A Scoping Review of Queer Health and Well-Being Technology Research

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Technology has and will continue to have a significant impact on queer people's health and well-being; however, it is not guaranteed that these implementations lead to meaningful advancements. Through a scoping review of 69 queer health technology papers in the ACM Digital Library, we review who queer health and well-being research has centered, what health topics have been targeted, and how technology has been used to address them. Our results identify trends in health foci and intervention implementation strategies, revealing opportunities for upstream efforts that work across individual, community, and structural levels. We therefore argue for greater attention towards structural constructions of queer health and well-being, specific and intentional groupings when developing interventions, and four commitments for designing and carrying out technology-enabled health interventions: commitments to holistic constructions of problem spaces, leverage points, and unintended harms; to reflexive practices for challenging assumptions; to accountability to community needs and flourishing; and to expansion towards situated and relational understandings of health. This work culminates in a framework and research agenda for queer health technology that provides guidance for future interventions.

CCS Concepts: • **Human-centered computing → HCI theory, concepts and models**; • **Social and professional topics → Sexual orientation**.

Additional Key Words and Phrases: Queer health technology, Scoping review

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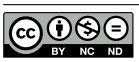

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1 Introduction

Technology has significantly altered how lesbian, gay, bisexual, transgender and gender non-conforming, queer, intersex, and asexual, hereafter referred to as queer[1], people manage and make decisions that affect their health and well-being[2]. From intimate platforms to Artificial Intelligence (AI)-powered health tools, queer people have leveraged digital spaces to support identity exploration, peer connection, access to important health information, and more. Telehealth, for instance, has significantly expanded access to mental and behavioral care for queer individuals [77, 82, 83, 140]. Various computing systems give queer people the opportunity to explore their identities and envision affirming futures for themselves [19, 20, 49, 106]. Online communities provide space to find support when making significant trans health decisions, like pursuing top surgery [24]. However, digital technologies have also negatively affected queer people by enabling surveillance and spreading homophobia and/or transphobia [70, 112]. For example, scholars have found that two popular large language models, ChatGPT and Meta AI, provided pro-trans and transphobic responses but risked legitimizing these perspectives as equal rather than contesting problematic ideology [115]. As technology advances, so too will its potential to transform the state of health and well-being for queer people—but whether these changes are for the better remains an open question.

Recently, technology-enabled health interventions have addressed health disparities by making healthcare easier to access [89]. However, having a significant and sustainable impact on health outcomes through technology-enabled health interventions is a complex challenge. Designing effective technology-enabled health interventions for queer people (hereafter referred to as queer health technology) requires an understanding of the systemic and structural conditions that shape health inequities, as they are embedded within and influenced by broader social, institutional, and political contexts. Queer health technologies must not only address individual behaviors and experiences but also the social environments that inform people's decisions and lives [121]. In addition, queer health technologies must draw upon various approaches to address multiple levels of influence simultaneously (e.g., individual, interpersonal, institutional, community, and policy levels) [121]. Further, interventions that fail to account for these systemic forces risk exacerbating existing disparities; if technological solutions primarily benefit those with greater access, privilege, or digital literacy, they can inadvertently reinforce exclusion and widen gaps in care [139]. Finally, there are big stakes involved, given the role that health and well-being play in people's ability to live and enjoy their lives.

In addition to the general complexities of designing effective interventions , further challenges arise when queerness meets health technologies. Scholars have documented how homophobia and transphobia act as barriers to healthcare [6, 10, 22, 105, 116] and how discriminatory computing systems like automated facial recognition perpetuate surveillance, bias, and oppression, especially for trans people [59, 70, 114]. Queer people are confronted with a paradox: technology has the potential to both empower and endanger queer lives. In this paper, we attend to how this tension shapes the way queer people use technology to manage their health and well-being.

[1]We use the term "queer" as an umbrella term for Lesbian, Gay, Bisexual, Transgender, Queer/Questioning, Intersex, and Asexual (LGBTQIA+) people while recognizing that queer is both inclusive and inexact. In this work, we seek to demonstrate what draws the various gender and sexual minority identities and experiences together while also resisting framing this vast category as a singular monolith.

[2]Our construction of health and well-being draws from critical discourse to understand both concepts as the capacity to navigate well-being and malaise–including experiences of distress, social stigma, and institutional exclusion–rather than solely the elimination of disease (World Health Organization, 1948; Leonardi, 2018). We interrogate this viewpoint in more detail in Section 3.3.

A growing body of work has explored how to design health technologies to support queer health and well-being, but the literature lacks a systematic account of queer health technology research. Thus, we conducted a scoping review to summarize and synthesize 69 queer health technology papers in the Association for Computing Machinery (ACM) Digital Library. In our search and analysis, we addressed the following research questions:

- RQ1: How has previous literature conceptualized and operationalized queer health technology?
- RQ2: What are challenges and opportunities for future health technology intervention development for queer people?

Through this review, we seek to set an agenda for future work in HCI by identifying the intersections and boundaries when queerness, health, and technology overlap. Following prior reviews [3, 71, 134], we engage with an expansive definition of health technology that, in HCI and Social Computing research, includes work about both 1) technologies that are specifically designed to improve users' health and 2) technologies that can affect users' health but were not designed specifically for that purpose (e.g., social media). This definition, and our analysis more broadly, draws upon a systems-thinking approach that emphasizes the interconnected nature of health and sociotechnical systems [87]. Through systems-thinking, we conceptualize technology as a lever for intervention that can impact queer health at individual, community, and structural levels.

Therefore, our scoping review synthesizes queer health technology research and identifies opportunities for future work , leading to the following contributions:

(1) We establish queer health technology as an area of study by mapping the research space of queer health technology studies so far. In regards to *who* queer health technology is for, our results demonstrate identity and geographic trends across existing research and how queer people have been involved in research. Focusing on *what* queer health topics have been described by work in the ACM Digital Library, we categorize research into individual, communal, and structural levels. We also identify *how* researchers have used technology to support queer health and well-being by outlining the technologies and implementation strategies researchers have employed.
(2) Towards the future development of queer health technology interventions, we outline a framework for designing queer health technologies across systems. We draw from critical public health and HCI literature to identify commitments for a forward-facing research agenda. These include a commitment to systems thinking; to reflexive practices for challenging assumptions; to accountability to community needs and flourishing; and to expansion towards situated and relational understandings of health.

2 Related Work

In this section, we present existing literature that supports this work. We first outline queer health's historical trajectory, then present changes in queer research in HCI, and finally describe how systems thinking overlaps with queer health technology.

2.1 Critical Reconstructions of Queer Health

To develop a future-facing agenda of queer health technology research, it is first vital to review its history and trace the construction of queer health up until the present. Over time, common perceptions of queer desire have changed from viewing it as a sin, to a crime, to a medical condition, a trajectory that has shaped current conceptions of queer health technology [129]. Nineteenth century psychiatrist Karl Westphal argued that homosexuality should not be punished, but those who experience same-sex desire should be treated medically "since homosexuality was a deviation

from 'normal' sexual development" [129]. Westphal's work launched a new way of constructing same-sex relationships, one that saw medical treatment to "cure" non-straight people, which has motivated conversion therapy across the world [129].

Despite the harms that resulted from this medicalized shift, and conversion therapies in particular, the change also allowed researchers to scientifically explore homosexuality and to better understand its intricacies. In contrast to Westphal, Magnus Hirschfeld, a doctor and sexologist, challenged what was viewed as "normal" and "abnormal" sexualities and instead suggested "a notion of infinite sexual variability that he compared to the distinctiveness of fingerprints" [129]. From there, Hirschfeld proposed adjustment therapy "in and through which homosexuals would come to accept, embrace, and perhaps even celebrate their sexuality" [129]. Taking inspiration from Hirschfeld, Freud took a psychoanalytic approach and explored the complexities of sexuality, that "there are a whole range of possible sexual aims, object choices, and states of psycho-sexual being which are the products of each individual's psycho-sexual development and of the context in which such development occurs" and thereby challenging the idea that heterosexuality was a natural occurrence [129]. Alfred Kinsey built on this idea and developed the Kinsey Scale, which conceptualized sexuality as a spectrum of attraction and disputed the binary categories of completely straight or completely homosexual [129]. This (grossly incomplete) history of the medical trajectory of homosexuality provides insight into how researchers have better constructed human sexuality with a more inclusive understanding. The effects of medicalized models of homosexuality can still be found today, and this focus on same-sex attraction has also neglected experiences of other queer people and how they possibly intersect with homosexuality. As researchers better understand homosexuality and queerness, mainstream society could finally come to the realization that queer people are humans who deserve legal and civil rights as well. The American Psychiatric Association's removal of homosexuality as a diagnosis from the Diagnostic and Statistical Manual (DSM) is perhaps evidence of this, while also highlighting the tensions of pathologizing queerness [43].

