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Systematic Review in Health Inequities

Health disparities among LGBTQ+ older adults: challenges and resources. A systematic review

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Abstract

Introduction: Literature reports how LGBTQ elders often encounter perceived homophobia in healthcare settings due to professionals' lack of awareness or discomfort with their specific needs, highlighting the necessity for a contemporary systematic review to address barriers, discuss issues, and propose evidence-based solutions, given the outdated nature of existing literature from the early 2000s amidst significant social and political shifts. This systematic review aims to investigate this issue with specific objectives: (1) identify physical and cognitive health conditions, disparities, risk, and protective factors; (2) discuss existing healthcare and aging-related services; (3) identify and critically evaluate changes and interventions.
Methods: A literature search was conducted in May 2023 on four databases (PsycInfo, PubMed, MedLine, and Elsevier – Scopus). Papers were included, if published after 2006, had a focus on American aging LGBTQ over the age of 60 and had a focus on physical and/or cognitive health. Only peer-reviewed papers written in English were included. After papers were selected to be included in the review according to the inclusion and exclusion criteria, deductive thematic analysis was used to code papers' contents.
Results: 110 papers were included in the review. Results highlighted how LGBTQ older adults still experience health disparities and face many obstacles in accessing the healthcare system. Health services and policies addressing the unique needs of this specific population are still insufficient. Barriers such as cultural blindness, stigma, and discrimination within the medical community, along with a lack of health services tailored to their needs, significantly impact the LGBTQ elderly population, particularly those with dementia. The prevalence of heterosexual norms in medical settings and the absence of LGBTQ-friendly health programs lead to inadequate health screenings, perpetuating health disparities. This situation is worsened by the tendency to view LGBTQ elders as a monolithic group, neglecting the unique needs of its sub-groups and resulting in insufficient or inappropriate care.
Discussion: These variables have a deep effect on the cognitive health of our target population. Innovative strategies, together with a holistic and intersectional approach, are needed to provide LGBTQ elders and their caregivers with adequate tailored services, support, and resources to counteract poor aging and physical, cognitive, and mental health outcomes.

Take home message: Adopting a holistic and intersectional approach is the most effective strategy to address health disparities among LGBTQ+ older adults. Psychologists, social workers, and health professionals may

support bridging conceptual knowledge from the research literature to cultural competencies, anti-discrimination policies, and welcoming environments.

Keywords: aging; health; health disparities; LGBTQ+

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INTRODUCTION

In the United States alone, the number of people over 50 who identify themselves as lesbian, gay, bisexual, transgender, or queer (LGBTQ) is estimated to be around 2.7 million. This number includes 1.1 million individuals aged 65 and older. The total number is estimated to grow to 5 million by 2060 [1,2]. Taking this estimated growth of the aging population into account, the elderly LGBTQ population is expected to double by 2030 [3,4]. Given this current and expected increase in this population, it would be easy to assume that research has been conducted to explore the health and aging-related needs of LGBTQ elders [5], but that doesn't seem to be the case [6,7].

Considering the fact that older adults living in socially disadvantaged conditions are at risk of poor physical and mental health [8], this appears to be a very important topic to be addressed by research and ad-hoc interventions. Research has reported health disparities linked to sexual orientation for the aging population [9–11]. LGBTQ older adults experience poorer health and higher disability and mental stress than peer ones who identify as heterosexual [12,13] and are more likely to engage in some unhealthy behaviors such as excessive drinking and smoking [12,14]. Moreover, older adults who identify as transgender specifically have lower levels of general health as compared to other LGBTQ older adults: this has been reported to be linked to a higher risk of disability, poor physical health, perceived stress, and depression [15,16]. Some of these poor health outcomes could be linked to the fact that being victimized [physically or psychologically) and stigmatized because of sexual orientation is a significant predictor of poor mental health among the aging LGBTQ population and can also lead to health disparities [17]; on the other hand, health disparities due to sexual orientation have been shown to predict adverse psychological outcomes, prompting a perilous vicious circle [18].

LGBTQ elders face several unique barriers to accessing quality healthcare services [19]. First, a lack of non-mainstream services and programs for the population's unique needs[3,20]. Moreover, LGBTQ older adults have been reported to be more likely to receive inferior healthcare [21]. For this reason, they often do not report their sexual orientation to their primary care doctor, with negative consequences on diagnoses and treatments. This lack of communication leads to missing some critical discussion or information about some health risk factors that could help preserve sexual health, clarify options regarding hormone therapy, and help prevent breast cancer, hepatitis, and HIV, just to name a few [22,23].

The lack of disclosure discussed in the previous paragraph appears to be driven by the fear of being discriminated against, concerns about how providers might treat a person who identifies as LGBTQ+, and fear of discrimination and poor service [24,25]. LGBTQ elders often perceive healthcare services (e.g., senior housing and primary care clinics) as homophobic institutions where heterosexuality is silently assumed to be normal [26]. Many health care professionals are uninformed about the specific needs of LGBTQ elders or experience discomfort in discussing sexuality issues [27,28].

These reasons are the first indication of the need for an updated and focused systematic review that can highlight the main barriers, critically discuss fundamental issues, and suggest promising research approaches to finding solutions, which is one of the main aims of this review. The second reason is linked to the fact that existing reviews date back to the first decade of 2000 [29,30], and they do not consider the many social and political changes that have happened in the last two decades. Other more recent reviews related to this topic exist. Still, they did not specifically focus on health disparities or healthcare accessibility among LGBTQ elders but explored more broadly LGBTQ aging [31–33]. Other reviews analyzed only specific aspects of LGBTQ health-related needs [28,34–37] or did not focus specifically on the LGBTQ older population [22,38,39].

This systematic review aims to organize and critically evaluate the recent literature that addresses the points highlighted above to suggest future areas of research and intervention, focusing on the impact that these might have on the cognitive health of this specific population.

To be more specific, this review has the main aim of investigating and organizing findings related to three main areas of interest regarding health disparities for the LGBTQ aging population in the US: (1) we will start by focusing on the health conditions that seem to affect aging LGBTQ+ population the most, exploring the role of disparities, and focusing on risk and protective factors (including these related to cognitive health); (2) we will then link these finding with relation to healthcare and aging-related services, discussing the space that is available or needed for aging LGBTQ population, with a specific focus on cognitive health. As a last step (3), we will focus on possible changes and interventions that might lead to substantial improvements in the general and cognitive health of aging LGBTQ Americans regarding the results of our review.

METHODS

Protocol registration

This systematic review has been pre-registered on Prospero (Protocol number: CRD42023460248). A comprehensive literature search was conducted in May 2023 on four databases (PsycInfo, PubMed, MedLine, and Elsevier – Scopus).

Search strategy and selection

The search strings were built by combining Boolean commands (i.e., AND, OR) as follows:

(LGBTQ elder* OR LGBTQ older adult* OR LGBTQ aging)

AND

(health OR physical health OR cognitive health OR healthcare OR wellbeing)

AND

(disparities OR service* OR program* OR intervention* OR accessibility OR system)

Furthermore, the reference list of all retrieved studies was examined to ensure that other relevant papers were included. After the first general selection was done (i.e., all papers resulting from the search were downloaded), abstracts (review round 1) and then full articles (review round 2) were read and assessed by independent judges to decide if they had to be included or excluded following the inclusion and exclusion criteria detailed below.

Inclusion criteria

Articles were included in the review if they met the following criteria:

- the sample includes LGBTQ+ older adults (age >60);
- if younger individuals are included in the study, a specific identifiable focus on an older LGBTQ adults sample is clearly recognizable;
- it is an empirical study (we included all types of health settings and study designs);
- it is peer-reviewed;
- it was published between January 2006 and May 2023. We selected our starting date based on the most recent review published [8] that considers studies published between 1985 and 2005.

Exclusion criteria

The following exclusion criteria were adopted:

- the study does not consider aging individuals above the age of 60 (for example, studies focusing only on a population between the ages of 50 and 60 were excluded, and studies that focused on individuals aged 60 to 80 or 50 to 80 were included);
- it does not include any focus or measure related to physical health;
- it is not written in the English language;
- it was conducted outside of the United States (this exclusion criterion was selected to avoid the possible confounding effects of different healthcare systems).

Inclusion and exclusion criteria according to the PICO model

Participants/population

LGBTQ+ aging population in the United States.

Specifically: 1) Inclusion criteria: the study's sample includes LGBTQ+ older adults (age 60 and up); if younger individuals are included in the study, a specific focus on an older LGBTQ+ adults' sample is clearly identifiable. 2) Exclusion criteria: the study does not consider aging individuals above the age of 60 (for

example, studies focusing only on a population between the ages of 50 and 60 will be excluded, studies that focus on individuals aged 60 to 80, or 50 to 80 will be included); the study was conducted outside of the United States (these exclusion criteria has been selected to avoid the possible confounding effects of different healthcare systems).

Intervention(s), exposure(s)

Existing and future interventions will be critically discussed in the review. Such interventions aim to improve healthcare services, communication, and cultural competency while advocating for inclusive environments and policies. Specifically, key intervention components may involve: 1) Enhancing healthcare services: Training for aging service providers, eradicating anti-LGBTQ+ discrimination in senior housing and boosting LGBTQ+ cultural competence in aging health services. 2) Communication and support programs: Initiatives for improved communication, reduced isolation, and stigma-related stress reduction. 3) Healthcare professionals' cultural competency training: Comprehensive training spanning age, gender, identity, ethnicity, race, socio-economic status, and location. 4) Welcoming environments: Interventions create LGBTQ+-friendly healthcare spaces and promote disclosure comfort via sensitivity training. 5) Partnerships and community engagement: Collaborations between LGBTQ+ aging agencies, community services, and mainstream providers at local and federal levels. 6) Research-based interventions: Focus on enhancing healthcare providers' knowledge regarding LGBTQ+ aging needs.

Comparator(s)/control

Papers may encompass a comparison of health conditions and access to services between LGBTQ+ elders and their heterosexual and cisgender peers. However, a comparison group is not necessary for inclusion in the review.

Outcome(s)

The main outcomes of this systematic review are twofold: 1) Prevalent health conditions and disparities: The review aims to identify prevalent health conditions that disproportionately impact LGBTQ+ older individuals. This may also include a thorough analysis of health disparities among different subgroups such as gay, lesbian, transgender, and ethnic minorities. 2) Healthcare and aging-related services: The review aims to assess the availability and adequacy of healthcare and aging-related services for LGBTQ+ aging individuals (i.e., barriers in accessing quality healthcare services and resources, supports, and facilitators to address LGBTQ+ elders' unique needs). This evaluation will illustrate the existing provisions for the LGBTQ+ aging community and highlight gaps or areas where improvements are needed.

Study selection, data extraction, and analysis

The review followed PRISMA guidelines [40]. A double-blind screening process was conducted independently by the two authors. First, an initial screening consisting of titles and abstracts was performed to determine inclusion or exclusion. Once the title and abstract screening had been completed, in cases where records were marked as "maybe," or conflicts arose, the two authors engaged in discussions to reach a consensus. Subsequently, the remaining records marked for inclusion underwent full-text screening following the inclusion/exclusion criteria. Lastly, we assessed the risk of bias and studied the quality of all eligible articles usg the Joanna Briggs Institute Critical Appraisal Checklist [41]. This tool accommodates a wide range of study designs, comprehensively evaluating the included papers and identifying potential methodological biases. Both authors independently applied the checklist to assess the quality of all included papers. The risk of bias within individual studies was systematically evaluated across key domains, including selection bias, confounding, missing data, and outcome measurement bias.

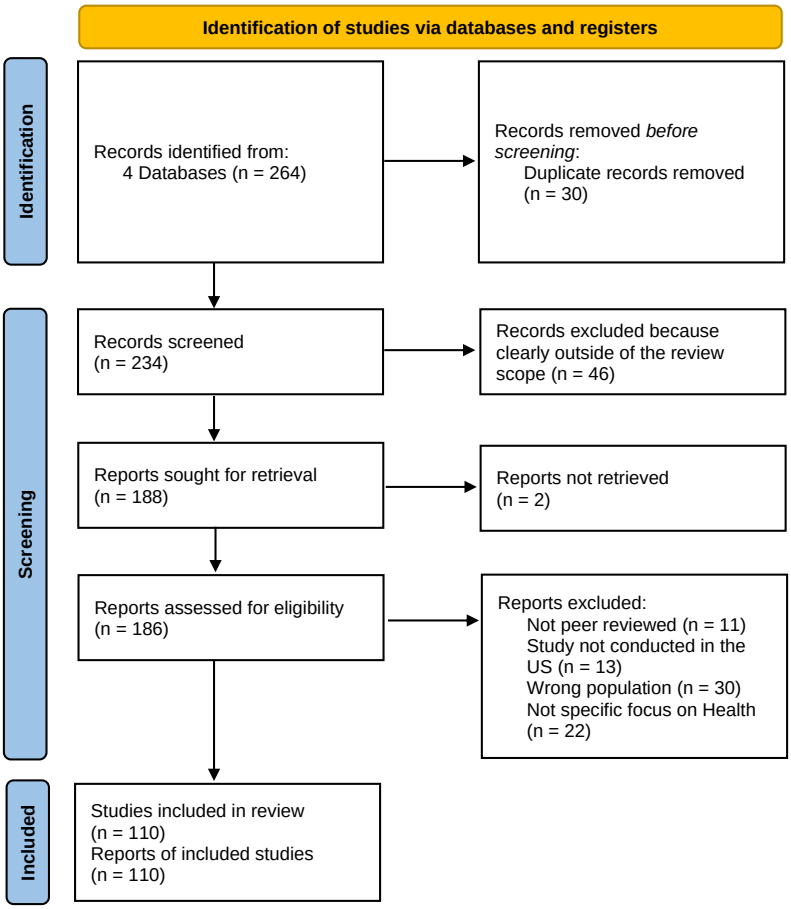
Furthermore, to ensure inclusivity and acknowledge the potential impact of biases on the robustness of our findings, we specifically addressed biases related to the underrepresentation of certain populations. This focus extended to racial and ethnic diversity and sex and gender diversity among LGBTQ+ older individuals. Any discrepancies in the assessments made by the two authors were resolved through discussion meetings.

Moving to the data extraction phase, we started our research aims to establish the three main themes of this review: (1) LGBTQ older adults' health conditions (including both physical and cognitive health): prevalence, disparities, risk and protective factors; (2) healthcare and aging-related services for aging LGBTQ population, (3) possible changes and interventions. We used deductive thematic analysis [42] to code the papers' content into the three themes. After listing the main characteristics of each theme based on existing literature (as presented in the Introduction of this paper), the two authors carried out the classification

independently. Then, they regrouped to agree on themes and subthemes that emerged during the classification process. Any disagreement was resolved by discussion and referring to existing literature (to avoid any possible bias). Results were organized and reported narratively and summarized in tables (see Results section).

Figure 1 shows the PRISMA diagram that summarizes the progress made in the selection.

Figure 1. PRISMA diagram.



RESULTS

A total of 110 papers, summarized in Table 1, were eligible and included in the present systematic review. The studies encompass diverse characteristics, spanning publication years, research designs, and targeted populations. There was a concentration of papers between 2010 and 2017, with 2017 being the year with the highest published studies. The richness of methodological approaches and research designs in the field is evident, with surveys being the most prevalent methodology, followed by in-depth interviews, focus groups, and longitudinal studies. These diversified approaches allow us to underscore the multifaceted nature of the research landscape on the topic, capturing roles, experiences, and needs of different populations within the health context of LGBTQ+ older adults.

The targeted populations in these studies are broad and inclusive, reflecting a commitment to capturing the diverse experiences within the LGBTQ+ aging context. These populations encompass LGBTQ+ older adults, medical providers, caregivers, and staff members from long-term care facilities, including operators of care facilities, health professionals, long-term care assistants, and nurses. Including these diverse perspectives enhances the overall understanding of various health characteristics and needs within LGBTQ+ aging. Focusing specifically on LGBTQ+ older adults, some studies address the broader population, while others target specific sub-groups such as lesbian older adults, LGBTQ+ elders with HIV, transgenders, and same-sex couples. Notably, among studies conducted on healthcare personnel, the majority lack specific information on

sexual orientation. Within studies concentrating on healthcare staff reporting sexual orientation, a prevalent trend is the identification of heterosexual orientation.

Only five studies have explored and compared the perspectives of both LGBTQ+ older adults and their caregivers. In contrast, there are no studies that have simultaneously sampled LGBTQ+ older adults and healthcare staff. Furthermore, there is a limited percentage of studies that have undertaken comparisons between LGBTQ+ older adults and their heterosexual peers. This indicates a notable gap in research, emphasizing the need for more comprehensive investigations that encompass diverse perspectives on the same phenomenon.

Table 1. Summary of studies included in the review.

Author(s), year	Sample (Population, sample size, sexual orientation)	Method
Ahrendt, Sprankle, et al. (2017) [43]	**Population:** residential care facility staff members (**N:** 153) **SO:** heterosexual (65.4%), homosexual (1.3%), other (2%), missing (31.4%)	Survey, case vignettes
Averett, Yoon, et al. (2011) [44]	**Population:** lesbian older adults (**N:** 456) **SO:** lesbian (91.3%), gay (2.7%), bisexual (3.7%), other (2.7%)	Survey
Bell, Bern-Klug, et al. (2010) [45]	**Population:** nursing home social service directors (**N:** 1,071) **SO:** not provided	Survey
Boggs, Dickman Portz, et al. (2017) [46]	**Population:** LGBTQ+ older adults (**N:** 73) **Demographics of the interviewees (N=29) - SO:** lesbian (16), bisexual (2), straight (1), gay (9), queer (1), pansexual (1)	Focus groups, interviews, discussion
Brennan-Ing, M., Seidel, et al. (2014) [47]	**Population:** individuals with HIV (**N:** 155) **SO**: gay/lesbian (55%), heterosexual (30%), bisexual (15%)	Survey
Brennan-Ing, Seidel, et al. (2014) [48]	**Population:** LGBTQ+ older adults (**N**: 210) **SO:** gay/lesbian (80.1%), bisexual (13.6%), queer (3.4%), questioning (1.5%), heterosexual (1.5%)	Survey using a mixed--methods approach.
Bryan, Kim, et al. (2017) [49]	**Population:** LGBT older adults (**N:** 2,351) **SO:** gay/lesbian (75.1%), bisexual (16.6%), other (11.3%)	Survey
Burton, Lee, et al. (2020) [50]	**Population:** LGBTQ+ older adults (**N:** 10) **SO:** gay/lesbian (50%), not disclosed (50%)	Semi-structured interview
Butler (2017) [51]	**Population:** lesbian older adults (**N:** 20) **SO:** lesbian (100%) **Population:** Informal caregivers (**N:** 6) **SO:** not provided **Population:** home care workers (**N**: 5) **SO:** not provided	Semi-structured Interview
Butler (2018) [52]	**Population:** lesbian elders (**N:**20) **SO:** lesbian (100%) **Participants:** informal caregivers (**N:** 6) **SO:** not provided	Semi-structured Interview
Candrian, Burke, et al. (2023) [53]	**Population:** caregivers of LGBT older adults (**N:** 19) **SO:** lesbian (74%), gay (16%), straight (5%), unknown (5%)	Semi-structured, in-depth interview
Candrian & Cloyes (2021) [54]	**Population:** lesbian older adults (**N:** 31) **SO:** lesbian (100%)	In-depth interview, case study
Carabez, Pellegrini, et al. (2015) [55]	**Population:** nurses (**N:** 268) **SO:** gay/lesbian, heterosexual, bisexual (% not provided)	Structured interview
Carlson & Harper (2011) [56]	**Population:** employees of a 130-bed skilled nursing facility (**N:** 6) **SO:** homosexual (1), not recorded (5)	Interview- Longitudinal study with follow-up after 8 months
Clark, Boehmer, et al. (2010) [57]	**Population:** LGBT and heterosexual midlife and older women (**N:** 215) **SO:** sexual minority (90), heterosexual (125)	Survey
Cook-Daniels & Munson (2010) [58]	**Population (2nd study):** LGBTQ+ older adults (**N:** 56) **SO (2nd study):** heterosexual (31%), lesbian (28%), celibate or asexual (24), isexual (14), pansexual and other (7%), gay male (1)	Survey
Croghan, Moone, et al. (2014) [59]	**Population:** LGBTQ+ midlife and older adults (**N:** 495) **SO:** lesbian (46.7%), gay (38.7%), bisexual (9.0%), queer or other (5.3%)	Survey
Croghan, Moone, et al. (2015) [60]	**Population:** LGBTQ+ midlife and older adults (**N:** 327) **SO:** lesbian (51%), gay (37%), bisexual (8%), queer or other (3%)	Survey with an open-ended survey question
Cummings, Dunkle, et al. (2021) [61]	**Population:** LGBT+ older adults (**N:** 48) **SO:** gay (34), lesbian (12), pansexual (1), heterosexual (1)	Focus groups
Czaja, Sabbag, et al. (2016) [62]	**Population:** LG older adults (**N:** 124) **SO:** gay (74%), lesbian (26%)	Focus groups and questionnaires.
Vries, Mason, et al. (2009) [63]	**Population:** non-heterosexual midlife and older adults (**N:** 793) **SO:** non-heterosexual (SO and % not provided)	Survey
Dibble, Eliason, et al. (2012) [64]	**Population:** African lesbian younger, midlife, and older adults (**N:** 123) **SO:** lesbian (100%)	Survey
Dickey (2013) [65]	**Population:** nursing assistants in LTC (**N:** 116) **SO:** homosexual/bisexual (11), heterosexual (% not provided)	Survey
Dickson, Bunting, et al. (2022) [66]	**Population:** LGBT+ older adults (**N:** 789) **SO:** gay (62.5%), lesbian (27.1%), bisexual (6.2%), queer/questioning/other (4.2%)	Survey
Donaldson & Vacha-Haase (2016) [67]	**Population:** staff members from long-term facilities (**N:** 22) **SO:** heterosexual (95.5%), lesbian (4.5%)	Focus groups

