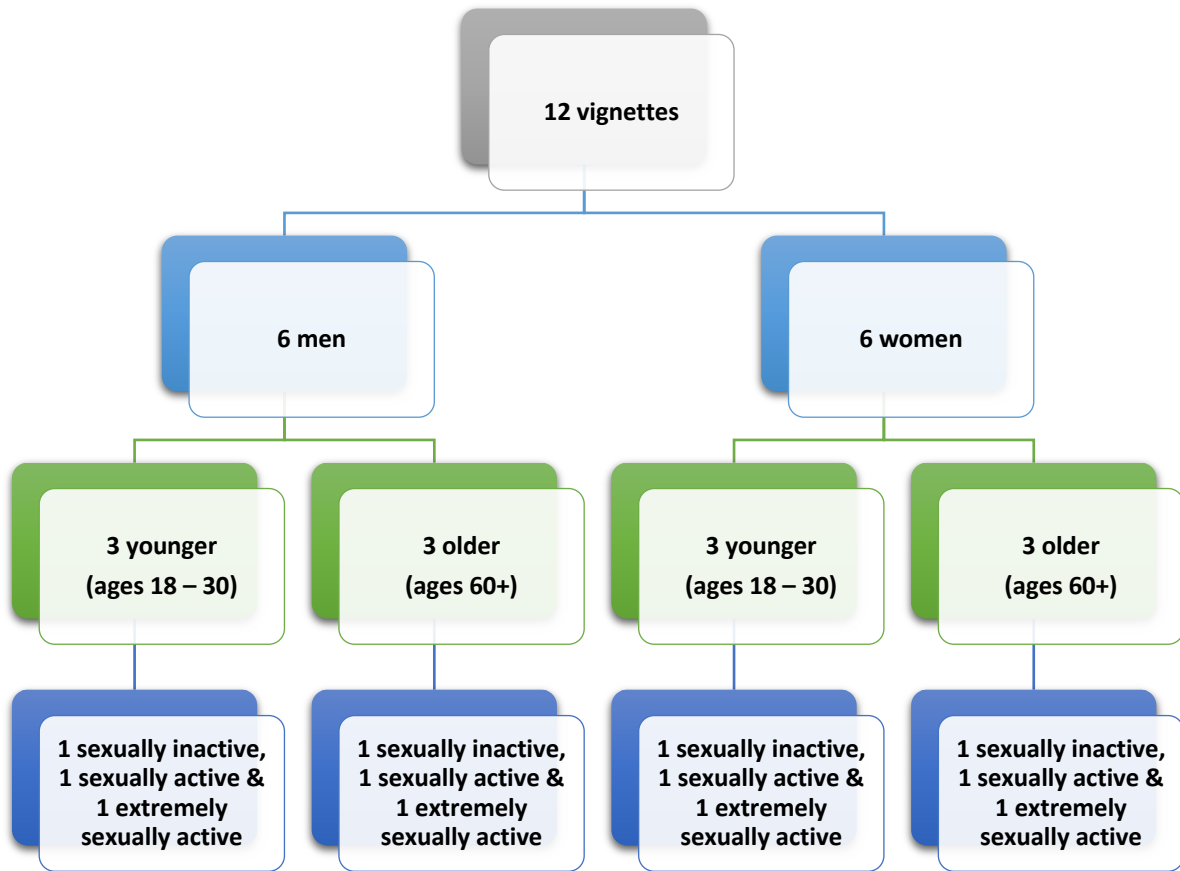
This implicit, vignette-based measure (followed by the dislike-rating measure) was inspired by the structure of the popular smartphone dating application, Tinder, whereby users match with one another to pursue sexual activities and form romantic relationships. On Tinder, users *swipe right* (to match with someone they would like to converse with), or *swipe left* (to move on and see the next profile) based on several photos and/or short bios (David & Cambre, 2016; Tyson *et al.*, 2016). The short blurbs about the characters in our vignettes were designed to be similar to some Tinder users' bios – and the dislike-rating response was meant to mimic how Tinder users often *swipe* through the profiles of other users quickly. Unlike the swipe options on Tinder, we used a 4-point Likert-scale to allow for more sensitivity within the *like-dislike* answer spectrum – and, like on Tinder, we did not provide a neutral option. This measure is considered an implicit measure because participants were not asked explicitly about their views of sexually-active older persons. Views were instead assessed indirectly by asking participants to provide an immediate, gut assessment of the likeability of each character. This dislike-rating measure is a proxy for participants' stigmatizing views or attitudes.

The vignettes were displayed as rectangular index cards displaying bulleted information about hypothetical people (Figure 1). To assess how participants thought about level of sexual activity, one-third of the vignettes were classified as "sexually inactive," one-third were described as "sexually active," and one-third were labeled as "extremely sexually active." In our subsequent analyses, the sexual activity of the vignettes was collapsed into two categories: (1) sexually active (including both "sexually active" and "extremely sexually active" vignettes) and (2) sexually inactive (just the "sexually inactive" vignettes).

Within each sexual-activity category, there were two younger vignettes (male and female) and two older vignettes (male and female; Figure 2). Similar to the Estill *et al.* (2018) study, no operationalization of “sexual activity” was provided to participants because what encompasses “sexual activity” may vary greatly between participants; as such, participants were “left to determine their own definition” (Kenny, 2013). By doing so, “sexual activity” was made relevant for each participant. The vignettes also included a number of other descriptions about the hypothetical individuals, like eye color and favorite season, which were designed to increase ecological validity and to make the variation of sexual activity, gender, and age implicit (Figure 2). Because we only varied gender, age, and sexuality across the vignettes, we were able to assess views by comparing participants’ gut-reactions to (or dislike ratings of) the different vignettes.

All participants were exposed to the same 12 vignettes, but they were presented in a random order with only one vignette displayed per survey page. To increase engagement, participants were provided with a brief introduction asking them to try their best to picture the people they were reading about, and, on each page, participants were instructed to imagine that they had just met the person they were reading about. (An example vignette is shown in Figure 3.)

FIGURE 1. *Vignette conditions*



Vignettes varied by gender, age, and level of sexual activity. Gender of the vignettes is indicated by the light blue boxes, age is indicated by the green boxes, and sexual activity level is indicated by the dark blue boxes. Each level in flowchart sums to the total number of vignettes presented to participants.

FIGURE 2. *Vignette template information*

- **Name:** [Older and younger men and women matched on both first letter and number of syllables – names taken from lists of the most popular names from the 1940’s-1950’s and those from 1980’s-2000’s]
- **Gender:** [Male, Female]
- **Age:** [*Younger:* ages 19, 24, 28; *Older:* ages 74, 79, 84]
- **Height:** [Randomly assigned to the vignettes: average height for women: 5’4”, plus or minus one inch; Average height for men: 5’9”, plus or minus one inch]
- **Eye color:** [Randomly assigned to the vignettes: Blue, Brown, Gray, Green, Hazel]
- **Favorite color:** [Randomly assigned to the vignettes: Red, Orange, Yellow, Green, Blue, Purple, Pink, Brown, Black, Gray, White, Navy]
- **Favorite number:** [Randomly assigned to the vignettes: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12]
- **Sexual activity:** [3 variations: Sexually inactive, Sexually active, Extremely sexually active]
- **TV-watching activity:** [Randomly assigned to the vignettes: 2 hours, 2-and-a-half hours, 3-hours]

The figure above displays categories of information presented on the vignette cards, as well as information about how items in the various categories were selected, when applicable. Gender, age, and sexual activity were the key character variables of interest – all others were meant to serve as extraneous or ‘filler’ information to make the characters seem more believable or relatable.

