

Utilization of Recommended Preventive Health Screenings Between Transgender and Cisgender Older Adults in Sexual and Gender Minority Communities

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Journal of Aging and Health
2022, Vol. 0(0) 1–14
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DOI: 10.1177/08982643211068557
journals.sagepub.com/home/jah


Abstract

Objectives: Transgender older adults are among the most health disparate populations in the United States; they also face some of the most significant barriers in accessing high quality, affordable, preventive healthcare services. We compare utilization rates of eight recommended preventive health screenings for adults aged 50 and older, by gender identity. **Methods:** We analyzed data from 2514 lesbian, gay, bisexual, and transgender adults aged 50 and older, testing associations between gender identities and screening service utilizations by applying a series of multivariate logistic regression analyses, controlling for sociodemographics. **Results:** Compared to cisgender LGB participants, transgender participants had significantly lower odds to have met four of the recommended screenings. Transgender men had significantly lower odds than transgender women to have met two of the recommended screenings. **Discussion:** Increasing transgender older adults' access to preventative health screening tests is critical to reduce the health burden in this aging population.

Keywords

sexual and gender minorities, health equity, older adults, healthcare access

Transgender older adults are among the most oppressed populations in the United States; they also face some of the most significant barriers in accessing high quality, affordable, preventive healthcare services (National Academies of Sciences, Engineering and Medicine, 2020). Access to clinical preventative services, which include screening tests, can prevent the onset or progression of disease or disability in older adults, yet utilization among older adults remains comparatively low (Levine et al., 2019). Recently, Medicare has emphasized the importance of preventative services for the general older adult population, in conjunction with modifying national screening recommendations, based on age and expected risks/benefits among older adults (Centers for Medicare and Medicaid Services, 2019). Currently, most clinical guidelines call for routine preventative services, and health screening for older adults, yet major gaps remain in the use of these services (Benson & Aldrich, 2012). While preventive screenings are effective in decreasing chronic diseases like heart disease and diabetes, gaps in preventive screenings are greater in populations who are socially, economically, and environmentally disadvantaged (De Biasi et al., 2020). Healthy aging poses concerns for transgender older adults, who face unique barriers in accessing health services (Fredriksen-

Goldsen et al., 2011), including recommended preventative health screening exams. The *Healthy People 2030* U.S. initiative to reduce population health disparities and improve quality of life acknowledges the health of transgender people and older adults as a national priority (U.S. Department of Health and Human Services, 2021). Preventive care as primary intervention is an important avenue for reducing health disparities and improving quality of life.

Documented health disparities make a clear case for increasing access to preventive healthcare service for transgender older adults. To be clear, the term *transgender* describes individuals whose gender identity—that is, their deepest sense of themselves as a gendered person—is incongruent with their biological sex assigned at birth. The term *cisgender* describes individuals whose gender identity is congruent with their biological sex assigned at birth. Cisgender

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lesbian, gay, and bisexual (LGB) older adults experience significant health disparities as compared to their heterosexual age peers (Fredriksen-Goldsen, Kim, et al., 2013). Compared to cisgender LGB older adults, transgender older adults experience significant health disparities, which include depression (Hoy-Ellis & Fredriksen-Goldsen, 2017), disability, poor general health, and obesity (Fredriksen-Goldsen, Cook-Daniels, et al., 2013), and HIV and other sexually transmitted infections (Bockting et al., 2013; Fredriksen-Goldsen, Cook-Daniels, et al., 2013).

Conceptual Framework: Health Equity

Health disparities are downstream outcomes of upstream factors that are by definition differences in population health that are attributable to social, economic, and/or environmental marginalization that create barriers to populations' achieving the best health possible. Health disparities are a measure of where we are and where we need to go to achieve health equity. A health equity perspective seeks to identify and address barriers to achieving the best possible health, such as lack of access to preventive healthcare services. The Health Equity Promotion Model (HEPM) conceptualizes health outcomes as a product of health promoting and adverse pathways—behavioral, social, psychological, and biological—that mediate and moderate structural and interpersonal discrimination and marginalization experienced by *sexual and gender minorities* (SGM) (Fredriksen-Goldsen, Simoni, et al., 2014). The National Institutes of Health has formally designated SGM as a health disparate population, stating that:

SGM populations include, but are not limited to, individuals who identify as lesbian, gay, bisexual, asexual, transgender, Two-Spirit, queer, and/or intersex. Individuals with same-sex or -gender attractions or behaviors and those with a difference in sex development are also included. These populations also encompass those who do not self-identify with one of these terms but whose sexual orientation, gender identity or expression, or reproductive development is characterized by non-binary constructs of sexual orientation, gender, and/or sex (para. 5).

Exposure to structural and interpersonal stressors (e.g., social stigma and microaggressions) are a function of intersectional social locations—the more marginalized social identities one has, the greater risk for exposure, both in kind and degree. This “function of intersectional social locations” is rooted in Kimberlé Crenshaw's (1990) legal expository that describes how multiple social identities (e.g., race, class, and gender) “intersect and overlap” such that (per her example) black women experience racism and sexism simultaneously. Transgender older adults inhabit among the most marginalized of social locations, and lack of access to affordable, quality preventive healthcare services is a health adverse behavioral pathway that increases the strength of the relationship between structural and interpersonal

discrimination and marginalization and poorer health outcomes (Fredriksen-Goldsen, Simoni, et al., 2014).

