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Transgender and non-binary people's experiences with alcohol reduction in the UK: A cross-sectional study

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ABSTRACT

Introduction: Transgender (trans) and non-binary people experience disproportionate harm from alcohol use, have a greater likelihood of developing dependence, and experience exclusion from both clinical and peer-based support systems. This study aimed to understand experiences with and preferences for alcohol reduction support among UK-based transgender and non-binary people.

Methods: The study team and community stakeholders co-produced a cross-sectional survey and administered it to a purposive sample of trans and non-binary people from 1st February to 31st March 2022. The study recruited participants through social media, mailing lists, blog posts, and news articles. Participants (n = 565) had a lifetime history of alcohol use, were in one of five gender categories, and were classified as people who drink or formerly drank alcohol. Open- and closed-ended questions measured motivations for alcohol reduction and views surrounding various support modalities.

Results: More than 15 % of the sample no longer drink alcohol and reported long-term abstinence, achieved without support, and were motivated by a loss of control over drinking behaviour and a desire to improve both physical and mental health. Mental illness, gender dysphoria, and a culture of alcohol excess were common antecedents of alcohol use. Thirty percent of participants who drink alcohol wanted to reduce their consumption. They suggested that this could be achieved with self-help tools, specialist trans and non-binary or LGBT+ services, access to both gender-affirming medical services, and sober queer social spaces.

Conclusions: UK-based trans and non-binary people face unique gender minority-related stressors which contribute to patterns of alcohol use that are perceived to be out of control and harmful to health. While many wanted access to self-help tools, there was interest in the availability of specialist alcohol reduction services and more inclusive general services. Conducting needs assessments to inform Needs assessments should inform the development of such services and trans-affirmative training should be mandated for all who provide support with alcohol reduction.

1. Introduction

Transgender (trans) is an adjective used to describe people for whom there is incongruence between their current gender identity and sex registered at birth (American Psychological Association, 2015). Non-binary is an umbrella term for people whose gender identity exists outside the binary gender categories of men or women (e.g., genderqueer, gender non-conforming, agender; Vincent, 2018). Trans and non-binary people experience stigma to varying degrees; that is, they are often perceived by cisgender (cis; gender identity aligns to sex registered at birth) people as having an "undesirable difference" (Goffman, 1963). Stigma and violence faced by trans and non-binary people contribute to

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a perceived or actual need for identity concealment alongside the disproportionate violence they experience based on their identity (i.e., transphobia; Bachmann & Gooch, 2017; Hate Crime in Scotland, 2022). Together, these gender-based minority stressors bring about psychosocial conditions which predispose them to alcohol excess and related harm (Hendricks & Testa, 2012; Lefevor et al., 2019; Meyer, 2003; Testa et al., 2015).

Indeed, a body of evidence supports this association, demonstrating that the discrimination experienced by these communities is associated with harmful patterns of drinking (Kcomt et al., 2020; Connolly & Gilchrist, 2020). Specifically, compared to cis people, trans and non-binary people have reported a greater frequency of binge drinking (Christian et al., 2018; Keuroghlian et al., 2015), higher Alcohol Use Disorder Identification Test (AUDIT) scores (suggestive of greater alcohol-related harm; Azagba et al., 2019), a greater likelihood of alcohol dependence in international (Connolly et al., 2022) and UK-specific samples (McNeil et al., 2012), and a range of alcohol use sequelae such as suicidality (Peitzmeier et al., 2020), blackouts (Tupler et al., 2017), and sexual violence victimisation (Connolly et al., 2021). Previous research has overlooked non-binary people; however, recent studies have reported a higher number of drinks per week (Staples et al., 2018), higher AUDIT scores (Azagba et al., 2019), and a greater likelihood of alcohol dependence (Connolly et al., 2022) than trans men and trans women. While few studies have compared alcohol use by trans and non-binary people with cis sexual minorities, there is limited evidence to suggest that trans women may drink more frequently with a greater risk of dependence than cis men who have sex with men (Chakrapani et al., 2015; Cyrus et al., 2023).