Dragon, Guerino, et al. (2017) [68]	**Population:** transgender and cisgender Medicare beneficiaries (**N:** 39,143,683) **SO:** not provided	Medicare claim records
Dunkle (2018) [69]	**Population:** LG older adults (**N:** 31) **SO:** gay (48%), lesbian (51%)	Focus groups
Dutton, Cimino, et al. (2022) [70]	**Population:** nurses (**N:** 379) **SO:** straight (94.2%), lesbian (0.3%), gay (1.1%), bisexual (2.4%), pansexual (0.8%), prefer not to say (1.3%)	Questionnaire, intervention
Emlet, Fredriksen-Goldsen, et al. (2013) [71]	**Population:** GB older adults with HIV (**N:** 226) **SO:** gay (92.9%), bisexual (6.2%), other (0.9%)	Survey
Emlet, Fredriksen-Goldsen, et al. (2017) [72]	**Population:** GB older adults with HIV and sexually active (**N:** 135) **SO:** gay (95.5%), bisexual (4.5%)	Survey
Fredriksen Goldsen, Kim, et al. (2019) [73]	**Population:** LGBTQ+ older adults (**N:** 200) **SO:** gay/lesbian (68.61%), other (31.39%)	Survey, in-depth interviews – Longitudinal study
Fredriksen-Goldsen, Bryan, et al. (2017) [74]	**Population:** LGBTQ+ older adults (**N:** 2,450) **SO:** gay (40.02%), lesbian (30.25%), bisexual (17.17%)	Survey – Longitudinal study
Fredriksen-Goldsen, Cook-Daniels, et al. (2014) [16]	**Population:** LGBTQ+ older adults (**N:** 2,546) **SO:** not provided	Survey
Fredriksen-Goldsen, Emlet, et al. (2013) [17]	**Population:** LGB older adults (**N:** 2,349) **SO:** gay men (59.6%), lesbian (31.6%), bisexual men (2.7%), bisexual women 2.4%)	Survey
Fredriksen-Goldsen, Kim, et al. (2009) [75]	**Population:** chronically ill LGB older adults (**N:** 36) **SO:** gay/lesbian (66.7%), bisexual (33.3%) **Participants:** caregivers (**N:** 36) **SO:** gay/lesbian (60%), bisexual (17.1%), heterosexual (20%), other (2.9%)	Interviews
Fredriksen-Goldsen, Kim, et al. (2010) [76]	**Population:** LGB older women (**N:** 1,496) **SO:** lesbian (779), bisexual (717)	Telephone interview survey
Fredriksen-Goldsen, Kim, et al. (2013) [12]	**Population:** LGB and heterosexual older adults (**N:** 96,992) **SO:** gay men (1.28%), lesbian (1.03%), bisexual women (0.54%), bisexual men (0.51%), heterosexual (% not provided)	Survey
Fredriksen-Goldsen, Kim, et al. (2015) [77]	**Population:** LGB older adults (**N:** 2,463) **SO:** gay/lesbian (92.94%), bisexual (7.06%)	Survey
Fredriksen-Goldsen, Kim, et al. (2017) [78]	**Population:** LGBTQ+ older adults (**N:** 2,415) **SO:** gay/lesbian (72.49%), bisexual (17.19%), other (10.32%)	Survey
Fredriksen-Goldsen, Kim, et al. (2017) [13]	**Population:** LGB and heterosexual older adults (**N:** 33,346) **SO:** gay men (229), lesbian (197), bisexual women (55), bisexual men (55), heterosexual (32,810)	Survey
Fredriksen-Goldsen, Shiu, et al. (2017) [79]	**Population:** LGB older adults (**N:** 2,463) **SO:** gay/lesbian (2,289), bisexual (174)	Survey
Gabrielson (2011) [80]	**Population:** lesbian older adults (**N:** 10) **SO:** lesbian (100%)	Interviews
Gardner, de Vires, et al. (2014) [81]	**Population:** LGBT young, midlife, and older adults (**N:** 569) **SO:** transgender MTF (0.2%), male, female (% not provided)	Survey
Gendron, Maddux, et al. (2013) [82]	**Population:** healthcare professionals working with the aging population (**N:** 199) **SO:** not provided	Questionnaire, interviews, training – Longitudinal study
Goldhammer, Krinsky, et al. (2019) [83]	**Population:** lesbian older woman (**N:** 1) **SO:** lesbian	Case study
Goldsen, Bryan, et al. (2017) [84]	**Population:** LGBT older adults (**N:** 1,821) **SO:** gay, lesbian, bisexual (% not provided)	Survey
Golub, Tommasilli, et al. (2010) [85]	**Population:** HIV-positive older adults (**N:** 914) **SO:** gay/lesbian/bisexual (337), heterosexual (577)	Survey
Gonzales & Henning-Smith (2015) [86]	**Population:** older adults in same-sex (SS) and opposite-sex (OS) cohabiting relationships (**N:** 256,585) **SO:** not provided	Survey
Green & Wheeler (2019) [87]	**Population:** gay older men (**N:** 10) **SO:** gay (100%)	Semi-structured interview
Grossman, D'Augelli, & Dragowski (2007) [88]	**Population:** LGB midlife and older adults (**N:** 199) **SO:** gay/lesbian (91%), bisexual (9%)	Survey
Hardacker, Rubinstein, e al. (2014) [89]	**Population:** medical providers (**N:** 848) **Participants demographics by module (from 1 to 6) - SO:** not provided	Questionnaire, training – longitudinal study
Hash & Netting (2007) [90]	**Population:** LG older adults (**N:** 19) **SO:** gay (10), lesbian (9)	In-depth, semi-structured interview
Hash & Netting (2009) [91]	**Population:** lesbian older adults (**N:** 2) **SO:** lesbian	Case study
Hash (2006) [92]	**Population:** LG older adults (**N:** 19) **SO:** gay (10), lesbian (9)	In-depth interview
Henning-Smith, Gonzales, et al. (2015) [93]	**Population:** LGB and heterosexual midlife and older adults (**N:** 13,417) **SO:** gay/lesbian/bisexual (297), heterosexual (13,120)	Survey
Hiedemann & Brodoff (2013) [94]	**Population:** LGB and heterosexual couples (**N:** 449,438) **SO:** lesbian/gay/bisexual, heterosexual (% not provided)	Survey
Hinrichs & Vacha-Haase (2010) [95]	**Population:** LTC staff members (**N:** 218) **SO:** lesbian/gay/bisexual, heterosexual (% not provided)	Survey, vignettes, 30- to 45-minute in-service training
Hoy-Ellis & Fredriksen-Goldsen (2016) [96]	**Population:** LGB older adults (**N:** 2,349) **SO:** lesbian/gay (94.6%), bisexual (5.4%)	Survey
Hughes, Harold, et al. (2011) [97]	**Population:** medical providers (**N:** 87) **SO:** heterosexual (92%), lesbian/gay (1.1%), bisexual (1.1%)	Survey
Jackson, Johnson, et al.	**Population:** LGBT and heterosexual younger, midlife, and older adults (**N:** 317)	Survey

(2008) [98]	**SO:** lesbian (61), gay male (58), bisexual (9), heterosexual male (49), heterosexual female (138)	
Jenkins Morales, King, et al. (2014) [99]	**Population:** LGBT older adults (**N:** 151) **SO:** gay (49%), lesbian (36.4%), bisexual (7.3%), multiple labels (7.3%)	Survey
Jihanian (2013) [100]	**Population:** LGT older adults (**N:** 7) **SO:** gay (6), lesbian (1)	In-depth interview, focus group
Jung, Kim, et al. (2023) [101]	**Population:** LGBTQ+ older adults (**N:** 2,450) **SO:** lesbian/gay (72.3%), bisexual (17.3%), sexually diverse (10.4%)	Survey
Kim, Jen, et al. (2017) [102]	**Population:** LGBT older adults (**N:** 2,450) **SO:** gay/lesbian (86%), bisexual (8.9%)	Survey
Knochel, Quam, et al. (2011) [103]	**Population:** MAAA's executive director (**N:** 154) **SO:** not provided	Survey
Lambrou, Gleason, et al. (2022) [104]	**Population:** TNB and LGBTQ+ cisgender older adults (**N:** 115) **SO:** another sexual orientation (25.4%), asexual (23.4%), bisexual (39.1%), gay (78.9%), lesbian (56.4%), pansexual (19%), straight/heterosexual (9.9%), queer (35.8%)	Survey
Landers, Mimiaga, et al. (2010) [105]	**Population:** aging agencies managers and executive directors (**N:** 34) **SO:** not provided	Focus group, interview with open/closed-ended questions
LaVaccare, Diamant, et al. (2018) [106]	**Population:** lesbian or bisexual older women (**N:** 35) **SO:** lesbian (80%), bisexual (20%)	Focus groups
Lee & Quam (2013) [107]	**Population:** LGBT and heterosexual midlife and older adults living in rural and urban areas (**N:** 1,201) **SO:** bisexual (rural: 37.5%; urban: 13.1%), gay (rural: 31.8%; urban: 61.7%), lesbian (rural: 31.4%; urban: 25%), heterosexual (rural: 4%; urban: 0.2%)	Survey
Masini & Barrett (2008) [108]	**Population:** LGB older adults (**N:** 220) **SO:** gay (137), lesbian (71), bisexual (12)	Survey
McCabe, Hughes, et al. (2009) [14]	**Population:** LGBT and heterosexual young, midlife, and older adults (**N:** 34,653) **SO:** bisexual/gay/lesbian (2%), heterosexual (98%)	Structured diagnostic face-to-face interview
McKay, Akrè, et al. (2022) [109]	**Population:** midlife and older bisexual and gay men (**N:** 633) **SO:** bisexual (% not provided), gay (% not provided)	Survey
McKay, Tran, et al. (2023) [110]	**Population:** LGBTQ older adults (**N:** 1,256) **SO:** bisexual (10.6%), gay/lesbian (86.4%), not lesbian/gay/bisexual (2.9%)	Survey
Meyer & Johnston (2014) [111]	**Population:** aging services providers (**N:** 2,400) **SO:** not provided	Questionnaire, training-Longitudinal study with follow-up
Miller, Biskupiak, et al. (2019) [112]	**Population:** LGBTQ young, midlife, and older adults (**N:** 313) **SO:** gay/lesbian (184), bisexual/queer (129)	Survey
Moone, Cagle, et al. (2014) [113]	**Population:** aging-related services providers (**N:** 184) **SO:** not provided	Survey
Muraco & Fredriksen-Goldsen (2011) [114]	**Population:** LGB older adults (**N:** 18) **SO:** gay/lesbian (55.56%), bisexual (44.44%) **Participants:** caregivers (**N:** 18) **SO:** gay/lesbian (44.44%), bisexual (22.22%), heterosexual (33.33%)	Interview
Muraco & Fredriksen-Goldsen (2014) [115]	**Population:** LGB older adults (**N:** 36) **SO:** gay/lesbian (67%), bisexual (33%) **Participants:** caregivers (**N:** 36) **SO:** gay/lesbian (63%), heterosexual (20%), bisexual (17%)	Interview
Nowaskie & Sewell (2022) [116]	**Population:** dementia care providers (**N:** 105) **SO:** bisexual (4.8%), gay (8.6%), heterosexual (83.8%), lesbian (1.9%), queer (1%)	Survey
Orel (2014) [117]	**Population:** LGB older adults (**N:** 26) **SO:** gay men (10), lesbian (13), bisexual women (3)	Focus groups
Peak, Gast, et al. (2021) [118]	**Population:** same-sex married male couples (**N:** 10) **SO:** gay (100%)	Semi-structured interview
Pelts & Galambos (2017) [119]	**Population:** LTC staff (**N:** 60) **SO:** not provided	Survey, group discussion, training through storytelling – Longitudinal study
Perone, Ingersoll-Dayton, et al. (2020) [120]	**Population:** couples of LGBTQ+ elders and LGBTQ+ volunteer callers (**N:** 21) **SO:** lesbian (45%), gay (25%), bisexual (20%), queer (5%), heterosexual (5%)	Survey, semi-structured interview, 12-months program – Longitudinal study
Pettinato (2008) [121]	**Population:** lesbian midlife and older women (**N:** 13) **SO:** lesbian (100%)	Interview
Pierce (2022) [122]	**Population:** lesbian and gay older adults (**N:** 23) **SO:** lesbian (6), gay (17)	In-depth interview
Porter & Krinsky (2014) [123]	**Population:** personnel of AAAs (**N:** 76) **SO:** heterosexual (81.3%), lesbian/gay (13.3%), bisexual (5.3%)	Survey, training-Longitudinal study
Portz, Retrum, et al. (2014) [124]	**Population:** health and social service providers (**N:** 29) **SO:** not provided	Interview
Putney, Keary, et al. (2018) [125]	**Population:** LGBT older adults (**N:** 50) **SO:** bisexual/gay (88%), bisexual (8%), heterosexual (2%), other (2%)	Focus group
Ramirez-Valles, Dirkes, et al. (2014) [126]	**Population:** GB older men (**N:** 187) **SO:** bisexual/gay (100%)	Survey
Rogers, Rebbe, et al. (2013) [127]	**Population:** students and service professionals (**N:** 605) **SO:** heterosexual (81.8%), bisexual/gay/lesbian (14.3%), queer (2.2%), Other (1.7%)	Survey with both close- and open-questions

Rowan & Beyer (2017) [128]	**Population:** LGBTQ+ older adults (**N:** 223) **SO:** lesbian (40.36%), homosexual (31.84%), gay (37.22%), bisexual (8.07%), queer (6.73%), heterosexual (3.59%), straight (1.79%), other (1.79%)	Survey
Shiu, Kim, et al. (2017) [129]	**Population:** LGBT older adults (**N:** 2,450) **SO:** heterosexual/other (10.32%), lesbian/gay (72.47%), bisexual (17.22%)	Survey
Singleton, Adams, et al. (2022) [130]	**Population:** LGBT older adults (**N:** 100) **SO:** lesbian (81%), bisexual (3%), gay (8%), same gender loving (14%), Other (2%)	Focus group
Slater, Moneyham, et al. (2015) [131]	**Population:** HIV-infected gay men (**N:** 60) **SO:** gay (100%)	Survey
Slevin (2008) [132]	**Population:** gay and heterosexual older adults (**N:** 52) **SO:** gay, heterosexual (% not provided)	Intensive interview
Smith, Altman, et al. (2019) [133]	**Population:** LTC facilities' providers (**N:** 57) **SO:** LGBT (11%), heterosexual (% not provided)	Survey
Smith, McCaslin, et al. (2010) [134]	**Population:** LGBT older adults (**N:** 38) **SO:** gay men (57.9%), lesbian (28.9%), bisexual (5.3%), other (7.9%)	Survey
Stein, Beckerman, et al. (2010) [135]	**Population:** LG older adults (**N:** 16) **SO:** gay men (75%), lesbian (25%)	Focus group
Stevens & Abrahm (2019) [136]	**Population:** male with metastatic ovarian cancer (**N:** 1) **SO:** not provided	Case study
Sullivan (2014) [137]	**Population:** LGBT older adults (**N:** 38) **SO:** gay (57.9%), lesbian (28.9%), bisexual (5.3%)	Focus group
Van Wagenen, Driskell, et al. (2013) [138]	**Population:** LGB older adults (**N:** 22) **SO:** gay/lesbian (90.9%), bisexual (4.5%), heterosexual (4.5%)	Interview
Walker, Powers, et al. (2017) [139]	**Population:** LGBTQ+ older adults (**N:** 384) **SO:** heterosexual (29.7%), bisexual (17.7%), lesbian (17.7%), gay (5.7%), asexual (6.3%), not recoded (22.9%)	Survey
Walker, Powers, et al. (2022) [140]	**Population:** LGBTQ+ care recipients (**N:** 829) **SO:** heterosexual (24.5%), bisexual (17.8%), lesbian (13.6%), pan-sexual (7.7%), gay (7.1%), questioning (4.3%), asexual (4.2%), celibate (2.9%), omnisexual 1%), refuse to be labeled (5.8%), other (8.8%)	Survey including also open-ended questions
Whitehead, Shaver, et al. (2016) [141]	**Population:** LGBTQ+ younger, midlife, older adults (**N:** 1,018) **SO:** gay/lesbian/homosexual (81%), bisexual (6%), queer (5%), straight/heterosexual (3%), other (4%)	Survey
Williams & Fredriksen-Goldsen (2014) [142]	**Population:** LGB older adults (**N:** 2,150) **SO:** gay or lesbian (96.9%), bisexual (5.1%)	Survey
Witten (2014) [143]	**Population:** transgender-identified younger, midlife, and older adults (**N:** 1,963) **SO:** bisexual (18%), lesbian (14%), other (9%), pansexual (8%), gay (7%), refused to label (6%), asexual (4%), questioning (4%), celibate (3%), omnisexual (1%), not recorded (26%)	Survey
Witten (2015) [144]	**Population:** transgender lesbians younger, midlife, and older adults (**N:** 276) **SO:** lesbian (100%)	Survey
Woody (2014) [145]	**Population:** LG older adults (**N:** 15) **SO:** lesbian (73.3%), gay male (26.7%)	In depth interview
Yang, Chu, et al. (2018) [146]	**Population:** LGBT midlife and older adults (**N:** 222) **SO:** gay (47%), lesbian (42%), bisexual (3%), other (8%)	Survey
Zaritsky & Dibble (2010) [11]	**Population:** LGBT and heterosexual midlife and older adults (**N:** 370) **SO:** lesbian, heterosexual (% not provided)	Survey

Health outcomes among LGBTQ older adults: Addressing disparities.

The examination of health outcomes among LGBTQ older adults reveals significant disparities compared to their heterosexual peers [77,86]. Notably, this population exhibits higher rates of physical limitations and mental distress, emphasizing the need for targeted interventions and preventive measures. LGBTQ+ older females, when compared to their heterosexual counterparts, are more inclined to report habits such as excessive drinking smoking, and a higher prevalence of comorbidities related to chronic health conditions [13]. Notably, within this demographic, older lesbian and bisexual women display heightened rates of overweight and cardiovascular disease in contrast to their heterosexual counterparts [11]. On the other hand, LGBTQ older males present higher rates of angina pectoris and cancer disease than their heterosexual peers [13]. Specifically, older bisexual and gay men are more likely to contend with challenges related to poor physical health and elevated levels of diabetes when compared to heterosexual men [12].

Population-based research reveals that LGBTQ+ older adults encounter impediments restricting their physical activities, attributed to a spectrum of health issues encompassing mental and emotional challenges [11–14]. In general, this population exhibits an elevated risk of disability and poor mental health [12,13], substance abuse [12,14], heart conditions as well as chronic conditions, some of which linked to a weakened immune system [13]. Unfortunately, the numbers within population-based samples for specific minority groups (e.g., sexual orientation, gender, race and ethnicity) are frequently insufficient for a comprehensive exploration of health disparities. Of note, recognizing subgroup variations within LGBTQ older adults is extremely important [138] for the development of tailored interventions or preventive measures. Community-

based studies offer valuable insights into this purpose, as they generally have a specific focus and can target minorities [15,16,79,121]. For example, a notable instance from community-based studies within the LGBTQ aging population involves individuals living with HIV, where the efficacy of antiretrovirals has allowed more adults with HIV to reach old age [147]. However, this positive trend is offset by the fact that older adults living with HIV disease grapple with numerous health-related challenges, experiencing age-associated illnesses 10 to 20 years earlier than expected and enduring an average of 3 or more negative health conditions in addition to HIV [47]. Delving into health disparities by gender and sexual orientation within subgroups of LGBTQ older adults, older transgender individuals report heightened rates of mental distress, poorer general health, an elevated risk of poor health outcomes, and disabilities compared to their non-transgender sexual minority counterparts [15,16,68]. Among LGBTQ+ older males, there is a greater likelihood of being overweight and consuming more alcohol when juxtaposed with LGBTQ+ women [108]. Bisexual individuals, irrespective of gender, report a higher risk of poor health compared to lesbian women and gay men [79]. Intriguingly, within the same gender category, older lesbian women exhibit higher rates of excessive drinking than their bisexual counterparts [12]. Additionally, older bisexual men report a higher incidence of diabetes and a higher likelihood of being tested for HIV compared to gay men [12]. Table 2 summarizes variations in health disparities within LGBTQ older adults across different subgroups.