FIGURE 3. *Example vignette*

- **Name: Barbara**
- **Gender: Woman**
- **Age: 84**
- **Height: 5’3”**
- **Eye color: Green**
- **Favorite color: Navy**
- **Favorite number: 4**
- **Sexual activity: Sexually active**
- **TV-watching activity: 2-and-a-half hours each day**

The image above is one of 12 vignettes used in the experiment, and it depicts Barbara, an 84-year-old woman who is sexually active. Vignettes varied by age (young/old), gender (male/female), and sexual activity (sexually inactive/sexually active/extremely sexually active). Unless otherwise specified, *any sexually-active older vignettes* or *sexually-active older vignettes* refer to vignettes described as either “sexually active” or “extremely sexually active.”

Explicit Attitudes Toward Sexuality in Later Life. A brief version of the Aging Sexual Knowledge and Attitudes Scale (ASKAS) was utilized. ASKAS has been shown to be adequately reliable and valid, and it is designed to measure knowledge and attitudes related to sexuality and sexual functioning in later life (White, 1982). ASKAS items measure personal opinions and knowledge, as well as attitudes towards structural elements and institutions that influence older persons' sexualities. Original items in ASKAS used "aged people" to describe older adults, but we adapted this terminology to be more modern and respectful, using "older persons" instead. Although the *Knowledge* subscale in the original instrument has 'true/false' responses and the *Attitudes* subsection uses a Likert-scale ranging from "agree" to "disagree," all items in this study had scores ranging from 1 = *strongly agree* to 6 = *strongly disagree*. Items in our survey were focused on explicit attitudes toward late-life sexuality, and example items included "Older people have little interest in sexuality" and "It is immoral for older persons to engage in recreational sex." The items were summed into a single score to represent explicit attitudes toward sexuality in later life, and scores ranged from 14 (more negative or unfavorable attitudes) to 84 (more positive or favorable attitudes).

Sexual Self-Efficacy in Talking to Health Care Providers in Later Life. The sexual self-efficacy of participants in predicted or perceived comfort in speaking with health care providers in later life was assessed using 3 items. These items were first presented prior to the writing intervention, and the same questions were then repeated at the end of the survey. Younger participants were asked to imagine what their sexuality would be like when they are aged 60+, and older participants were asked to think about what their sexuality would be like as they continue to get older. Responses ranged from 1 = *very uncomfortable* to 4 = *very comfortable*, with higher sexual-self efficacy scores indicating greater comfort. Items included: (1) "As you get older, how comfortable or uncomfortable do you think you will feel talking to your health care provider about your sexual activities and behaviors?;" (2) "As you get older, how comfortable or uncomfortable do you think you will feel talking to your health care provider about your sexual satisfaction?;" (3) "As you get older, how comfortable or uncomfortable do you think you will feel talking to your health care provider about safe sex?"

Covariates:

Self-Esteem. Self-esteem was measured using 9 items from the Rosenberg Self-Esteem Scale, which measures self-worth by asking participants to indicate how much they agree or disagree with the statements

using a 4-point Likert scale ranging from 1 = *strongly disagree* to 4 = *strongly agree* (Rosenberg, 1965). Summary scales were created by reverse-scoring negative items and summing all items together, excluding those that were missing. Overall self-esteem scores range from 9 to 36, with higher scores indicating greater self-esteem. Considered reliable and valid, this scale was included because existing literature suggests that self-esteem may impact how individuals view and understand sexuality and aging, both personally and globally (e.g., Allen, 2015; Butler, 2010; Calasanti & Slevin, 2001; Levy, 2003; Levy, 2009; Rozario & Derienzis, 2009; Thoits, 2013).

Self-Rated Health. Self-rated health was measured using one item from the RAND 36-Item Health Survey (2019): “In general, would you say your health is...?” Participants indicated their health status using a 5-point Likert scale ranging from 1 = *excellent* to 5 = *poor*. This question has been found to have high reliability and validity, and it has been shown to be statistically significantly associated with having specific health conditions, using health services, experiencing changes in functional status, undergoing recovery from illnesses, etc. (Bowling, 2005). As previously described, individuals’ health statuses and perceptions of their health and capabilities influence their views and attitudes towards aging, as well as their sexual interest, satisfaction, and activities in later life (e.g., Calasanti & Slevin, 2001; Estill *et al.*, 2018; Gott & Hinchliff, 2003; Lindau *et al.*, 2007; Rosen *et al.*, 2004).

Demographics. Age, gender, race and ethnicity, and educational attainment were also collected, as these demographic variables (or individuals’ identities and social locations) may influence their views of sexually activity and older persons (e.g., Ashforth & Mael, 1989; Barrett, 2003; Lefkowitz *et al.*, 2014; Lockenhoff *et al.*, 2009; Menkin *et al.*, 2017; McConatha *et al.*, 2003; Stryker & Burke, 2000; Warner & Shields, 2013). In addition, these covariates were controlled for because of differences observed between older and younger participants (see Table 1).

Analytic Plan

To examine hypotheses involving implicit attitudes toward sexually active older adults as the outcome, we utilized generalized linear models that approximated analyses of covariance (ANCOVA) models. Because each participant responded to the same series of 12 vignettes, one after the other, we selected a generalized linear model to adjust for within-participant correlation of the outcome measures,

whereby the outcomes did not follow a normal distribution (Goodrich & Sturgeon, 2015; Liang & Zeger, 1986). In other words, although the 12 vignettes were independent, the participants' ratings for each vignette character were correlated to some degree, and, as such, their answers were not completely independent and were thus effectively controlled for.

To assess explicit age beliefs and participants' self-perceptions of sexuality in later life, we generated a series of repeated ANCOVA models.

In investigating the first hypothesis that participants would think more negatively about older persons who are sexually active compared to those who are not, we compared participants' dislike of older vignettes described as sexually active compared to those described as sexually inactive.

To address the second hypothesis that negative age beliefs determine a greater aversion towards sexually-active older persons compared to those who are not sexually-active, we added age beliefs (i.e., negative images of aging, ageist views, experiences of ageism) to the model, with gut-reaction towards sexually-active older persons as the outcome. Then, we assessed whether sexually-active older persons were viewed less favorably than sexually-active younger persons using ageist views as a predictor. Finally, we assessed ageism's effect on explicit attitudes towards sexuality in later life.

For the third hypothesis that participants will think differently about sexually-active older female vignettes and sexually-active older male vignettes, we assessed participants' dislike of sexually-active older female vignettes compared to their dislike of sexually-active older male vignettes.

In analyzing the effect of the sex-positive writing intervention, our fourth hypothesis, we used receipt of the sex-positive writing intervention as a binary predictor and participants' dislike of the sexual activity of older women and older men as the outcomes. Then, we examined whether those in the intervention group had higher or more favorable scores for explicit attitudes toward sexuality in later life compared to the control group. Finally, we investigated participants' perceptions about what their sexuality will be like once they reach old age (younger participants) or continue to age (older participants). In the items related to participants' self-perceptions of sexuality in later life, pre-vignette scores were subtracted from post-vignette scores to create the outcome measure, with lower summary scores indicating improvements in positive perceptions and views; in these ANOVA models, we adjusted for participants' corresponding pre-vignette scores.