A large international study found that trans and non-binary people reported a greater need for help to reduce their use of alcohol and other substances in the 12 months following the survey compared to cis counterparts (Connolly et al., 2020). However, previous studies have estimated that up to 50 % of trans people avoid alcohol reduction services because of anticipated stigma (Cochran & Cauce, 2006; Sperber et al., 2008), suggesting that there may be structural barriers preventing access to and engagement with alcohol reduction support.

Inpatient alcohol services designed to treat cis populations are often inadequately prepared to meet the needs of trans and non-binary people (Mayer et al., 2008). A participant in a United States-based study left a rehabilitation unit prematurely after receiving a transphobic death threat and poor clinician response (Lyons et al., 2015). Another, referring to their gender minority status, reported "*they [service providers] didn't know how to deal with it*" (Lyons et al., 2015). This observation contrasts with the superior engagement reported by providers of a specialist service for trans women, with trans peer support and clinicians, and gender-affirming interventions (Oggins & Eichenbaum, 2002).

Stigma while seeking support with alcohol reduction is not limited to inpatient services. Until a recent revision in 2021, Alcoholics Anonymous was defined in the preamble of each meeting as "*a fellowship of men and women*" and separates its members by presumed binary gender for key components of the programme, including sponsorship (Matsuzaka, 2018; The AA Grapevine, 2021). A participant in a qualitative study reported "*that makes me feel othered in a space where we're supposed to have the common peril and the common solution. Gender in the rooms is so oppressive*" (Matsuzaka, 2018).

For more than two decades, there have been calls for greater inclusivity, gender sensitivity, and a reduction in gender binarism in alcohol support services (Jacobs, 2019; Lombardi, 2007; Lombardi & van Servellen, 2000; Nuttbrock, 2012). To date, these changes have not been achieved in United Kingdom (UK) alcohol reduction services, and to the knowledge of the authors, no quantitative research exploring UK-based trans and non-binary people's experiences with and preferences for alcohol reduction support has been published. This study sought to fill this gap in the literature by describing a) motivations for and support sought to abstain from alcohol among participants who no longer drink and b) intentions to reduce alcohol consumption and preferred support modality among participants reporting current alcohol use.

2. Methods

2.1. Community collaboration

From conception to dissemination, a diverse paid community advisory group (CAG) of trans and non-binary people who use or have formerly used alcohol advised this project. National and regional organisations which support the well-being of trans and non-binary people in the UK contributed to survey development and were instrumental in recruitment. These include LGBT Foundation, LGBT Switchboard, Live Through This, London Friend, Stonewall, Trans Actual, Trans Radio UK, and the UK National LGBT Health Office, among others. Participants could enter a raffle to win vouchers for an online and London-based LGBT+ bookshop. Finally, we are working with a trans artist who will create a piece of work to represent the findings from their perspective.

2.2. Study design and recruitment

This study, conducted according to a pre-specified protocol (https://osf.io/zgyq7/), administered a cross-sectional survey between 1st February and 31st March 2022. The eligibility criteria were a) ≥18 years; b) trans, non-binary, genderqueer, or gender non-conforming identity; c) UK resident; and d) current or former alcohol use. Qualtrics provided an anonymous online platform for participation in the survey (Qualtrics, 2020). Recruitment materials (created by *Drugs and Me*; Supplementary Fig. 1) provided basic information about the study and directed participants to a study website which provided a more detailed account of aims, informed participants of what to expect, and directed them to a participation link. The website also provided a list of helplines that could support participants with any concerns or distress related to their participation. The sample was opportunistic and was largely obtained from the social media platforms Facebook, Instagram, Reddit, and Twitter. A blog (Connolly, 2022), a news article (Robson, 2022), and mailing lists (e.g., UK National LGBT Health Office, Pride in Education) also supported recruitment. The target sample size was 400 participants, informed by an analysis conducted in GPower that estimated the number of participants required for meaningful linear multiple regression analysis.