The context of violence and trauma faced by transgender people may exacerbate the health problems these communities face. Access to and utilization of preventive care services goes far beyond those services in and of themselves, extending into every dimension of life—physical, psychological, spiritual, and social. Barriers to access and utilization may take forms that are often not recognized. A large community-based sample of transgender adults suggests that nearly half (48%) were experiencing depression (Hoy-Ellis & Fredriksen-Goldsen, 2017). Depression among LGBT older adults has been associated with “not using preventive care” and “not seeking care when needed” (Shiu et al., 2017, p. S105). Health-related quality of life (QOL), conceptualized as overall well-being that encompasses satisfaction with life and the experiences of positive emotions (Office of Disease Prevention and Health Promotion, 2021) was negatively associated with discrimination and chronic conditions and positively with social support (Fredriksen-Goldsen, Kim, et al., 2014).

Background and Significance

In addition to the disproportionately high rates of interpersonal and institutional violence faced by transgender people in the larger community, transgender people also experience a relatively high rate of discrimination and abuse in medical settings. Some examples of interpersonal and institutional violence that transgender people include 28% of transgender people report verbal harassment in a medical setting, and 19% report being refused care altogether due to their gender identity or expression (Grant et al., 2011). Additionally, 21% are not out about their transgender status to their medical providers, and 50% have reported that their medical providers are not knowledgeable about transgender care (Grant et al., 2011). Additionally, transgender people are less likely than the general population to have private health insurance, and are more likely to have coverage through public programs (e.g., Medicaid and Medicare), many of which have explicit transgender care exclusion clauses (Fredriksen-Goldsen, Hoy-Ellis, et al., 2014; Reback et al., 2018).

The field of transgender healthcare beyond medically and psychologically facilitated transitioning is relatively new and much of what we do know in this arena is based primarily on younger transgender individuals—healthcare for older transgender adults is typically derived from research with younger transgender populations (Mahan et al., 2016). A relatively recent systematic review of primary preventive care for transgender populations identified 41 articles during the period 2001–2015 that were included in the review. Parameters to be included were that (1) studies were observational in nature, (2) conducted in the United States, and (3) participants were age 18 and older. Most of the studies focused on HIV and related risk behaviors, as few addressed pelvic examinations, tobacco use, insurance coverage, and

cholesterol screenings; none examined mammography, chest/breast tissue examinations, colorectal screenings, or flu shots (Edmiston et al., 2016). While study methods (e.g., survey and phone interview), recruitment (e.g., community sample), participant characteristics (e.g., transgender women), geographic location (e.g., New York and Boston), sample size, and primary findings were reported, with the exception of colorectal screening, mammography reported among adults aged >50-years old, all other findings for reported ages was 18 and older (Edmiston et al., 2016).

Much of available information on transgender populations in the United States focuses on younger and middle-aged transgender adolescents and adults. Transgender older adults remain largely absent from the literature, and much of our knowledge of healthcare access and provision among transgender older adults is often extrapolated from data on the younger transgender population. To date, there is limited knowledge about what kinds of medical care transgender older adults may avoid, delay, or have limited access to, as well as the contexts that contribute to these adverse health behaviors and experiences. This is striking considering there is a robust literature that examines the intersections of ageism and other systems of oppression that target marginalized intersectional positionalities, synergistically contributing to upstream social determinants of health and downstream health inequities (Emlet et al., 2015).

Purpose of Study

This lack of information limits the ability to study this population and, more importantly, to develop responsive interventions to improve the health outcomes in these communities (Seelman et al., 2017). We focus this study on transgender older adults' access to preventative health screening because early disease detection and treatment can moderate the severity of disease, reduce associated complications, and lower the incidence functional limitations. Moreover, for transgender older adults, access to certain sex-linked preventative care, such as Papanicolaou tests (Pap smears), mammograms, and prostate-specific antigen (PSA) tests may be even more problematic due to lack of knowledge about transgender healthcare issues among healthcare providers, as well as insurance coverage.

Some population-based studies comparing lesbian, gay, and bisexual (LGB) adults aged 50 and older to their heterosexual peers indicate, for example, that older lesbians and bisexual women are less likely than heterosexual women to have health insurance or a mammogram within the past two years, and more likely to experience financial barriers to healthcare (Fredriksen-Goldsen, Kim, et al., 2013). As population-based research rarely includes transgender populations, there are few, if any equivocal comparative studies for transgender older adults vis-à-vis heterosexual or LGB older adults. However, large, community-based samples have uniformly found that compared to LGB older adults,

transgender older adults fare worse on nearly every key health indicator, including access to healthcare services (Fredriksen-Goldsen, Cook-Daniels, et al., 2013).

In this exploratory study, we aim to investigate the likelihood of transgender adults aged 50 and older receiving U.S. Preventive Services Task Force (USPSF) recommended preventative health-screenings, as compared to cisgender LGB adults of similar age. We specifically seek to identify relative rates of preventative health screening tests among transgender adults aged 50 and older, compared to their cisgender LGB age peers. We also aim to identify patterns of relative rates of preventative health screening tests within the sample between transgender women and transgender men.

Methods

Study Design and Sample

This study is a secondary analysis of data collected in 2010 as part of the Caring and Aging with Pride Study, funded by the National Institutes of Health and the National Institute on Aging. The cross-sectional survey of 2560 LGBT midlife and older adults 50 years of age and older was conducted through collaborations with 11 community-based organizations across the United States. Because the survey aimed to understand the health, aging and well-being of LGBT midlife and older adults, numerous types of questions were included regarding health and health behaviors, including utilization of screening services and preventative care. Many of these health related items were adapted from standard items in nationally representative surveys, such as the Behavioral Risk Factor Surveillance System (BRFSS), culturally tailored to capture the unique healthcare needs in the lesbian, gay, bisexual, and transgender community. For more in-depth information regarding the study design and methodology, see Fredriksen-Goldsen, et al. (2011).

We identified transgender older adults using two items with a skip pattern: "Are you transgender? [yes/no]." "Yes" responses to this question were followed with an additional question asking whether they were "Female to Male (FTM)," "Male to Female (MTF)," or "Other." Because the sample size for the "other" category was small ($n = 9$), they were not included in the analyses. The total sample size used for the analysis reported here is 2514 including 165 transgender (n for transgender women = 104; no for transgender men = 61) and 2349 cisgender older adults. All study procedures were reviewed and approved by the University of Washington Institutional Review Board.