In all fully-adjusted models for both implicit- and explicit-measured outcomes, we controlled for age group (all participants) or age (when stratifying by participant age group), gender, race, education, self-

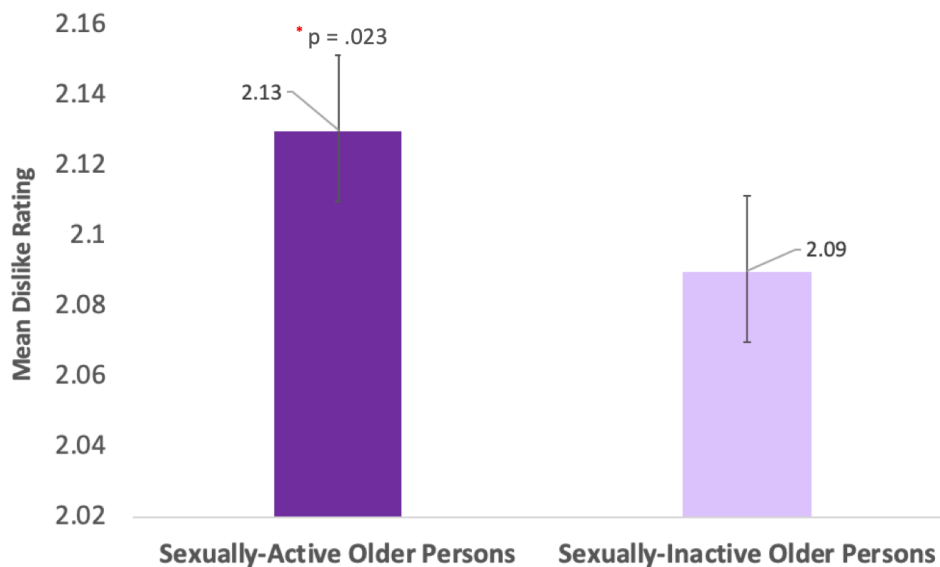
rated health, and self-esteem. All analyses were conducted using SAS version 9.4 (SAS Institute Inc., Cary, NC).

Results

Hypothesis 1: *Participants stigmatize sexually-active older persons.*

In support of hypothesis 1, participants thought more negatively about sexually-active older persons than sexually-inactive older persons – examined using vignettes to measure implicit attitudes toward sexuality in later life (see Figure 4). In the unadjusted model, sexually-active older vignettes had a mean dislike rating that was approximately .046 units more than that of sexually-inactive older vignettes, indicating greater stigmatization of the sexually-active older vignettes (CI 95% = .007 – .089, $p = .023$). In the full model – controlling for age group, race, educational attainment, self-rated health, and self-esteem – it was found that sexually-active older vignettes had a mean dislike rating that was .048 units higher compared to sexually-inactive older adults (CI 95% = .007 – .089, $p = .023$).

FIGURE 4. *Implicit stigmatization: greater toward sexually-active older persons compared to sexually-inactive older persons*



Among all participants, the mean dislike rating was .04 units higher for sexually-active older vignettes or persons ($\bar{x} = 2.13$) compared to sexually-inactive older persons ($\bar{x} = 2.09$) in the unadjusted model – indicating greater implicit stigmatization of sexually-active older persons.

Hypothesis 2: *Negative age beliefs and ageism predict stigmatization of sexually-active older adults.*

In support of hypothesis 2, we found that negative age beliefs were associated with greater stigmatization of sexually-active older vignettes compared to sexually-inactive older vignettes. In the main model where negative images of aging was the predictor, we found that as negative age belief scores increased by one unit, the mean dislike rating of sexually-active older vignettes compared to sexually-inactive older vignettes increased by .011 (CI 95% = .008 – .014, $p < .001$). In the full model – adjusting for all covariates – as negative age belief scores increased by one unit, the mean dislike rating increased by .010 (CI 95% = .006 – .014, $p < .001$).

In addition, it was found that ageism influenced the likability of sexually-active older vignettes compared to sexually-inactive older vignettes. As ageist view scores increased by one (i.e., became less favorable or more ageist), the mean dislike rating increased by .029, and, thus, sexually-active older vignettes became less likable (CI 95% = .019 – .039, $p < .001$). Controlling for all covariates, as ageist view scores increased by one, the mean dislike rating of the sexually-active older vignettes increased by .025 (CI 95% = .014 – .035, $p < .001$).

When examining how ageism influences gut-reaction likability of sexually-active older vignettes compared to sexually-inactive older vignettes among younger and older participants, different patterns emerged based on whether we looked at ageism reported toward others as opposed to ageism experienced. As younger participants' ageist views increased, the mean dislike ratings of sexually-active compared to sexually-inactive older vignettes became less favorable. As participants' ageism scores increased by one, the mean dislike ratings of sexually-active older vignettes increased by .035 (CI 95% = .024 – .046, $p < .001$). In the fully-adjusted model, as younger participants' ageist view scores increased by one, the mean dislike ratings increased by .034 (CI 95% = .021 – .046, $p < .001$). Ageism was not a statistically significant predictor of negative gut-reaction scores among older participants. In both the unadjusted model ($B = .013$, $p = .071$) and the fully-adjusted model ($\beta = .009$, $p = .257$), ageism scores predicted decreased likability of sexually-active older vignettes among older participants, but this was not statistically significant.

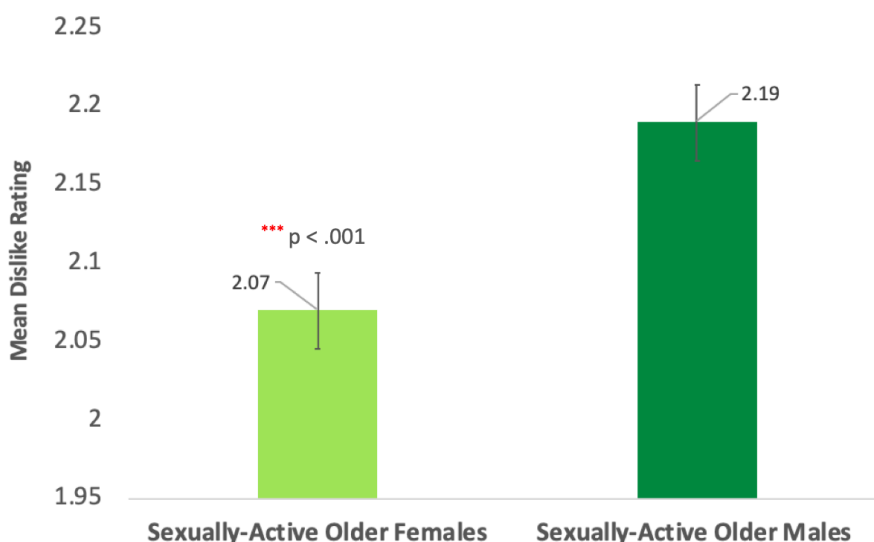
Among older participants, experienced ageism was a significant predictor of stigmatization of sexually active older persons. As the experienced-ageism score increased by one, the mean dislike rating of the sexually-active older vignettes increased by .050, although this was only marginally significant ($p = .053$). The score related to experiences of ageism among older participants was a statistically significant predictor in the fully-adjusted model ($\beta = .010$, CI 95% = .001 – .019, $p = .025$).