A similar and overlapping history exists around the medicalization of trans identities. While trans people have always existed, transgender medical interventions were mostly unavailable until the mid-1900s when clinicians like Harry Benjamin began providing services that could align trans people's bodies with their identities [128]. However, receiving such services often required trans people to agree to be research participants [38]. Medical professionals played the role of gatekeepers for trans medical procedures, which they often only approved for trans participants who met certain criteria (e.g., physical appearance standards, plans to live as a heterosexual post-transition) [38, 126]. Benjamin's "transsexual model" posited transsexualism as a mental illness that could be corrected with medical procedures [38]. In the 1990s, the transsexual model began to be replaced by the transgender model, in which trans identities were viewed as "natural form(s) of human variability" and medical transition was considered only one of many choices for trans people [38]. Even in recent years, trans people are often denied access to health care and subject to medical policies that erase the complexities of trans lives [67, 91, 122]. As evidence of this, trans people often experience what is known as "trans broken arm syndrome" in which medical providers cite the person's transness as the reason for their medical issues [74, 99]. As with other subgroups within the queer community, trans people have their own unique health needs and relationship to the harms caused and perpetuated by the healthcare system.

Here, we have described the changing constructions of queer health over time; however, this history has not been linearly progressive. Given the current sociopoltical landscape that many queer people—and especially trans people—face, researchers and designers alike must always remain aware of the stigmatic factors that lead to discrimination and oppression.

2.2 Shifting Beyond Individual Experiences in Queer Research in HCI and Social Computing

Social computing and HCI research has sought to understand and design for queer people's digital experiences. For example, online communities and social platforms play significant roles in how queer people connect with themselves and others [45]. Researchers have further examined how technology and social media influence identity formation, exploration, and presentation [39, 41, 45, 47, 54, 119]; support trans users and facilitate building community [57]; shape the coming out experience for trans users [104]; support trans health information seeking [9], and act as safe spaces that help trans and nonbinary individuals navigate harm and safety online [112]. Researchers have also called attention to dangers generated by technologies; for example, Keyes has outlined how automated gender recognition technology perpetuates systems that put trans users at risk of harm [70].

To support efforts to understand queer people's experiences, scholars have drawn upon participatory approaches like Participatory Design [60] and Human-Centered Design [31] that shift towards conducting research *with* these communities [30]. Participatory work with queer populations has shown that users often conceive of care as relational and mutual, rather than individualized or clinical, leading to designs that prioritize safety, solidarity, and identity affirmation over metrics or behavior change [57]. For example, efforts to develop peer navigator apps [97], trans-specific health resource maps [46], and platforms for sharing care strategies [90] challenge a typical focus on personal wellness and instead propose care as a communal infrastructure.

Co-constructing knowledge with communities through participatory methods has led to greater awareness of how broader, more structural forces inform queer people's experiences with technology. For example, through community-based methods, Maestre et al. [85] recognized how stigma significantly affects the way that people living with HIV use technology to manage and treat their health and well-being. As they argue, only targeting individual changes in behavior without accounting for the significant social influence that stigma plays would lead to ineffective results.

Therefore, with the increased investment in understanding queer people's technological experiences (e.g., [25, 57, 131]), research has benefited from two notable shifts. First, rather than solely focusing on the individual level, scholars have begun to consider how communal and structural forces inform queer people's technological experiences. In addition, a growing body of participatory work has led to more robust constructions of queer people's needs. These shifts establish important themes for future queer health technologies, emphasizing that they must be developed with an understanding of health as situated, relational, and constrained by structural factors.

2.3 Designing Across Scales: A Systems Lens on Queer Health Technologies

Building on the challenges outlined above, we argue that queer health technologies must be understood not only in terms of user experiences or isolated interface design, but as part of broader sociotechnical systems. A systems thinking perspective offers a way to grapple with the complexity of designing for queer health, one that foregrounds how individual, interpersonal, institutional, and structural elements interact over time. Rather than viewing queer health tech as discrete tools, systems thinking encourages us to see interventions as embedded in dynamic, often inequitable contexts that can both enable and constrain well-being.

Systems thinking is an approach to holistically understanding complex problems and characterizing their root causes. By focusing on the relationships among components within a problem space, it emphasizes feedback loops, structural constraints, and leverage points as sites where change can meaningfully occur [87, 124]. In queer health technology, this lens is particularly valuable for identifying how interventions operate across interconnected levels. For example, an app that

enables HIV status disclosure (individual) might interact with dating platform norms (community), which are in turn shaped by public health policy and digital platform governance (structural). As Veinot et al. [138] remind us, health disparities are "profoundly social phenomena," structured by both downstream behaviors and upstream systemic forces.

This lens also allows us to assess where interventions act and how transformative they might be. Drawing from Meadows [87]'s hierarchy of leverage points, we note that many queer health tech interventions today operate on shallow system parameters—tweaks made within the existing structure of a system rather than efforts to shift the system itself. These include interface-level changes like adding pronoun options to profile fields, adjusting visibility settings for HIV status, or creating gender-inclusive avatars (e.g., [40, 114]). While such features offer short-term change, they often leave intact the underlying assumptions, norms, and power relations of the platforms on which they appear.

Other interventions attempt feedback-based correction mechanisms, such as flagging systems for misgendering or harassment, or iterative improvements to algorithmic gender classification. These mechanisms can be useful for mitigating harm, yet they often function as self-correcting loops that aim to contain disruptions without interrogating the broader logics of exclusion and control. For instance, content moderation policies—even those intended to protect queer users—can perpetuate harm by embedding cisnormative standards into automated decision-making systems [86].

By contrast, deeper interventions target the foundational goals or paradigms of a system. For example, reconfiguring how gender is operationalized in health records—moving beyond binary or categorical checkboxes to allow for fluid and self-defined identities—represents a structural shift with implications for care, data equity, and representation [22, 59, 70]. Similarly, redistributing governance power to queer communities through participatory platform design can enable more democratic processes for setting moderation guidelines, algorithmic standards, or health service protocols [30]. These kinds of interventions not only mitigate harm but also redistribute power, making space for queer agency, care, and liberation across levels of the system.

In the context of queer health, systems-thinking provides an analytical framework to assess whether interventions are treating symptoms or targeting root causes. This framing informed our review by helping us classify where interventions operate (individual, community, and structural), how they interact, and where opportunities for deeper, more just change might lie.

3 Methods

3.1 Scoping Review

We conducted a scoping review, which we describe using PRISMA-ScR (Preferred Reporting Items for Scoping Reviews) guidelines [135], to systematically examine the state of queer health technology research within computing fields. Scoping reviews are particularly well-suited for areas of research that are broad, emerging, and heterogeneously defined, as they provide a comprehensive mapping of concepts, methodologies, and areas of emphasis across disciplines [27]. This approach enables us to investigate how computing researchers have conceptualized and operationalized queer health technology, as well as to identify trends, challenges, and opportunities that can inform future work in this space. Following standard scoping review methodology, we adhered to five key steps: 1) identifying the research question; 2) identifying relevant studies; 3) study selection; 4) charting the data; and 5) collating, summarizing, and reporting the results [27].

3.2 Literature Search and Data Sources

We conducted our literature search using the ACM Digital Library, a comprehensive database that compiles work from computing fields, drawing a rich corpus of research related to queer health technology. Our goal was to systematically capture existing research at the intersection of queerness, health, and technology within computing fields. All articles included in this review were limited to English-language publications and were published in October 2024 or earlier. The lead author led the development of the search strategy and consulted with university librarians to refine our approach.

To construct a comprehensive search query, we iteratively developed and tested keyword-based searches to ensure the inclusion of relevant queer health and technology research. Our queries focused on capturing the broadest range of queer identity terms while assuming that papers within the ACM Digital Library inherently addressed technology-related topics. We refined these terms through an iterative process, reviewing sample articles retrieved from initial searches and adjusting our queries to improve relevance. Please see Appendix A for a full breakdown of our search queries. This process resulted in a final set of search terms designed to maximize coverage of queer health technology research in computing. Through this approach, we identified an initial set of 313 articles.