Measurement

Utilization of Preventive Screenings. We measured utilization of eight different screening services with a set of questions: "How long has it been since you had a _____ (a type of screening service)?" Participants could choose a single response from "never," "3 or more years ago," "within the past

three years,” or “within the past year.” We used the U.S. Preventative Services Task Force (USPSTF) published recommendations to guide our initial analysis of these screening tests, which all received A or B graded recommendations for the age group in question (United States Preventive Services Task Force, 2020). The USPSTF recommends provision of these services with high certainty that the net benefit is substantial (e.g., hypertension screening has an A-recommendation), or moderate (prediabetes/Type 2 diabetes screenings have a B-recommendation). While it is generally noted that most medical problems in a transgender patient population are not secondary to hormone use for gender affirmation or gender-related surgery, we recognized that there are areas of special consideration in which transgender-related medical treatments may impact patients’ health. We supplemented the USPSTF recommendations with recommendations from the UCSF Center for Excellence in Transgender Care’s Primary Care Protocol for Transgender Patient Care (Center of Excellence for Transgender Health, 2016). For physical exam, stool test, and colonoscopy, we exclusively referred to the USPSTF recommendations as for these exams a person’s sex, and surgical and hormonal histories are irrelevant to the screening guidelines. For HIV tests, mammogram, Pap smear, osteoporosis test, and prostate-specific antigen (PSA) test, we used both the USPSTF recommendations and the UCSF Primary Care Protocol recommendations to guide our analyses. These were either cases where the recommendations were modified for a transgender population based on a specific hormonal regimen or surgical history, or where we felt that there was significant potential for patient or provider misunderstanding based on a person’s actual or perceived sex (biological assigned at birth) and/or gender identity (psychological, social). For age considerations, we used the USPSTF guidelines to determine appropriate age intervals during which screening should occur for all screening exams with the exception of osteoporosis test. For osteoporosis test, we relied on the age considerations proposed by the UCSF Primary Care Protocol recommendations, as these recommendations are modifiable based on a surgical and hormonal history. The eight screening services were included and further recoded as follows:

Physical exam/last year for those of all ages (1 = “had it last year”; 0 = “did not have it last year”). *Stool test/last year* for those 75 years of age and younger (1 = “had it last year”; 0 = “did not have it last year”). *Colonoscopy/ever* for those 75 years of age and younger (1 = “ever had it”; 0 = “never had it”). *HIV Test/last year* for those of all ages (1 = “had it last year”; 0 = “did not have it last year”). *Mammogram/last three years* for lesbian and bisexual women; transgender women who had been on hormones for more than 3 years; and transgender men up to 75 years old (1 = “had it in last three years”; 0 = “did not have it in last three years”). *Pap Smear/last three years* for lesbian and bisexual women, transgender women, and transgender men up to 64 years of age (1 = “had it in last three years”; 0 = “did not have it in last three years”).

Osteoporosis test for lesbian and bisexual women, and transgender women 65 years old and older, as well as transgender men 50 years old and older (1 = “ever had it”; 0 = “never had it”). *PSA/last three years* for gay and bisexual men and transgender women 74 years of age and younger (1 = “had it in last three years”; 0 = “did not have it in last three years”).

Background characteristics included *age* was calculated from participants’ year of birth; *education* (highest grade completed - high school/GED or below vs. some college and above); *income* (at or below 200% of federal poverty level (FPL vs. above FPL) (Department of Health and Human Services, 2010). *Race/ethnicity*. Were asked “Are you Hispanic or Latino” (yes/no), as well as identifying what racial categories they identified with: “White, Black or African American, Asian, Native Hawaiian or Other Pacific Islander, American Indian or Alaskan Native, or other.” Due to small subsample sizes, we recoded race as *non-Hispanic/Latino White, Hispanic/Latino, African American, and other*).

Analytic Strategy

We computed all statistics with *Stata/IC for Windows (Version 14)*. We ran Little’s Missing Completely at Random (MCAR) test to determine if there was an underlying pattern of systemically missing data, which would introduce a “lot of noise” in the data and would require complex statistical adjustments to minimize the potential bias in the data. As the MCAR rate was only 1.8%, we applied complete-case analyses, as opposed to multiple imputation or deletion. We initially ran descriptive statistics to understand characteristics of the sample. We then applied bivariate statistics to compare transgender and cisgender LGB subsamples on the key background demographic characteristics. We employed bivariate statistics (t-tests or χ^2 tests) to compare screening service utilizations between transgender and cisgender LGB adults aged 50 and older. We used logistic multivariable regressions to conduct significance tests of the differences in prevalence of screening service utilizations between two groups after controlling for background characteristics (age, race/ethnicity, income, education) with cisgender LGB participants as the reference group. We further applied the same statistical tests to compare screening service utilizations between transgender women and transgender men with the former as the reference group.

Results

Compared to cisgender LGB participants, transgender participants were significantly younger ($p < .001$); less likely to be non-Hispanic/Latino White ($p = .03$); more likely to have a high school/GED education or less ($p = 0.037$); and more likely to be living at or below 200% of the FPL ($p < 0.001$). Comparisons of transgender women and men indicate that on average, transgender women were more likely to have some

Table 1. Sample Demographic Characteristics (N = 2514).