2.3. Variables

The study asked participants "What is your gender identity? Use the free-space option, if required" and gave them the response options "Man (including trans man)", "Woman (including trans woman)", "Non-binary", "Genderqueer", "Other gender identity. Please self-describe". To maximise inclusivity, participants could select more than one response option. Upon review of the heterogeneity of responses, researchers categorised respondents into one of five groups for the purpose of analysis: "man only", "woman only", "non-binary and/or genderqueer", "other gender identity" and "multiple gender identities". The "multiple gender identities" group did not include respondents who endorsed both the nonbinary and genderqueer options but who chose no other identities.

The study characterised the sample with questions assessing sex registered at birth, personal pronouns, sexual orientation, ethnicity, occupation status, formal education level, and whether participants were intersex or neurodiverse. The AUDIT characterised the severity of drinking-related harm in the sample (Babor et al., 2001). The Kessler-6 (K6) questionnaire measured current non-specific psychological distress. Scores of ≥13 indicate severe distress (Kessler et al., 2003; Prochaska et al., 2012). The study also applied the UCLA Loneliness Scale, with scores ≥6 suggesting significant loneliness (Hughes et al., 2004; Victor et al., 2015). The full survey instrument, located in

Supplementary Table S1, included three attention check questions.

This analysis explored participants' experiences with and preferences for alcohol reduction or cessation. The study asked participants who reported that they no longer used alcohol how long ago they stopped drinking, what motivated this decision, and what, if any, support they received. An open-ended question invited participants "to tell us more about [their] decision to stop drinking alcohol" (OQ1).

The questionnaire asked participants reporting current alcohol use, "Would you like to drink less in the next 12 months?" and, if appropriate, "Would you like help to drink less in the next 12 months?" (Connolly et al., 2020; Davies et al., 2019). Participants chose from a list of potential sources of support they would use if they decided to reduce their alcohol use. Finally, participants had an open-ended opportunity to "tell the researchers anything else about [their] views about reducing alcohol consumption, or the type of support that [they] think would be useful" (OQ2).

2.4. Analyses

The study summarized all categorical variables using descriptive statistics and described responses to all subsequent variables by gender group. X^2 analyses provided an omnibus test of differences across genders to all variables with mutually exclusive response options. These tests are not presented because they did not reach the threshold for significance. AUDIT scores are presented as median and interquartile range (IQR). X^2 analyses and z-tests with Bonferroni corrections identified any differences between participants who did or did not respond to the OQs reported in this article. The study conducted all statistical analyses using SPSS v27 and v28 (*IBM SPSS Statistics Software*, 2020).

The study used thematic analysis, a systematic and iterative process, to understand the responses to OQs (Braun & Clarke, 2019). Authors 1 and 7 became familiar with the data and noted their initial impressions as part of a six-stage approach (Braun & Clarke, 2019). Both authors identified meaningful segments offering insight into participants' views on alcohol reduction and external support and then applied codes. They identified themes from the codes with the greatest frequency and salience. Authors 1 and 7 discussed the coding and reached a consensus on the themes and their definitions. Author 1 then named and outlined the themes using illustrative quotes identified by both authors.

2.5. Reflexivity statement

Each author had a lifetime history of alcohol use. Two are currently abstinent, and one has accessed medical, psychosocial, and 12-step support with varying degrees of sexual and gender minority inclusion. The authors are predominantly white and based in England. Diversity in terms of gender identity and modality (six of seven authors are trans, non-binary, or otherwise gender divergent) may have afforded the team greater insight into the findings than a predominantly cis team. Authors 1 (non-binary) and 7 (cis woman) reflected on how their potential biases may have influenced their interpretation of the data. They agreed that their difference in lived experience, high concordance throughout the analytical process, and subsequent review by the wider team mitigated much of the bias.

2.6. Ethics

The Oxford Brookes University Research Ethics Committee granted ethical approval (UREC number: 191269).

3. Results

Of the 770 people who followed the survey link, 723 consented to participate and 713 indicated that they were trans or non-binary. Survey non-completion was assumed to suggest withdrawal of consent. After excluding these data, 589 responses remained. Two respondents were not UK residents, and a further 22 failed attention checks. The final sample comprised 565 respondents.