3.3 Critical Definitions

Given the interdisciplinary nature of queer health technology, we established the following definitions to ensure that our scoping review captured studies that critically engage with queerness, health, and technology while maintaining relevance to computing research. We explain in detail how we have defined and conceptualized each below.

For this review, *queerness* extends beyond identity categories to encompass a framework that challenges normative structures in health and technology. Thus, we sought to include work that critically interrogates how gender and sexuality are constructed, constrained, or erased through design. This operationalization shaped our search strategy and screening decisions. For example, we included studies that critique algorithm systems enforcing binary gender norms or studies that expose how content moderation censors queer health information. This definition recognizes that queerness is not just about representation but about resisting fixed, binary understandings of gender and sexuality, advocating for non-normative experiences, and acknowledges the historical medicalization and pathologization of queer identities.

Health is recognized as more than the absence of illness, with established definitions emphasizing its multidimensional nature [94]. However, critics have challenged how dominant frameworks' (e.g., [94]) emphasis on stability, optimization, and risk reduction overlooks how marginalized populations experience health in dynamic, relational ways [78]. Drawing from Leonardi [78], we conceptualize health as the capacity to navigate well-being and malaise–including experiences of distress, social stigma, and institutional exclusion–rather than solely the elimination of disease. Acknowledging malaise as an inherent aspect of health challenges utopian ideals that frame well-being as a static, idealized state. Instead, it underscores how health is shaped by the ability to adapt and engage in self-advocacy within inequitable systems. This framing allows for a more inclusive understanding of queer health—one that accounts for both the lived realities of oppression and the agency involved in shaping affirmative pathways to well-being. For many queer individuals, health extends beyond clinical care. Accordingly, we included studies that examine not only direct health outcomes but also interventions that address queer well-being, community support, and social determinants of health.

We conceptualize *technology* to include digital and non-digital interventions that shape queer health experiences. In the context of trans technologies, Haimson describes technology as "*anything*

Category	Inclusion Criteria	Exclusion Criteria
Population	Studies explicitly focused on queer populations or with specific findings relevant to queer individuals.	Studies that do not mention queer people OR mention queer individuals but do not provide specific findings related to the queer community.
Health and Well-being	Studies addressing health broadly, including clinical care, well-being, community support, identity affirmation, access to resources, and social determinants of health.	Studies solely focused on general health outcomes without explicit consideration of queer experiences or well-being.
Technology	Studies examining technology's role in queer health, well-being, or community engagement, including digital interventions, platforms, and computational methods.	Studies discussing technology broadly without a clear focus on its impact on LGBTQIA+ health or well-being.
Study Type	Peer-reviewed journal articles and conference proceedings in the ACM Digital Library.	Opinion pieces, editorials, non-peer-reviewed sources, works in progress, and grey literature.
Language	English-language publications.	Non-English language publications.
Publication Date	Studies published on or before October 2024.	

Table 1. Inclusion and exclusion criteria for the scoping review of LGBTQ+ health technology research in ACM publications.

that extends [a person's] agency" [53]. To this end, while many studies focus on digital platforms, social media, and mobile health (mHealth) applications, we also consider structural and policy-driven technological solutions that impact queer health. We recognize that technology is not neutral—it encodes societal biases, power dynamics, and histories of exclusion [30].

3.4 Inclusion and Exclusion Criteria

We drew from these definitions to establish the following inclusion and exclusion criteria outlined in Table 1. There are key limitations to these criteria. For example, our review is limited to English-language publications, meaning we may have excluded contributions from non-English-speaking researchers. This exclusion is particularly relevant given the global nature of queer health experiences and the varying sociopolitical contexts that shape technology's role in queer well-being. In addition, by restricting our search to ACM publications, we potentially omitted relevant work from other domains who may intersect with computing, such as public health and the social sciences, which also engage with queer health technology.

3.5 Data Extraction and Analysis

The initial literature search via the ACM database resulted in 312 items that were screened for eligibility through an abstract review. Articles were removed if their abstracts did not outline specific implications for queer communities, lacked a clear focus on health and well-being, or did

not examine technology's role in shaping queer health experiences. Studies that only mentioned queer individuals without providing specific findings relevant to queer communities were excluded, as were papers that broadly discussed technology without explicit connections to queer health. 74 papers remained after this round of abstract screening. Afterwards, we conducted a full-text review and removed 2 non-English articles and 3 papers that, after ample discussion, we ultimately deemed fell outside of our constructions of health or well-being focus. After screening, our final corpus included 69 unique articles. The screening process is summarized in Figure 1.

After final screening, the first and second authors followed a reflexive thematic analysis process to identify and interpret patterns across the corpus while remaining aware of the researchers' biases [18]. The first and second authors conducted a mix of inductive and deductive coding processes in two rounds. In the first round, they developed an initial set of codes based on the research questions, focusing on how each study engaged with queerness, health, and technology based on the following questions: How is health constructed? What is the technology or aspect of technology of focus? Who is centered? The first and second authors conducted a mix of inductive and deductive coding processes in two rounds. In the first round, they developed an initial set of codes based on the research questions. Resulting codes from this step surrounded: health topics (e.g., mental health, online safety), technologies (e.g., dating apps, virtual reality), and identity- and location-based demographics (e.g., trans people, sexual minority women, Europe). Guiding this process, they focused on how each study engaged with queerness, health, and technology based on the following questions: How is health constructed? What is the technology or aspect of technology of focus? Who is centered? These questions served as analytic guides; actual codes captured specific manifestations such as "dating app privacy features" rather than using the questions themselves as code labels. The authors then reviewed a subset of papers in full. Next, the first and second authors met to discuss any misalignments and identified the need for a second round of coding to more systematically categorize intervention strategies and their broader implications. This led to the development of codes for intervention strategies, the stated implications for intervention, and how researchers engaged queer people in the research. The authors employed a deductive coding process via the Veinot et al. [138] framework to characterize the intervention strategies and health foci from the first round as well as an adapted participation scale for the levels of engagement [8, 37]. This second round sought to characterize the health foci and intervention strategies at the individual, community, and structural levels. To ensure consistency, the first two authors collaboratively coded a subset of papers, refined codes through discussion, and then independently coded the remaining articles.

Throughout this process, first and second authors met weekly to discuss initial themes they constructed through the coding process. Any disagreements were resolved through discussion and review of the paper(s). After reviewing and discussing, the two authors collaboratively developed a set of themes across the dataset, outlined in Section 4.

3.6 Positionality

Our research team includes both queer and trans scholars and allies whose diverse perspectives contribute to a nuanced and community-informed analysis, including the screening and coding processes. Our lived experiences of queerness have fundamentally shaped our definition and conceptualization of health, expanding it beyond conventional biomedical and mental health outcome frameworks. Rather than solely addressing gaps or deficiencies in queer health, we view well-being as the capacity for queer individuals to thrive and engage in self-determined futures. This perspective informs our analysis, emphasizing not just harm mitigation but also how technology can affirm, expand, and enrich queer identity, agency, and community. Further, our interdisciplinary perspectives informed the ways we coded, categorized, and synthesized the data. For example, our