Finally, we investigated how negative age beliefs influence explicit attitudes toward sexuality in later life. In the unadjusted model, we found that as ageist view scores increased by one (i.e., becoming more negative), the mean explicit attitude score for all participants became more negative by .914 of a point (SE = .081, $p < .001$). Adjusting for all covariates, we also discovered that as ageist view scores increased by one, the mean explicit attitude score among all participants became more negative by .906 (SE = .090, $p < .001$).

Hypothesis 3: *Participants think more negatively about sexually-active older men than sexually-active older women.*

Results show that participants thought more negatively about sexually-active older men than sexually-active older women (see Figure 5). An unadjusted model found that sexually-active older female vignettes had a mean dislike rating .120 units lower than that of sexually-active older male vignettes, suggesting greater likability (CI 95% = -.159 – -.080, $p < .001$). Better likability for sexually-active older female vignettes compared to sexually-active older male vignettes was seen in the fully-adjusted model, controlling for all covariates ($\beta = -.118$, CI 95% = -.158 – -.078, $p < .001$).

FIGURE 5. *Implicit stigmatization: greater toward sexually-active older men compared to sexually-active older women*



Among all participants, the mean dislike rating was .12 units higher for sexually-active older men ($\bar{x} = 2.19$) compared to sexually-active older women ($\bar{x} = 2.07$) in the unadjusted model – thus suggesting greater implicit stigmatization of sexually-active older men.

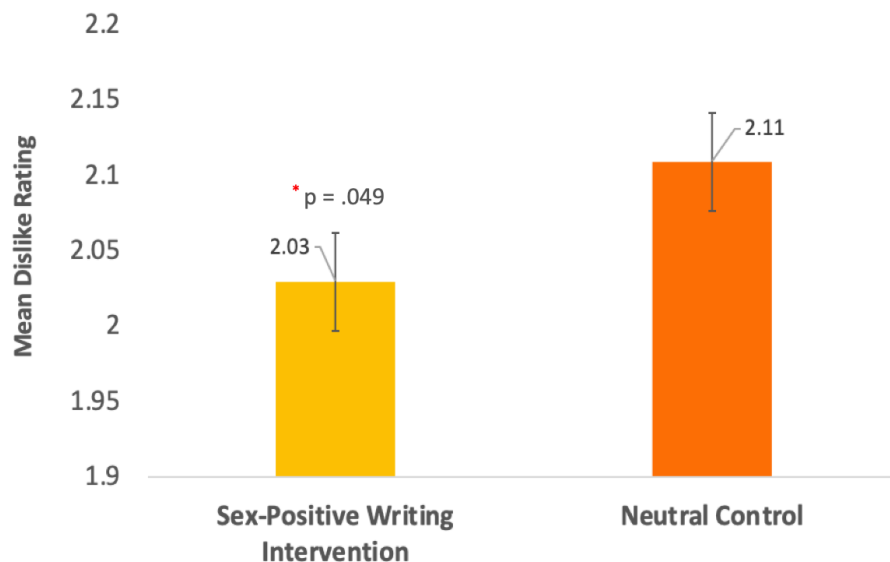
When stratifying by age, older participants were more likely to have a more favorable gut-reaction towards sexually-active older female vignettes compared to sexually-active older male vignettes in both the unadjusted model ($B = -.053$, CI 95% = $-.096 - -.009$, $p = .017$) and the fully-adjusted model ($\beta = -.051$, CI 95% = $-.095 - -.007$, $p = .022$). Younger participants were also more likely to have a more favorable gut-reaction towards sexually-active older female vignettes compared to sexually-active older male vignettes, as was seen in the unadjusted model ($B = -.185$, CI 95% = $-.250 - -.120$, $p < .001$) and in the fully-adjusted model ($\beta = -.184$, CI 95% = $-.250 - -.118$, $p < .001$).

Hypothesis 4: *A short, web-based writing intervention can improve views of sexually-active older adults and participants' attitudes toward sexuality in later life*

Although those in the writing intervention reported liking sexually active older persons more than those in the neutral condition, this did not reach statistical significance (unadjusted model: $\beta = -.053$, $p = .221$).

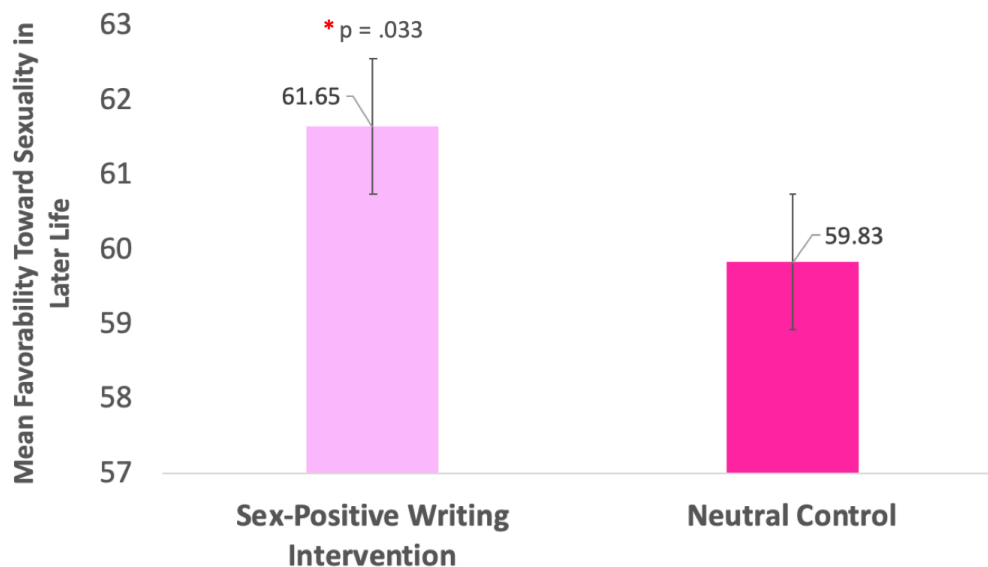
Findings from hypothesis 3 supported the idea that sexually-active older men and women may be viewed and perceived differently. As such, we examined the effects of the writing intervention for the likability of the sexually-active older female and older male vignettes separately.

In determining the effectiveness of the writing intervention for improving the gut-reaction likability of any sexually-active older female vignettes, it was discovered that the writing intervention was significantly related to greater likability of sexually-active older female vignettes in the unadjusted model ($B = -.088$, CI 95% = $-.174 - -.001$, $p = .049$; see Figure 6), as well as when adjusting for all covariates ($\beta = -.093$, CI 95% = $-.180 - -.005$, $p = .038$). In contrast, the writing intervention did *not* statistically significantly influence the likability of older sexually-active male vignettes; that is, although the writing prime did increase likability for sexually-active older males, neither the unadjusted model ($B = -.026$, $p = .603$), nor the model adjusting for all covariates ($\beta = -.038$, $p = .419$) were statistically significant.

FIGURE 6. *Sex-positive writing intervention reduced stigmatization toward sexually-active older women*

Participants who received the sex-positive writing intervention had a mean dislike rating of sexually-active older female vignettes that was .08 points lower than those in the control group in the unadjusted model, suggesting effectiveness of the sex-positive writing intervention in decreasing implicit stigmatization of sexually-active older women.