Table 1 describes the sample. Respondents are in one of five gender group categories: man only (n = 74, 13.1 %), woman only (n = 160, 28.3 %), non-binary and/or genderqueer (n = 210, 37.2 %), other gender identity (n = 17, 3.0 %), and multiple gender identities (n = 104, 18.4 %). The most frequently used personal pronouns were 'they/them/theirs' (n = 286), followed by 'she/her/hers' (n = 220). Bisexual/pansexual (n = 339) and queer (n = 285) were the most common sexual orientations. One percent of respondents identified as intersex.

The overwhelming majority of respondents lived in England (85.1 %), reported white ethnicity (90.8 %), and attended formal education to 'A-level/equivalent' or higher (89.0 %). More than half of the participants were studying or working full-time (68.6 %). Sixty percent of respondents identified as neurodiverse. Approximately half of the participants reported severe psychological distress (K6 $\geq$ 13; 49.7 %), and more than three-quarters reported significant loneliness (UCLA Loneliness Scale $\geq$ 6; 75.8 %). A third of respondents (35.6 %) strongly disagreed with the statement "I have achieved my gender-affirmation goals".

Ninety-two respondents reported no current alcohol use. Of the 91 who disclosed the length of their abstinence, 84.6 % had been abstinent for at least one year and 42.9 % had been abstinent for $\geq$5 years. Fig. 1 presents the percentage of respondents in each gender group who endorsed each of the eight pre-specified reasons for alcohol cessation. Improving mental well-being (n = 67), followed by preventing mental illness (n = 48) were the most common considerations, and participants were least motivated by finances, work, or friends.

Four hundred and sixty-two participants reported current alcohol use with a median AUDIT score 9.0 (IQR: 5.0–15.0), suggesting participants are drinking with "increasing risk" of harm. One hundred and twenty-four (26.8 %) participants had an AUDIT score suggestive of probable dependence ($\geq$15). When asked if they would like to reduce their alcohol use in the 12 months following the survey, 278 of 473 participants responded with "yes" (n = 126; 26.6 %) or "maybe" (n = 152; 32.1 %). Of the 274 participants reporting whether they would like help to reduce their alcohol use in the coming 12 months, 184 responded with "yes" (n = 38; 13.9 %) or "maybe" (n = 146; 53.3 %). There were no significant differences between gender groups on these measures.

Fig. 2 presents the percentage of participants in each gender group who used (people who no longer drink alcohol) and would prefer to use (people who currently drink alcohol) each of a pre-specified list of alcohol reduction support modalities.

Participants who no longer drink alcohol selected, from a pre-specified list of 17, all sources of support (or "none") they used when reducing their alcohol consumption. Of 92 participants, 63 (68.5 %) reported no formal support with their alcohol reduction. Of those who had support, self-help tools (online or via an app; n = 12), face-to-face (F2F) counselling from a specialist clinician (n = 11), and 12-step fellowships were most frequently accessed (n = 10). When participants who currently drink alcohol were asked to choose which of these support modalities they would like to access if they decided to reduce their alcohol use, self-help tools (n = 171) were the preferred option. Specialist alcohol reduction services for trans and non-binary people (n = 143) and LGBT+ people (n = 136) were also popular support modalities.

Fig. 2 compares the historical use of or preference for each support modality among participants who no longer drink and those who currently use alcohol as a percentage of the total number of responses to these respective questions (146 responses from participants who are abstinent and 968 responses from participants who currently use alcohol). This graph illustrates that, although participants have historically relied on group-based support (such as 12-step fellowships, inpatient rehabilitation, F2F group therapies, and SMART recovery), it may not be the preferred option. Additionally, it raises the possibility of unmet demand for particular services, such as self-help tools and

Table 1
Sample characteristics (N = 565).