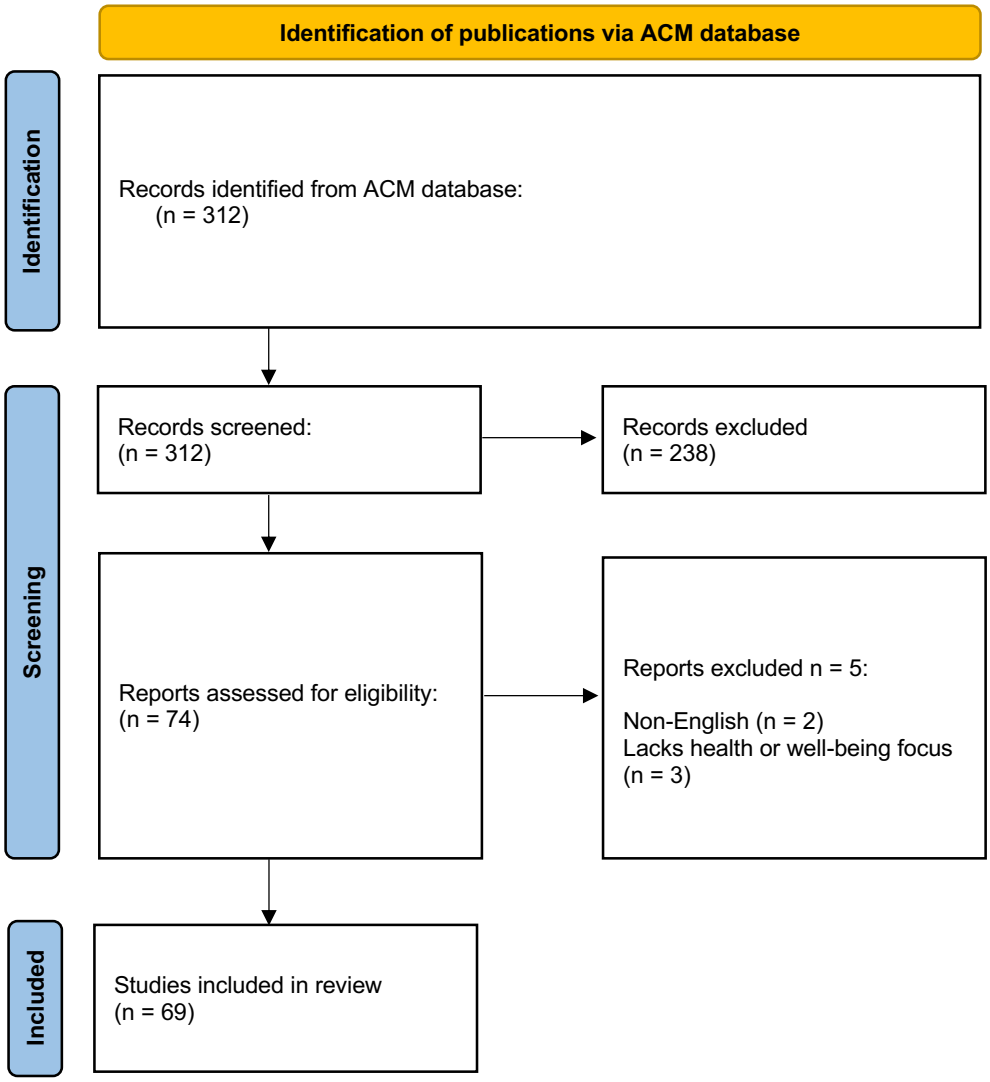

Fig. 1. PRISMA Flow Diagram of Scoping Review Results

backgrounds in computing, public health, and social sciences drew us towards systems thinking and contributed to our analytical grouping based on individual, community, and structural levels. Our positionality allowed us to critically engage with the sociotechnical dimensions of queer health technologies, particularly in recognizing gaps in the literature and how systems of power influence technological interventions.

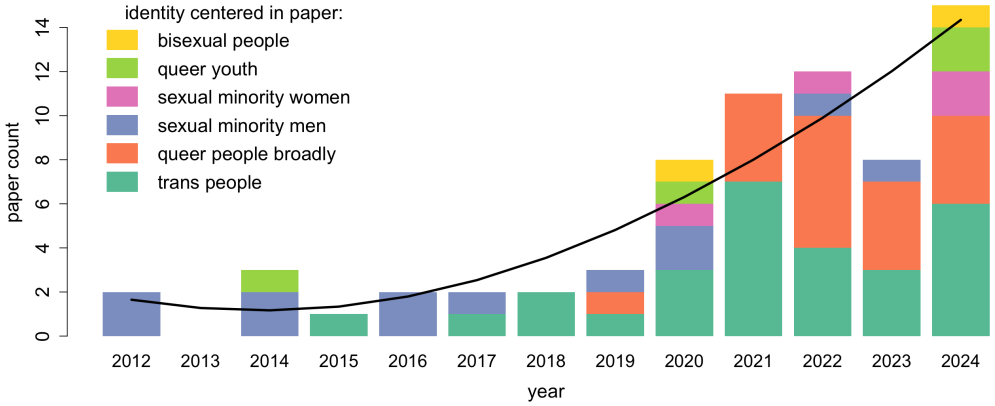

Fig. 2. Trend in Identities Centered Over Time. Figure shows a general increase in queer health tech papers over time, and an increase in diversity of identities centered. While papers in our dataset's earlier years centered primarily sexual minority men, more recent papers included bisexual people, sexual minority women, and additional identities.

4 Findings

Our findings are structured as follows: We first review who is centered in queer health tech research by summarizing key focal demographics represented including gender, sexual orientation, and geographic locations as well as how queer people have been involved in past studies (Section 4.1). Next, we outline how queer health has been constructed at individual, community, and structural levels (Section 4.2). Finally, we identify how technology mediates health interventions, capturing what kinds of technologies are employed, how they are implemented, and at what level they operate at (Section 4.3).

4.1 Who is centered?

The 69 papers covered various identity categories that we sorted into non-mutually exclusive groupings of bisexual people, queer people broadly, trans and non-binary people, sexual minority women, sexual minority men, and queer youth (Table 2). The largest category of papers centered trans people in their work, and trends in these focal identities shifted over time (Figure 2). Notably, no studies in our sample explicitly focused on trans men, though trans men were often included in the broader trans umbrella. We also noted whether studies specified the location that contextualized their work, finding that most papers either did not specify a location or had a global focus (Table 3). Providing this context is especially prudent for queer research, as the social and political conditions that affect queer people are wide-ranging and critical to situating a work's contributions. Among those that did, research most frequently focused on the United States, followed by Asia, Europe, non-U.S. North America, and Oceania.

4.1.1 How are queer people involved? To understand how queer people were involved in past studies, we drew upon existing frameworks for evaluating levels of participation [8, 37]. A breakdown of the dataset is as follows:

Queer Identity Category	Count
Bisexual	2
Queer people broadly (e.g., queer, sexual minorities)	19
Trans people broadly (e.g., gender nonconforming, genderfluid, and nonbinary people, gender minorities, transfeminine). *Note: 2 solely focused on non-binary people*	28
Sexual Minority Women (e.g., sapphics, trans women, cisgender women, nonbinary people who are attracted to other sapphics, lesbian and bi women)	4
Sexual Minority Men (e.g., men who have sex with men, gay men)	13
Queer Youth	3

Table 2. Summary of Findings: Identities of Focus

Geolocation	Count
North America (US)	26
North America (Mexico)	2
Europe (UK)	5
Asia (China, South Korea, Japan, India, Hong Kong, Taiwan)	10
Oceania (Australia)	1
Unspecified location or "global"	31

Table 3. Summary of Findings: Locations of Focus

0 - Not Involved. 6 papers did not directly involve people in their methods. These papers instead relied on critiques or analyses of existing technologies, such investigating queer representation in video games [66] or data-based simulations [69].

1 - Involved. 6 papers involved queer people in their investigations by drawing upon data from queer people without directly interfacing with them. For example, many studies at this level used data mining computational techniques to create datasets (e.g., personal ads on Craigslist) [55] or data collection of semi-publicly available data (e.g., Tik Tok videos created by queer farmers [13], observed dating profile data [14]).

2 - Included. 49 papers generated insights to understand queer people's health experiences and perceptions of technologies based on direct engagements with queer people. Inclusion of queer voices drew upon interviews, focus groups, surveys, diary studies, and asynchronous remote communities (ARC).

3 - Collaborated. 5 papers included queer people to generate insights as well as co-create designs and future solutions via co-design. For example, Liang et al. collaborated with trans and gender-diverse youth to co-design a sexual health platform [79]. Armstrong et al. also led design workshops to design social platforms for queer men [7].

4 - Owned. In none of the papers did queer participants have ownership over the design process or study procedures. This may be due to the added labor required for participants to take on more expansive research roles.

4.2 How is Queer Health Constructed?

The corpus of queer health technology research assembles queer health in various ways, which we categorize into three levels: individual (e.g., behavioral interventions, one-on-one changes), community (e.g., community networks, social norms, and resources), and structural (e.g., legislation, political and economic systems, and policy change) [138]. Our expansive view of health encompasses work about technologies that are specifically designed to improve users' health and technologies that can impact users' health but were not designed specifically for that purpose (e.g., social media).

4.2.1 Individual-Level Constructions. 44 papers operate at the individual-level and include the following foci. At this level, health is constructed as an individual responsibility or experience, either in interaction with oneself or with others. Interventions focus on changing personal health decisions (e.g., disclosure) and psychological factors (e.g., gender dysphoria and euphoria) that influence certain behaviors. For queer people, individual-level interventions might include mental health support apps, gender identity trackers, or HIV management tools. However, these solutions do not address the structural factors that often exacerbate health disparities in queer populations, such as discrimination or lack of access to affirming healthcare.