Taken together, these findings highlight how LGBTQ older adults face many challenges related to their physical and mental health. In general, LGBTQ+ older adults experience worse health conditions compared to heterosexual peers, with variations observed between genders and sexual orientations.

Table 2. Summary of results about health disparities by race/ethnicity, gender, and sexual orientation.

Health disparities by race and ethnicity			
LGBTQ+ older Hispanic people	**LGBTQ+ older African Americans**	**LGBTQ+ older Asian people/Pacific Islanders**	**LGBTQ+ older Native Americans/Alaskan Natives**
Higher rates of asthma, diabetes, and visual impairment than African Americans and Whites [148]. Higher rates of HIV than White individuals [148]. Compared with Whites, lower physical health-related quality of life (HRQOL) and comparable psychological HRQOL [102].	Higher rates of being overweight and high blood pressure than Whites [148].	Higher levels of visual impairment than Whites [148]. Less rates of cancer disease and obesity than Whites [148].	Less rates of cancer disease than Whites [148]. Poorer general physical health than Whites [148]. Higher levels of cardiovascular disease, obesity, disability, asthma, and hearing, visual, and dental impairments than Whites [148].

Health disparities by gender		
Older transgenders	**LGBTQ+ older females**	**LGBTQ+ older males**
Higher rates of mental distress and disabilities than non-transgender sexual minorities [15,16]. Poorer general health than non-transgender sexual minorities [15,16]. Higher risk of poor health outcomes than non-transgender sexual minorities [15,16].	More likely to report excessive drinking, smoking and comorbidity of chronic health conditions than heterosexuals [13]. More unhealthy behaviors like smoking, excessive drinking, less preventative screening (e.g., mammogram) than heterosexuals [148].	More likely to be overweight and consume more alcohol as compared to women [108]. Higher rates of angina pectoris and cancer disease than heterosexuals [13].

Health disparities by sexual orientation and gender			
Older lesbian women	**Older bisexual women**	**Older bisexual men**	**Older gay men**
Higher rates of overweight, cardiovascular disease [11,148], disability, and poor general health than heterosexuals [148]. Higher rates of excessive drinking than bisexual women [12].	Higher risks of poor health among than lesbian and gay older adults [79].	Higher rate of diabetes than gay men [12]. Lower rate of being tested for HIV than gay men [12].	More likely to have poor physical health than heterosexuals [12]. Higher levels of diabetes than heterosexuals [12]

Health disparities among LGBTQ older adults: Underlying factors.

As discussed in the previous paragraph, research has been investigating health disparities experienced by LGBTQ older adults and reported on their negative effects on physical, cognitive, and mental health of this population. Several studies have focused on potential factors underlying these health disparities in LGBTQ older adults. Taken as a whole, the findings of these studies allow us to identify various categories of impactful factors. As summarized in Table 3, several studies have emphasized the interconnection among these factors, revealing a network of interconnected causes and mutual influences s that collectively impact the health disparities within this population.

First, there are the discriminations, lifetime victimizations, prejudices, and stereotypes that LGBTQ older adults had to endure throughout their lives due to their sexual orientation. Evidence indicates that such factors significantly impact their health outcomes [74,99]. A study by Fredriksen-Goldsen, Emlet, et al. [17] showed that even after adjusting for background characteristics, risk factors like health care, obesity, and limited physical activity, it was lifetime victimization that independently accounted for poor general health, disability, and depression in this population; occurrence of disability and depression were also predicted by internalized stigma. Similar results emerged also in subsequent studies [96,126]. Experiencing ongoing microaggressions has been identified as a significant predictor of higher chances of physical impairment and depression [73,78]. In turn, depression has been shown to predict scarce health care engagement among LGBTQ older adults [129] and poorer health-related quality of life [64]. Noteworthy distinctions within the larger LGBTQ community reveal that older bisexual individuals, both women and men, perceive stronger internalized stigma and sexual identity concealment and less social support as compared to lesbian and gay older adults [17]; this may suggest bisexual older adults experience a weaker sense of community and group identity, which may negatively impact on health outcomes, as suggested by other evidence [76].

LGBTQ older adults as a group are at high risk for social isolation and for being disconnected from their families of origin [120,149] and are less likely to live with life partners as compared to heterosexual peers [84,150]. Taking this evidence into account, it is not surprising that among the factors associated with sexual health risk behaviors, heightened levels of loneliness, substance use [71,85], and internalized sexual minority stigma [71,72] are of particular interest, especially among those at risk for HIV. Findings indicate a significant relationship between internalized sexual minority stigma and the adoption of sexual health risk behaviors, with this connection being mediated by factors such as infrequent routine healthcare and elevated levels of perceived stress [32]. On the other hand, a well-developed social network benefits the physical and cognitive health of aging LGBTQ population [84,141,142]. Social support, including antidiscrimination measures at a state level [63], and social network size have been identified as protective factors, since they decrease the odds of poor general health [17,71,77,78], disability, and depression [17]. Interestingly, social support and self-efficacy were identified as protective factors also for those with or at risk for HIV [71]. However, among this specific population, social support was only significant when the outcome was related not to physical but to mental quality of life [71].

Furthermore, health disparities associated with sexual orientation among older adults are in part due to the access to healthcare and aging services that is given to this population [36,50,97]: overall, LGBTQ elders are more likely to experience prejudices rather than welcoming environments in these services [43,46,69,98,123]. This leads to a trend where LGBTQ older adults' underuse or drop out of health services with negative consequences on physical, mental, and cognitive health and on quality of life [44,87,120,141]. When accessing health care services, many LGBTQ elders meet barriers such as assumption of heterosexuality, lack of same-sex partner recognition, discrimination, and stigma [52,81]. This trend is even worse for transgender and gender non-conforming older adults, who are more likely to experience barriers to health care due to prejudice, lack of knowledgeable caregivers, lack of insurance, ageism, and lack of social and familial support [53,58,136,140]. Some LGBTQ older adults are afraid of even trying accessing services and programs because of the risk of stigma and prejudice [66,90,123,135], linked also to the concrete possibility of being discriminated if they share their sexual orientation or gender identity [51,90,97,112,122,135]. On the other hand, access to an affirming provider seems to be related to higher levels of health care engagement, including preventive health screenings, and a better management of mental health conditions [109,110]. When health services built to be safe and welcoming towards the aging LGBTQ aging community are available, they have

been reported to play a protective role against perceived isolation and reduce the negative consequences of living alone [146], and they also lead to a higher reported perception of successful aging [139].

Table 3. Summary of the results regarding risk and protective factors by health outcome.

	Health Outcomes									
	Identity Affirmation [78]	**Social Resources** [78]	**Disability** [17]	**Mental Health** [77,78]	**General/ Physical Health** [17,64,71,73,77,78,96,126]	**Depression** [17,73,96,126]	**QoL** [63,64,73,131,151]	**Cognitive Health** [104,152,153]	**Health-Care Engagement** [110,129]	**Sexual Health Risk/ Health Behaviors** [49,72,78,85]
Risk Factors				Poor Health Care [17], Obesity [17], Limited Leisure/Physical Activity [17,71]						
			Lifetime Victimization/Discrimination [17,71,77,104,151]							
	Marginalization [78]			Financial Barriers [17,96,153], Increasing Age [73,77,153]						
				Internalized Stigma [17,73,131,151]				Being BIPOC [152,153], Functional Impairment [149], Poor Physical Health [104,153], Poor Emotional Health [104], Physical Violence [104]		
			Disclosure of Sexual Orientation [96], Internalized Heterosexism [96]							
				Sexual Identity Disclosure [77]	Being Female [73], Depression [64,126]	Loneliness [73], Being BIPOC [73]	Loneliness [73]			Loneliness [85], Substance Use [85], Internalized Stigma [49,72], Stress [49]
				Marginalization [78]						
				Comorbidity [71]			Depression [64,129,152,153]			
				Chronic Physical Health Conditions [77,96,151]						
				Identity Affirmation [78], Positive Sexual Identity [77]	Microaggressions [73]			Low Education [153], Unemployment [153], Being Men [153]		
Protective Factors										
					Mastery [73]					
		Identity Affirmation [78]		Identity Affirmation [78], Positive Sense of Sexual Identity [77]	Health Behaviors [78], Emotional Support [126]	Instrumental Support [126]				Mental Health [78]
			Social Support [17,71,77,78]				Physical /Outdoor Leisure Activity [151], Optimal Sleep [151], State Recognition of Same-Sex Relationships [63]			
				Physical/Leisure Activity [73,77], Substance Nonuse [77], Employment [77], Income [77], Being Male [77], Self-Efficacy [71]					Access to an Affirming Provider [110]	
					Health Care Providers' Knowledge of Patients' Sexual Orientation [126]					
			Social Network Size [17,77,151]							

From the results presented above, cognitive health seems to be the factor that stands at the crossroads of all the key variables that specifically affect older LGBTQ individuals: social isolation, lack of services, lack of caregivers' support, and fear of discrimination [104,154,155]. When focusing on protective factors related to cognitive health, interestingly, level of education did not have a strong impact on health outcomes and QOL of aging LGBTQ [73,156]. Yet variables classified as indicators of resilience, and hence linked to a better quality of life included several factors linked to cognitive health (quality and size of social network and, more specifically, cultural background) [73,131]. To be more specific about the role of cognitive health in the LGBTQ aging population, some of the protective factors reported in the literature [17] seem to be specifically related to activities that are linked to better cognitive health: LGBTQ older adults often reported to engage more frequently in relaxing and mindful activities (e.g., meditation, drawing, and photography). These cognitive behaviors tend to be more effective when associated with physical activities (exercising or being overall active in daily life) [17,73,131,132].

In summary, the health disparities faced by LGBTQ older adults are rooted in enduring discrimination and internalized stigma. These factors independently affect general health, disability, and mental well-being. Sexual health risk behaviors, linked to loneliness, substance use, and stigma, further contribute to these disparities. The disparities extend beyond individual behaviors to the broader healthcare landscape, where prejudices and a lack of tailored resources hinder access and perpetuate underutilization of services. Addressing these interconnected challenges is imperative to foster a healthcare environment that is inclusive, supportive, and responsive to the diverse needs of LGBTQ older adults.

Aging as LGBTQ: Health-related needs and challenges.

Unfortunately, services and programs specifically designed for LGBTQ older adults are not common in the US [97,124]: often only 2% of aging services provide LGBTQ-specific options [80,103,107,141]. LGBTQ older adults are often deprived of the opportunity to enjoy a person-centered care that works for their needs and identity [62], suggesting that the long-term-care sector is not prepared to effectively address their needs with culturally competent care [55,67,144].

Among the services needed by LGBTQ older adults, as emerged by studies that focused on this topic, are medical and healthcare services [117], referral services, assisted living, in-home health services, meals delivered to the home, short-term help for caregivers, and fitness and exercise programs [92–94,125,143–145]. There is also a need for health care providers that are trained to interact with LGBTQ population: many studies record how health care personnel do not acknowledge or accept same-sex partners [37,83], assume heterosexuality, and do not discuss sexual activity or ask for sexual histories [48,54,106]. All together, these factors lead LGBTQ elders to experience negative attitudes and skepticism toward health care system and aging services [66,130,157,158].

The need for these services is particularly important [59,88,118] as a high percentage of LGBTQ older adults rely upon their informal social network to receive care [75,115]. As such, the lack of support outside the LGBTQ community often leads to small social and care networks [48,57,91,122]. While this is very important and a well-developed social network benefit the physical and cognitive health of aging LGBTQ population [84,141,142], it is not enough to guarantee constant reliable care. A community-based support without an institutional health support can lead to a prematurely resorting to institutional care [46,105,159]. Some other findings highlighted how older LGBTQ adults who provide informal care to friends are more likely to find themselves without a suitable care when they are in need [114]. Following this line of thought, it is not surprising that LGBTQ older adults reported social events and support groups as the most needed services as they age, which should be considered for intervention development [61,128,137,148].

These findings highlight the need to focus on the improvement of the healthcare services for the LGBTQ older adults, to offer more structured, welcoming, and personalized services as they age. Possible interventions and steps that can be taken to address these specific problems start from designing and providing specific training to health providers so that they can provide inclusive care for LGBTQ communities [116,160,161]. A first step to address this problem is, for example, the funding for critical training to aging service providers [111] by the Federal Administration on Aging. Moreover, programs focused on reducing isolation and loneliness by prompting social networks and lowering stigma-related stress may be useful to sustain good mental and physical health [61,162]. Cultural competency training, including diversity in age, gender, gender identity, ethnicity, race, socio-economic status, geographic location, and skills, should also be

offered to health professionals [3,55,70,82,101,119]. To be more specific, there is an urgency for professionals working in the healthcare system who are both aware and knowledgeable about LGBTQ issues [56,113,127,133], where LGBTQ elders feel comfortable to disclose with medical providers [100], and sensitivity training regarding their needs [60,133,163]. Promoting partnerships between LGBTQ aging agencies, services in the LGBTQ community, and both federal and local mainstream providers may be an excellent way to foster the needs of LGBTQ elders [97,123,134,164]. In this process, social workers may play a paramount role by raising awareness among service providers about the necessity of 'LGBTQ+ friendly' environments and advocating for programs that educate service providers to decrease stigma and victimization [124,165–168]. Other research interventions focused specifically on the need to increase healthcare providers' knowledge about the specific needs of the LGBTQ aging population [65,136,169,170] since healthcare staff has often been demonstrated to lack sufficient knowledge, competencies, and positive internalized attitudes towards LGBTQ elders' needs [45,65,67]. These interventions led to positive outcomes, but it has been suggested that increasing knowledge without empowering positive attitudes towards LGBTQ older adults - might not be sufficient to guarantee culturally competent care [95].

In summary, researchers, assistance resource centers, practitioners, and communities should be encouraged to engage in more synergic collaborations. This will help drive LGBTQ elders in reaching their full health potential and offering enough mental health, substance use, aging and health services, and educational programs to satisfy the specific needs of the LGBT population [97,103,171].

DISCUSSION

Health and aging-related services: Looking for a safe space for LGBTQ elders

To date, most of the information about health conditions and access to healthcare services comes from the Caring and Aging with Pride study, which is a national study funded by the National Institutes of Health and the National Institute on Aging and conducted by Fredriksen-Goldsen, Kim, et al. [148]. The study aimed to exploring the health status of 2,560 LGBT adults aged 50 and older from all over the United States, to identify risks and protective factors that might influence wellbeing during aging. The Caring and Aging with Pride study [148] highlighted how LGBTQ older adults often report experiencing unmet needs for basic health-related support. Of note, this evidence is further corroborated and supported by population-based and community-based studies outlined in the preceding paragraphs and included in the present review. This leads to stress the urgency of addressing health disparities and health needs related to aging of LGBTQ population to improve their overall health.

A first step towards framing the prerequisites to take this action includes identifying risk and protective factors that might affect health in the aging LGBTQ population. The findings outlined above underscore the critical importance of comprehending the factors contributing to improved health outcomes and those that do not. This understanding is essential for effectively addressing health needs and advocating for tailored interventions. The interplay among these factors is quite intricate, unveiling a network of interconnected causes and mutual influences that collectively shape the health disparities within the aging LGBTQ population.

It is concerning that, among these underlying factors contributing to health disparities, accessing healthcare and aging services is one of the most frequently reported in the studies identified in the review [36,50,97]. In part, this seems to be linked to a lack of tailored resources: there are many services and programs designed to assist and support aging individuals, but they are tailored on the needs of heterosexual older adults. Many LGBTQ older adults have unique needs [32]. For example, some of them do not have a family that can help them [7,172], as they are more likely to be disconnected from their families of origin [120,149] and less likely to have children [11] and to live with life partners as compared to heterosexual peers [84,150]; to be more specific, they are as much as four times less likely to be parents and twice as likely to be single and live alone [173,174]. Others hesitate to seek services and programs due to the fear of encountering stigma and prejudice [46,58,62,66,81,172]. This apprehension is also associated with the tangible risk of discrimination when disclosing one's sexual orientation or gender identity [51,87,98,112,120,122]. Bridging the gap by developing resources sensitive to their diverse needs, fostering supportive environments, and combating stigma will not only enhance access to care but also contribute to narrowing health disparities within this population. It is imperative that we prioritize creating a healthcare landscape that is inclusive, affirming, and respectful of the experiences and identities of LGBTQ older adults.

Moreover, the literature that considers the many different challenges experienced by each LGBT subgroup is quite limited, and there is a lack of findings elucidating which socio-cultural, historical, and environmental variables are implicated in predicting different health outcomes. The predominant narrative about the health needs of LGBTQ older adults does not take into consideration the various challenges experienced by each LGBTQ subgroup. As mentioned above, numerous key determinants related to gender, sexual orientation, and race/ethnicity play a crucial role in health disparities. In particular, the existing evidence confirms differences by gender and sexual orientation [49,76,108,121]. In terms of race and ethnicity, race does not seem to be the only predictor of these health outcomes, but it becomes significant when considered together with discrimination [175]. To allow for a critical reading of these data, it of note that less than two in ten LGBT older adults in the Caring and Aging with Pride study [148] identified as Black, Indigenous, and People of Color (BIPOC), even if this number is estimated to grow by more than four times by 2050 [102]. It is well known [176] that in the decades ahead the demographics of elders — both LGBTQ and non-LGBTQ — in the United States will shift significantly along race and ethnicity lines. This demographical shift will have many implications for health professionals, as differences both between LGBTQ and non-LGBTQ elders and among LGBTQ elder sub-groups entail heterogeneous interventions tailored on specific needs. An attentive focus on the unique needs of particular subgroups within the broader LGBTQ still remains deficient [177]). There is a need for more robust initiatives to enhance inclusivity and ensure the availability of resources and services in less progressive communities [178].

Impact on cognitive health

An aspect that needs to be addressed more thoughtfully is linked to the cognitive health of LGBTQ older adults [179]. Interestingly, although rates of subjective cognitive decline among sexual minorities are comparable to the general population [152,180] and the risk of both objective [181] and subjective [153] cognitive decline between LGBTQ and heterosexual older adults does not statistically differ, LGBTQ individuals report subjective cognitive decline at younger ages [152,180], and this trend seems to be stronger specifically for transgender and non-binary older adults [68,182].

As discussed in this review, older LGBTQ individuals face significant health disparities and higher rates of social isolation; these factors are linked to higher rates of cognitive impairment [151,183,184]. This problem is particularly relevant to the LGBTQ aging population because of their unique situation related to caregivers and care partners, discussed in the previous paragraphs. If it is true that dementia caregivers' face enormous logistical, financial, physical, and emotional challenges [185] that can only be addressed by adequate social support and resources [186], it is also true that these challenges are even more intense for LGBTQ caregivers. As we discussed previously, there is a lack of support and a lack of ad-hoc resources for LGBTQ caregivers, who often have to face these challenges in social isolation [187–189]. This isolation is particularly hard for care partners who experience unique challenges, like, for example, the loss of identity as an LGBTQ couple, as the memory of the person living with dementia deteriorates [174]. Not to mention the other obstacles that emerged from this review: having to interact with healthcare providers with the expectation that they might discriminate against them, and the awareness that available services might not be LGBTQ-inclusive [53,190].

Future steps should commence by designing and implementing targeted training programs for healthcare professionals, equipping them with the knowledge and skills necessary to deliver inclusive care for LGBTQ communities [116,160,161]. This training should focus on the use of appropriate and inclusive language and cultural competence [191] and will then expand to include three key aspects: knowledge (about sexual orientation and gender identity), attitudes (linked to relational and human competencies), and professional skills (ability to act inclusively) [37]. Training alone might not be enough if it is not supported by changes at an institutional level. Some first steps have been taken in the US, mainly led by the Alzheimer's Association, with the aim of promoting awareness about LGBTQ care and developing specialized resources for LGBTQ caregivers [155]. What is still lacking is a focused attention on the needs of specific communities withing the larger LGBTQ community (for example addressing the very specific needs of aging lesbian and bisexual women [177]), as well as stronger effort to promote inclusivity and make resources and services available in les progressive communities [178].