	Cisgender (n = 2349)	Transgender (n = 165)	Significance	Transgender Women (n = 104)	Transgender Men (n = 61)	Significance
	%	%	P	%	%	p
Age (M/SD)	66.97 (9.0)	61.0 (8.1)	<.001	61.9 (7.9)	59.4 (8.3)	NS
Race/Ethnicity			.03			.031
Non-Hispanic White	87.1	79.8		84.5	71.7	
Hispanic	4.4	3.7		1.0	8.4	
African American	3.5	4.9		5.8	3.3	
Other	5.1	11.7		8.7	16.7	
Education			.037			.026
> High School	92.3	87.7		92.2	80.3	
Income			<.001			NS
≤200% FPL	29.2	47.4		49.5	43.6	

Note. NS = not significant; FPL = federal poverty level.

Table 2. Health Screening Utilization by Cisgender/Transgender Status.

	Full Sample			
	Cisgender (ref) %	Transgender		
		%	OR [CI]	AOR ^a [CI]
Physical exam (every year)	83.16	74.07	.58** (.40, .84)	.87 (.57, 1.31)
Stool test (every year, 50–75)	19.03	20.98	1.13 (.74, 1.72)	1.20 (.76, 1.90)
Colonoscopy (every 10 year, 50–75)	83.05	68.06	.43** (.30, .63)	.70 (.47, 1.05)
HIV Test (every year)	22.30	20.63	.90 (.61, 1.35)	.80 (.53, 1.22)
Mammogram (every 2 year, 50–75)	88.89 ^b	37.70	.08** (.04, .13)	.08** (.04, .16)
Pap smear (every 3 year, 50–64)	82.13 ^b	21.50	.06** (.03, .10)	.05** (.03, .09)
Osteoporosis test (at least one, 65+)	85.10 ^b	30.77	.08** (.04, .13.6)	.08** (.04, .16)
PSA test (every year, 50–74)	74.22 ^c	39.08 ^d	.22** (.14, .35)	.31** (.19, .51)

Note. ref = reference group; OR = odds ratio; AOR = adjusted odds ratio; CI = confidence interval; * $p < .05$; ** $p < .01$

^aEstimates were adjusted for age, race/ethnicity, education, and poverty.

^bEstimations come from sexual minority women.

^cEstimations come from sexual minority men.

^dEstimations come from transgender women.

college education or more ($p = .026$) and more likely to be non-Hispanic/Latino White ($p = .031$). Transgender men were slightly younger, although not significantly so. For full demographics of the entire sample, see [Table 1](#).

In terms of preventive health screenings, transgender participants had significantly lower odds of physical exam ($OR = .58$, $p < .01$), colonoscopy ($OR = .43$, $p < .01$), mammogram ($OR = .08$, $p < .01$), pap smear ($OR = .06$, $p < .01$), osteoporosis test ($OR = .08$, $p < .01$), and PSA test ($OR = .22$, $p < .01$) than cisgender LGB participants. According to adjusted analysis (controlling for age, income, education, and race/ethnicity), lower odds of utilizing four of the eight recommended screenings for transgender participants remained significant. The four preventive screenings were mammogram ($AOR = .08$, $p < .01$); Pap smear ($AOR = .05$, $p < .01$); osteoporosis test ($AOR = .08$, $p < .01$); and PSA test

($AOR = .31$, $p < .01$). Sub-group analyses of transgender women and men found significant differences on only two preventive screenings. Transgender men were significantly less likely to have had a stool test ($AOR = .27$, $p < .05$), or a colonoscopy ($AOR = .39$, $p < .05$). See [Tables 2](#) and [3](#) for all comparisons of preventive health screenings.

Discussion

Transgender women and men aged 50 and older face substantial challenges as they age, including experiencing discrimination in healthcare settings and limited access to quality care. The goal of this exploratory study was to assess preventive health screening utilization among transgender adults age 50 and older. While preliminary, overall findings in this study suggest that transgender women and men 50 and

Table 3. Health Screening Utilization by Transgender Women and Men.

	Transgender Women (ref) %	Transgender Subsample		
		%	OR	AOR ^a
Physical exam (every year)	78.64	66.10	.53 (.83, 1.08)	.72 (.33, 1.59)
Stool test (every year, 50–75)	28.89	7.55	.20** (.07, .61)	.27* (.09, .85)
Colonoscopy (every 10 year, 50–75)	74.73	56.60	.44* (.21, .91)	.39* (.18, .86)
HIV Test (every year)	17.48	26.32	1.68 (.81, 2.27)	1.71 (.76, 3.86)
Mammogram (every 2 year, 50–75)	58.33	32.65	.35 (.09, 1.26)	.37 (.09, 1.47)
Pap smear (every 3 year, 50–64)				
Osteoporosis test (at least one, 65+)	33.33	29.41	.83 (.31, 2.27)	.69 (.20, 2.43)
PSA test (every year, 50–74)				

Note. ref = reference group; OR = odds ratio; AOR = adjusted odds ratio; CI = confidence interval; * $p < .05$; ** $p < .01$.

^aEstimates were adjusted for age, race/ethnicity, education, and poverty.

older may be significantly less likely than their cisgender LGB peers to access certain age and sex appropriate preventive health screenings. In comparisons between transgender women and men only, men were significantly less likely to have had a stool test or a colonoscopy within the recommended period. Intersectionality theory may be a factor at play in the respective racial/ethnic composition of both transgender/cisgender and transgender women/transgender men sample and subsample analyses in that transgender participants were less likely to be non-Hispanic/Latino White than cisgender participants were. While we were not able to conduct sub-analyses that would produce unbiased estimates due to small subsample sizes, transgender people of color experience both racism and cisgenderism. Exploring the effects of intersectionality in regard to potential, simultaneous, respective contributions of racism and cisgenderism and their relative impacts on transgender health and well-being will be an important area too research.