Identity and disclosure practices: Identity and disclosure emerge as central concerns, underscoring the distinctive navigational work queer people undertake in heteronormative contexts. Studies examine how individuals manage HIV status disclosure on dating apps, where users must balance health transparency with stigma avoidance [144, 145]. Similarly, research on gender identity construction explores how trans people can use interactive visualizations for self-assessment [118] and navigate automated gender recognition systems that may misgender them [59]. These studies reveal how individual health management becomes intertwined with identity protection and social safety.

Mental health and coping mechanisms: Mental health and coping strategies figure prominently in how queer communities use technology to support psychological well-being. Research depicts how bisexual individuals navigate intracommunity conflicts in online spaces [141] and how queer people experiencing pregnancy loss seek support in both general and identity-specific platforms [4]. These studies position matters that affect mental health as something individuals can manage through digital tools and community connections while simultaneously documenting how discriminatory social contexts create the need for such coping strategies.

Transition support technologies: Digital transition tools highlight the tension between personal agency and systemic barriers, operating within healthcare and social contexts that remain uneven and restrictive. While tools like transition-tracking apps empower users to monitor their own health changes [26], they operate within healthcare systems that may not provide adequate gender-affirming care. Similarly, virtual makeup tools that assist trans people in "passing" [23] can address individual safety needs while potentially reinforcing binary gender expectations embedded in broader social structures.

The high prevalence of individual-level approaches reveals a field that recognizes queer people's agency while struggling to address the systemic factors that necessitate individual-level workarounds in the first place.

4.2.2 Community-Level Constructions. 49 papers operate at the community-level and include the following foci. At this level, health is constructed as a collective issue, where health behaviors and outcomes are shaped by social networks and environmental conditions. Interventions aim to

create supportive social conditions and reduce harmful exposures. Community-level approaches recognize that individuals do not exist in a vacuum and that community dynamics significantly influence health outcomes.

*Platform-mediated safety and inclusion***:** Platform-mediated safety and inclusion constitute a primary focus, as research examines how digital spaces can both enable and constrain queer flourishing. Studies explore how dating app design affects community-wide experiences of homophobia and discrimination [7], demonstrating how individual platform interactions can aggregate into collective community impacts. Research on online community design emphasizes creating spaces where gender and sexual expression can occur without fear of marginalization [112], treating safety as a community resource rather than individual responsibility.

Collective health resource sharing: Studies of collective health resource sharing highlight how communities can organize around health information and mutual support. Research on PrEP usage examines how technology can mediate community-based prevention efforts, including awareness campaigns and peer support networks [152]. These interventions recognize that individual health behaviors occur within social contexts that can either support or undermine health-promoting choices.

Community knowledge production: Research on community knowledge production shows how queer people can collectively generate health-related knowledge through shared experience. Studies explore how trans people can navigate identity and transition through community technology development [25] and how social network analysis can capture the relational nature of gender identities [125]. These studies position communities as sites of expertise and knowledge creation, not just support provision.

However, community-level approaches often still operate within existing platform constraints, adapting mainstream technologies rather than challenging the underlying systems that create the need for community-based workarounds.

4.2.3 Structural-Level Constructions. 36 papers operate at the structural-level and include the following foci. Health at the structural level is viewed as a societal responsibility, where structural factors such as legislation, economic stability, and political systems dictate health outcomes. Interventions focus on reducing societal-level vulnerabilities and exposures, aiming for widespread change that affects entire populations.

Algorithmic and platform governance: Research on algorithmic and platform governance shows how content moderation policies and automated systems can create health barriers for queer communities. Studies document how algorithmic censorship interferes with access to sexual health information [9, 86], treating information access as a structural determinant of health rather than individual knowledge-seeking. Research on automated gender recognition systems warns of surveillance state implications [70], positioning these technologies as structural forces that could enable widespread discrimination and exclusion.

Cultural and normative transformation: Work on cultural and normative transformation explores how technology can challenge heteronormative assumptions embedded in broader social systems. Research examines how tabletop games [153] and even sex robots [44] can subvert dominant cultural narratives, treating cultural representation as a structural intervention. Studies of social VR spaces explore how technology enables new forms of gender expression that challenge binary categorization systems [49].

Large-scale data and policy interventions: Research on large-scale data and policy interventions examines how HIV prevention informatics and other forms of population-level data collection can inform public health responses [55]. While these studies position health surveillance and

epidemiological data as tools for structural intervention, they also raise concerns about privacy and community consent."

The relative scarcity of structural-level interventions suggests a field that increasingly recognizes systemic barriers to queer health but lacks frameworks for technological intervention at institutional and policy levels. This gap between structural problem recognition and structural solution development represents a key challenge for the field's future development.

4.3 How do Technologies Mediate Health Interventions?

Across the studies in our dataset, technology functioned not simply as a backdrop but as an active mediator of queer health interventions. Scholars examined a wide range of technologies—including online spaces, relationship platforms, algorithmic systems, gaming, digital health services, wearables, robotics, and gender-representation tools—each mobilized to address distinct aspects of queer health. Building from this overview, the following sections examine how these technologies were implemented and the levels at which they operated, from individual coping and identity expression to community engagement and structural transformation.

4.3.1 Intervention Implementation Strategies. As we examined the role of technology, we also noticed that eleven papers featured *applied* uses of technology designed to either inform where or how to intervene or observe the effects of a specific intervention strategy. These interventions fall into two main categories, outlined in Table 4. First, model-based interventions seek to simulate, predict, identify, or evaluate aspects of queer health. These studies often guided future intervention efforts by helping researchers or practitioners better understand patterns, potential challenges, or opportunities. Second, experience-based interventions center the lived experiences of users by implementing tools for identity formation, community building, or personalization. These studies explored how people respond to an intervention when enacted in practice. While they differ in mechanisms and proximities to users, both use technology to support queer health—either by generating insight for strategic decision-making or by demonstrating the impact of a specific design or action. The remaining papers recommended future application strategies but did not directly put their technologies into practice.

4.3.2 Individual-Level Technological Strategies. Individual-level interventions seek to leverage individual behaviors, experiences, and interactions within digital platforms to improve health or well-being. In our data, these interventions often emphasized self-representation, privacy, and coping mechanisms that address the intimate and often marginalized realities of queer individuals in health and social contexts.

Privacy and selective disclosure: Privacy-enhancing features emerged as a cornerstone of individual-level interventions, enabling users to navigate decisions about self-disclosure and visibility. These tools are particularly salient for queer users who often face heightened risks of stigma, discrimination, or harassment both online and offline. For example, dating apps frequently incorporate nuanced privacy controls that enable users to selectively share information such as their HIV status, gender identity, or sexual orientation [144, 145]. These features are critical for promoting safer interactions and empowering users to engage on their own terms. However, most privacy mechanisms remain reactive, requiring users to navigate around restrictive or heteronormative platform defaults—for example, trans users on dating apps often devise personal strategies to disclose their identities safely within systems that lack inclusive options [14, 47]. Proactive tools—such as automated protective measures against harassment or guided prompts for managing sensitive disclosures—represent a significant opportunity for future interventions to alleviate the cognitive and emotional burden on users [56, 103].

High-Level Implementation	Sub-Level Implementation	Example
Model-Based Tasks	Simulation	Simulating HIV transmission among MSM taking PrEP via an "agent based simulation" [69] Simulating coming out conversations via AI-Generated Virtual Characters [102]
	Prediction	Inferring user relationship status via a dataset of active SMMSA users relationship status and user data [143] "Deriving probabilistic features for predicting offline high risk behaviors" via an ego-centric dynamical network analysis [35]
	Identification	Identifying social media posts expressing minority stress experiences via a machine learning classifier [110] Identifying targets for sexual health intervention via language detection in online personal ads [55]
	Evaluation	Evaluating popular LLMs on misgendering and harmful responses to gender disclosure via a dataset "of template-based real-world text curated from a TGNB-oriented community", or TANGO [95]
Experience-Based Tasks	Identity Formation	Self-assessing sex/gender identity via "an inclusive data structure [...] and an interactive visualization" [118] Assisting trans people passing via a virtual makeup tool [23]
	Social Networking	Uploading and sharing secret photos via "a proof of concept design probe" [80]
	Customization	Customizing video game characters with desired gender expression [154]

Table 4. Summary of Findings: 11 Papers with Technology Interventions

Identity exploration and self-presentation: Individual-level interventions often support queer users in exploring and expressing their identities. Technologies like customizable avatars in social VR or selective visibility settings on social platforms provide users with safe avenues for affirming their gender and sexual identities [7, 49, 107, 154]. These tools cater to the need for identity validation and self-expression, which are frequently overlooked in mainstream health technologies. For instance, avatar customization in gaming platforms can offer a powerful medium for individuals to embody their authentic selves in a digital space, fostering a sense of agency and representation [154]. These features illustrate how interventions can create affirming environments, even within predominantly heteronormative systems.