Future steps and interventions

Some lines of applied research have tried to identify a comprehensive approach that could help addressing several of the issues discussed in the previous paragraph at the same time. Such an approach should be intersectional, as highlighted in a recent paper [192]. The author of this contribution identifies five main components that must be taken into account when thinking about interventions to improve physical, mental, and cognitive health of the aging LGBTQ population, while reducing stigma and discrimination: (1) a holistic approach, which legitimates LGBTQ elders' life experiences; (2) tailored programs and services, focused on the specific needs of elder sub-groups and leverage these groups' unique internal resources; (3) an equitable access to services, available through community providers who offer cultural competence specific to their audiences; (4) credibility and cultural competency by practitioners in all aspects of service provision, (5) promoting community-based partnerships. Some communities have used these guidelines to develop and test ad-hoc interventions for specific aging LGBTQ communities. Results, if preliminary, seem to be promising. Interventions built according to these components have helped decrease social isolation and increase the availability of LGBTQ-welcoming senior services for the entire LGBTQ aging population in Metro Detroit, while also separately addressing the specific needs of aging LGBTQ African American Detroit residents, linked to systemic racial equity issues [193]. They helped aging individuals in Seattle have easier access to ad-hoc fitness programs [194], something that has been proven to be particularly effective in reducing psychological distress and depression, which are related to other negative health outcomes like chronic disease [195,196], diabetes [197–199], cardiovascular disease [200,201], and disability [202,203].

These interventions are great examples of some first steps that address the needs of diverse LGBTQ elder communities. However, nothing has been published in peer-reviewed literature about applying these interventions more widely. This next step should be a high priority in the near future. Recently, Fredriksen-Goldsen, Kim, McKenzie, et al. [204] underlined the importance of enhancing evidence-based practice to alleviate health disparities among LGBTQ elders and suggested transitional research as the best approach for advancing knowledge from basic research to intervention. Encouraging researchers, resource centers, practitioners, and communities to foster collaborative efforts is essential. This collaboration aims to empower LGBTQ elders to attain good health conditions and involves implementing educational programs tailored to address the specific needs of the LGBT population [98,117].

When trying to find first lines of action, it has been suggested that improving communication may be one of the most helpful strategies in order to create culturally responsive aging, health, and cross-generational services[1,205]. Facilitating collaborations among LGBTQ aging organizations, LGBTQ community services, and both federal and local aging services may be an effective strategy to address the unique needs of LGBTQ elders [97,123,134,164]. In this process, social workers may play a paramount role by raising awareness among service providers about the necessity of 'LGBTQ+ friendly' environments and advocating for programs that educate service providers to decrease stigma and victimization [124,165–168]. Additional research interventions have emphasized the necessity of enhancing healthcare providers' understanding of the specific needs of the LGBTQ aging population [82,89,119,169,170]. This is crucial as healthcare staff has often been found to lack sufficient knowledge, skills, and positive internalized attitudes toward the needs of LGBTQ elders [45,65,67]. There is urgency of accepting and welcoming environments [206,207] where LGBTQ elders feel comfortable to disclose with medical providers [100], and sensitivity training regarding their needs [55,130,179]. Moreover, initiatives and programs aimed at reducing isolation and loneliness through the promotion of social connections and the reduction of stress associated with stigma may indirectly contribute to maintaining favorable levels of mental and physical well-being [61,162]. At the same time, it is necessary to educate caregivers, providers, and LGBT elders in navigating public policies and existing laws so that everyone is aware of and can advocate for existing rights [208,209].

Limitations

While this review addresses a relevant topic that is lacking updated reviews with the aim of organizing and critically discussing existing knowledge in order to provide suggestions to implement bias -reduction intervention and improve health outcomes for aging LGBTQ+ individuals, some limitations are present and should be addressed by future studies.

The review relied on limited number of databases (four) for the identification of potentially eligible studies. Given the non-medical topic we couldn't use a standardized scale such as QUADAS to assess the

quality of the studies, and we relied on non-standardized quality assessment by two independent judges instead.

CONCLUSIONS

During the last decade, many changes in the cultural norms related to sexual orientation, gender identity and gender expression happened. Nevertheless, LGBTQ elders are still marginalized in relation to health services and policies, so that they are forced to go through the aging process without adequate resources to address their unique needs. As the global population ages, the number of LGBTQ older adults living in the United States is expected to significantly grow within the next years. Thus, in light of these continuous evolutions, there is urgency to address issues concerning the health of LGBTQ individuals as they age.

Despite LGBTQ aging needs started to be discussed more than a decade ago, LGBTQ older adults – compared to heterosexuals and gender normative peers - still experience health disparities and face many obstacles in accessing healthcare system. These barriers are mostly related to cultural blindness, stigma, and discrimination by the medical staff, and to the insufficiency of health services and policies addressing the unique needs of this specific population. The prevailing heterosexualism in medical environments and the lack of LGBTQ-friendly programs prevent adequate health screenings, reinforcing the vicious cycle of disparities, which takes a toll on LGBTQ elderly with dementia and their care partners. Moreover, LGBT elders are mainly considered as a whole, so that the specific needs of each sub-group remain invisible or are roughly met.

Another research priority is healthcare accessibility. Both the LGBTQ elders and healthcare professionals should be considered in examining resources and obstacles in accessing to and offering health services. This would allow for articulate patterns that hinder equitability in healthcare system to emerge. Moreover, researchers are called to collaborate with health services, medical professionals and LGBT aging centers in order to promote evidence-based knowledge and implement best practices for satisfying LGBT older adults' health and aging-related needs, with special attention devoted to cognitive health related problems.

Following this line of reasoning, innovative strategies are needed to provide LGBTQ elders and their caregivers with adequate tailored services, supports and resources, in the attempt of counteracting poor aging and physical, cognitive and mental health outcomes. Interventions aimed at improving accessibility to both mainstream and LGBTQ community-based services among LGBTQ elders and their care givers should be fostered and identifying health predictors may support this process. This might lead to lessening structural barriers to health services and promoting individual and community strengths related to good health and quality of life among elderly LGBTQ population.

Adopting a holistic and intersectional approach may be the most effective strategy to achieve this aim. A collaborative effort involving psychologists, social workers, and health professionals may contribute to connecting conceptual knowledge derived from research literature with cultural competencies, anti-discrimination policies, and inclusive environments.

Supplementary Materials: Table S1: Summary of Studies included in the review – longer version.

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Table S1. Supplementary information.

	Author(s), year	Sample (Population, sample size, age, sexual orientation, sex/gender, race/ethnicity)	Method	Aim	Key findings
1.	Ahrendt, Sprankle, et al. (2017) [43]	**Population:** residential care facility staff members **N:** 153 **Age:** 20–80 (M = 44.02) **SO:** heterosexual (65.4%), homosexual (1.3%), other (2%), missing (31.4%) **Sex/gender:** female (81.7%), male (12.4%), missing (5.9%) **Race/ethnicity:** Non-Hispanic/Latina White (82.4%), African American (9.2%), Hispanic/Latina (0.7%), missing (7.8%)	Survey, case vignettes	To assess the level of heterosexist biases among LTC facility staff, with a focus on older adult sexuality and sexual orientation.	Residential care facility staff members showed to believe that older adult sexuality is acceptable regardless of sexual orientation, suggesting no bias was present regarding the sexual orientation of LTC residents. The facility where residential care facility staff members were employed was significantly related to their ratings of approval about sexual activity among older couples.
2.	Averett, Yoon, et al. (2011) [44]	**Population:** lesbian older adults **N:** 456 **Age:** 51–86 (M = 62) **SO:** lesbian (91.3%), gay (2.7%), bisexual (3.7%), other (2.7%) **Sex/gender:** woman (98%), missing (2%) **Race/ethnicity:** Non-Hispanic/Latina White (86.9%), Bi- or multiracial (5.1%), African American (3.3%), Hispanic/Latina (1.5%), Native American (0.5%)	Survey	To investigate the older lesbians' needs, strengths, and experiences related to health, end-of-life care, family service/program use, mental health, discrimination, social activity, relationships, and sexual identity.	About ¾ of the sample reported good or excellent physical health; more than 75% rated emotional health as good or excellent. Less than 10% smoke cigarettes; almost 1/5 had a problem with alcohol use in the past. About 36% of the sample make physical activity 2–3 times a week. Partners and family members are the most common caregivers in case of important sickness or disability. 48.5% of the participants disclosed sexual orientation to all their health-care providers; 12.3% shared sexual orientation to none of their providers. 18% believe that a social or health service agency will take care of them; a similar percent does not know. Participants underutilize both LG-focused and available for older adults regardless of sexual identity services/programs (e.g., senior center programs, LTC services for seniors). More than half doesn't want to live in a heterosexual retirement community or a nursing home.
3.	Bell, Bern-Klug, et al. (2010) [45]	**Population:** nursing home social service directors **N:** 1,071 **Age:** 35 and older (54.6% between the ages of 35 and 54) **SO:** not provided **Sex/gender:** woman (93.4%), not specified (6.6%) **Race/ethnicity:** Non-Hispanic/Latina White (89.6%), not recorded (10.4%)	Survey	To report the percentage of nursing home social service directors who received a cultural competency training, with an emphasis on homophobia.	Six areas of competency training were explored: 24% received a training about homophobia, 31% about religious prejudice, 39.8% about racism, 46.6% about disability discrimination, 45.7% about sexism, and 55.5% about ageism. Trainings about homophobia reported the lowest percentage, where ¾ of the sample did not receive even one hour of homophobia training over the past five years. Directors working in nursing homes from the East regions, or with lower level of education, or with the most experience, were more likely to report

					having not received homophobia trainings. Trainings about ageism reported the highest percentage.
4.	Boggs, Dickman Portz, et al. (2017) [46]	**Population:** LGBTQ+ older adults **N:** 73 **Demographics of the interviewees (N=29)** **Age:** 50-69 **SO:** lesbian (16), bisexual (2), straight (1), gay (9), queer (1), pansexual (1) **Sex/gender:** female (20), male (9), 2 participants identified as transgender **Race/ethnicity:** Non-Hispanic/Latina White (8), African American (1), Hispanic/Latina (1), not recorded (19)	Focus groups, interviews, discussion	To assess barriers and supports for LGBT aging in place.	Ageism, heterosexism, and cisgenderism negatively influence access to health care, home assistance, housing, social support, and legal services. Resilience from a lifetime of discrimination is a protective factor in facing aging challenges. Recommendations for aging in place includes welcoming communities, resource centers, and increasing cultural competence of service providers.
5.	Brennan-Ing, M., Seidel, et al. (2014) [47]	**Population:** individuals with HIV **N:** 155 **Age:** 50 and older (M = 55.5) **SO**: gay/lesbian (55%), heterosexual (30%), bisexual (15%) **Sex/gender:** man (78%), woman (22%) **Race/ethnicity:** Non-Hispanic/Latina White (34%), Non-Hispanic Black (33%), Hispanic/Latina (33%)	Survey	To examining the association of sexual identity and gender.	Those who age with HIV show high rates of age-associated illnesses 10 to 20 years before expected, suffering from an average of 3 or more negative health conditions in addition to HIV. They don't have the informal supports needed due to fragile social networks. A significant utilization of non-HIV-related services was reported. Although heterosexual men used more services, sexual identity and gender were weak covariates of service utilization.
6.	Brennan-Ing, Seidel, et al. (2014) [48]	**Population:** LGBTQ+ older adults **N**: 210 **Age:** 55 and older (M = 59.6) **SO:** gay/lesbian (80.1%), bisexual (13.6%), queer (3.4%), questioning (1.5%), heterosexual (1.5%) **Sex/gender:** man (70.5%), woman (23.7%), transgender or intersex (5.8%) **Race/ethnicity:** Caucasian/White (61.7%), Black (32%), Hispanic (3.9%), other (1.5%), Native American (0.5%), Asian/Pacific Islander (0.5%)	Survey, using a mixed-methods approach.	To explore the social care networks of LGBT older adults.	Despite an average of 3 negative health conditions, more than 75% reported good or excellent health conditions. Almost the half of the sample reported Medicare as health insurance coverage. About 1/5 reported either SSI or SSDI. 63% lives alone, especially men. The amount of assistance from friends was not significantly lower than that received from family. Percentages about healthcare and aging service utilization in the previous year are reported. The need of socialization opportunities was reported by 51% of the sample; other frequently mentioned needs were assistance in getting to the medical clinic and help navigating the entitlement. Qualitative analysis referred 4 groups of unmet needs: (a) needing help with basic support and instrumental tasks (b) education and recreation services, (c) health-related services, and (d) social services.
7.	Bryan, Kim, et al. (2017) [49]	**Population:** LGBT older adults **N**: 2,351 **Age:** 50-98 (M = 61.6) **SO:** gay/lesbian (75.1%), bisexual (16.6%), other (11.3%)	Survey	To analyze factors associated with high-risk drinking in LGBT elders.	About 1/5 of the sample reported high-risk drinking, with no significant differences between men and women. Current smoking and greater social support were associated with higher risk of drinking in women, while older age, recovery from addiction, higher income, and greater perceived stress were associated with lower risk. Higher income, current smoking, and greater day-

		Sex/gender: man (54%), woman (46%); 11.3% of the total sample identified as transgender **Race/ethnicity:** Non-Hispanic/Latina White (78.2%), other (% not provided)			to-day discrimination were associated with higher risk of drinking in men, while transgender identity and recovery from addiction were associated with lower risk.
8.	Burton, Lee, et al. (2020) [50]	**Population:** LGBTQ+ older adults **N:** 10 **Age:** 65-85 (M = 70) **SO:** gay/lesbian (50%), not disclosed (50%) **Sex/gender:** male (50%), female (50%) **Race/ethnicity:** not provided	Semi-structured interview	To investigate the experiences and needs of LGBT older adults when accessing care services.	Three major themes emerged: (a) outness, describing participant comfort with being "out"; (b) "Things are Different Now", relating to how treatment participants received changed over time; (c) additional resources, related to needed services or other options from the community.
9.	Butler (2017) [51]	**Population:** lesbian older adults **N:** 20 **Age**: 66-86 (M = 71.9) **SO:** lesbian (100%) **Sex/gender:** woman (100%) **Race/ethnicity:** Non-Hispanic White (100%) **Population:** informal caregivers **N:** 6 **Age:** 62-76 (M: 70) **SO:** not provided **Sex/gender:** not provided **Race/ethnicity:** not provided **Population:** home care workers **N**: 5 **Age:** 44-69 (M: 52.6) **SO:** not provided **Sex/gender** not provided **Race/ethnicity:** not provided	Semi-structured interview	To investigate older lesbians' barriers to health care access and their experiences in the LTC system.	Major themes regarded level of disclosure, experiences with homophobia, evaluation of care received, and thoughts about ideal LTSS. Most lesbians did not disclose sexual orientation to the home care worker. A significant minority reported homophobia, but nearly all ultimately reported that home care workers provided them good care and that they were comfortable with them. Ideal LTSS should include greater affordability, and specific qualities of home care workers such as competence caring, and acceptance.
10.	Butler (2018) [52]	**Population:** lesbian older adults **N:** 20 **Age:** 66-86 (M = 71.9) **SO:** lesbian (100%) **Sex/gender:** woman (100%) **Race/ethnicity:** Non-Hispanic White (100%) **Participants:** informal caregivers **N:** 6 **Age:** 62-76 (M = 70) **SO:** not provided **Sex/gender:** not provided **Race/ethnicity:** not provided	Semi-structured interview	To explore the formal and informal caregiving experiences of older lesbians.	25% of lesbian older adults lived with partners, who offered care assistance; those who were not partnered showed some level of isolation from support networks. Participants globally reported to be satisfied and even quite connected with their home care workers. 40% of the participants reported that being lesbians did not affect their aging process or their current life activities, while 10% reported negative effects of being lesbian as they aged.
11.	Candrian, Burke, et al. (2023) [53]	**Population:** caregivers of LGBT older adults **N:** 19 **Age:** 44-77 (M = 66.94) **SO:** lesbian (74%), gay (16%), straight (5%), unknown (5%)	Semi-structured, in-depth interview	To explore the experiences of LGB older adults living with dementia and their caregivers.	Five major themes emerged: (a) caregiver tension and isolation; (b) financial stress & security; (c) lack of social support & connection; (d) engineering grief support; (e) entrapment of past and present stigma and discrimination.

		Sex/gender: female (79%), transgender (0%) **Race/ethnicity**: White (89%), Latino/Hispanic (32%)			
12.	Candrian & Cloyes (2021) [54]	**Population:** lesbian older adults **N:** 31 **Age:** 56-84 (mean score not provided) **SO:** lesbian (100%) **Sex/gender:** not provided **Race/ethnicity:** not provided	In-depth interview, case study	To illustrate how lesbian older adults may receive inequitable end-of-life care.	For lesbian older adults, care is at high risk to be compromised at the end of life if the medical staff obstacle an open discussion with patients about what and who matters most to them. Lesbian elders experience a greater risk for inequitable end-of-life care. A person-centered care is needed in order to avoid trauma and grief created when patients' essential identity and relationships are ignored at the end of life.
13.	Carabez, Pellegrini, et al. (2015) [55]	**Population:** nurses **N:** 268 **Age:** not provided **SO:** gay/lesbian, heterosexual, bisexual (% not provided) **Sex/gender:** man/woman, transgender (% not provided) **Race/ethnicity:** not provided	Structured interview	To explore the number of nurses who received an education/training about LGBT patients' care and to investigate why some nurses experience discomfort with LGBT patient care.	79.1% reported their organization did not offer any LGBT patient-centered care training, and 73.88% reported to have never attended an LGBT training. 20% voluntarily reported to desire LGBT trainings or to wish they would be more available. Most of the participants reported to feel comfortable with LGBT patient care; however, some of their comments suggested they do not be provide culturally sensitive care.
14.	Carlson & Harper (2011) [56]	**Population:** employees of a 130-bed skilled nursing facility **N:** 6 **Age:** not provided **SO:** homosexual (1), not recorded (5) **Sex/gender:** woman (4), man (2) **Race/ethnicity**: Caucasian (4), Black British (1), Chinese (1)	Interview – Longitudinal study with follow-up after 8 months	To implement the Community Readiness Model (CRM) with one LTC facility interested in enhancing their ability to serve LGBT older adults.	Heterosexist or non-inclusive policies and practices automatically built into the operation protocol may lead the lack of LGBT residents in the of LTC facilities; at the beginning, participants showed little concern for the lack of LGBT residents living in the facility. The CRM helped the LTC facility to critically examine its practices and culture related to the needs of LGBT older adults and guided in strategy development to enhance service to LGBT older adults.
15.	Clark, Boehmer, et al. (2010) [57]	**Population:** LGBT and heterosexual midlife and older women **N:** 215 **Age:** 41-78 (M = 55) **SO:** sexual minority (90), heterosexual (125) **Sex/gender:** woman (100%) **Race/ethnicity:** Non-White (12.2%)	Survey	To explore the experiences of legally unmarried, sexual minority and heterosexual women in planning for future care needs and long-term assistance.	Along four LTC planning strategies (executing a will; naming a health care proxy; purchasing LTC insurance; discussing potential living arrangements with at least one family member), 18.5% reported completing zero of them, while 3.4% all of them. 59% completed at least two strategies. Executing a will and naming a health care proxy were the mostly used strategies. Both sexual minority and heterosexual women preferred a family member of choice, rather than a biological family member, for living with if they were unable to care for themselves. Serving as a health care proxy was related to having made LTC plans and was particularly important for sexual minority women, who adopt LTC planning strategies that legally clarify the nature of their important relationships.