In healthcare, transgender older adults suffer from the combined impact of experiencing discrimination in the care setting and of experiencing barriers to accessing quality care from inability to afford healthcare costs to lack of provider knowledge (James et al., 2016). Transgender older adults face these concerns in addition to the cumulative impact of a lifetime of disparate treatment due to their gender identities and expressions (James et al., 2016). Consistent experiences of lack of cultural and clinical knowledge about transgender care from healthcare providers and support staff, coupled with experiences of abuse and harassment can lead to mistrust of medical institutions and a failure to seek routine as well as specialized care (Fredriksen-Goldsen, Hoy-Ellis, et al., 2014; Kimmel et al., 2006). Research also suggests that providers of services to older adults are specifically uninformed and culturally insensitive on issues faced by transgender patients, pointing to the increased burden faced by transgender adults as they age (Kimmel, 2014). Many older transgender people report delaying care, and avoiding preventative care until

emergency care is needed, to avoid the stress and anxiety of interacting with medical care providers who are often ignorant and discriminatory (James et al., 2016).

Demographic risks may also play a part in transgender women and men's lower utilization of preventive health screenings. Transgender participants had significantly lower levels of income and fewer years of education, both of which are important barriers to accessing preventive health screenings (Woolf & Aron, 2013). Individuals with less education in general are less likely to understand the importance of screenings, while those with lower incomes are less likely to have health insurance—and to be able to afford out of pocket costs. This may in turn initiate a cascade effect, whereby an individual's awareness of social discrimination trigger a series of emotional and appraisal reactions that can culminate in negative impacts on health (Williams et al., 2019). Such a cascade effect may play a role in our finding that transgender participants were significantly younger as lower SES is also linked to lower life expectancy and decreased quality of life (Jauk, 2013). Transgender participants were also more likely to be non-White and research has established that systemic racism in the U.S. healthcare system is itself a major barrier to healthcare access among racial and ethnic minorities (Feagin & Bennefield, 2014).

Although not included in this study, geopolitical region of residence may also function as an indirect barrier to accessing preventive screenings for transgender women and men. Findings from the 2015 U.S. Transgender Survey (USTS) suggests that transgender individuals living in the American West or Florida are significantly more likely to report outright refusal of services by healthcare providers, while those living in the New England area are significantly less likely to report refusal of services (James et al., 2016). Refused care once, transgender older adults may be less likely to continue to seek care. Findings from the USTS also suggests that 33% of transgender participants report they see a different provider for routine care than their transition-related provider, while

another 15% report have neither a routine care or transition-related care provider (James et al., 2016). Echoing other research, only 6% of transgender participants with a separate provider for routine care indicated that those providers knew “most things” or “almost everything” about providing care for transgender individuals.

Disparities in Utilization of Preventive Screenings

Overall, we found that compared to their cisgender LGB peers, transgender participants were significantly less likely to have accessed four of the eight preventive health screenings within the recommended period: mammogram, Pap smear, osteoporosis test, and PSA test. This is not surprising as research comparing transgender older adults to their cisgender LGB counterparts consistently finds that transgender older adults fare worse across key outcomes (Fredriksen-Goldsen, Cook-Daniels, et al., 2013; Hoy-Ellis & Fredriksen-Goldsen, 2017). In turn, population-based research suggests that compared to heterosexuals aged 50 and older, LGB adults have worse outcomes in multiple areas, including lower rates of mammography for lesbian and bisexual women, and lower rates of HIV testing for bisexual men (Fredriksen-Goldsen et al., 2012). Compared to heterosexual women aged 50 and older, lesbian and bisexual women are significantly more likely to delay needed care (Wallace et al., 2011).

Mammography

Breast cancer is the most common cancer among people assigned female at birth worldwide, and is a leading cause of premature death in women. Although there has been current interest in estimating harms associated with early screening, there is consensus among the USPSTF and professional organizations in the United States that biennial screening should start at age 55 (U.S. Preventative Services Task Force, 2016). Mammography screening is associated with a reduction in breast cancer mortality across a range of study designs. While we need more research in this area, there are potentially special considerations for older transgender women and transgender men in regards to mammography screening. Specifically, for transgender men who have breast tissue—no surgery or only chest reconstruction—mammography recommendations are as for cisgender females. For transgender women, mammography is recommended in patients over age 50 with additional risk factors, particular with use of estrogen and progestin over 5 years (Sonnenblick et al., 2018). Why transgender adults age 50 and older get mammograms at less than half the rate of their cisgender counterparts is likely due to a number of reasons. One reason may be that more than one in four transgender adults have experienced discrimination in healthcare settings or been denied health insurance (Bradford et al., 2012). Experiencing such discrimination may decrease the likelihood

of ongoing attempts to access healthcare, or withdrawal from the healthcare system entirely (Ceres et al., 2018). Furthermore, insurance may not cover some transgender-related medical concerns (American Medical Association, 2008). Transgender men may not be aware that they remain at risk for breast cancer, even if they have had chest reconstruction surgery.

Pap Smear

Cervical cancer deaths in the United States have decreased since the implementation of widespread cervical cancer screening in the form of Pap smears. Most cases of cervical cancer occur in women who have not been appropriately screened and there is convincing evidence that appropriate screening can reduce cervical cancer mortality (McGraw & Ferrante, 2014). There are potential special considerations for Pap Smears in transgender men based on gender-related surgical history. Specifically, following total hysterectomy - if prior history of high-grade cervical dysplasia and/or cervical cancer, annual Pap smears of the vaginal cuff (constructed by suturing together the top part of the vagina, close to where the cervix was previously located, usually following a complete hysterectomy) (Thompson et al., 2020). Pap smears are recommended until three normal tests are documented and then every two to three years thereafter. If ovaries were removed but uterus/cervix remains intact, it is recommended that Pap smear guidelines for natal females be followed (Weyers et al., 2021). As these guidelines demonstrate, clinical guidelines for transgender men getting Pap smears are complex. It is understandable that transgender older men might be less likely to access this important preventive screening. Beyond the already highlighted disparities in income and health insurance, lack of culturally sensitive care likely plays a role. In a large national study comparing transgender adults aged 50 and older to their cisgender LGB peers, transgender participants were significantly more likely to fear accessing healthcare services and to conceal their identity from providers (Fredriksen-Goldsen, Cook-Daniels, et al., 2013). The American Medical Association (2019) has made clear that healthcare recipients' failure to disclose—and providers' failure to ask—about sexual and gender minority identities increases the risk for substandard or even harmful healthcare services (2009). From a health equity perspective, lack of affirming healthcare and healthcare spaces (e.g., clinic waiting rooms) specific to breast and Pap smear screening can be a significant barrier to preventive screenings (National Academies of Sciences, Engineering and Medicine, 2020).