Coping and emotional support: Another focus of individual-level interventions is providing mechanisms for coping and emotional resilience. Tools such as digital journaling apps [25], wearables [16], and online support spaces [4, 65, 79] allow users to understand and manage mental health symptoms while connecting with others who share similar experiences. For example, safe online communities where users can share stories and seek advice offer an outlet for emotional support, addressing gaps in conventional health systems that may lack inclusivity or sensitivity to queer needs [4, 65]. Despite these advances, few tools bridge the gap between community-based support and formal healthcare. Individual-level interventions that integrate digital self-care tools with clinical services–such as linking mood-tracking data to mental health providers–could create more comprehensive support systems for queer users.

Navigating platform-specific limitations: Queer individuals frequently navigate or subvert the limitations of mainstream platforms that are not designed with their needs in mind. For instance, users may adopt creative strategies to circumvent content censorship or work around the lack of tailored features [59, 111]. These behaviors underscore the reactive nature of queer health technology, where users must modify their actions to fit within systems that fail to fully include them. Such limitations point to an urgent need for dedicated queer-focused health and social technologies that proactively address the unique challenges faced by these communities. Tools that incorporate intersectional approaches (i.e., accounting for overlapping identities and experiences) would serve a broader range of users and enhance the inclusivity of digital health solutions [7, 25, 112].

4.3.3 Community-level interventions: Designing for community engagement and collective empowerment. Intervening at the community level is a popular strategy for queer health technology research, reflecting a concentrated focus on addressing group dynamics and fostering community-level interactions. Previous work has sought to leverage platform design to create inclusive, safer, and more empowering environments for queer users. These findings contribute to understanding the nuances of community-centered technological interventions in the following ways:

Supporting inclusion through platform design: Community-level interventions frequently prioritize creating digital ecosystems that are inclusive of diverse queer identities. For instance, many studies explore the role of platform features in fostering safer spaces where users can express their identities without fear of marginalization or harm [7, 56, 112]. These platforms are often designed to mitigate risks such as identity erasure, harassment, and exclusion, which are prevalent in generalized social or health-related technologies. By emphasizing collective experiences, intervention designers aim to empower users through shared identity and mutual support systems, reflecting a broader understanding of technology as a communal rather than purely individual tool.

Facilitating community building: Another central focus of community-level research lies in fostering community building. Platforms often include features such as moderated forums [141], peer-support networks [32, 63], and localized resources to connect users with others who share similar lived experiences [4]. These tools are particularly impactful in addressing geographic isolation [32, 33]. By enabling these connections, community-level interventions underscore the importance of community resilience as a foundational goal.

Navigating tensions in collective design: Despite their strengths, community-level interventions also reveal tensions and challenges. A recurring theme is the difficulty of balancing inclusivity with specificity. For example, platforms designed to cater to a wide range of queer identities may inadvertently dilute the experiences of certain subgroups, such as non-binary or asexual individuals [40, 113]. Additionally, the reliance on algorithmic moderation for safety can lead to unintended consequences, such as the over-censorship of queer-coded language [40, 86]. These tensions highlight the need for participatory design approaches that involve queer users throughout

the development process to ensure that interventions remain responsive to their needs. Researchers might take this a step further and work towards participation beyond the design approach, such as community moderation [42]. Doing so can reveal deeper insights into how interventions should continue beyond their study life cycle.

4.3.4 Structural-level interventions: Structural change and systemic advocacy. Structural-level interventions seek to address the broader systemic inequities that shape queer health outcomes. These interventions accounted for the smallest proportion of studies in our dataset. They emphasized policy advocacy, structural transformations in AI and digital platforms, and efforts to mitigate symbolic harms such as misgendering, identity erasure, and algorithmic bias. The relative scarcity of structural-level interventions aligns with the challenges inherent in enacting large-scale change: these approaches required extended timeframes, coordination across multiple sectors, and shifts in entrenched sociopolitical structures. However, they also hold promise for long-term, sustainable improvements in queer health and well-being.

Advocating for policy change through digital platforms: Many studies of structural-level interventions focus on how digital platforms and AI systems can be leveraged to influence policy and public health discourse. These studies explore interventions aimed at improving content moderation policies [86], reducing censorship of queer content [132], and integrating gender-inclusive data collection standards into AI and digital governance frameworks [95]. Policy interventions at this scale are particularly salient given the increasing reliance on algorithmic decision-making in health technologies and the persistent challenges of bias in automated systems. The work on algorithmic fairness in AI training datasets, for instance, highlights a critical intervention space–ensuring that AI models do not reinforce harmful biases against queer individuals, particularly in medical and mental health applications.

Mitigating symbolic harms in digital infrastructures: A recurring theme within structural-level interventions is the recognition of symbolic harms—structural biases embedded in technological and policy frameworks that marginalize queer users. Symbolic harms can manifest through the persistence of cisnormative and heteronormative design conventions in AI-systems such as algorithmic misgendering [70, 95], and the exclusion of nonbinary and gender-expansive identities in digital health forms [1, 113]. Interventions in this space often propose developing more robust AI models that recognize queer-coded language and advocate for queer-inclusive data standards [95, 130]. While these interventions do not always produce immediate, measurable health outcomes, they are critical for shifting the cultural and infrastructural conditions that shape queer health experiences.

5 Discussion

Our scoping review reveals content areas and patterns across research centering queer health technology. Building upon these results, we establish an agenda for future work that illuminates what queer health technology research can be (i.e., leveling up towards community and structural foci) (5.1), who queer health tech is for (i.e., towards specific and intentional categorization) (5.2), and how researchers can develop effective interventions through a set of four commitments for countering intervention-generated inequalities (5.3).

These elements combine in our Situated Framework for Designing Queer Health Technologies Across Systems in Table 5. The table culminates in a question critical to any intervention work: why is intervention important and needed? Technological intervention is not always the best approach [11]; therefore, understanding the purpose for engaging with and possibly introducing untested technologies to queer people is crucial. Without clear intent that motivates intervention, researchers risk prioritizing their needs over queer people's. This framework therefore invites

Guiding Question	Key Takeaways	Additional Guidance
What aspect(s) of queer health is the intervention target?	Queer health technology can and should inform communal and structural foci in addition to meeting individual needs.	What level(s) are the intervention target? See Section 4.2 for existing examples of individual, community, and structural health constructions and Section 5.1 for further upstream considerations.
Who is the intervention for?	Decisions around focal breadth should be intentional within the context of the research, rather than only striving for specificity.	What specific and intentional characteristics are groupings based around? (e.g., identity, behaviors, needs). See Section 5.2 for further discussion of balancing specificity and intentionality.
How will the intervention be enacted?	Thoughtfully embedding values and commitments into the technical strategies and approaches to developing queer health technologies is a counter-strategy to intervention-generated inequities.	What technical strategies will the intervention draw upon, if any (e.g., model-based or experience-based tasks)? What value principles and commitments will support the intervention development (e.g., community-driven, equity-focused)? See Section 5.3 for four commitments for countering intervention-generated inequities.
Why is intervention important and needed?	Identifying the purpose of intervention work aligns goals with queer people's needs.	What is the intended impact of the intervention? How does this change or challenge dominant models in the system?

Table 5. A Situated Framework for Designing Queer Health Technologies Across Systems. Future interventionists beginning to formulate a project can start with the guiding questions provided and seek additional direction from our findings and analysis.

designers and researchers to situate interventions relative to individual, community, and structural levels and attend to identity, community, and structural justice.