16.	Cook-Daniels & Munson (2010) [58]	**Population:** LGBTQ+ older adults **N (2nd study):** 56 **Age (2nd study):** 50 and older (<50: n=4; 50-60: n=20; 60-70: n=4; 70: n=1; missing: n=26) **SO:** heterosexual (31%), lesbian (28%), celibate or asexual (24), bisexual (14), pansexual and other (7%), gay male (1) **Sex/gender (2nd study):** not disclosed (26), MTF (23), FTM (6), cisgender female (2) **Race/ethnicity (2nd study):** White (79%), multiracial or African American (10%)	Survey	To explore sexual violence, elder abuse, and sexuality among transgender older adults.	The majority experienced sexual violence and elder abuse. 30.9% reported to have experienced health care discrimination more than once, while 10.9% once. Despite six participants reported to be extremely afraid of being emotionally abused or being the victim of health care discrimination, the majority reported to fear not so much physical abuse, sexual abuse, emotional abuse, self-neglect, health care discrimination, and housing discrimination.
17.	Croghan, Moone, et al. (2014) [59]	**Population:** LGBTQ+ midlife and older adults **N:** 495 **Age:** 48 and older (48–54: 29.7%; 55–64: 45.5%; 65–74: 20.4%; >74: 4.4%) **SO:** lesbian (46.7%), gay (38.7%), bisexual (9.0%), queer or other (5.3%) **Sex/gender:** transgender woman (6.3%), transgender man (3.2%), transgender other (<1%), cisgender woman (49.9%), cisgender man (40.2%) **Race/ethnicity:** Non-Latino White (93.2%), African American (3.9%), Asian/Pacific Islander (<1%), Latino (<1%), Native American (<1%), other (1.6%)	Survey	To investigate the frequency and nature of the informal caregiving experience for LGBT older adults.	The majority's primary caregiver was not a legal relation; 22.2% were acting as a caregiver, while 78.3% had an available caregiver. LGBT older adults were less likely to have traditional sources of caregiver support and more likely to be serving as a caregiver and caring for someone to whom they were not legally related.
18.	Croghan, Moone, et al. (2015) [60]	**Population:** LGBTQ+ midlife and older adults **N:** 327 **Age:** 48-85 (M = 60) **SO:** lesbian (51%), gay (37%), bisexual (8%), queer or other (3%) **Sex/gender:** transgender woman (4%), transgender man (3%), transgender other (1%), gender normative woman (54%), gender normative man (38%) **Race/ethnicity:** Non-Latina White (89%), African American (4%), Latina (1%), Native American (1%), other (2%)	Survey with an open-ended survey question	To investigate what signals, indicate that a provider is LGBT-welcoming from the LGBT older adults' perspective.	The top 10 codes include several physical environment characteristics (e.g., general signage, rainbow flags), the presence of LGBT-identified staff, and using inclusive language on forms. 6 of the top 10 signals regard the provider's behavior, underlining the importance of staff training.
19.	Cummings, Dunkle, et al. (2021) [61]	**Population:** LGBT+ older adults **N:** 48	Focus groups	To understand the perceptions and experiences of LGBT+	Four main themes were included: (1) nuances to the sense of connection and socialization that were specific to being an LGBT+ older adult; (2) the desire

		Age: 50-82 (M = 66.7) **SO:** gay (34), lesbian (12), pansexual (1), heterosexual (1) **Sex/gender:** man/male (30), female (12), transgender (1), gender fluid (1), transitioning (1) **Race/ethnicity:** Non-Latina White (39), Black (5), Latina (1), biracial (3)		older adults regarding their expectations and needs as they age.	to receive health and aging services that are committed to honoring who they are as an individual, as part of a family, and as members of the broader LGBT+ community; (3) the need for awareness of and practical access to a continuum of living arrangements that allow LGBT+ older adults to live authentically; (4) the need for advocacy, which was about both personal responsibility and necessary support from others.
20.	Czaja, Sabbag, et al. (2016) [62]	**Population:** LG older adults **N:** 124 **Age:** 50–89 (M = 65.7) **SO:** gay (74%), lesbian (26%) **Sex/gender:** male (74%), female (26%) **Race/ethnicity:** Non-Hispanic White (71%), Hispanic (19%), Non-Hispanic Black (2%), other (7%)	Focus groups and questionnaires.	To investigate concerns of LG elders with respect to aging and care needs.	Concerns about aging included discrimination in healthcare or service communities, fears about the lack of someone to provide needed care, being alone and vulnerable, lack of family or social support. Participants also expressed the need for resources and support programs, specifically for LG elders and for their caregivers.
21.	Vries, Mason, et al. (2009) [63]	**Population:** non-heterosexual midlife and older adults **N:** 793 **Age:** 40-60 (M = 48.8) **SO:** non-heterosexual (SO and % not provided) **Sex/gender:** male (59.6%), female (40.4%) **Race/ethnicity:** White (84.9%), African American (2.5%), Asian (2.5%), other (1.4%)	Survey	To investigate non-heterosexual midlife and older adults' relationship status and the State in which they live recognition of same-sex unions in relation to the end-of-life.	Fears about serious illness and end-of-life care needs were reported, and almost ¾ of the participants reported fears about becoming unable to care for themselves. Significant differences by relationship status (single, coupled, in a civil union) for the fear of sexual discrimination, as well as by the State recognition of same-sex unions for the fear to die in pain. Overall, participants shown to be prepared for illnesses, caregiving needs, and death, although with significant differences among the relationship status. The legal recognition of same-sex unions by the State influenced participants' quality of life, their future plans, and emotional responses to those plans.
22.	Dibble, Eliason, et al. (2012) [64]	**Population:** African lesbian younger, midlife, and older adults **N:** 123 **Age**: 27-79 (M = 48.8) **SO:** lesbian (100%) **Sex/gender:** woman (100%) **Race/ethnicity:** American Indian/Alaska native (19.7%), Caucasian/White (8.2%), Latina (2.5%), Pacific Islander (0.8%)	Survey	To examine the correlates of health-related quality of life among African American lesbians.	Despite high levels of health impairment, participants reported high health-related quality of life. 13% of the sample was morbidly obese with a BMI of 40 or more, while only 15% was in a healthy weight range. There was a significant association between advancing age and poorer physical functioning, decreased physical role functioning, and more pain, and between health-related quality of life and depression and spirituality.
23.	Dickey (2013) [65]	**Population:** nursing assistants in LTC **N:** 116 **Age:** 18-68 (M = 40)	Survey	To investigate attitudes of sexual orientation among nursing assistants working in LTC.	Only 35 participants received special training on sexual orientation, while about 77% of the sample was acquainted with a gay person. Participants scored low in levels of homophobia. Age and acquaintances accounted for most of the variance in the homophobia scores.

		SO: homosexual/bisexual (11), heterosexual (% not provided) **Sex/gender:** female (110), male (6) **Race/ethnicity:** not provided			
24.	Dickson, Bunting, et al. (2022) [66]	**Population:** LGBT+ older adults **N:** 789 **SO:** gay (62.5%), lesbian (27.1%), bisexual (6.2%), queer/questioning/other (4.2%) **Sex/gender:** man (65.3%), woman (30.8%), GNB/Trans/Other (3.9%) **Race/ethnicity:** White (90.8%), Black/African American (4.5%), Native American (1.3%), another race (3.4%)	Survey	To investigate previous experiences of discrimination and perceptions of discrimination in LCT among older LGBTQ+ adults living in the Southern United States.	78.6% of participants anticipated discrimination in LTC. A greater expectation of discrimination was predicted by previous experiences with discrimination, higher educational attainment, queer/questioning sexual orientation, and greater preference for utilizing LTC services offered by LGBTQ+ providers or for LGBTQ+ older adults.
25.	Donaldson & Vacha-Haase (2016) [67]	**Population:** staff members from long-term facilities **N:** 22 **Age:** 22-79 (M = 45.68) **SO:** heterosexual (95.5%), lesbian (4.5%) **Sex/gender:** male (13.6%), female (86.4%) **Race/ethnicity:** European American (63.6%), Hispanic /Mexican American (18.2%), Native American (9.1%), African American (4.5%), Asian American (4.5%), multiracial (4.5%)	Focus groups	To assess cultural competency of staff working in LTC facilities about LGBT issues; to identify staff's current training needs; to develop a framework for understanding LGBT cultural competency among LTC staff.	There is a lack of competence about how being sensitive to LGBT residents' needs. Participants were aware of the challenges and stigma that LGBT residents experience. They reported to want to provide an equal standard of care to all LTC residents, despite being aware of the unique experiences and needs of LGBT residents; on the other hand, they fear they would show "favoritism" or "special treatment". Participants reported that training could help to address the ambivalence they experience about providing sensitive care to LGBT residents.
26.	Dragon, Guerino, et al. (2017) [68]	**Population:** transgender and cisgender Medicare Beneficiaries **N:** 39,143,683 **Age:** 18 and older (18–44: 33.2% TMBs, 4% CMBs; 45–54: TMBs 20.2%, CMBs 4.7%; 55–64: TMBs 17.9%, CMBs 8.1%; 65–74: TMBs 19.2%, CMBs 47.7%; 75–84: TMBs 6.4%, CMBs 23.3%; 85 years and older: TMBs 3.1%, CMBs 12.3%) **SO:** not provided **Sex/gender:** not provided **Race/ethnicity:** White (TMBs 76.8%, CMBs 78.1%), Black (TMBs 12.3%, CMBs 9.6%), American Indian/ Alaska Native (TMBs 1%, CMBs 0.6%), Asian/ Pacific Islander (TMBs 1.7%, CMBs 2.8%), Hispanic (TMBs 6.4%, CMBs	Medicare claim records	To compare chronic disease burden between transgender Medicare Beneficiaries (TMBs) and cisgender Medicare Beneficiaries (CMBs).	Compared to CMBs, TMBs have more chronic conditions, have been diagnosed with asthma, autism spectrum disorder, chronic obstructive pulmonary disease, depression, hepatitis, HIV, schizophrenia, substance use disorders, and have higher rates of potentially disabling mental health and neurological/chronic pain conditions, obesity, and other liver conditions (nonhepatitis).

		6.7%), Other (TMBs 0.7%, CMBs 0.8%), Unknown (TMBs 1.2%, CMBs 1.4%)			
27.	Dunkle (2018) [69]	**Population:** LG older adults **N:** 31 **Age:** 54-80 (M = 65.5) **SO:** gay (48%) lesbian (51%) **Sex/gender:** male (48%), female (51%) **Race/ethnicity:** Non-Latino/White (87.1%), Asian (3.2%), missing (9.7%)	Focus groups	To analyze LG elders' knowledge about OAA-funded services, their attitudes towards the services, their experiences utilizing the services, how their current needs are met, and their plans for care as they age.	Four themes emerged: 1) low expectations that OAA-funded services or any services for older adults) would provide LGBT-welcoming environments; 2) the importance of being out in their lives and to service providers; 3) need for LGBT-specific services, being able to access welcoming service close to home; 4) creating inclusive services through the provider's responsibility, training, visibility, and tapping into existing LGBT networks.
28.	Dutton, Cimino, et al. (2022) [70]	**Population:** nurses **N:** 379 **Age:** 25 and older (20–25: 44.3%; 26–30: 31.6%; 31–35: 9.8%; 36–40: 6.4%; 41–45: 2.9%; 46–50: 3.2%; >51: 1.9%) **SO:** straight (94.2%), lesbian (0.3%), gay (1.1%), bisexual (2.4%), pansexual (0.8%), prefer not to say (1.3%) **Sex/gender:** female (89.4%), male (10.1%), self-describe (0.3%), prefer not to answer (0.3%) **Race/ethnicity:** not provided	Questionnaire, intervention	To increase nurses' understanding of LGBTQ older adult health disparities and experiences.	The use of a documentary as an intervention facilitated education related to LGBTQ older adults among nurses. In particular, findings revealed statistically significant increases in knowledge and inclusive attitude. Moreover, most participants would ask patients for preferred pronouns and take steps to increase their own understanding of LGBTQ patients and their needs.
29.	Emlet, Fredriksen-Goldsen, et al. (2013) [71]	**Population:** GB older adults with HIV **N:** 226 **Age:** 50–86 (M = 63.0%) **SO:** gay (92.9%), bisexual (6.2%), other (0.9%) **Sex/gender:** man (100%) **Race/ethnicity:** Non-Hispanic/ White (77.3%),	Survey	To identify risk and protective factors associated with mental and physical health-related quality of life among GB older men with HIV disease.	Among risk factors associated to poor physical and mental health-related quality of life, comorbidity, limitations in activities, and victimization were found significant, while social support and self-efficacy were protective factors for mental health-related quality of life, and self-efficacy for physical health-related quality of life.
30.	Emlet, Fredriksen-Goldsen, et al. (2017) [72]	**Population:** GB older adults with HIV and sexually active **N:** 135 **Age:** 56–86 (M = 62.36%) **SO:** gay (95.5%), bisexual (4.5%) **Sex/gender:** man (100%) **Race/ethnicity:** Non-Hispanic White (89%)	Survey	To explore the association between internalized sexual minority stigma and enacted sexual minority stigma in health care settings, and sexual health risk behaviors, with the mediating role of infrequent routine health care and perceived stress among GB older men sexually active living with HIV disease.	Internalized sexual minority stigma and enacted sexual minority stigma in health care settings were associated with sexual health risk behaviors, that were common in 1/5 of the sample. The relationship between internalized sexual minority stigma and sexual health risk behaviors was mediated by infrequent routine health care and elevated levels of perceived stress.

31.	Fredriksen Goldsen, Kim, et al. (2019) [73]	**Population:** LGBTQ+ older adults **N:** 200 **Age:** 80 and older (mean score not provided) **SO:** gay/lesbian (68.61%), other (31.39%) **Sex/gender:** man (66.53%), woman (29.11%), transgender (137) **Race/ethnicity:** Non-Hispanic Whites (84.75%), People of Color (15.25%)	Survey, in-depth interviews – Longitudinal study	To investigate the quality of life of LGBTQ+ adults aged 80 years and older.	LGBTQ+ older adults showed high levels of education and poverty. Quality of life were negatively predicted by microaggression and loneliness, while positively predicted by mastery. Physical impairment was influenced by identity stigma and mastery, while mental health by microaggression, mastery, loneliness, physical activity, and being people of color.
32.	Fredriksen-Goldsen, Bryan, et al. (2017) [74]	**Population:** LGBTQ+ older adults **N:** 2,450 **Age:** 50 and older (M = 61.41) **SO:** gay (40.02%), lesbian (30.25%), bisexual (17.17%) **Sex/gender:** woman (43.39%), transgender (16.79%), man, other (% not provided) **Race/ethnicity:** Non-Hispanic Whites (77.59%), Black (9.13%), Hispanic (8.99%), other (4.29%)	Survey – Longitudinal study	To investigate the historical and environmental context that frames life experiences and adaptation of LGBT elders.	Many LGBT older adults disclosed their identities in their 20s, endured job-related discrimination, and were in opposite-sex (than in same-sex) marriage. Four LGBT elders categories emerged: "Retired Survivors", who were the oldest; "Midlife Bloomers", who first disclosed their identity in mid-40s; "Beleaguered At-Risk", who experienced greater job-related discrimination and had few social resources; "Visibly Resourced", who had an elevated level of identity visibility and were socially and economically advantaged. QOL and mental and physical health rates differed significantly between the four groups; the Visibly Resourced were at lowest risk and Beleaguered At-Risk at highest risk, while Midlife Bloomers and Retired Survivors scored similarly in health and QOL.
33.	Fredriksen-Goldsen, Cook-Daniels, et al. (2014) [16]	**Population:** LGBTQ+ older adults **N:** 2,546 **Age:** 50 and older (M = 66.47) **SO:** not provided **Sex/gender:** transgender (174), non-transgender (2,372) **Race/ethnicity:** Non-Hispanic White (86.5%), Hispanic (4.4%), African American (3.5%), Native American (1.9%), API (1.6%), other (1.3%), multiracial (0.7%)	Survey	To explore the physical and mental health of transgender older adults as compared to non-transgenders, and to identify health-related risk factors in this population.	Transgender older adults are more likely to experience poor physical health, disability, depressive symptomatology, and perceived stress. Gender identity indirectly influenced health outcomes; this relationship is mediated by fear of accessing services, lack of physical activity, internalized stigma, victimization, lack of social support; obesity (only for physical health); disability and identity concealment (only for perceived stress); community belonging (only for depressive symptomatology and perceived stress). Victimization and stigma were the two risk factors that explained the highest proportion of the total effect of gender identity on health outcomes.
34.	Fredriksen-Goldsen, Emlet, et al. (2013) [17]	**Population:** LGB older adults **N:** 2,349 **Age:** 50 and older (M = 66.88) **SO:** gay men (59.6%), lesbian (31.6%), bisexual men (2.7%), bisexual women (2.4%) **Sex/gender:** man (1,520), woman (829)	Survey	To explore the effect of key health indicators and risk and protective factors on health outcomes among LGB older adults.	Lifetime victimization, financial barriers to health care, obesity, and low physical activity independently influenced general health, disability, and depression; internalized stigma also influenced disability and depression. Among the protective factors on health outcomes, social support and social network size were found significant, decreasing the odds of poor general health, disability, and depression. Results also reported some significant differences by gender and sexual orientation.

		Race/ethnicity: Non-Hispanic White (87.1%), African American, Hispanic, Asian, Pacific Islander, other (% not provided)				
35.	Fredriksen-Goldsen, Kim, et al. (2009) [75]	**Population:** chronically ill LGB older adults **N:** 36 **Age:** 50 and older (<50: 0%; 50–59: 80%; 60–69: 11.4%; >70: 8.6%) **SO:** gay/lesbian (66.7%), bisexual (33.3%) **Sex/gender:** male (58.3%), female (41.7%) **Race/ethnicity:** Caucasian (51.4%), African American (20%), Hispanic (8.6%), American Indian (2.9%), multiethnic (17.1%)	**Participants:** LGB elders' caregivers **N:** 36 **Age:** 18 and older (<50: 69.4%; 50–59: 19.5%; 60–69: 8.3%; >70: 2.8%) **SO:** gay/lesbian (60%), bisexual (17.1%), heterosexual (20%), other (2.9%) **Sex/gender:** male (69.4%), female (30.6%) **Race/ethnicity:** Caucasian (50%), African American (30.6%), Asian (2.8%), American Indian (2.8%), multiethnic (13.8%)	Interviews	To explore informal caregiving of chronically ill LGB older adults.	Discrimination and relationship quality influenced depression rates among chronically ill LGB older adults and their caregivers. The quality of the relationship moderates the impact of discrimination on depression in chronically ill LGB elders.
36.	Fredriksen-Goldsen, Kim, et al. (2010) [76]	**Population:** LGB older women **N:** 1,496 **Age:** 18 and older (18–29: 22.43% of lesbians, 48.61% of bisexuals; 30–49: 52.82% of lesbians, 39.51% of bisexuals; >50: 24.75% of lesbians, 11.88% of bisexuals) **SO:** lesbian (779), bisexual (717) **Sex/gender:** woman (100%) **Race/ethnicity:** Non-Hispanic White (83.10% of lesbians, 80.31% of bisexuals), other (% not provided)		Telephone interview survey	To examine the association between health-related quality of life and sexual orientation among LGB women, and to compare the predictors of health-related quality of life between the lesbians and bisexuals.	There was a significant association of frequent mental distress and poor general health with poverty and lack of exercise; lower levels of general health were also associated with obesity and mental distress. Bisexual women reported higher frequency of mental distress (especially among those who lived in urban areas) and lower general health compared to lesbians, while lesbians shown an elevated risk of low general health and mental distress during midlife. Older age was not a significant predictor.
37.	Fredriksen-Goldsen, Kim, et al. (2013) [12]	**Population:** LGB and heterosexual older adults **N:** 96,992 **Age:** 50-98 (heterosexual women: M=63.82; lesbian women: M=58.09; bisexual women: M=59.67; heterosexual men: M=62.35; gay men: M=59.26; bisexual men: M=60.22)		Survey	To explore health disparities among LGB older adults as compared to heterosexual peers.	LGB older adults were more likely to experience disability, poor mental health, and to smoke and drink excessively compared to heterosexuals. Lesbian and bisexual women experienced a greater risk of cardiovascular disease and obesity, while gay and bisexual men experienced a greater risk of poor physical health and living alone compared to heterosexuals. Lesbians rated higher in excessive drinking than did bisexual women, while bisexual men rated higher in diabetes and lower n being tested for HIV compared to gay men.

		SO: gay men (1.28%), lesbian (1.03%), bisexual woman (0.54%), bisexual man (0.51%), heterosexual (% not provided) **Sex/gender:** woman (58,319%), man (37,820%), not recorded (3.861%) **Race/ethnicity:** Non-Hispanic White (heterosexual women: 91.79%; lesbian women: 89.86%; bisexual women: 91.23%; heterosexual men: 90.40%; gay men: 92.85%; bisexual men: 94.18%), other (% not provided)			
38.	Fredriksen-Goldsen, Kim, et al. (2015) [77]	**Population:** LGB older adults **N:** 2,463 **Age:** 50 and older (50–64: n=1,078; 65–79: n=1,138; >80: n=247) **SO:** gay/lesbian (92.94%), bisexual (7.06%) **Sex/gender:** female (36.48%), transgender (4.12%), male (% not provided) **Race/ethnicity:** White (86.85%), Hispanic (4.25%), African American (3.43%), other (5.47%)	Survey	To explore how LGBT older adults maintain successful aging.	Physical and mental health-related QOL were associated, controlling for age and other covariates, with discrimination, chronic conditions, social support, social network size, physical and leisure activities, substance nonuse, employment, income, and being male. Mental health-related QOL was positively associated with positive sense of sexual identity and negatively associated with sexual identity disclosure. The influence of discrimination was particularly salient in the oldest age group.
39.	Fredriksen-Goldsen, Kim, et al. (2017) [78]	**Population:** LGBTQ+ older adults **N:** 2,415 **Age:** 50-98 (M = 61.45) **SO:** gay/lesbian (72.49%), bisexual (17.19%), other (10.32%) **Sex/gender:** male (50.76%), female (43.17%), other (6.06%); 16.06% of the total sample identified as transgender **Race/ethnicity:** Non-Hispanic White (78.05%), other (% not provided)	Survey	To explore pathways by which LGBTQ+ older adults experience resilience, risk, and marginalization and their relationship to attaining positive health outcomes.	There was a significant association between good mental health and better health behaviors, which in turn influenced physical health outcomes. Mental health was predicted by identity affirmation and social resources, which in turn were also influenced by identity affirmation. Marginalization predicted poor social resources for those with an open identity management style, scarce identity affirmation for those who strategically concealed their sexual identity, and low mental health.
40.	Fredriksen-Goldsen, Kim, et al. (2017) [13]	**Population:** LGB and heterosexual older adults **N:** 33,346 **Age:** 50 and older (heterosexual women: M=64.4; lesbian women: M=58.4; bisexual women: M=59.6; heterosexual men: M=63.3; gay men: M=60; bisexual men: M=63.9) **SO:** gay man (229), lesbian (197), bisexual woman (55), bisexual men (55), heterosexual (32,810)	Survey	To analyze disparities in chronic conditions and health indicators among LGB older adults.	LGB older adults reported a more weakened immune system, higher rates of low back or neck pain, disability, and mental distress compared to heterosexual peers. LGB older women reported greater level of arthritis, asthma, heart attack, stroke, and higher number of chronic conditions and poorer general health compared to heterosexual peers. LGB older men reported greater rates in having angina pectoris or cancer.