In addition, the writing intervention significantly improved the explicit attitudes toward sexuality in later-life (see Figure 7). Among all participants, the mean explicit attitude score was 60.8 ($SD = \pm 9.5$), and participant scores ranged from 26 (most negative or unfavorable attitudes) to 82 (most positive or favorable attitudes). Among younger participants, the mean score was 60.3 ($SD = \pm 10.5$), and among older participants, the mean score was 61.2 ($SD = \pm 8.4$). In examining the effects of sex-positive writing on explicit attitudes toward sexuality in later life, we discovered that those in the sex-positive writing condition tended to express significantly more positive or favorable views toward sexually active older persons on the explicit attitude scores than those in the neutral writing condition after adjusting for all covariates ($\beta = 1.943$, $SE = .909$, $p = .033$).

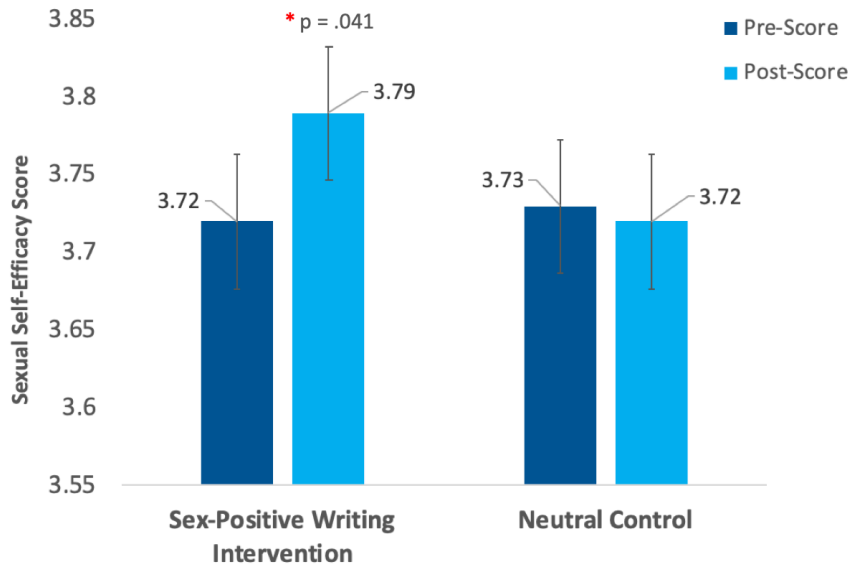
FIGURE 7. *Sex-positive writing intervention influenced lesser stigmatization of sexuality in later life*

Adjusting for all covariates, participants who received the sex-positive writing intervention had a mean favorability score toward sexuality in later life that was approximately 1.82 points higher than the mean favorability score among those in the control group, indicating effectiveness of the sex-positive writing intervention in decreasing explicit stigmatization of sexuality in later life.

Finally, we examined whether participants' predictions of their sexual self-efficacy in later life changed following the sex-positive writing intervention. It was found that the intervention impacted two of the three questions: what participants believed their level of comfort would be discussing matters related to their (1) sexual activities and (2) sexual satisfaction with their health care providers when they reach old age (younger participants) or as they continue to age (older participants). First, the mean score for how comfortable all participants believed they would feel talking to their health care providers about their own sexual activities and behaviors in later life statistically significantly improved (i.e., participants became more comfortable) following engagement in the sex-positive writing task (see Figure 8). This was statistically significant in the model only adjusting for the pre-intervention score ($\beta = -.087$, $SE = .043$, $p = .041$). Second, the mean score for how comfortable all participants believed they would feel talking to their health care provider about their sexual satisfaction also statistically significantly improved (i.e., participants became more comfortable) following the sex-positive writing prime (see Figure 9). This was observed in the model controlling for the pre-intervention score ($\beta = -.099$, $SE = .045$, $p = .028$), as well as in the fully-adjusted model ($\beta = -.104$, $SE = .045$, $p = .021$). However, the sex-positive writing intervention did not

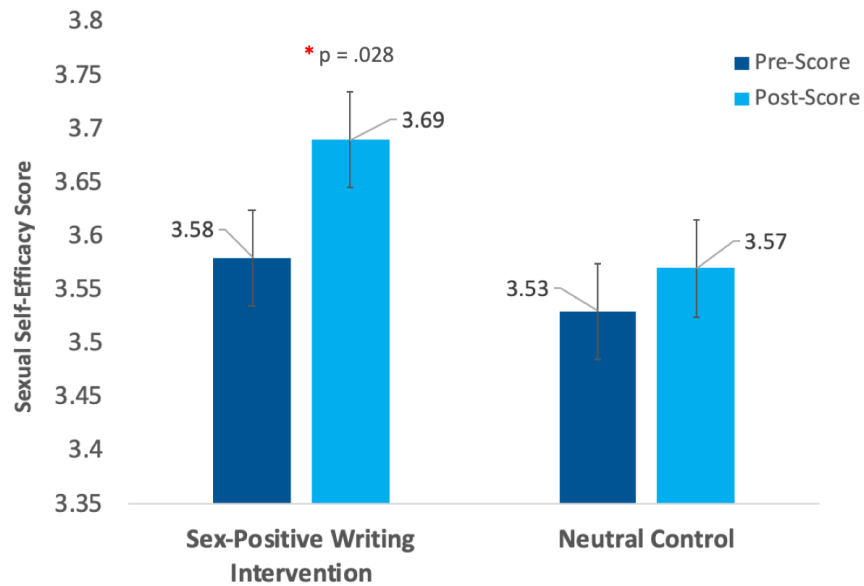
change participants' perceived comfort in speaking to health care providers about safe sex as they reach old age or continue to age (main model: $\beta = -.071$, $SE = .047$, $p = .130$).

FIGURE 8. *Sex-positive writing intervention led to greater perceived comfort in speaking with health care providers about sexual activities in later life*



Those in the sex-positive writing intervention group experienced a .07-point increase in their sexual self-efficacy score in the model only adjusting for the pre-intervention score, indicating that the intervention significantly improved their perceived comfort in speaking with a health care provider about their sexual activities in later life (younger participants) or as they continue to age (older participants).

FIGURE 9. *Sex-positive writing intervention led to greater perceived comfort in speaking with health care providers about sexual satisfaction in later life*



Participants in the sex-positive writing intervention group experienced a .11-point increase in their sexual self-efficacy score in the model only adjusting for the pre-intervention score, indicating that the intervention significantly improved their perceived comfort in speaking with a health care provider about their sexual satisfaction in later life (younger participants) or as they age (older participants).

Discussion

This web-based experiment examined younger and older people's views towards sexually-active older persons, assessed negative age beliefs and ageism as predictors of these attitudes, investigated whether sexually-active older women and men are perceived differently, and determined the effectiveness of a brief writing-based intervention on changing and improving attitudes. To our knowledge, this study is the first to (a) use an implicit measure to examine attitudes towards sexuality in later life; (b) incorporate *both* implicit and explicit measures to examine attitudes or stigmatization towards sexually-active older vignettes (a proxy for sexually-active older persons) and (c) utilize a brief positive image-based intervention to influence the ways in which people think about sexually-active older persons, as well as their of their own sexual self-efficacy as they age or reach later life.

In support of the first hypothesis, it was discovered that participants disliked sexually-active older persons more than sexually-inactive older persons. Importantly, in assessing whether the theoretical assumption that sexually-active older persons are stigmatized, our study utilized an implicit measure – in contrast to previous studies that only used explicit measures (i.e., Syme & Cohn, 2016). By using an implicit measure of gut-reactions towards sexuality among older persons, we were able to mitigate potential social desirability bias inherent in more explicit items. Importantly, the vignettes in this study only differed by gender, sexual activity level, and age – characteristics that were embedded amongst other descriptors; even still, these three variations between the 12 vignettes proved sufficient enough to statistically significantly influence perceptions of sexually-active older persons compared to sexually-inactive older persons. In addition, the use of the dislike rating for each character in this experiment proved effective and novel for examining the stigmatization of sexually-active older persons. Not only did this measure mimic Tinder's structure (and other dating apps'), but it also may be ecologically valid when considering that people assign a “global evaluation of good or bad” to new persons they encounter, which can happen “within a quarter of a second” (Levy & Banaji, 2002).