5.1 What can queer health technology research be? Leveling up towards community and structural foci.

Our results illustrate how previous research has covered queer health across individual, community, and structural levels. *Individual-level approaches* include behavioral interventions, focusing on individual experiences such as navigating mental health, exploring gender identity, and disclosing sexual health information. These are intimate concerns that revolve around self-management, coping mechanisms, identity exploration, and shifting internal perceptions of social norms. In contrast, *community-level health foci* relate to broader interactions, where the health outcomes are connected to community resources or services and influenced by social norms and broader vulnerabilities within online or physical environments. This level captures how community platforms, like dating apps or online spaces, facilitate or even hinder representation, safety, and identity formation. Community-based interventions, such as PrEP adherence programs, also operate at this level, where access to resources and support from community networks play crucial roles. *Structural-level health*

foci are situated within systemic or structural frameworks that involve larger-scale changes to governance, legislation, economic systems, and policy reforms. These include efforts to reshape content moderation on platforms, establish healthcare programs, or tackle societal-level stigma around gender and sexual identity. As our review revealed, structural-level health foci were the least represented . Therefore, we offer opportunities for expanding research at this level.

Readers may wonder if computing is equipped to intervene at the structural level. We argue that queer health in HCI research can and should extend beyond the individual to the community and structural levels. Previous work has shown that investigations that solely focus on the individual-level are less effective for marginalized groups who face systemic barriers beyond their control [15, 64, 127, 138], and such "methodological individualism" risks reproducing harm, stigma, and health inequities [51]. Health research in HCI has echoed this call to extend interventional health foci beyond the individual; however, researchers must also understand that queer health technologies may only be "stopgaps" that can help address challenges to some extent, not solutions to systemic issues like transphobia, homophobia, and racism [53].

Heeding such warnings, researching queer health in computing can also be a sociopolitical mechanism for sustaining queer people's health and well-being. Work from our corpus illuminates strategies for how technology can inform community and structural levels through normalization, outreach, and community development [44, 153]. By broadening visibility into an expansive array of experiences and identities, technology can normalize queer experiences and reduce stigma. Further, technology offers novel opportunities for connecting with those who have been historically hard to reach (e.g., queer people who are not public about their identities or those who must live stealthily due to unsafe sociopolitical conditions). Through computational techniques identified in Section 4.3.1, there are evolving means to identify individuals in need of care; however, computational approaches must come with safeguards, like user autonomy and strict privacy and security protections. Additionally, technologies can facilitate community support and enrichment. Future interventions could include queer-inclusive social platforms, peer support networks, or community-based programs that foster safer environments for identity expression and healthcare access. For instance, creating online spaces where queer individuals can connect safely, or electronic health records that are inclusive of all gender identities would help reduce disparities. Across these strategies, queer health technology research takes aim at informing sociopolitical conditions of queer people that impact health and well-being.

5.2 Who is queer health technology for? Towards specific and intentional categorization.

Previous work has outlined tensions specific to categorizing queer people: common groupings provide reliable and convenient models of understanding people but can also rely upon and perpetuate stereotypes that may lead to imprecise intervention development [98, 133, 151]. Reducing people down to a broad behavioral attribute such as sex fails to encompass the full dimension of sexual behaviors and neglects important social dimensions [151]. Therefore, we offer strategies for conceptualizing queer people with *specificity* and *intention* [17].

We first join previous calls for specificity in queer research, which can then better inform technology-mediated health intervention development [131]. Studies of subcommunities have shown how imprecise categories can result in ineffective intervention strategies. Garcia et al. have argued that, for example, rather than employing the broad category of "Black MSM," more precise factors related to sexual partnering strategies such as sexual position preferences and gender performance can provide more effective targets for HIV prevention intervention [50]. Sevelius et al. further laid out how PrEP messaging has failed to consider trans women's experiences and perspectives, such as how transphobic experiences contribute to their distrust in healthcare

systems, thereby missing opportunities for more appropriate health promotion strategies [117]. A shift towards specificity involves disaggregation; however, this cannot be done haphazardly and instead requires intention.

In this move towards specificity, regrouping queer people must be done with care and purpose; designating who queer health technology research is for demands intention to support categorical decisions. Without purpose, Perez-Brumer et al. [100] write that "the uncritical use of unquestioned categories can not only be inaccurate, but that in some instances such inaccuracies can be oppressive and damaging to the people who are being categorized". Moving towards intentional groupings, then, requires critical reflection of how these groups came to be, and prioritizing how different communities define and view themselves. Devito and colleagues provided a model for how to carefully group participants, where they discuss the authors' focus on "sapphics" rather than "women seeking women" or even "lesbian" [40]. As they write, this categorical decision more closely aligns with the "lived reality" of those in their study [40]. Researchers can also benefit from establishing groupings around health needs and experiences, rather than bounded by identity and normative assumptions. Maestre et al.'s work exemplifies this approach by drawing focus onto people living with HIV and avoiding a common conflation between people living with HIV and men who have sex with men [85]. As a result, this study was not present in our dataset; however, it provides a model for how to categorize with intention, specificity, and separated from stereotypes.

Sometimes, depending on context, intention may guide researchers away from specificity. For example, researchers hoping to recruit participants who are questioning their gender—a difficult group to reach, because they may not (yet) identify as trans, nonbinary, or queer—may need to be broad in their recruitment criteria, rather than only recruiting those people who explicitly identify as trans. Researchers can learn a lot about sexuality and gender from broad groups of people. But for health tech interventions that aim to address people with particular physical characteristics or behaviors, specificity (e.g., around particular body parts or sexual behaviors) may be warranted. Intention, then, requires careful attention to context and community understanding, which only sometimes points to specificity.

There are numerous ways of grouping queer people—whether by identity, location, behaviors, physical characteristics—posing challenges of categorization. As we have emphasized in this section, identifying purpose and justification for groupings improves how researchers create interventions. In 4.1, we show how past HCI work has largely focused on broad categories of trans people, queer people, and in unspecified or global locations, thereby calling for the need for researchers to integrate specificity and intention into who queer health technology research is meant for. Rather than only relying solely upon social identities or physical characteristics, researchers can also involve shared visions, challenges, health needs, and other deeper ways of understanding groups of queer people.

5.3 How can we develop queer health tech? Four commitments for countering intervention-generated inequities.

While we advocate for increased attention towards creating queer health technologies, such interventions risk worsening the very health inequities they seek to address [81, 148]. Veinot et al. identify how information and communication technology interventions can widen equity gaps across four dimensions: access, adoption, adherence, and effectiveness [139]. For instance, an inequality in access might present itself as an intervention that is only available to users with fast and reliable Internet speeds, therefore neglecting rural queer people's health and well-being. Therefore, a major challenge in designing queer health tech interventions lies in avoiding the creation of intervention-generated inequities.

To counter inequities in queer health technology, we propose a set of commitments rooted in intentionality and translate insights across public health and HCI [28, 120]. These commitments for future queer health tech work involve 1) systems thinking; 2) reflexive practices for challenging assumptions; 3) accountability to community needs and flourishing; and 4) expansion towards situated and relational understandings of health.

5.3.1 A Commitment to Systems Thinking. Systems thinking offers a way to comprehensively depict complex problems, understand where and how to most effectively intervene, and foresee potential consequences [21, 101, 109]. Systems thinking literature has outlined various methods for developing a deeper understanding of these elements (e.g., [2, 5, 36, 48, 68, 136]). These frameworks can prove especially useful to queer health technology development for pushing beyond individualized models of care and technology development.

Thinking through our findings with a systems thinking perspective depicts a rich problem space for queer health technology research. For instance, while individual-level interventions dominate the field—such as tools supporting selective disclosure [145] or transition tracking [26]—they risk operating within normative systems that position queerness as something to manage or mitigate, rather than affirm. This tendency to accommodate queerness within existing infrastructures reflects how entrenched systems often constrain designers to prioritize harm reduction over systemic transformation, which possibly explains the high number of individual level approaches found in Section 4.2.

However, our review also surfaces opportunities to challenge the system's inertia through the rise of community-level interventions, pointing to an evolving understanding of technology as an active participant in shaping community norms and dynamics. For example, platforms like Trans Time [56] not only support individual transitions but also restructure what safety and belonging can look like in digital space–showing how community norms and technical affordances can co-evolve. Similarly, voice-activated AI critiques and redesigns that center trans and non-binary user needs [114] show how technology can begin to challenge basic assumptions about gender that are built into machine learning systems. Future research should build on this foundation by exploring how community-level interventions intersect with structural and individual-level efforts, such as policy advocacy or individualized health interventions.