		Sex/gender: man (14,425), woman (18,921) **Race/ethnicity:** Non-Hispanic White (heterosexual women: 74%; lesbian women: 74.5%; bisexual women: 77%; heterosexual men: 75.3%; gay men: 84.2%; bisexual men: 78.5%), other (% not provided)			
41.	Fredriksen-Goldsen, Shiu, et al. (2017) [79]	**Population:** LGB older adults **N:** 2,463 **Age:** 50 and older (M = 66.73) **SO:** gay/lesbian (2,289), bisexual (174) **Sex/gender:** male (63.22%), female (36.18%), other (.61%) **Race/ethnicity:** White (86.85%), Person of color (13.15%)	Survey	To analyze what mechanisms, account for health disparities among lesbian/gay and bisexual elders.	Gay/lesbian older adults reported better health outcomes than bisexual peers. Bisexual identity was indirectly associated with poorer health via sexual identity factors, social resources, and socioeconomic status. A larger social network may serve as protective factor among bisexual older adults.
42.	Gabrielson (2011) [80]	**Population:** lesbian older adults **N:** 10 **Age:** 55 and older (55-60: n=2; 60-65: n=6; 65: n=2) **SO:** lesbian (100%) **Sex/gender:** woman (100%) **Race/ethnicity:** White (90%), African American (10%)	Interviews	To explore the role of life experiences, social ties, and expectations for aging on the decision to live in an LGBT continuous-care setting.	Older lesbians experienced negative experiences with homophobia and discrimination in different contexts such as family, workplace, and health care. They perceived support, comfort, and affirmation from their LGBT community, which informally gave health care and assistance. Participants provided care to family members but expressed not to be likely to receive assistance by their family as they age. They reported not to be satisfied about the currently available aging services due to homophobia and treatment disparities, reason why they decided to create an LGBT-specific retirement community.
43.	Gardner, de Vires, et al. (2014) [81]	**Population:** LGBT young, midlife and older adults **N:** 569 **Age:** 21 and older (<50: 18%; 50-59: 26%; 60-69: 36%; >70: 20%) **SO:** transgender MTF (0.2%), male, female (% not provided) **Sex/gender:** gay man (70.5%), lesbian woman (17.7%), straight woman (7.0%), bisexual man (2.4%), bisexual woman (1.1%), straight man (1.1%) **Race/ethnicity:** Caucasian (88.8%), Hispanic/Latina (3.9%), Asian Pacific Islander (2.8%), Native American (1.2%), African American (0.5%), other (2.8%)	Survey	To investigate the concerns about identity disclosure and comfort accessing social services.	Almost 1/3 of midlife and older LG participants fear to disclose their sexual orientation. LG older adults experience discomfort in their use of aging social services, despite the desire to feel more comfortable accessing LGBT-friendly services and programs. Lesbians expressed higher levels of fear and discomfort than gay men. LG elders may feel less comfortable accessing LGBT-identified services and programs than LGB younger adults. Three main concerns emerged, about the affordability of LGBT affirming elder housing, the recognition and respect of LGBT older persons, and the presence of LGBT-affirmative social services and medical care.

44.	Gendron, Maddux, et al. (2013) [82]	**Population:** healthcare professionals working with the aging population **N:** 199 **Age:** 20 and older (20–29: 17%; 30–39: 19%; 40–49: 25%; 50–59: 25%; >60: 13%) **SO:** not provided **Sex/gender:** female (83%), male (17%) **Race/ethnicity:** African American (48%), Caucasian (46%), Asian (3%) Latina (1%), other (3%)	Questionnaire, interviews, training – Longitudinal study	To assess the efficacy of a cultural competence training among healthcare professionals working with LGBTQ+ older adults.	Although participants were more knowledgeable and more culturally competent about LGBT issues after the training, their deep-seated beliefs about the LGBT population may not have changed. Participants also reported a need for more education and resources tools. For these reasons, some revisions to the curriculum have been made.
45.	Goldhammer, Krinsky, et al. (2019) [83]	**Population:** lesbian older woman **N:** 1 **Age:** 75 **SO:** lesbian **Sex/gender:** woman (1) **Race/ethnicity:** not provided	Case study	To illustrate factors contributing to health disparities and the ways in which medical providers can address these challenges.	A lifetime of discrimination and stigma may cause high levels of stress and isolation and can contribute to negative health behaviors and outcomes; at the same time, it can foster resilience.Medical staff and providers can support by creating welcoming environments and communicating safety and inclusion.
46.	Goldsen, Bryan, et al. (2017) [84]	**Population:** LGBT older adults **N:** 1,821 **Age:** 50 and older (legally married: M=61.82; unmarried partnered: M=62.38; single: M=63.98) **SO:** gay, lesbian, bisexual (% not provided) **Sex/gender:** man (1095), woman (726), transgender (% not provided) **Race/ethnicity:** not provided	Survey	To investigate the association between legal marriage and relationship status and health-promoting and at-risk factors, health, and quality of life of LGBT older adults.	About ¼ of participants were legally married or unmarried partnered, while ½ were single. Being legally married was associated to better quality of life and greater economic and social resources than being unmarried partnered, despite physical health indicators were similar between these two categories. Being single was associated to poorer health and fewer resources. Among women, those who were legally married were more likely to experience more LGBT microaggressions.
47.	Golub, Tommasilli, et al. (2010) [85]	**Population:** HIV-positive older adults **N:** 914 **Age:** 50-78 (50–54: n=472; 55-59: n=276; 60-64: n=109; >65: n=52) **SO:** gay/lesbian/bisexual (337), heterosexual (577) **Sex/gender:** male (640), female (264), transgender (10) **Race/ethnicity:** African American (455), Latina (299), White (116), other (44)	Survey	To analyze the prevalence and correlates of sexual behavior, sexual risk, and behavioral risk reduction strategies among HIV-positive individuals.	About 50% has been sexually active in the past 3 months, of which 1/3 reported unprotected anal or vaginal sex in that time period. Sexually active participants were mostly younger and male, without significant differences on physical health conditions. Among risk-management strategies, 49% of sexually active participants reported 100% condom use, 17% reported serosorting, and 4% strategic positioning. Strategies' prevalence differed by gender/sexual identity subgroups. Unprotected sex was associated with recent substance use and loneliness.
48.	Gonzales & Henning-Smith (2015) [86]	**Population:** older adults in same-sex (SS) and opposite-sex (OS) cohabiting relationships **N:** 256,585 **Age:** 50 and older (50-64: 79.7% of men with SSR, 60.8% of married men with OSR, 75.8% of unmarried	Survey	To compare indicators of impaired health and disability between older adults in same-sex cohabiting relationships and	Older men in same-sex relationships reporter higher psychological distress compared to those in opposite-sex relationship. Older women in same-sex relationships shown poor health, needing help with activities of daily living and instrumental activities of daily living, functional limitations, and psychological distress.

		men with OSR; 85.9% of women with SSR, 65.3% of married women with OSR, 74.9% of unmarried women with OSR; 65-74: 12.8% of men with SSR, 24% of married men with OSR, 16.8% of unmarried men with OSR; 10.2% of women with SSR, 23% of married women with OSR, 14.9% of unmarried women with OSR; >75: 7.5% of men with SSR, 15.2% of married men with OSR, 7.5% of unmarried men with OSR; 4% of women with SSR, 11.7% of married women with OSR, 5.8% of unmarried women with OSR) **SO:** not provided **Sex/gender:** man (132,539), woman (124,046) **Race/ethnicity:** White (men with SSR: 87.3%; married men with OSR: 82.3%; unmarried men with OSR: 74.1%; women with SSR: 86.8%; married women with OSR: 83.4%; unmarried women with OSR: 76.8%), Black (men with SSR: 4.4%; married men with OSR: 6.8%; unmarried men with OSR: 14.6%; women with SSR: 7%; married women with OSR: 6.1%; unmarried women with OSR: 11.4%), Hispanic (men with SSR: 5.7%; married men with OSR: 7%; unmarried men with OSR: 8.9%; women with SSR: 3.8%; married women with OSR: 6.5%; unmarried women with OSR: 8.7%), multiracial/other (men with SSR: 2.7%; married men with OSR: 3.9%; unmarried men with OSR: 2.4%; women with SSR: 2.4%; married women with OSR: 4%; unmarried women with OSR: 3.1%)		those in opposite-sex cohabiting relationships.	
49.	Green & Wheeler (2019) [87]	**Population:** gay older men **N:** 10 **Age**: 40-85 (M = 58.3) **SO:** gay (100%) **Sex/gender:** man (100%) **Race/ethnicity:** African American (6), Caucasian/White (4)	Semi-structured interview	To investigate factors facilitating health service use by midlife and older gay men living with HIV.	Among the factors facilitating health service use, three main themes emerged: (1) the need for services in the form of HIV management; (2) predisposing factors of age and the development of resilience in the face of stigma due to sexual identity and health conditions; (3) empowering the relationship with medical providers (comfort with medical providers, providers knowledgeable in LGBTQ+ issues, and sexual concordant providers).
50.	Grossman, D'Augelli, &	**Population:** LGB midlife and older adults **N:** 199	Survey	To analyze caregiving, care receiving, and the willingness to	Less than 2/3 has received care by health-care providers in the last five years, while more than 2/3 assisted other LGB adults. Caregivers were more likely

	Dragowski (2007) [88]	**Age:** 40-85 (M = 60.2) **SO:** gay/lesbian (91%), bisexual (9%) **Sex/gender:** male (58%), female (42%) **Race/ethnicity:** Caucasian/White (82%), African American (7%), Hispanic (4%), multiracial/other (7%)		provide caregiving among LGB midlife and older adults.	than non-caregivers to provide care in the future. Gender, sexual orientation, education level, and style of coping of future care recipients influenced the willingness to provide care. The experience to provide care was perceived as less burdensome and more personally rewarding by who was willing to provide it than who was not.
51.	Hardacker, Rubinstein, e al. (2014) [89]	**Population:** medical providers **N:** 848 **Participants demographics by module (from 1 to 6):** **Age:** 50 and older **SO:** not provided **Sex/gender:** male (17.1 to 20.6 % depending oi ag range), female (75.7 to 81.9%), 1.5 to 2.7%, of the total sample identified as transgender **Race/ethnicity:** White (40%), African American (25%), Asian (25%), Hispanic/Latina (9%)	Questionnaire, training – Longitudinal study	To test the Health Education about LGBT Elders (HEALE) curriculum designed for medical providers.	After the training, participants showed higher levels of knowledge in each of the six HEALE modules both in nursing home/home health-care settings and in hospital/educational settings; those in nursing home/home health care settings showed lower pre-test scores and greater knowledge in each of the six modules during the post-test compared to participants in hospital/educational settings.
52.	Hash & Netting (2007) [90]	**Population:** LG older adults **N:** 19 **Age:** 50-77 (M = 60) **SO:** gay (10), lesbian (9) **Sex/gender:** male (10), female (9) **Race/ethnicity:** Caucasian (17), Hispanic (1), African American (1)	In-depth, semi-structured interview	To investigate long-term planning and decision-making among LG older adults.	The majority of participants reported not to have advance directives for themselves, but that their partners did, and served as the executors of their partners' wills. They reported concerns about informal family dynamics, interactions with formal systems, and financial and ownership issues. The need of LGBT-friendly communities and services has been expressed.
53.	Hash & Netting (2009) [91]	**Population:** lesbian older adults **N:** 2 **Age:** 69, 77 **SO:** lesbian (1) **Sex/gender:** female (1) **Race/ethnicity:** Caucasian, African American	Case study	To describe the development of informal care networks among lesbian older adults.	Despite very different background and lifetime experiences, both the participants made big efforts to meet the social and care needs of members of their communities. Both faced many challenges, such as caregiving for partners, death of loved ones, widowhood, potential isolation, concern about formal resources, and the need for support and care. The two women employed different strategies to seek support and care (creating a network when there was none available or a community in which lesbian older adults were able to find a welcoming and supporting environment).
54.	Hash (2006) [92]	**Population:** LG older adults **N:** 19 **Age:** 50-77 (M = 60) **SO:** gay (10), lesbian (9) **Sex/gender:** male (10), female (9)	In-depth interview	To explore the experiences LG caregivers of chronically ill, same-sex partners, and their experiences in "post-caregiving".	Caregiving experience included difficulties managing both caregiving and employment responsibilities, physical and emotional strains, and strains due to medications, treatments, the management of doctor's appointments, and the increased dependence by the partner. After the loss of the caregiving role, participants experienced loneliness, emotional distress, and depression. Participants reported their caregiving and post-caregiving experience has

	Race/ethnicity: Caucasian (17), Hispanic (1), African American (1)			benne influenced by the formal and informal received support; they often faced with family, friends, or coworkers who did not accept their relationship, and with covertly expressed homophobic attitudes by medical providers.
55. Henning-Smith, Gonzales, et al. (2015) [93]	**Population:** LGB and heterosexual midlife and older adults **N:** 13,417 **Age**: 40-65 (M = 52.8) **SO:** gay/lesbian/bisexual (297), heterosexual (13,120) **Sex/gender:** female (52%) **Race/ethnicity:** White (71%), African American (13%), Hispanic (11%), Asian/other (5%)	Survey	To investigate whether and how LGB midlife and older adults differ from heterosexual adults in LTC expectations.	LGB participants had greater expectations of needing LTC in the future compared to heterosexual peers. After controlling for sociodemographic and health differences, LGB participants expected less care from family and expressed more expectations about needing to use institutional care in old age.
56. Hiedemann & Brodoff (2013) [94]	**Population:** LGB and heterosexual couples **N:** 449,438 **Age:** 60 and older (married men: M=69.3; men with female partner: M=66.2; men with male partner: M=65.7; married women: M=66; women with male partner: M=62.3; women with female partner: M=67) **SO:** lesbian/gay/bisexual, heterosexual (% not provided) **Sex/gender:** man (224,799), woman (224,639) **Race/ethnicity:** Black (married men: 5.4%; men with female partner: 9.7%; men with male partner: 5.1%; married women: 5.2%; women with male partner: 8.9%; women with female partner: 6.4%), Asian (married men: 2.8%; men with female partner: 1.2%; men with male partner: 2.7%; married women: 3.4%; women with male partner: 2.2%; women with female partner: 2.5%), Hispanic (married men: 5.4%; men with female partner: 7.9%; men with male partner: 5.2%; married women: 5.7%; women with male partner: 7.9%; women with female partner: 5.4%)	Survey	To explore the relationship between LTC needs and sexual orientation of the clients.	LGB older adults face greater risks of needing LTC than heterosexuals, but with gender differences. Controlling for age, race/ethnicity, and education, older women in a same-sex relationship were more likely to have difficulty dressing or bathing than heterosexuals; older men in a same-sex relationship were more likely to need assistance with errands than heterosexual peers.
57. Hinrichs & Vacha-Haase (2010) [95]	**Population:** LTC staff members **N:** 218 **Age:** 18 and older (M = 35.27) **SO:** lesbian/gay/bisexual, heterosexual (% not provided) **Sex/gender:** female (178), male (30), missing (10)	Survey, vignettes, 30- to 45-minute in-service training about aging and sexuality	To explore differences in staff members' reactions to vignettes in which LGBT and heterosexual resident sexual contact was observed.	Participants rated male-male and female-female couples more negatively comparted to heterosexual pairings. Despite knowledge about older adult sexuality influenced staff ratings, LTC staff attitudes were directly associated to their reaction to couples' intimacy and level of acceptability of same-gender sexuality.

		Race/ethnicity: Non-Hispanic White (78%), Hispanic/Mexican American (11%), other (% not provided)			
58.	Hoy-Ellis & Fredriksen-Goldsen (2016) [96]	**Population:** LGB older adults **N:** 2,349 **Age:** 50 and older (M = 66.9) **SO:** lesbian/gay (94.6%), bisexual (5.4%) **Sex/gender:** man (64.6), woman (35.4) **Race/ethnicity:** Non-Hispanic White (87%), Hispanic/non-Hispanic non-White (13%)	Survey	To examine the relationship between minority stressors disclosure of sexual orientation, internalized heterosexism, chronic physical health status, and depression.	Disclosure of sexual orientation was indirectly associated with chronic physical health status and depression. This relationship was mediated by internalized heterosexism, which in turn was directly associated with chronic physical health status and depression, while indirectly associated with depression with the mediation of chronic physical health status. Chronic physical health status was associated to depression controlling for other predictor variables.
59.	Hughes, Harold, et al. (2011) [97]	**Population:** medical providers **N:** 87 **Age:** 24-71 (M = 46.1) **SO:** heterosexual (92%), lesbian/gay (1.1%), bisexual (1.1%) **Sex/gender:** male (88.5%), female (10.3%) **Race/ethnicity:** Non-Hispanic White (79.3%), African American (13.8%), Hispanic/Latina (2.3%), other (2.3%)	Survey	To explore the experience of working with LGBTQ+ older adults by care providers and administrators.	Medical providers reported there were few services specific to the needs of LGBTQ+ older adults and very little outreach to the LGBTQ+ community. At the agency level, there was resistance to providing services tailored on the LGBTQ+ population.
60.	Jackson, Johnson, et al. (2008) [98]	**Population:** LGBT and heterosexual younger, midlife, and older adults **N:** 317 **Age:** 15-90 (M = 36) **SO:** lesbian (61), gay male (58), bisexual (9), heterosexual male (49), heterosexual female (138) **Sex/gender:** male (196), female (121); 2 identified as transgender **Race/ethnicity:** White (90%), other (% not provided)	Survey	To explore the potential impact of fears of discrimination against LGBT individuals in long-term health care settings as compared to heterosexuals.	Overall, the suspect that staff and residents of care facilities discriminated against LGBT individuals was reported. LGBT participants who believed that residents of care facilities were victims of discrimination were more likely not to disclose their sexual orientation to health providers. They also believed that LGBT individuals did not have equal access to health care and social services, that LGBT residents of care facilities are victims of discrimination, that LGBT competency and sensitivity trainings for the medical staff were needed, and that LGBT retirement facilities would have been a positive useful.
61.	Jenkins Morales, King, et al. (2014) [99]	**Population:** LGBT older adults **N:** 151 **Age:** 50-79 (M=59.2) **SO:** gay (49%), lesbian (36.4%), bisexual (7.3%), multiple labels (7.3%) **Sex/gender:** male (47.7%), female (45.7%), MTF (3.3%), FTM (0.6%)	Survey	To investigate differences and similarities between LGBT Baby Boomers and individuals of the Silent generation in relation to perceived barriers in accessing services, identity disclosure, violence and victimization, and mental health.	Baby Boomers experienced more barriers to health care and legal services and more past verbal harassment, have fewer legal documents in place, and feel less safe in their communities, compared to members of the Silent generation. They also had higher levels of LGBT identity disclosure across their lifetime.