In support of the second hypothesis, it was found that holding more negative images of aging and ageist views increase the stigmatization of sexually-active older persons – when compared to sexually-inactive older persons and sexually-active younger persons using implicit measures. We discovered that negative age beliefs or stereotypes predicted more negative implicit *and* explicit attitudes towards sexually-active older persons. That is, it seems likely that the more one subscribes to the dominant narrative that chronological aging is synonymous with debilitation, the more one may also stigmatize sexuality in later-

life (as it goes against the socio-cultural sanctioned belief that older persons are or should be asexual on the basis of worsening attractiveness, libidos, and physiological functionality; e.g., Calasanti & Slevin, 2001; Gott & Hinchliff, 2003; Levy & Banaji, 2002; Levy, 2009).

While ageism was a significant predictor of less-favorable gut-reactions towards sexually-active older vignettes among all participants, it appears that stigmatization operated differently among younger and older participants. Among younger respondents (i.e., perpetrators), ageist views predicted greater stigmatization of sexually-active older persons, while older participants who experienced more instances of ageism (i.e., targets) were more likely to dislike sexually-active older vignettes. It seems plausible that older persons who have experienced more ageism may be more prone to internalize, normalize, or accept the negative age stereotypes that plague our systemically ageist society and culture (Levy, 2009). Speight, (2007) citing Hardiman and Jackson (1997) writes that targets – or older persons – ultimately may “think, feel, and act in ways that demonstrate the devaluation of their group and of themselves as members of that group,” thus “colluding with their own oppression.” In effect, older persons come to accept the “inferiority” placed on them by broader society, ultimately “[believing] the dominant group’s version of reality, in turn, ceasing to independently define themselves” (e.g., Levy, 2003).

Third, all participants – as well as older and younger participants, separately – viewed sexually-active older males as less likable than sexually-active older females. Although all participants in the sex-positive experimental group in this study were instructed to write about sexually-healthy older women and men, some respondents unknowingly or knowingly drew on and were still influenced by negative stereotypes, which were evident in their responses:

→ *When asked to describe a sexually-healthy older woman:*

- “It is hard to be sexually healthy when you are a widow. **I would think most people over 60 do not have sex.**” – *Older participant*
- “I wish it was me who was sexually healthy but it’s not. Actually, **I do not know any women of the age 60+ with an active sex life...**” – *Older participant*
- “**I really don’t know** any older person that is sexually healthy.” – *Younger participant*

→ *When asked to describe a sexually-healthy older man:*

- “One of my coworkers a few years ago was the **stereotypical dirty old man**. He wasn't rude or inappropriate to the customers, but according to him he needed his phone to remind him of all his

girlfriends' names. There was nothing wrong with his memory - he just had too many to remember.”
– *Younger participant*

- “My recently deceased great uncle was one of those **generic perverts** who would grope the nurses and what not, not sure if that's sexually healthy or not but the nurses thought he was adorable.” – *Younger participant*
- “Oh, this would be my **lecherous uncle**. He’s almost 80 and has the energy and determination of a man 60 years his junior. He’s considered a real ‘ladies’ man’ with the widows in his retirement community.” – *Older participant*

Participants in the sex-positive writing cohort who consciously or unconsciously did not write about sexually-healthy older persons tended to identify sexually-active older women as asexual, whereas sexually-active older men were perceived as being especially deviant and lewd, or “lecherous.” This finding supports the *intersectional invisibility* or *intersectional escape hypothesis*, whereby older sexually-active men may be stigmatized more than older sexually-active women (Francioli & North, 2019, in press; Purdie-Vaughn & Eibach, 2008). Although belonging to the more socially-powerful gender (i.e., men), their oldness (a subordinate identity) may threaten the existing sociocultural status-quo and power dynamic, thus serving to stigmatize this group more so more than sexually-active older women (Francioli & North, 2019, in press; Purdie-Vaughn & Eibach, 2008). Depictions of sexually-active older men and women in television shows and movies may also provide important clues in making sense of this finding; older sex-positive female characters (e.g., Blanche from *The Golden Girls*) may be portrayed as less taboo than older sex-positive male characters (e.g., Dick Kelly in *Dirty Grandpa*). In understanding the negative stereotyping and stigmatization of sexually-active older men, it may also prove important to recognize the particular sociopolitical climate in the United States, whereby the #MeToo Movement has both exposed perpetrators of sexual harassment and assault (namely men) and has aimed to illuminate the ways in which powerful people have continued to “set their own rules,” subsequently evading consequences for their actions (*The Economist*, 2018). For example, now-67-year-old Harvey Weinstein was one of the first men identified and closely followed by the #MeToo Movement who “allegedly committed dozens of sexual assaults, including rape” (*The Economist*, 2018). Regardless of whether they recently (allegedly) committed sexual harassment or assault, most identified perpetrators have been men, many of whom are now older (Carlsen *et al.*, 2018; North *et al.*, 2019). Perhaps this heightened awareness and media coverage of older male perpetrators may propagate the “dirty old man” stereotype – and ultimately make it more dangerous, disturbing, or inappropriately sex-crazed.

Fourth, the intervention successfully improved views toward sexual activity in later-life, including views toward sexually-active older women. Participants' responses highlighted the success of the sex-positive writing prompts in having participants picture and process older persons as both healthy and sexy:

→ *When asked to describe a sexually-healthy older woman:*

- “**I live in a community of 55 and older people who are all physically and, I assume, sexually active.** One of my friends is 84 and dating a man who is 90... She keeps a vibrator by her bed for nights alone. I love her!” – *Older participant*
- “I am writing about myself. I have been a widow for 10 years but have had several serious relationships, which were also intimate ones, and **my sexual experiences were in some ways better than they were when I was younger.**” – *Older participant*
- “She and her husband regularly get it on whenever they're feeling in the mood. They've been married for about forty years now, so they **know exactly how to pleasure each other. Their libido is the same, if not higher, than ever.**” – *Younger participant*
- “A person like this would likely be **quite confident** in herself and understand that age isn't something that should stop you from living your best life. I imagine this person to be elegant and up front with what she wants.” – *Younger participant*

→ *When asked to describe a sexually-healthy older man:*

- “He's someone who **takes his time** and understands that it's more than just physical. He knows that it's the affection, the hand holding, the kind words that make up sex. **He's much wiser about pleasing a woman.**” – *Older participant*
- “A male older person who is sexually healthy is my boyfriend, as he is the only man I have known for the past year. He enjoys a good orgasm like I do, and we engage in sex about once a week. **It's hard to believe, but sexual desire, satisfaction and climaxing does not necessarily diminish with age.**” – *Older participant*
- “This person would be **open with their partner** about what they want sexually. **They would be willing to talk about any sexual changes with their doctor.**” – *Younger participant*
- “My grandfather is 87 and still gets at it with grandma. They always were very close, and you can tell that **they still very much so find each other attractive and have fun.**” – *Younger participant*

As exemplified above, many participants in the sex-positive writing group described sexually-healthy older persons in non-stereotypical ways, highlighting the ways in which older women and men continue to value and express their sexuality. The above quotes also illustrate interesting differences in the ways sexually-

active older men and women may be thought of and portrayed depending on relationship status (i.e., whether they are in a committed relationship, versus if they are single or dating). For example, those who are married or who are in committed relationships are described in almost reverential ways, with participants writing about these older persons' high satisfaction, sustained libidos, and sexual self-efficacy in speaking to health care providers. The descriptions of those older adults being described as sexually active who are single or dating instead seem to be focused on sexual confidence in satisfying themselves and others.