5.3.2 A Commitment to Accountability to Community Needs and Involvement. In Section 4.1.1, we outline patterns in how queer people have been involved in queer health tech research, with most papers directly including queer people in research. While this effort to bring queer people into research is encouraging, there are opportunities for deeper levels of involvement towards collaboration and ownership. We draw upon lessons offered in public health to consider how to actually and meaningfully coordinate between communities, interventionists, and researchers [142]. By involving community members with expertise from their lived experiences, intervention designers are better equipped to identify key components of a problem space's system and the most effective levers to maneuver. Community-based participatory research has already begun to take off in HCI, especially in work with marginalized communities [29, 61, 62, 123]. However, recent examples demonstrate how developing new technologies without community partnerships can result in designs that are flawed or misaligned with community needs and desires [58]. For instance, one study found that only 23% of trans Information and Communication Technologies involved community members in their design [150].

Given the positive impact that community-engaged research has on health outcomes, it is important to involve mechanisms to evaluate interventions and what aspects of community partnership contribute to success [34, 96]. Previous scholars have developed strategies that can serve future HCI collaborations, including understanding the extent of engagement with community partners

[72, 73, 93], the impacts of community engagement and the research [75, 147], and drawing upon community advisory boards for establishing formal partnerships [92, 108, 146]. Instilling mechanisms for evaluating a partnership's success in ways that decenter the privileged researcher are vital to building queer health technologies that meet community needs, especially the model-based and experience-based tasks described in Section 4.3.1. Further, investing in partnerships in this way can both mitigate bias and increase model accuracy due to direct input from queer people's lived experiences.

By highlighting the range of tools for assessment and community involvement established in the public health field, we emphasize that computing researchers—for queer health technology intervention and beyond—can draw upon these frameworks for post hoc evaluation, ongoing reflection, and proactive planning. For queer health technology interventions, drawing upon existing tools and methods that prioritize community provides a means for accountability, sustained attention towards partnership, and a way to counter the histories of exploitative and harmful practices—all crucial steps towards deeper research relationships with queer people.

5.3.3 A Commitment to Reflexive Practices for Challenging Assumptions. To further support the goal of avoiding intervention-generated inequities, queer health technology research can apply reflexive practices to challenge normative assumptions that are embedded into interventional decisions. Doing so can be particularly important in cases where researchers employ technologically advanced methods for impacting queer health, such as the model-based tasks for simulation, prediction, identification, or evaluation outlined in Section 4.3.1. Questioning whether these methods are appropriate and center community needs are critical questions for intervention developers to avoid generating unintended harms.

It is easy for interventionists to slip into an overreliance on design and technology and their capacity to solve wicked problems; however, it is imperative for researchers to escape the notion that design and technology are guaranteed solution machines. HCI scholarship provides a critical lens into the appropriateness and limits of technology as a solution. Baumer and Silberman have identified questions for considering whether technological intervention is appropriate: "Could the technology be replaced by an equally viable lowtech or non-technological approach to the situation? Does a technological intervention result in more trouble or harm than the situation it's meant to address? Does a technology solve a computationally tractable transformation of a problem rather than the problem itself?" [11, p 1-2].

Technology dependency is not the only example of how biases can become embedded into intervention development and adversely affect health outcomes. Therefore, it is crucial for interventionists to establish an intentional strategy for identifying how assumptions manifest and anticipating consequences before they cause harm. Reflexivity offers a strategy; reflexive practices, such as counterventions, can push researchers to consider if a technical interventional implementation is needed and understand why they are pursuing certain solutions and whether they are the most appropriate for the study context [149]. Is it their own savior complexes or attachments to technology as a solution to every problem? Could perhaps a low-tech or even no-tech solution be as effective as a more technologically advanced one [11]? Sometimes, the most effective efforts can be as simple as establishing a Discord server for community support [24]. By challenging normative assumptions and identifying how they appear, queer health technology intervention developers can then be better equipped to design strategies that are realistic, useful, and aligned with community needs.

5.3.4 A Commitment to Situated, Relational, and Justice-Oriented Understandings of Health. As we have discussed so far, there is transformative potential for queer health technology development to not only affect health outcomes but also to advance societal and structural conditions for queer

people. Doing so, however, requires an orientation towards health as a situated, relational, and justice-oriented effort. Scholars have outlined an approach that combines Human-Centered Design (HCD) with public health efforts to keep researchers and interventionists close to these goals [12, 52, 76, 84]. HCD's strengths lie in its ability to systematically and efficiently pursue innovation via quick cycles of iteration and effectively by involving end-users and other relevant partners [137]. Mishra et al. further argue that "design is an essential medicine" for health and identified three advantages that design-based perspectives provide in health research: framing, by identifying which problems are the right ones to address; intention, by valuing the end-user; and collaboration, through consistent partnership engagements [88]. To extend Mishra and colleagues' argument, we identify a fourth advantage HCD can bring to health research: expanding what outcomes are valued in health technology research. We argue that public health can learn from HCI's participatory and relational approaches to reconceptualize queer health—not as an individual biomedical status, but as a community-defined experience rooted in safety, affirmation, and the capacity for well-being. Traditional public health frameworks often rely on biomedical metrics—such as disease incidence, medication adherence, or behavioral risk reduction—as primary indicators of intervention success. While these measures are clinically important, they frequently fail to account for the lived realities, priorities, and aspirations of queer communities.

Integrating participatory principles into human-centered, public health projects can further strengthen their community- and structural-level impacts. A participatory HCI approach offers a more relational and situated understanding of health—one that considers not just clinical outcomes, but also how technologies make users feel safe, affirmed, and connected [57]. Rather than seeing these as "soft" or secondary outcomes, these outcomes are foundational for communities that have been marginalized by formal health systems. Public health can benefit from embracing these dimensions not as ancillary, but rather as necessary preconditions for equitable and effective intervention. The queer HCI literature illustrates how technologies can support expansive understandings of health by centering participation, identity work, emotional affirmation, and harm mitigation, exemplified through studies in our corpus. Chuanromanee and Metoyer [26], for example, show how transition-tracking apps can facilitate self-reflection and future-oriented hope for transgender users, offering a space to explore and affirm gender identity over time. These interventions highlight a shift away from strictly biomedical metrics toward user-defined experiences of affirmation, agency, and care—suggesting important lessons for public health in designing for queer health and well-being. Future work can arrive at this point by adopting methods beyond merely involving or including queer people and instead towards collaborating on what to prioritize, as outlined in 4.1.1.

6 Conclusion

The future of queer health technology is uncertain. Sociopolitical forces that inform queer people's health and well-being are precarious and queer health technology development lacks a holistic framework. Therefore, our synthesis seeks to identify opportunities to build coalitions of aligned research aims to inform and promote sustained health and well-being for all queer people. Through our scoping review of 69 papers in the ACM Digital Library, we have identified how queer health is constructed across the individual, community, and structural levels; what role that technology plays in facilitating health and well-being for queer people; who is centered in these endeavors; and how researchers leverage systems to impact queer health. Drawing upon these elements, we provide a research framework that supports upcoming scholars in crafting new projects and interventions through Table 5. We additionally craft an agenda for future work that draws upon technology to support the health and well-being of queer people. In doing so, we argue for greater attention towards structural constructions of queer health and well-being, specific and intentional groupings when developing interventions, and four commitments for designing and carrying out

technology-enabled health interventions, which include commitments to holistic constructions of problem spaces, leverage points, and unintended harms; to reflexive practices for challenging assumptions; to accountability to community needs and flourishing; and to expansion towards situated and relational understandings of health.

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A Appendix A. ACM Search Queries and Results.

Database	Search Terms	Number of Results
ACM	Keyword:("Queer" OR "LGBT*" OR "gay" OR "sexual and gender minority" OR "sexual minority" OR "gender minority" OR "lesbian" OR "transgender" OR "bisexual" OR "men who have sex with men" OR "sexuality" OR "intersex" OR "non-binary" OR "nonbinary" OR "gender nonconforming"OR "gender non-conforming" OR "genderqueer" OR "two-spirit") OR Abstract:("Queer" OR "LGBT*" OR "gay" OR "sexual and gender minority" OR "sexual minority" OR "gender minority" OR "lesbian" OR "transgender" OR "bisexual" OR "men who have sex with men" OR "sexuality" OR "intersex" OR "non-binary" OR "nonbinary" OR "gender nonconforming"OR "gender non-conforming" OR "genderqueer" OR "two-spirit") OR Title:("Queer" OR "LGBT*" OR "gay" OR "sexual and gender minority" OR "sexual minority" OR "gender minority" OR "lesbian" OR "transgender" OR "bisexual" OR "men who have sex with men" OR "sexuality" OR "intersex" OR "non-binary" OR "nonbinary" OR "gender nonconforming" OR "gender non-conforming" OR "genderqueer" OR "two-spirit")	313

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