Osteoporosis Test

Osteoporosis in older adults is a major health concern and osteoporotic fractures, particularly hip fractures, are associated with chronic pain and disability, loss of independence, decreased quality of life, and increased mortality. There is evidence that bone measurement tests predict short-term risk

for osteoporotic fractures in women and men (Mikolajewicz et al., 2020). While more research in the area is needed, older transgender women and transgender men have potentially special considerations obtaining a dual-energy X-ray absorptiometry (DEXA) scan due to the long-term effects of hormone use and gonadectomy (Dobrolińska et al., 2019). Particularly, for transgender women, screening can be considered for agonadal patients who have been off estrogen for over 5 years and for transgender men who have taken testosterone for over 5 years and who have not had oophorectomy (Dobrolińska et al., 2019). DEXA scans are recommended for individuals over age 50, or even earlier if additional risk factors are present. Unfortunately, the medical model rarely actually takes into account social factors in the etiology of disease, and consequently preventive screening recommendations. The Health Equity Promotion Model (HEPM) highlights how allostatic load—the net effect of “wear and tear” on the body—is an adverse health pathway that increases the risk for the development of chronic health conditions (Fredriksen-Goldsen, Simoni, et al., 2014). Allostatic load increases as a function of exposure to structural, institutional, interpersonal, and intrapersonal stigma. Transgender older adults are among the most marginalized social groups in the nation, and consequently are exposed to more types and degrees of discrimination, victimization, and exclusion. Thus, the HEPM would suggest that transgender older adults would have significantly increased allostatic load due to lifelong discrimination and marginalization and greatly benefit from indicated intervention measures to increase preventive screening utilization (Almeida et al., 2009).

A matched-case study of Black and White women aged 45 to 54-years old found that after controlling for background characteristics, Black women were on average seven years older biologically than White women, which the researchers attributed to the chronic stressors of racism in Black women’s lives (Geronimus et al., 2010). Similar evidence for accelerated aging associated with chronic depression has also been established (Wolkowitz et al., 2011), as has evidence that transgender adults may have among the highest rates of depression in the country (Fredriksen-Goldsen, Cook-Daniels, et al., 2013). Thus, not only are transgender older adults lagging woefully behind their cisgender peers in getting DEXA scans, evidence supports that they should be screened for osteoporosis years earlier than standard guidelines recommend.

Prostate-Specific Antigen Test

Older transgender individuals are also significantly less likely (39% vs. 74%) to have gotten a PSA test for prostate cancer than their cisgender peers. PSA tests may be even more problematic due to lack of knowledge about transgender healthcare issues among healthcare providers, as well as insurance coverage and other issues previously discussed. We would expect to see rates of PSA testing among transgender

women as recommendations are universal in that anyone with a prostate gland (which is not removed in male-to-female gender-affirming surgery) be tested after age 50.

Early detection of prostate cancer is easier to treat and reduces the likelihood of potential metastization to other parts of the body. The risk of developing prostate cancer increases as a function of age, particularly after 50, as well as being African American (Mayo Foundation for Medical Education and Research [MFMER], 2021). Transgender older adults are among the most marginalized of populations and consequently, due to a multiplicity of intersectional social identities and positionalities experience “stress proliferation” (LeBlanc et al., 2015). Essentially, transgender older adults are at greater risk for exposure to more types and greater degrees of chronic stress, the consequences of which also accumulates across the life course (Fredriksen-Goldsen, Simoni, et al., 2014). Multiple studies indicate that long-term chronic stress can play a significant role in the development of cancerous tumors and promote cancer development (Dai et al., 2020).

While we would hope from a health equity perspective that rates of preventive screening utilization among transgender older adults would be equivalent to older adults in the general population, the reality is far different. As previously discussed, health disparities among transgender older adults have been consistently documented. Large community-based samples consistently find that transgender older adults experience significant social and economic deprivation and exposure to significant social determinants of health disparities (Fredriksen-Goldsen, Cook-Daniels, et al., 2013; James et al., 2016). Limited population-based samples mirror these findings. Analyses of Behavioral Risk Factor Surveillance System (BRFSS) data found that compared to the general cisgender adult population, gay and bisexual cisgender men were significantly more likely to meet PSA-screening guidelines, transgender women were significantly less likely to meet those guidelines (Ma et al., 2021). The authors note that findings such as this highlight the need for more research on the social determinants of transgender health disparities.

Interestingly, transgender and cisgender older adults did not differ significantly on utilization of annual physical exams, stool tests, HIV tests, or colonoscopies every 10 years. The lack of significant differences in utilization of these screenings may be easier to understand. Annual physical exams are typically part of the core of healthcare services across age groups, race/ethnicity, and sex/gender. As such, their “routineness” is built into healthcare systems and typically do not incur extra costs. Annual stool tests are not invasive, are relatively inexpensive, and can be done in the privacy and security of one’s own home. Similarities in rates of colonoscopy between transgender and cisgender participants may be a function of time and age. The USPSTF recommendations for colonoscopy are every 10 years for adults aged 50 to 75-years old, so there is much more “temporal room” for transgender and cisgender older adults to have received a recommended screening. Although we could

not locate any peer-reviewed studies that specifically examined life expectancy by gender identity/expression, studies that have made comparisons on other variables—such as key health outcomes—overwhelmingly report transgender older adults as being significantly younger than their cisgender counterparts (see, for example, [Downing & Przedworski, 2018](#); [Fredriksen-Goldsen, Cook-Daniels, et al., 2013](#)).