Interestingly, the intervention was only successful with implicit views of sexually active older women; it was not successful in changing the implicit views of sexually-active older male vignettes. The gender difference found on the implicit measure may be due to a greater dislike or stigmatization of sexually-active older men compared to sexually-active older women. It may be that the views of men are less modifiable because they are more entrenched as dangerous, threatening, or perverted. As such, it may take additional interventional efforts to overcome these views.

Similarly, those in the sex-positive writing group held more positive explicit attitudes towards sexuality in later life, measured using a summary score ASKAS items. Participants in this study were similar in demographic characteristics, and randomization was successful – both of which suggest that writing about sexually-health older persons may have positively influenced or shaped participants' attitudes. Attitudes about individual, interpersonal, and institutional or structural factors influencing sexuality in later life were examined collectively. Examples of structural items we examined included, “Institutions such as nursing homes ought not to encourage or support sexual activity of any sort in its resident” and “As one becomes older, interest in sexuality inevitably disappears” (reverse-scored) – both of which were statistically-significantly more favorable among the group that received the writing intervention.

We also discovered that the sex-positive writing condition improved participants' perceptions of their anticipated sexual self-efficacy in talking to health care providers in later life compared to those in the neutral writing condition. To our knowledge, this study is the first to utilize and rigorously analyze a brief intervention to change people's views about their willingness to speak with health care providers regarding their sexuality in later life, including both younger participants (who were instructed to imagine how they would feel at age 60 and older) *and* older participants (who were asked to think about how they would feel as they continue to age). Qualitative studies have found that older persons are reluctant to discuss matters

related to their sexual activities and satisfaction with their health care providers, due to fears of embarrassment or shame and attributing sexual issues to “normal aging” or unchangeable issues (Gott & Hinchliff, 2003). Similarly, because of the asexuality stereotype, health care providers do not always recognize that sexuality is a “legitimate topic for discussion” with older patients and do not proactively engage in related questioning or conversations (Gott, Hinchliff, & Galena, 2004). Our finding – that perceptions of one’s perceived proclivity to speak to health care providers about sexuality-related concerns in older age *can* effectively be changed using a short writing intervention – has important implications for the sexual well-being of the older population. Tessler-Lindau *et al.* (2007) discovered that only 22% of women and 38% of men over age 50 reported having spoken with their health care provider about their sexual activity, despite Moreria *et al.* (2005) reporting that more than 54% of older men and 44% of older women wishing that their health care provider would inquire about their sexual functioning. Grappling with the erroneous asexuality stereotype by picturing older persons as sexually-healthy may inspire the formation of a positive stereotype of older persons as sexual beings that hold sexual self-efficacy and the comfort that they can advocate for their sexual well-being when speaking with health care providers. Perhaps a similar counter-stereotype-based writing activity could be integrated into medical forms given to older patients before appointments with health care providers as a means of potentially increasing their willingness and comfort in speaking about their sexual activities and well-being. That said, there were no statistically significant improvements in the intervention group’s perceived comfort about speaking to health care providers about safe sex in older age, perhaps because: **(a)** our participants may have believed that they were already knowledgeable about safe sex practices; and/or **(b)** participants may be in monogamous relationships in which they do not see safe sex as an issue.

Our findings add to previous work on sexuality in later life in new and exciting ways. First, unlike previous studies, many of which have excluded older persons as participants, we assessed attitudes toward sexually-active older persons; sexuality in later life, more generally; and self-perceptions of sexual self-efficacy in later life among both younger *and* older participants (e.g., Gott & Hinchliff, 2003; Kenny, 2013; Tupy, Schumann, & Xu, 2015).

Second, we created an implicit measure to assess people’s attitudes towards sexually-active older persons – something that has not been done in previous literature. Importantly, our findings demonstrate that only varying sexual activity level, age, and gender, which were scattered in a list of other extraneous descriptors, proved influential enough to lead to statistically-significantly worse views of sexually-active

older persons compared to asexual elders and sexually-active younger persons. This data may provide evidence of implicit sexual age stigma, whereby socialization of older persons as asexual and/or sexually deviant via society (through channels such as the media) may lead to almost-automatic gut reactions when exposed to thinking about or seeing sexually-active older persons (Levy & Banaji, 2002).

Third, our investigation examined how sexually-active older men and women are stigmatized differently based on gender, both lending support to the *intersectional escape hypothesis* and possibly demonstrating the effectiveness of the #MeToo Movement in signaling a shift from potentially previously viewing sexually-active older men more favorably (e.g., Calasanti & Slevin, 2001; Carpenter, Nathanson, & Kim, 2006; Kenny, 2013; Hillman, 2008; Vares, 2009). Put simply, our study lends evidence to suggest that older sexually-active older persons are not all viewed identically; rather, other facets of identity, like gender, may matter in which groups are more or less stigmatized.

Perhaps most importantly, this study represents the first web-based, non-educational intervention in the literature designed to improve persons' views about sexuality in later life, both generally and related to their own sexual self-efficacy. A very brief writing intervention – self-administered and delivered in just one dose of three prompts at a recommended 2+ sentences each – proved influential and substantial enough to favorably shift (at least momentarily) our participants' views. As Kukkonen (2017) cheekily noted in a *TED Talk* on sexuality in later life, individuals' *W.T.F. periods* – or “window to fornicate periods” – are far longer than most people in society realize. However, the default stereotype of asexuality – coupled with the stigmatization that follows when perpetrators realize that older persons both retain and embrace their sexuality – likely leads some older adults to internalize these views; underreport sexual issues or repress sexual desire; experience shame or guilt, in addition to possible loss of sexual interest, intimacy, and enjoyment “due to distancing and shame;” and eventually come to recognize themselves in the negative sexual age stereotypes, like “dirty old men” (Kaas, 1981).

Our short intervention shows promise in thinking about efficient and efficacious ways to bolster older persons' sexual self-efficacy and help younger people realize that sexuality continues to be a critical component of good relationships, mental and emotional well-being, and quality of life into old age (Cohen, 1984). Not only did the writing intervention shift participants' own perceptions of sexual self-efficacy, but it also decreased negative views of sexually-active older persons and, more broadly, was associated with more favorable explicit views of sexuality in later life. As such, identifying additional ways to have people think about and picture sexually-healthy older persons may not only lead to improvements in their own

sexual wellness, but also could perhaps shift attitudes towards sexually-active older persons and additional support for broader structural and institutional changes and movements, such as: **(a)** depicting more multi-dimensional and healthy sexually-active older characters in popular culture; **(b)** encouraging better training for health care providers, nursing-home and assisted-living staff members, etc. in initiating conversations about sexuality with older persons; **(c)** finding new ways to protect, enable, and improve older adults' sexual health and well-being; **(d)** including more older persons as research participants in psychosocial and clinical research studies related to sexuality; **(e)** advocating for the normalization of positive sexuality among this group; **(f)** increasing broader knowledge of sexuality's continued importance for older persons' quality of life, as well as how sexual satisfaction, pleasure, and importance sometimes even improve with age, perhaps a testament to older individuals' closer social ties and higher levels of both social satisfaction and positive emotions felt when interacting with others; and **(g)** continuing to recognize and challenge the multiple ways that negative age stereotypes and ageism hinder the physical, behavioral, mental, and emotional health and well-being of older persons.