		Race/ethnicity: Caucasian (91.3%), multiracial (2.7%), American Indian (2%), other (2%), African American (1.3%), Asian (0.7%)			
62.	Jihanian (2013) [100]	**Population:** LGT older adults **N:** 7 **Age:** 61-79 (mean score not provided) **SO:** gay (6), lesbian (1) **Sex/gender:** man (5), woman (1), transgender (1) **Race/ethnicity:** Caucasian (100%)	In-depth interview, focus group	To explore what does it mean for LTC providers to be responsive to LGBT elders.	16 clusters of LTC provider responsiveness to LGBT elders emerged: knowledge of centrality of partners, of importance of preferred gender expression, about HIV/AIDS, of implications of societal reactions to LGBT identities, of the impact of religion, of language, and of diversity among LGBT older adults, awareness of centrality of partners, openness to welcoming and serving LGBT older adults, non-stigmatizing attitudes toward HIV-positive LGBT older adults, unconditional caring, ability to demonstrate openness in images and to create a safe environment for LGBT older adults, and skill in tailoring general service provision to be inclusive.
63.	Jung, Kim, et al. (2023) [101]	**Population:** LGBTQ+ older adults **N:** 2,450 **Age:** 50 and older (M = 61.3) **SO:** lesbian/gay (72.3%), bisexual (17.3%), sexually diverse (10.4%) **Sex/gender:** woman (43%), man (51%), gender diverse (6%), transgender (17%) **Race/ethnicity:** People of color (22.8%)	Survey	To identify latent classes of the behavior and barrier patterns; to explore predictors of the class membership; to examine differences in physical and psychological HRQOL by the specified latent classes.	Four classes were identified: (C1) healthy behaviors and minimal barriers; (C2) less healthy behaviors and high barriers; (C3) healthy behaviors and healthcare system barriers; (C4) optimal health behaviors with risks of limited healthcare access. Compared to C1, C2 and C3 had poorer physical HRQOL and C2 also had poorer psychological HRQOL. C4 did not differ in HRQOL from C1. C2 was associated with higher day-to-day discrimination, poorer mastery, and poorer social support.
64.	Kim, Jen, et al. (2017) [102]	**Population:** LGBT older adults **N:** 2,450 **Age:** 50-98 (M = 62.2) **SO:** gay/lesbian (86%), bisexual (8.9%) **Sex/gender:** male (56.7%), transgender (8.4%) **Race/ethnicity:** Non-Hispanic White (1,902), African American (218), Hispanic (168)	Survey	To examine racial/ethnic differences in the health and quality of life of LGBT older adults.	African Americans and Hispanics, compared with non-Hispanic White peers, reported poorer physical HRQOL but similar levels of psychological HRQOL, and lower income, educational attainment, identity affirmation, and social support, that were associated with lower physical and psychological HRQOL. They also reported higher spirituality, which was associated with greater psychological HRQOL. African Americans reported higher discrimination due to sexual orientation, which was related to poorer physical and psychological HRQOL.
65.	Knochel, Quam, et al. (2011) [103]	**Population:** MAAA's executive director **N:** 154 **Age:** not provided **SO:** not provided **Sex/gender:** not provided **Race/ethnicity:** not provided	Survey	To investigate providers' beliefs, preparation, and experience with serving LGBT older adults.	Few agencies offered services tailored on LGBT older adults, and some did not want to consider their unique needs. Agencies generally recognized the need for greater knowledge and specific training for staff about LGBT issues. Some divergences emerged about separating or not services for LGBT older adults. Values of care, inclusiveness, sensitivity, respect, and provision of service to everyone were expressed.
66.	Lambrou, Gleason, et al. (2022) [104]	**Population:** TNB and LGBTQ+ cisgender older adults **N:** 115 **Age:** TNB: 50–76 (M = 58.2); LGBTQ+ cisgender: 50–82	Survey	To explore psychosocial factors associated with subjective	Nearly 16% of TNB older adults reported poor/fair memory, and 17% that their memory was worse than a year ago. Compared with other participants, TNB

		(M = 59.7) **SO:** another sexual orientation (25.4%), asexual (23.4%), bisexual (39.1%), gay (78.9%), lesbian (56.4%), pansexual (19%), straight/heterosexual (9.9%), queer (35.8%) **Sex/gender:** TNB: another gender identity (12.2%), genderqueer/nonbinary (34.8%), man (19.1%), transgender man (45.2%), transgender woman (20%); LGBTQ+ cisgender: man (63.5%), woman (36.5%); TNB: female (40%), male (59.6%); LGBTQ+ cisgender: female (36.5%), male (63.5%) **Race/ethnicity:** TNB: American Indian/ Alaska Native (6.1%), another race/ethnicity (3.5%), Asian (1.7%), Black/ African American (3.5%), Latino (7.3%), Person of color (16.5%), White (89.6%); LGBTQ+ cisgender: American Indian/ Alaska Native (2.5%), another race/ethnicity (2%), Asian (1.5%), Black/ Africa American (2%), Latino (6.3%), Person of color (12.7%), White (89%)		cognitive decline (SCD) in a sample of TNB older adults.	participants with SCD were more likely to report experiencing discrimination in medical settings. TNB participants who reported discrimination in medical settings had 4.5 times greater odds of worsening memory compared with those who did not, and 7.5 times more likely to report poor/fair memory.
67.	Landers, Mimiaga, et al. (2010) [105]	**Population:** aging agencies managers and executive directors **N:** 34 **Age:** not provided **SO:** not provided **Sex/gender:** not provided **Race/ethnicity:** not provided	Focus group, interview with both open- and closed-ended questions	To test the "Open Door Project (ODP)", a program created by the LGBT Aging Project.	After completing the program, agencies put more effort in making structural changes by defining inclusive diversity and personnel policies, intaking forms to be LGBT-friendly, implementing staff's training about LGBT issues, and involving leadership (e.g., senior managers, executive directors, vendors, and Councils on Aging) to create and sustain organizational change. The ODP is an effective model to increase cultural competence among agencies working with aging LGBT communities.
68.	LaVaccare, Diamant, et al. (2018) [106]	**Population:** lesbian or bisexual older women **N:** 35 **Age:** 18 and older (18-29: 22.86%; 30-39: 20%; 40-49: 8.57%; 50-59: 5.71%; 60-64: 2.86%; >65: 40%) **SO:** lesbian (80%), bisexual (20%) **Sex/gender:** woman (100%) **Race/ethnicity:** Caucasian (31.42%), African American (20%), Asian Pacific Islander (20%), Latina (22.8%), Nonrace (2.86%), other (2.86%)	Focus groups	To investigate the healthcare experiences of older lesbian or bisexual women, who are also veterans and women of color.	Concerns that providers often hold to heterosexual cultural norms were reported, and lesbians aged 65 and older referred legal barriers as major concerns. Participants largely agreed that incorrect provider assumptions about sexual orientation and sexual practices frequently compromised their care. They also suggested the idea of certification for providers skilled in LGBTQ health, despite some skepticism that such programs might result in better care.
69.	Lee & Quam (2013) [107]	**Population:** LGBT and heterosexual midlife and older adults living in rural and urban areas **N:** 1,201	Survey	To investigate geographic differences with respect to self-reported outness, acceptance of	Participants from rural areas reported lower household income and lower outness, guardedness with people including friends, siblings, neighbors, coworkers, and religious community members. Participants living in urban

		Age: 45–64 (rural: M=54.56; urban: M=53.31) **SO:** bisexual (rural: 37.5%; urban: 13.1%), gay (rural: 31.8%; urban: 61.7%), lesbian (rural: 31.4%; urban: 25%), heterosexual (rural: 4%; urban: 0.2%) **Sex/gender:** male (rural: 53.8%; urban: 68.6%), female (rural: 46.2%; urban: 31.4%), 10.1% of rural and 2.3% of urban identified as transgender **Race/ethnicity:** White (rural: 78.6%; urban: 67.2%), African American/Black (rural: 8.3%; urban: 14.8%), Hispanic (rural: 6.1%; urban: 13.1%), other (rural: 6%; urban: 4.9%)		sexual identity, social and familial support, and household among LGBT and heterosexual midlife and older adults.	scored higher in importance of their LGBT identity. Among the two groups, there were no significant differences in guardedness toward the sexual identity among parents, bosses/supervisors, and health care providers.
70.	Masini & Barrett (2008) [108]	**Population:** LGB older adults **N:** 220 **Age:** 50-79 (M = 57) **SO:** gay (137), lesbian (71), bisexual (12) **Sex/gender:** male (64%), female (36%) **Race/ethnicity:** Caucasian (90%), not recorded (10%)	Survey	To examine the relationship between social support and LGB older adults' psychological adjustment, health and quality of life.	Support from friends (rather than from family) predicted greater mental quality of life and lower depression, anxiety, and internalized homophobia. Participants reported to be exposed to health risks due to alcohol consumption and obesity (in women).
71.	McCabe, Hughes, et al. (2009) [14]	**Population:** LGBT and heterosexual young, midlife, and older adults **N:** 34,653 **Age:** 20 and older (mean score not provided) **SO:** bisexual/gay/lesbian (2%), heterosexual (98%) **Sex/gender:** female (52%), male (% not provided) **Race/ethnicity:** White (71%), African American/Black (11%), Hispanic (12%), Asian (4%), Native American (2%)	Structured diagnostic face-to-face interview	To assess past-year prevalence rates of substance use and substance dependence across three dimensions of sexual orientation (identity, attraction and behavior).	About 2% of the sample self-identified as lesbian, gay or bisexual, 4% reported at least one life-time same-sex sexual partner, and 6% reported same-sex sexual attraction. The majority of LGBT participants did not report substance use or meet criteria for DSM-IV substance dependence. Variations in substance use outcomes across sexual orientation dimensions emerged, being more pronounced among women.
72.	McKay, Akrè, et al. (2022) [109]	**Population:** midlife and older bisexual and gay men **N:** 633 **Age:** 50-76 (M = 59.4) **SO:** bisexual (% not provided), gay (% not provided) **Sex/gender:** man assigned male at birth (100%) **Race/ethnicity:** White (559), Black (38), Other/ Multiracial (36)	Survey	To explore whether having an LGBTQ affirming healthcare provider increases U = U awareness, belief, and understanding among midlife and older GB men in the US south.	Only one in four participants reported prior awareness of U = U. Awareness was greater among those who have an LGBTQ affirming provider. In particular, among HIV negative men, those with an LGBTQ affirming provider were more likely to believe and understand U = U, have more accurate risk perception, and have ever tested for HIV.
73.	McKay, Tran, et al. (2023) [110]	**Population:** LGBTQ older adults **N:** 1,256 **Age: 50-76** (mean not provided)	Survey	To investigate whether access to an affirming provider improves health outcomes for LGBTQ	Access to an affirming provider was associated with better uptake of preventive health screenings and greater management of mental health conditions. LGBTQ older adults with an affirming provider were more likely

		SO: bisexual (10.6%), gay/lesbian (86.4%), not lesbian/gay/bisexual (2.9%) **Sex/gender:** cisgender man (55.1%), cisgender woman (37.9%), transgender woman (2.8%), transgender man (2.1%), transgender/ nonbinary/ gender nonconforming (2.1%) **Race/ethnicity:** White (86.9%), Black (7.4%), Asian/ Hispanic/ multiracial/ other (5.7%)		older adults across a range of preventive health and chronic disease management outcomes.	to have ever and recently received several types of preventive care than those reporting a usual source of care that is not affirming (e.g., past year provider visit, influenza vaccination, colorectal cancer screening, HIV test). visit, influenza vaccination, colorectal cancer screening, and HIV test. Access to an affirming provider is also associated with better management of mental health conditions
74.	Meyer & Johnston (2014) [111]	**Population:** aging services providers **N:** 2,400 **Age:** not provided **SO:** not provided **Sex/gender:** not provided **Race/ethnicity:** not provided	Questionnaire, training – Longitudinal study with follow-up	To test the efficacy of the "Improving the Quality of Services and Supports Offered to LGBT Older Adults" training on aging services providers.	Although participants were well informed about serving LGBT older adults during the pre-test, after the training their knowledge and attitudes still increased. The "Improving the Quality of Services and Supports Offered to LGBT Older Adults" training is effective to increase cultural competence and positive attitudes among services providers working with LGBT older adults.
75.	Miller, Biskupiak, et al. (2019) [112]	**Population:** LGBTQ young, midlife, and older adults **N:** 313 **Age:** 18-75 (gay/lesbian: M=36.91; bisexual/queer: M=31.38) **SO:** gay/lesbian (184), bisexual/queer (129) **Sex/gender:** female (155), male (130), genderqueer (28) **Race/ethnicity:** African American/Black (gay/lesbian: 9.8%; bisexual/queer: 8.5%), Non-Hispanic White (gay/lesbian: 66.8%; bisexual/queer: 69%), Hispanic (gay/lesbian: 10.3%; bisexual/queer: 14%), other (gay/lesbian: 13%; bisexual/queer: 8.5%)	Survey	To understand whether deaf LGBTQ individuals' patient centered communication and level of comfort in sharing health information in the presence of an interpreter are associated to sexual orientation disclosure to providers.	Among cisgender participants, women were less likely to disclose their LGBTQ identities to healthcare providers compared with men, controlling for sociodemographic and patient-related variables. Those who were accepted as LGBTQ by loved ones and shown greater perceived patient centered communication were more likely to disclose with providers. The presence of an ASL interpreter had no influence on preventing or promoting the deaf LGBTQ patients' decision to share health information with healthcare providers.
76.	Moone, Cagle, et al. (2014) [113]	**Population:** aging-related services providers **N:** 184 **Age:** not provided **SO:** not provided **Sex/gender:** not provided **Race/ethnicity:** not provided	Survey	To investigate format and duration of cultural competency trainings about LGBT issues provided by aging-related services to their staff.	90% of the sample were interested in participating in LGBT cultural competency training. Agencies that did not provide LGBT training were more likely not to serve LGB older adults. Participants reported to prefer training with shorter duration and online formats.
77.	Muraco & Fredriksen-Goldsen (2011) [114]	**Population:** LGB older care recipients **N:** 18 **Age:** 50 and older (M = 55.17) **Participants:** caregivers of LGB older adults **N:** 18 **Age:** 18 and older (M = 46.22)	Interview	To explore friendship wherein a caregiver provides care to a LGB older adult friend in need of assistance due to chronic	Both care recipients and caregivers suffered from one or more health conditions. Care recipients suffered from arthritis, high blood pressure, HIV/AIDS, diabetes, Alzheimer's disease (two participants); ¾ of the caregivers suffered from depression, bipolar disorder, or schizophrenia, HIV/AIDS, arthritis, high blood pressure. Both the care recipient and the

		SO: gay/lesbian (55.56%), bisexual (44.44%) **Sex/gender:** male (61.11%), female (38.89%) **Race/ethnicity:** Caucasian (50%), African American (33.3%), other (16.67%)	**SO:** gay/lesbian (44.44%), bisexual (22.22%), heterosexual (33.33%) **Sex/gender:** male (72.22%), female (27.78%) **Race/ethnicity:** African American (38.89%), Caucasian (33.33%), other (27.78%)		physical or mental health conditions.	caregiver obtained benefits from their relationship, despite it was altered and challenged by the giving/receiving assistance. Most of dyads consider their friendships to be a familial connection and referred to families of choice. Friends reported differential levels of commitment and responsibility in giving care.
78.	Muraco & Fredriksen-Goldsen (2014) [115]	**Population:** LGB older care recipients **N:** 36 **Age:** 50 and older (50-59: 74%; 60-69: 17%; >70: 9%) **SO:** gay/lesbian (67%), bisexual (33%) **Sex/gender:** male/male partnership (50%), female/female partnership (33%), male/female partnership (16%); male/male friendship (50%), female/female friendship (44%), male/female friendship (22%) **Race/ethnicity:** Caucasian (51%), African American (20%), multiethnic (17%), Latina (9%), Native American (3%)	**Participants:** caregivers of LGB older adults **N:** 36 **Age:** 18 and older (<50: 69%; 50-59: 17%; 60-69: 8%; >70: 6%) **SO:** gay/lesbian (63%), heterosexual (20%), bisexual (17%) **Sex/gender:** male/male partnership (50%), female/female partnership (33%), male/female partnership (16%); male/male friendship (50%), female/female friendship (44%), male/female friendship (22%) **Race/ethnicity:** Caucasian (50%), African American (31%), multiethnic (13%), Asian (3%), Native American (3%)	Interview	To explore informal caregivers' and LGB care recipients' best and worst experiences of care within their relationship.	Many care recipients had a mental health condition (66.6%), arthritis (44.0%), high blood pressure (37.5%), and diabetes (31.5%). Almost 2/5 of caregivers provided care at least 20h per week. The relationship context affected caregivers' and LGB care recipients' best and worst experiences of care within their relationship. Partnered care recipients described positive experiences including expressions of love and commitment from their caregivers, and the majority did not report worst experiences. Focus on the relationship and needs was more likely to meet at bests, while conflict and fear of worsening health as worsts.

79.	Nowaskie & Sewell (2022) [116]	**Population:** dementia care providers **N:** 105 **Age:** age range not provided (M = 44.32) **SO:** bisexual (4.8%), gay (8.6%), heterosexual (83.8%), lesbian (1.9%), queer (1%) **Sex/gender:** Cisgender man (36.2%), Cisgender woman (51.4%), Non-binary (1.0%), Other (11.4%) **Race/ethnicity:** Race: Asian/ Asian American (7.6%), Black/ African American (1.9%), White (87.6%), Other (2.9%); Ethnicity: Hispanic/ Latino (6.7%), Not Hispanic/ Not Latino (93.3%)	Survey	To investigate LGBT cultural competency among dementia care providers.	Dementia care providers reported very high affirming, moderate knowledge, and moderate clinical preparedness. Compared to medical students (previously published data), they reported significantly poorer knowledge. Compared to psychiatry residents, no statistically significant differences were found.
80.	Orel (2014) [117]	**Population:** LGB older adults **N:** 26 **Age:** 65-84 (M = 72.3) **SO:** gay men (10), lesbian (13), bisexual women (3) **Sex/gender:** man (10), woman (16), transgender (0) **Race/ethnicity:** African Americans (6), European Americans (17), Asian Americans (1), Latino/Latinas (2)	Focus groups	To investigate needs, concerns, and issues affecting LGB older adults.	Seven main themes emerged regarding the experiences, perspectives, attitudes, and opinions from participants: (1) medical/health care needs and related concerns due to rising health care costs, financial constraints in seeking medical care, and failing health; (2) legal issues and the related frustration about the lack of legal protection; (3) institutional/housing issues regarding both ageism and heterosexism; (4) spiritual issues, and the hope for "things will get better"; (5) family issues, related to the willingness to disclose their sexual orientation; (6) mental health issues related to lifetime victimization; (7) social issues, regarding the challenge to maintain supportive relationships as they age.
81.	Peak, Gast, et al. (2021) [118]	**Population:** same-sex married male couples **N:** 10 **Age:** 43-69 (M = 57) **SO:** gay (100%) **Sex/gender:** male (100%) **Race/ethnicity:** White (8), African American/Pacific Islander (1), Latina (1)	Semi-structured interview	To investigate caregiving experiences of gay married individuals and health behavior work with their partner.	Three main themes emerged: the health benefits of marriage, the elements that constitute caregiving and health care work in marriage, and the impact of caring for an ill or injured spouse on the marital relationship.
82.	Pelts & Galambos (2017) [119]	**Population:** LTC staff **N:** 60 **Age:** 18 and older (M = 36) **SO:** not provided **Sex/gender:** female (81%), male (19%) **Race/ethnicity:** Non-Hispanic White (47.2%), Non-Hispanic Black (28.2%), Hispanic (19.7%), other (4.9%)	Survey, group discussion, training through storytelling – Longitudinal study	To examine the use of storytelling as a training mechanism on LGBT issues.	Storytelling positively influenced LTC staff's attitudes toward LG. Four main themes emerged: making meaning of stories, seeking understanding, application to LTC setting, and debating. Along these four themes, qualitative analysis revealed 90 codes and 13 process codes. Storytelling was effective in decreasing negative attitudes toward LG older adults among LTC staff.

83.	Perone, Ingersoll-Dayton, et al. (2020) [120]	**Population:** couples of LGBTQ+ elders and LGBTQ+ volunteer callers **N:** 21 **Age:** 18-78 (M = 52) **SO:** lesbian (45%), gay (25%), bisexual (20%), queer (5%), heterosexual (5%) **Sex/gender:** transgender/gender nonbinary (23.8%) **Race/ethnicity:** African American (38.1%)	Survey, semi-structured interview, 12-months program – Longitudinal study	To evaluate a program connecting LGBTQ+ elders to LGBTQ+ volunteer callers of various ages.	While the project was focused on two groups, a third group emerged: LGBTQ+ older adults at risk of social isolation, especially among the "Volunteer" callers. Some structural barriers required the program to adapt to best meet participant needs. The importance of LGBTQ+ community in addressing social isolation and loneliness was recognized by most of the participants. Intergenerational matches emerged as a strength for making connections.
84.	Pettinato (2008) [121]	**Population:** lesbian midlife and older women **N:** 13 **Age:** 43-62 (M = 49) **SO:** lesbian (100%) **Sex/gender:** woman (100%) **Race/ethnicity:** Caucasian (10), multiracial (3)	Interview	To explore the life experience of the misuse of alcohol; to develop a substantive theory regarding this issue based on the GTM.	The core category was represented by the process of "Disconnecting from their Authentic Selves." Six major sub-themes emerged: getting married, having children, disassociating, demoralizing, emotional blacking out, living a lie, drinking to keep the closet door shut, drinking to keep the closet door open. Among the causes of disconnection, participants reported lesbian identity, effect of alcohol use, and family of origin/childhood issues.
85.	Pierce (2022) [122]	**Population:** lesbian and gay older adults **N:** 23 **Age:** 60-87 (M = 71) **SO:** lesbian (6), gay (17) **Sex/gender:** woman (6), man (17) **Race/ethnicity:** White (22), Black (1)	In-depth interview	To explore how a localized group of white, college educated, and economically privileged LG older adults conceptualize their approach to healthcare.	Participants reported many worries about interacting with the medical community (e.g., apprehension about discrimination from providers and professional caregivers, fear of facing stigma from medical providers). In response to these concerns, they leveraged resources in three main ways: (a) finding gay-friendly primary care physicians; (b) drawing on their financial assets and homeownership to age at home as long as possible; (c) surrounding themselves with trusted partners, younger family members, chosen family, or friends to execute caregiving and end of life decisions.
86.	Porter & Krinsky (2014) [123]	**Population:** personnel of AAAs **N:** 76 **Age:** not recorded **SO:** heterosexual (81.3%), lesbian/gay (13.3%), bisexual (5.3%) **Sex/gender:** female (90.8%), male (7.9%), FTM (1.3%) **Race/ethnicity:** Caucasian/White (92.1%), Hispanic (5%), Asian American (2.6%), African American/Black (1.3%), Asian Pacific Islander (1.3%), Native American (1.3%), multiracial (1.3%)	Survey, training – Longitudinal study	To test a cultural competency training about sexual and gender minorities.	After completing the training, participants reported significant improvement in knowledge, attitudes, and behavioral intentions relating to LGBT issues, such as awareness of LGBT resources, policy disparities, spousal benefits for same-sex couples; they also shown the intention to challenge homophobic remarks.
87.	Portz, Retrum, et al. (2014) [124]	**Population:** health and social service providers **N:** 29 **Age:** not provided **SO:** not provided	Interview	To examine the cultural competence of health and social service providers to meet the needs of LGBT elders.	Only 4 of the health and social services were high competency, while 12 were seeking improvement and 8 were not aware about LGBT issues, suggesting relevant gaps in cultural competency for the majority of service providers.