The confluence of cultural and historical factors that may also be intersecting with structural and institutional heterosexism may explain similar rates of HIV testing. Since the 1980s when the healthcare institution first began to recognize and understand it, HIV/AIDS in the U.S. continues to be characterized as a “gay disease.” Generally, members of LGBT communities, regardless of sexual orientation or gender identity/expression have long recognized their increased risk and acted accordingly, for example, widespread, routine HIV testing. At the same time, recognizing the potential for pandemic resurgence, HIV testing and care is widely available and typically free or low-cost, an important factor for those experiencing economic marginalization. Many HIV service providers are also located in community settings, and are typically more affirming compared to traditional medical settings. Concurrently, gay and transgender identities in medical settings are synonymous with HIV, with HIV screening questions routinely embedded in history taking when a non-heterosexual and or transgender identity are known.

Implications for Practice

Our findings point to important practice implications. One challenge for practitioners is a consequence of the near hyper-specialization of healthcare provision in the United States today. While it is laudable that there are increasing numbers of healthcare providers that offer affirming care to transgender individuals ([National Academies of Sciences, Engineering and Medicine, 2020](#)), such care typically focuses on medical interventions intended to make bodies more congruent with identities (e.g., hormone replacement therapy, mastectomy, and genital reconstruction). Medical risks related to aging and knowledge of indicated preventive screenings among affirming care providers may be limited or even absent. Conversely, providers who specialize, for example, in geriatrics are likely to have limited or even a complete lack of knowledge of transgender bodies. Understanding why transgender and cisgender older adults do not differ significantly on utilization of annual physical exams, stool tests, HIV tests, or colonoscopies could provide insights that healthcare providers and stakeholders, regardless of specialization or setting, might use to increase utilization of other preventive screenings.

There are clear implications for transgender older adults who postpone or avoid treatment: delayed care can mean that preventable and treatable illnesses are not appropriately diagnosed in a timely manner, and chronic health conditions

worsen. This last point speaks to perhaps the most striking implication of our analyses; readily available protocols detailing the specific concerns of a transgender older adult population in relation to preventative health screening recommendations do not exist, or provide conflicting information. Difficulty in being able to easily locate reliable and understandable health literature can be a major barrier to accessing preventative health screening recommendations. Because transgender older adults potentially have a unique medical history of long-term hormone use and may have a unique surgical history including, but not limited to, chest reconstruction and gonadectomy, it is important that care providers understand the specific health risks accounted for in this population. Without understanding how to accurately assess risk, providers will not be able to interpret existing national guidelines for preventative health screening in the general older adult population. In addition to obtaining education specific to transgender health and well-being, healthcare providers and professional bodies should collaborate with other knowledgeable providers, for example, UCSF’s Center of Excellence for Transgender Health (CETH), as well as older members of the transgender community to develop and validate a set of readily available preventative health screening recommendations specific to transgender midlife and older adults. The CETH mission is to advance health equity for transgender and gender non-binary communities via education and training, capacity building, and ongoing research that is community driven. Medical care settings and programs must integrate transgender sensitive care into their professional standards and develop trainings to ensure competencies in these areas. These are some important ways that healthcare environments can be modified to encourage and support culturally relevant preventative screenings in these communities.

Comparing Transgender Women and Transgender Men

Among transgender participants, after controlling for background characteristics, transgender men were significantly less likely than transgender women to have had a stool test, or a colonoscopy. On one hand, we might not expect differences in utilization of these preventive screenings as both seek to detect colorectal cancers, which are not sex-specific. On the other hand, there may be a sociocultural reason for the difference. Research on gender differences in perceptions of stool tests’ efficacy and ease of use suggest that women tend to perceive colorectal cancers as a “men’s disease” ([Friedemann-Sánchez et al., 2007](#)). Transgender women have most often been socialized as boys and/or men for some portion of their lives; for those aged 50 and older this may have been a significant portion of their lives. The opposite is true for transgender men. Transgender women and men’s cultural perceptions of relative risk of colorectal cancers may be more reflective of heterosexist socialization, irrespective

of gender identity. Another possibility may be differential self-stigma related to transgender bodies, Transgender men in particular may be more likely to engage in unhealthy behaviors in attempts to camouflage their bodies from too close of scrutiny (Fredriksen-Goldsen et al., 2019)—for example, intentionally carrying extra weight to lessen visibility of breasts or pelvic configuration (Center of Excellence for Transgender Health, 2014). Considering actual and feared discrimination in healthcare settings in the context of colonoscopy procedures (e.g., knowing that one's ano-genital area will be fully exposed while one is sedated) may arouse intense anxiety such that transgender men may perceive foregoing preventive screening procedures as the preferable alternative.

Implications for Practice

Beyond knowledge of sex-linked differences among the transgender population in general, healthcare and other care providers should have education in psychosocial differences between transgender women and men. At the individual level, assessment should also include an understanding of the timing and trajectory of gender transitions across the life course. Such information may provide insights into degrees and duration of earlier life socialization around gender, and how that may drive perceived risks in the present.