In our study's survey, we purposefully did not define certain key terms, like "sexual activities" and "level of sexual activity." We also did not indicate the sexual orientation of our vignette characters in order to make these terms and factors relevant to all participants (Estill *et al.*, 2018). Importantly, what is meant by "sexuality" is continuously defined and redefined by individuals during different points of their lives depending on life circumstances, availability of partners, their own general health and well-being, etc. (Gott & Hinchliff, 2003). Because it is possible that the type (e.g., anal sex) and level of sexual activity, as well as who is performing it (in terms of individual characteristics, partner characteristics, or STI/STD status, etc.), may influence the stigmatization of sexually-active older persons, future investigations should examine how various factors influence attitudes toward and the stigmatization of sexually-active older persons.

Future research should also **(a)** empirically assess the ways in which the current sociopolitical context (e.g., the #MeToo Movement) may influence and/or have changed people's views of sexually active older persons – and older men, in particular; **(b)** investigate how sexual age stigmatization may have changed over time – and may be continuing to change over time – due to new technologies and medications (e.g., Viagra) and sociocultural beliefs and views (e.g., Baby Boomers who grew up during the sexual revolution of the 1960s); and **(c)** further examine how negative stereotypes related to different identities and characteristics influence sexual age stigmatization.

This study has two potential limitations. First, our research participants were Amazon M-Turk workers who self-selected to participate in our web-based experiment. Although Amazon M-Turk participants are more diverse and better representative of the U.S population than are other convenient samples, future studies should examine views of sexually-active older persons in additional types of cohorts (e.g., members of the oldest-old population or those ages 80+) in order to ascertain how participant characteristics may influence stigmatization, which could, in turn, lead to targeted interventions (Andersen-Ranberg, n.d.). Second, our study was conducted at only one timepoint, and, as such, we do not know how long, or if multiple short writing activities would help to induce lasting change (Levy *et al.*, 2014). Future investigations should aim to longitudinally assess the effectiveness of such writing-based interventions for older persons' attitudes about sexuality, in particular, as well as the potential effects on their sexual health and well-being. Finally, particular focus in follow-up studies should assess the best way to shift negative perceptions of sexually-active older men which may be more ingrained.

Conclusion

Our study lends support to the widely-held assumption that older persons are stigmatized for their sexuality when they do not abide by the cultural script of perceived asexuality (Gott & Hinchliff, 2003; Kessel, 2001). As the literature suggests, sexuality in later life is viewed as deviant, and those who engage in it are seen as “depraved or lecherous,” ultimately viewed with disgust and humor – which the media plays off of (as seen in shows like *Parks and Recreation*; Kessel, 2001; Gewirtz-Meydan *et al.*, 2018; Vares, 2009;). Not only did we find that older sexually-active persons are more stigmatized than sexually-inactive older persons and sexually-active younger persons, but our results also show that age beliefs are important predictors of how favorably people view sexuality in later life. Similarly, our findings indicate that older sexually-active men and women are perceived differently, with sexually-active older men thought of more negatively than sexually-active older women, thus supporting the *intersectional escape hypothesis* and/or influenced by the current sociopolitical climate (Francioli & North, 2019, in press). Importantly, our web-based experiment statistically significantly shifted and improved participants' perceptions of sexually-active older women, a score reflecting explicit attitudes about sexuality in later life, and participants' own perceptions of their self-efficacy in later years.

Older persons continue to live longer and healthier – and they comprise a growing proportion of the U.S. population. Hypothetically, this demographic shift and changing cultural norms *should* lead to the

mitigation of stigma related to sexually-active older persons. For example, there is: **(a)** a greater potential for more older sex-positive role models (in popular culture and in people's social networks) and for the general public to see and understand that more older persons continue to have and enjoy sexual activities; **(b)** a heightened ease for older persons to find romantic or sexual partners; **(c)** more liberal views among the general public regarding casual sex; and **(d)** more availability of medications and technologies to ensure that people are able to engage in sexual activities (e.g., Alterovits & Mendelsohn, 2009; Estill *et al.*, 2018; Gott, 2006; Kenny, 2013). However, in spite of these positive changes, age beliefs are becoming *increasingly negative* over time – and, as such, so too may attitudes and views toward sexual age stigma (Levy, 2017). In particular, as acceptance towards some social groups has improved (e.g., LGBTQ+ individuals) via the “Humanitarian Revolution,” the same cannot be said for the older population, whereby the “zero-sum dynamic of stigmatization” may be operating (Hatzenbuehler, Phelan, & Link, 2013; Levy, 2017). Levy (2017) writes that “the same core level of prejudice is maintained by society over time, no matter how it is distributed,” by means of ensuring that the dominant or in-group (i.e., the young) sustains its self-esteem and power and control over the subordinate or out-group (i.e., the old; Levy, 2017). Therefore, stigmatization does not disappear when different out-groups come to be viewed and treated more favorably, but it instead shifts to other subordinate groups or more intensely stigmatizes already-stigmatized groups (e.g., older persons; Levy, 2017). As our study discovered, negative age beliefs – which are becoming more pervasive – worsen the public's attitudes towards sexually-active older persons. It then stands to reason that if age beliefs continue to become negative or remain negative, so too may the stigmatization of sexually-active older persons, whose sexuality stands in direct discord with the sanctioned asexuality stereotype.

With age beliefs becoming more negative – and as the older population continues to grow and live longer, there is an ethical, clinical, and social imperative to ensure that older persons “have the opportunity to grow old in an age-friendly environment” that supports their sexuality (Beard *et al.*, 2016; Butler, 2010). Additional interventions and policies are needed to mitigate stigmatization of sexually-active older persons, particularly in medical and residential settings (e.g., Elias & Ryan, 2001; Frankowski & Clark, 2009; Gott & Hinchliff, 2003; Gott, Hinchliff, & Galena, 2004; Kessler, 2001). Our finding – that a short writing activity can improve attitudes towards sexually-active older persons and sexual self-efficacy in later life – suggests that innovative, efficient, and cost-effective interventions may successfully decrease stigmatization and improve older persons' abilities to think about advocating for their sexual behaviors and

satisfaction, particularly among health care providers. Most importantly, this short writing counter-stereotype intervention may have important implications for fighting the internalization of sexual age stigmatization among older person, which has detrimental effects on the mental, physical, and social health and well-being of elders who come to see their own sexuality as deviant (Kaas, 1980). Future research should continue to examine the effectiveness of this writing intervention to counter the negative age and asexuality stereotypes that debase, devalue, and dehumanize older persons, which, as expressed, lead to mitigated sexual self-efficacy, reduced sexual social connections, and belief that sexual activity is no longer sanctioned or appropriate for older persons (Baurer *et al.*, 2015; Syme & Cohn, 2017). Thus, we suggest that this study's results act as an impetus to further conversations about and interventions designed to create meaningful, lasting improvements in the sexual well-being of older persons, which must involve seeing this older population as simultaneously healthy *and* sexy.

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