		Sex/gender: not provided **Race/ethnicity:** not provided			
88.	Putney, Keary, et al. (2018) [125]	**Population:** LGBT older adults **N:** 50 **Age:** 56-87 (M = 67) **SO:** bisexual/gay (88%), bisexual (8%) heterosexual (2%), other (2%) **Sex/gender:** female (57%), male (37%), transgender (6%) **Race/ethnicity:** White (78%), African American/Black (14%), multiracial (8%)	Focus group	To explore LGBT elders' anticipated needs and fears related to nursing homes and assisted living.	Among the anticipated needs, main themes regarded an inclusive environment in which feeling safe and connected to a community. Among the perceived fears, participants reported of dependence on healthcare providers, and of dementia, mistreatment, and isolation. These fears might cause identity concealment and psychological distress, including suicide ideation.
89.	Ramirez-Valles, Dirkes, et al. (2014) [126]	**Population:** GB older men **N:** 187 **Age:** 56-82 (M = 66) **SO:** bisexual/gay (100%) **Sex/gender:** man (100%) **Race/ethnicity:** Caucasian (79%), African American (11%), Hispanic (5%), Asian American/Pacific Islander (2%), biracial/multiracial (2%)	Survey	To examine the association between emotional and instrumental support and perceived health and depression symptoms.	Perceived health was correlated with number of sources of emotional support. Depression was related to instrumental support and health care providers' knowledge of sexual orientation and mediated the relationship between providers' knowledge of patients' sexual orientation and perceived health. As age increased, the number of sources of emotional support decreased, and varied based on ethnic minority status and living or not with a partner, which in turn was associated with instrumental support.
90.	Rogers, Rebbe, et al. (2013) [127]	**Population:** students and service professionals **N:** 605 **Age:** 17-83 (M = 30.6) **SO:** heterosexual (81.8%), bisexual/gay/lesbian (14.3%), queer (2.2%), other (1.7%) **Sex/gender:** woman (81.8%), man (16%), other (2.2%) **Race/ethnicity:** Caucasian (82.7%), Asian (6.6%), African American (3.2%), Hispanic (2.5%), American Indian/Alaskan Native (1.3%), Native Hawaiian/Pacific Islander (0.5%), other (3.2%)	Survey with both close- and open-questions	To analyze evaluation data of training panels about LGBT elders' issues provided by LGBT older adults to future services providers and professionals.	94% of the sample evaluated the elder panel presentation and the overall training as very good to excellent. The majority also reported the panel trainings provided valuable and useful information and helped in increasing awareness about LGBT older adults' issues; it also stimulated reflections about personal biases and attitudes toward LGBT older adults and was considered necessary for promoting understanding, acceptance, equality, and change in society around LGBT issues.
91.	Rowan & Beyer (2017) [128]	**Population:** LGBTQ+ older adults **N:** 223 **Age:** 19-79 (M = 50.58) **SO:** lesbian (40.36%), homosexual (31.84%), gay (37.22%), bisexual (8.07%), queer (6.73%), heterosexual (3.59%), straight (1.79%), other (1.79%)	Survey	To investigate culturally sensitive health care practice and LGBTQ+ elders' health-related needs.	More than half of participants reported a history of being verbally harassed and the need for more culturally sensitive health care provisions. The majority referred the need of improving the availability of LGBT specific social activities, recreational activities, and art and cultural activities. Physical assault experiences were significant by gender at birth: the odds of a female being physically assaulted was lower than the ones of males.

		Sex/gender: male (46.64%), female (48.43%), transgender (5.38%), intersex (0.45%), other (3.14%) **Race/ethnicity:** White (87.5%), African American (3.59%), Native American (2.69%), Latina (1.79%), Asian (0.9%), other (2.24%)			
92.	Shiu, Kim, et al. (2017) [129]	**Population:** LGBT older adults **N:** 2,450 **Age:** 50 and older (M = 61.38) **SO:** heterosexual/other (10.32%), lesbian/gay (72.47%), bisexual (17.22%) **Sex/gender:** male (46.64%), female (43.79%), other (5.5%); 14.22% of the total sample identified as transgender **Race/ethnicity:** Non-Hispanic White (77.76%), Hispanic (9.01%), Black (8.94%), other (4.29%)	Survey	To investigate the relationship between depression and health care engagement among LGBT older adults.	Participants with depression shown different patterns and levels of health care engagement. The Diagnosed-Symptomatic group reported the highest levels of "difficulty in adhering to treatments", while the Diagnosed-NoSymptomatic group displayed the lowest levels of "not using preventive care"; the NoDiagnosed-Symptomatic group displayed the highest levels of "not using preventive care" and "not seeking care when needed", while the NoDiagnosed-NoSymptomatic group reported the lowest levels of "not seeking care when needed" and "difficulty in adhering to treatments."
93.	Singleton, Adams, et al. (2022) [130]	**Population:** LGBT older Black women **N:** 100 **Age:** 40-91 (M = 54) **SO:** lesbian (81%), bisexual (3%), gay (8%), same gender loving (14%), other (2%) **Sex/gender:** woman (100%) **Race/ethnicity:** African American (95%), Caribbean/ West Indian (6%), Hispanic (2%), Bi-Racial/ Multi-racial (7%), Other (2%)	Focus group	To investigate older Black lesbians' needs and expectations in relation to the access to long-term care (LTC) facilities.	Three major themes emerged in relation to needs and expectations for LTC facility utilization: (a) consideration or established plans to utilize a LTC facility; (b) concern for care facility environment; (c) a desire to build one's own community.
94.	Slater, Moneyham, et al. (2015) [131]	**Population:** HIV-infected gay men **N:** 60 **Age:** 50-65 (M = 54.6) **SO:** gay (100%) **Sex/gender:** man (100%) **Race/ethnicity:** Nonminority (56.7%), Minority (43.3%)	Survey	To examine predictors of homonegativity, internalized HIV stigma, and ageism, and to explore stigma experiences that are predictive of QOL.	Homonegativity was predicted by younger age and emotion-focused coping. Internalized HIV stigma was predicted by younger age, support group participation, medications per day, social support, and emotion-focused coping. Ageism was predicted by problem-focused coping. Homonegativity, internalized HIV stigma, and ageism accounted for 39% of variance in QOL.
95.	Slevin (2008) [132]	**Population:** gay and heterosexual older adults **N:** 52 **Age:** 60 and older (mean score not provided) **SO:** gay, heterosexual (% not provided) **Sex/gender:** man (100%)	Intensive interview	To explore health behaviors engaged by heterosexual and gay older men and the way in which they are negotiated along aging.	Aging leaded the body to be a site of struggle and ambivalence. Gay and heterosexual older men shared common ground by disciplining their bodies through exercise and diet regardless of sexual orientation. Both heterosexual and gay older men were significantly affected by the hegemonic standards of youthfulness and masculinity, which stigmatize old age.

		Race/ethnicity: not provided			
96.	Smith, Altman, et al. (2019) [133]	**Population:** LTC facilities' providers **N:** 57 **Age:** range not provided (M = 52) **SO:** LGBT (11%), heterosexual (% not provided) **Sex/gender:** female (69%), not provided (31%) **Race/ethnicity:** not provided	Survey	To investigate mental health providers' experience with LGBT older adults in long-term care facilities and perceived barriers to quality care.	Many participants reported that working with LGBT issues was relevant to their practice and felt well-prepared and willing to learn. On the other hand, a general unawareness of evidence-based practices (EBTs), especially for LTC settings, emerged, and providers had little coursework on LGBT issues. Among the greatest barriers to quality care, participants reported lack of training, stigma, and residents concealing their identity.
97.	Smith, McCaslin, et al. (2010) [134]	**Population:** LGBT older adults **N:** 38 **Age:** 60–85 (60-65: 65.8%; 66–75: 23.7%; 76-85: 10.5%) **SO:** gay men (57.9%), lesbian (28.9%), bisexual (5.3%), other (7.9%) **Sex/gender:** man (55.3%), woman (39.5%), intersex (2.6%) **Race/ethnicity:** White (78.7%), Hispanic (18.4%), Black (5.3%), other (2.6%)	Survey	To explore LGBT older adults' needs along aging.	The best met need was related to participants' health care, wherein 54.1% disclosed their sexual orientation with providers despite even in this area their needs were only somewhat met. Participants reported fear of discrimination from services staff. Nursing homes were not considered welcoming and as LGBT-friendly environments, but unfriendly and even hostile.
98.	Stein, Beckerman, et al. (2010) [135]	**Population:** LG older adults **N:** 16 **Age:** 60–84 (mean score not provided) **SO:** gay men (75%), lesbian (25%) **Sex/gender:** man (75%), woman (25%) **Race/ethnicity:** White (87.5%), African American (12.5%)	Focus group	To explore the psychosocial challenges regarding LTC experienced by LG elders.	Fear of being rejected, neglected, by healthcare providers, especially by personal care aides, emerged, as well as fear of not being accepted and respected by other residents. Participants also reported fear of having to go back into the closet if placed in LTC and a preference for LGBT-friendly care services. They suggested healthcare providers' trainings to promote acceptance and respect for LG clients, and favorably perceived LGBT-friendly living arrangements.
99.	Stevens & Abrahm (2019) [136]	**Population:** male with metastatic ovarian cancer **N:** 1 **Age:** 67 **SO:** not provided **Sex/gender:** assigned female at birth, identified as male **Race/ethnicity:** not provided	Case study	To underline the importance of some clinical procedures for the LGBTQ individual in the hospice and palliative care setting.	Only the patient's wife known his identified gender, and nondisclosure was very important to him. The medical team was challenged to navigate LGBTQ+-sensitive care within the health care setting, insurance inequalities, and support and communication to his family.
100.	Sullivan (2014) [137]	**Population:** LGBT older adults **N:** 38 **Age:** 51–85 (M = 71) **SO:** gay (57.9%), lesbian (28.9%), bisexual (5.3%) **Sex/gender:** man (60.5%), woman (39.5%); 7.9% of the total sample identified as transgender	Focus group	To explore why LGBT elders choose to live in LGBT-communities and what, if any, benefit the community afford them.	Participants underlined the importance of acceptance, inclusivity, and diversity. Among the reasons why they chose to live in LGBT-communities, they reported the need to feel accepted and to perceive comfort and safety; they also reported to have avoided to live in a non-LGBT-community because of fear of isolation and social rejection.

	Race/ethnicity: White (86.8%), African American (5.3%), Latina (5.3%), White Midlife Eastern (2.6%)			
101. Van Wagenen, Driskell, et al. (2013) [138]	**Population:** LGB older adults **N:** 22 **Age:** 60–80 (60–64: 46%; 65–69: 41%; 70-80: 14%) **SO:** gay/lesbian (90.9%), bisexual (4.5%), heterosexual (4.5%) **Sex/gender:** male (50%), female (50%) **Race/ethnicity:** Non-Hispanic White (82%), African American (18%)	Interview	To explore experiences of successful aging among LGBT older adults.	Four major themes emerged: physical health, mental health, emotional state and social engagement. Four gradations of successful aging was found; very few was categorized in the label "traditional aging success" (characterized by the absence of problems in all four domains of health) or "ailing" (not coping well with problems). The majority was coping to a degree with problems and categorized as "surviving and thriving" or "working at it". Some of the experiences reported by participants were related to LGBT status, while others to the more general process of aging.
102. Walker, Powers, et al. (2017) [139]	**Population:** LGBTQ+ older adults **N:** 384 **Age:** 50 and older (51–55: 26%; 56–60: 31.3%; 61–65: 23.7%; 66–70: 10.9%; >70: 8.1%) **SO:** heterosexual (29.7%), bisexual (17.7%), lesbian (17.7%), gay (5.7%), asexual (6.3%), not recoded (22.9%) **Sex/gender:** feminine (33.9%), masculine (8.6%), transgender (18.5%), transman (7.3%), transwoman (13.3%), two-spirit (3.6%), androgynous (3.1%), other (11.7%) **Race/ethnicity:** White (91.2%), Hispanic/Latina (1%), Native American/First Nations (0.5%), Black (0.5%), multiracial (2.6%), other (4.2%)	Survey	To analyze the association between anticipation of bias from healthcare professionals and perceived successful aging among transgender, gender nonbinary, and gender diverse elders.	Among transgender, gender nonbinary, and gender diverse elders, the odds of perceiving to being aging successfully was significantly predicted by larger social support networks and greater confidence to be treated with dignity and respect at the end of life by healthcare professionals.
103. Walker, Powers, et al. (2022) [140]	**Population:** LGBTQ+ care recipients **N:** 829 **Age:** 18–70 (mean score not provided) **SO:** heterosexual (24.5%), bisexual (17.8%), lesbian (13.6%), pan-sexual (7.7%), gay (7.1%), questioning (4.3%), asexual (4.2%), celibate (2.9%), omni-sexual (1%), refuse to be labeled (5.8%), other (8.8%) **Sex/gender:** feminine (25.5%), masculine (13.4%), transgender (13.2%), transman (12.7%), transwoman (10.3%), queer (4.8%), androgynous (3.4%), two-spirit (2.7%), other (10.9%)	Survey including also open-ended questions	To explore concerns of transgender, gender nonbinary, and gender diverse individuals about receiving care across the lifespan.	Five thematic categories emerges: (a) No concerns, (b) Anticipated discrimination, (c) Loss of control, (d) Quality of life, and (e) General concerns. The majority of older adults reported to be moderately or slightly concerned about the ability to function independently due to lack of caregiver, as well as to lack of financial resources, to physical limitations, or to cognitive impairment. Midlife-aged adults (compared to both older and younger adults), people of Color, and people living with a disability reported the more concerns for their ability to function independently due to financial resources, physical concerns, cognitive impairment, or a lack of someone to care for them.

	Race/ethnicity: Non-Hispanic White (85.4%), African American (18%)			
104. Whitehead, Shaver, et al. (2016) [141]	**Population:** LGBTQ+ younger, midlife, older adults **N:** 1,018 **Age:** 18–76 (M = 32.42) **SO:** gay/lesbian/homosexual (81%), bisexual (6%), queer (5%), straight/heterosexual (3%), other (4%) **Sex/gender:** man (477), woman (368), transgender/non-binary (169) **Race/ethnicity:** White (88%), Black (3%), other (9%); Non-Hispanic (91%), Hispanic (7%)	Survey	To explore the impact of stigma on health services utilization among rural LGBT individuals.	Higher levels of stigma were associated with lower utilization of health services for transgender and non-binary participants. A greater disclosure of sexual orientation was associated with a greater utilization of health services among cisgender men. Among older adults, 36% received at least one dose of shingles vaccine, 56% was screened for hepatitis C, and 66% for colon cancer; among older males, 66% was screened for abdominal aortic aneurism, while among older females, 62% was screened for breast cancer and all the female older participants aged 65 and more were screened for osteoporosis.
105. Williams & Fredriksen-Goldsen (2014) [142]	**Population:** LGB older adults **N:** 2,150 **Age:** 50–95 (M = 66.8) **SO:** gay or lesbian (96.9%), bisexual (5.1%) **Sex/gender:** male (64.8%), female (35.2%) **Race/ethnicity:** White (87.4%), non-White (% not provided)	Survey	To investigate the association between having a same-sex partner and the general self-reported health and depressive symptoms among LGB older adults.	Controlling for gender, age, education, income, sexuality, and relationship duration, being a single LGB older adult was associated with poorer self-reported health and higher levels of depressive symptoms compared with LGB participants having a same-sex partner. The association between partnership status and health was not influenced by relationship duration.
106. Witten (2014) [143]	**Population:** transgender-identified younger, midlife, and older adults **N:** 1,963 **Age:** 18 and older (mean score not provided) **SO:** bisexual (18%), lesbian (14%), other (9%), pansexual (8%), gay (7%), refused to label (6%), asexual (4%), questioning (4%), celibate (3%), omnisexual (1%), not recorded (26%) **Sex/gender:** feminine (26%), masculine (14%), transgender (14%), transman (13%), transwoman (11%), genderqueer (5%), two spirits (3%), androgynous (3%), third gender (2%), trans-blended (2%), gender bender (1%), questioning (1%) **Race/ethnicity:** Caucasian (85%), other (4%), Hispanic (3%), multiracial (3%), Black (2%), Asian (2%), First Nation (1%)	Survey	To investigate the experiences and needs of transgender-identified adults in relation to later-life and end-of-life preparations and concerns.	30.1% of the sample had a chronic illness, while 27.1% a disability; no significant differences by age were found. End-of-life concerns were related to challenges around chronic illness, disability, and spiritual affiliations. More than half of the sample reported to be moderately or extremely concerned about losing independence as they aged, although participants were found to be ill-prepared for the major legalities and events that occur in the later to end-of-life time periods.
107. Witten (2015) [144]	**Population:** transgender lesbian younger, midlife, and older adults	Survey	To investigate the experiences and needs of transgender-	Transgender-identified lesbians reported significant fears about later life, were better prepared than the overall respondent trans-identified population and was

	N: 276 **Age:** 18 and older (18–30: 11.5%; 31–50: 27.4%; >51: 61.1%) **SO:** lesbian (100%) **Sex/gender:** transfeminine (73.2%), other trans-identities (14.1%), transgender/third gender (9.8%), transmasculine (2.7%) **Race/ethnicity:** Caucasian (93.8%), Hispanic (1.8%), other (% not provided)		identified lesbian adults in relation to later-life and end-of-life preparations and concerns.	still ill-prepared for the major legalities and events related to the later to end-of-life time periods. They also reported an overall feeling to have aged successfully.
108. Woody (2014) [145]	**Population:** LG older adults **N:** 15 **Age:** 58–72 (M = 64) **SO:** lesbian (73.3%), gay male (26.7%) **Sex/gender:** female (73.3%), male (26.7%) **Race/ethnicity:** African American (53.3%), Black (26.7%), Caribbean African American (6.7%), biracial (6.7%), multiracial (6.7%)	In depth interview	To explore perceived social discrimination and sense of alienation among LG African American older adults.	Seven main themes emerged: (a) Sense of Alienation in the African American Community, (b) Deliberate Concealment of Sexual Identity and Orientation, (c) Aversion to LGBT Labels, (d) Perceived Discrimination and Alienation From Organized Religion, (e) Feelings of Grief and Loss Related to Aging including health-related issues, (f) Isolation, and (g) Fear of Financial and Physical Dependence.
109. Yang, Chu, et al. (2018) [146]	**Population:** LGBT midlife and older adults **N:** 222 **Age:** 45 and older (45–54: 43%; 55–64: 32%; >65: 25%) **SO:** gay (47%), lesbian (42%), bisexual (3%), other (8%) **Sex/gender:** transgender/other (8%) **Race/ethnicity:** Non-Hispanic White (96%), Hispanic (3%)	Survey	To investigate whether aging service providers who are perceived by LGBT midlife and older adults as welcoming reduce this population's perceived isolation.	Controlling for openness about LGBT status, the presence of welcoming aging service providers was associated with perceived isolation among LGBT midlife and older adults and buffer the negative impact of living alone.
110. Zaritsky & Dibble (2010) [11]	**Population:** LGBT and heterosexual midlife and older adults **N:** 370 **Age:** 40 and older (M = 64) **SO:** lesbian, heterosexual (% not provided) **Sex/gender:** woman (100%) **Race/ethnicity:** not provided	Survey	To investigate whether midlife and older lesbians have more breast and gynecological cancer risk factors compared with their heterosexual peers.	Midlife and older lesbians reported higher education, fewer pregnancies, less total months pregnant, fewer children, fewer total months breastfeeding compared to their heterosexual peers. They also reported higher body mass indices, lower physical activity per week, and less breast self-examinations. No differences in smoking and alcohol use were found.