Overall, we found that older transgender women and men were significantly less likely to receive breast, cervical, and prostate cancer screenings and osteoporosis screenings compared to cisgender LGB older adults. Our results also suggest that compared to older transgender men, transgender women are significantly more likely to utilize colorectal cancer screenings. As this is an exploratory study, and there is so little other extant research in this area, we have more questions than answers. It may be that many of the answers to our questions regarding differential preventive screening utilization may be more psychosocial and sociocultural in nature. Indeed, the National Academies of Sciences, Engineering, and Medicine (2020) have recently noted a dearth of research on social determinants of transgender health beyond already identified factors (e.g., discrimination, rejection, economic marginalization, lack of access to culturally responsive providers). These drive ancillary

... Social needs such as trauma, housing insecurity, financial strain, and social isolation, particularly among groups such as ... older adults. It is important for researchers, care providers, and policy makers to develop and evaluate targeted efforts to address social determinants of health and meet social needs for SGD people (National Academies of Sciences, Engineering & Medicine, 2020, p. 357).

Implications for Research

Moving forward, there are important areas of inquiry to be addressed. We know that transgender women and men share

common experiences and perceptions of healthcare inequities, from discrimination (actual and feared), to lack of providers' knowledge of trans-specific healthcare issues and needs. What we need to know is transgender individuals' perceptions of a) healthcare literacy in general of the benefits and risks of preventive screenings, and b) perceived barriers to full utilization of such preventive screenings. While these may be similar to healthcare access in general, there may be unique differences. For example, it may be that transgender individual's perception of immediate needs far outweigh the potential benefits of preventive screenings predicated on future health outcomes. Moving forward we must also address the need for research with transgender non-binary older adults. We do have some non-binary older adults in our sample, but too few for analyses. Just as sexual and gender minority (SGM) populations overall are expanding, so too are those who identify as non-binary, as evidenced by the National Institutes of Health recent expansion of the definition of SGM (National Institutes of Health, 2019). Similarly, we need to gather data from physicians and other care providers' perceptions and knowledge of provision of preventive screenings for the transgender population. This will be further complicated by the current dominant discourse regarding age and aging.

America is ageist, both in the larger cultural context (Allen et al., 2021) and *within* transgender communities. Ageism may increase the risk for alienation—a deeply held sense of lack of belongingness and disconnection from community (Estes & DiCarlo, 2019). The metaphorical spotlight (and concurrent resources) overwhelmingly focuses on younger transgender populations, at the expense of those who are midlife and older. This is a disservice to both age groups, as the life course perspective demonstrates that early life experiences, whether for good or for ill accumulate over time to find amplified expression later in life. Equally important is for researchers to recognize and attend to the within-group heterogeneity of transgender midlife and older adults, which includes assessing similarities and differences between transgender women and men, as well as factors such as race/ethnicity, social positionalities and intersectionality, as well as (but not limited to) historic and ongoing social determinants of health and healthcare utilization. The *Healthy People 2030* national initiative to reduce health disparities explicitly supports this recommendation in its call for all states and U.S. territories to incorporate sexual orientation and gender identity questions in their respective Behavioral Risk Factor Surveillance System (BRFSS) surveys (U.S. Department of Health & Human Services, 2020c). The *Healthy People 2030* initiative also calls for an “increase [in] the number of nationally representative, population-based surveys that collect data on (or for) lesbian, gay and bisexual populations” (U.S. Department of Health & Human Services, 2020a), and “...on (or for) transgender populations” (U.S. Department of Health & Human Services, 2020b).

Similarly, from an equity perspective it will be extremely important to include transgender individuals, communities,

agencies, and programs in the research endeavor. Several frameworks would foster and support such research. For example, *community-based participatory research* (CBPR) seeks to involve community stakeholders as equal partners in research endeavors through collective, reflective and systematic investigations, such as [Manson and colleagues \(2004\)](#) research with the Eastern Band Cherokee Indians. *Participatory action research* (PAR) is an approach that is typically single-issue oriented, yet iterative, wherein community stakeholders in partnership with researchers collaborate to address a specific issue, in context, and coupled with critical consciousness engage social change to take equitable action in response to that issue. PAR holds promise in tackling issues that many older adults face, yet is rarely employed with this population ([Corrado et al., 2020](#)). Another framework for critically informed, action-oriented research is the *plan-do-study-act* (PDSA) approach. PDSA attempts to assess the effectiveness of interventions in healthcare settings, and recognizes the centrality of local context in improving quality of constituent systems, such as preventive screenings. As such, PDSA is a cyclical process that builds upon each iteration to foster change in healthcare delivery embedded within the context of social systems ([Taylor et al., 2014](#)).

Limitations

Although we were unable to include geopolitical region in this study, the National Academies identifies this as a priority research area ([Health and Medicine Division, 2011](#)). In addition to the preliminary, exploratory nature of our study, there are other limitations. The data is cross-sectional and from a community-based survey, so findings cannot be generalized. Although there were fewer transgender men than transgender women in our study, this is likely reflective of the transgender population overall as prevalence data suggests there are fewer transgender individuals who identify as men versus those who identify as women ([Zucker, 2017](#)). Furthermore, we collected the data for this secondary analysis just over a decade ago; rates of change at multiple levels across multiple domains (e.g., age of first awareness of gender identity [and sexual orientation], age of initiation of affirming therapy) have been increasing rapidly over the last two decades.

Conclusion

This is among the first studies to assess the utilization of key preventative health screening exams among a transgender older adult population. Increasing transgender older adults' access to preventative health screening tests is critical to reduce the health burden in this aging population. Professional organizations must collaborate to develop standardized recommendations for screening exams in this population that distinguish exam protocols based on surgical and hormonal histories. Perhaps one of the key challenges and opportunities is to include midlife and older transgender women and men in the

development and implementation of policies and procedures related to preventive healthcare screenings, and the inclusion of transgender experiences and voices in the design and implementation of research related to transgender lives and health.

Declaration of conflicting Interests

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

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This work was supported by the National Institutes of Health, National Institute on Aging (R01-AG026526). The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health and the National Institute of Aging.

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