Variable		n (%)
Gender identity	Non-binary and/or genderqueer	210 (37.2)
	Woman only	160 (28.3)
	Multiple gender identities	104 (18.4)
	Man only	74 (13.1)
	Other identity	17 (3.0)
What sex were you assigned at birth?	Female	280 (49.6)
	Male	250 (44.2)
	Prefer not to say	35 (6.2)
Personal pronouns[a]	They/them/theirs	286 (50.6)
	She/her/hers	220 (38.9)
	He/him/his	141 (25.0)
	Any of above	30 (5.3)
	Prefer not to use pronouns	9 (1.6)
Do you identify as intersex?	No	539 (95.6)
	Prefer not to say	16 (2.8)
	Yes	9 (1.6)
Sexual orientation[a]	Bisexual/pansexual	339 (59.8)
	Queer	285 (41.4)
	Gay/lesbian/homosexual	169 (30.0)
	Asexual	82 (14.5)
	Demisexual	44 (7.8)
	Heterosexual	29 (5.1)
Ethnic group	White	513 (90.8)
	Mixed/multiple ethnic groups	26 (4.6)
	Other (self-describe)	15 (2.5)
	Asian/Asian British	7 (1.2)
	Black/African/Caribbean/Black British	2 (0.4)
	Latino	2 (0.4)
	Arab	1 (0.2)
Education level	A-level or equivalent	202 (35.9)
	Undergraduate	183 (32.5)
	Postgraduate	116 (20.6)
	GCSE or equivalent	49 (8.7)
	No qualifications	7 (1.2)
	Other qualifications	4 (0.7)
	Level 1 or below	2 (0.4)
Occupation status	(Self-)employed full-time	242 (42.8)
	Student full-time	146 (25.8)
	Not currently employed, studying or caring (not COVID-19-related)	63 (11.2)
	(Self-)employed part-time	60 (10.6)
	Student part-time	10 (1.8)
	Not currently employed, studying or caring (COVID-19-related)	8 (1.4)
	Caring for dependents children, relatives or other people	8 (1.4)
Country of residence	England	479 (85.1)
	Scotland	58 (10.3)
	Wales	22 (3.9)
	Northern Ireland	4 (0.7)
Do you consider yourself to be neurodiverse?	Yes	339 (60.2)
	No	187 (33.2)
	Prefer not to say	37 (6.6)
UCLA Loneliness Scale	6–9 (significantly lonely)	425 (75.8)
Kessler-6	≥13 (severe distress)	281 (49.7)
"I have achieved my gender-affirmation goals"	Strongly disagree	201 (35.6)
	Somewhat disagree	177 (31.4)
	Somewhat agree	99 (17.6)
	Neither agree nor disagree	56 (9.9)
	Strongly agree	24 (4.3)
	Not applicable	7 (1.2)

Notes: GCSE: general certificate of secondary education: UCLA: University of California Los Angeles.
[a] Total exceeds 100 % because participants could select more than one response.

specialised services for LGBT+ or transgender and non-binary (TNB in graph) individuals.

3.1. Thematic analysis of OQs

Sixty-five participants responded to OQ1 and 111 responded to OQ2. Participants who responded to OQs were not significantly different from those who did not respond in terms of demographics (gender identity, sexual orientation, education level, neurodivergence) and measures of well-being (UCLA Loneliness Scale, K6) at level $p < 0.01$ (adjusted for multiple testing).

The authors identified three themes among participants' responses: 1) Pervasive culture of alcohol excess both within and beyond the "gaybourhood"; 2) Mental illness as antecedent and consequence of heavy alcohol use; 3) Gender dysphoria, gender affirmation, and self-acceptance.

3.1.1. Pervasive culture of alcohol excess both within and beyond the "gaybourhood"

Participants drew attention to the sociocultural context of alcohol use in the UK and the absence of alternative social opportunities as barriers to alcohol reduction. Behavioural change toward less harmful drinking was difficult in the absence of sober spaces and peers.

Particularly harmful patterns of alcohol use and disregard for the associated health risks were classified as stereotypical of British behaviour with one participant reporting "*I think drinking is embedded within the UK culture and a lot of problems stem from the fact that it has become normalised for people to drink large amounts in particular places or events. In addition I think that people often do not have respect for how alcohol can affect the body*" (woman only). Another participant contextualised this culture of alcohol excess as an international joke and a barrier to alcohol reduction: "*I may have never stopped drinking. Because [it] is so, so deeply normalised in the UK. its seen as a fun joke that we drink so much*" (non-binary and/or genderqueer).

Many participants described settings purporting to cater for LGBT+ people as particularly alcogenic. One participant reported: "*I think most LGBT spaces are centred around the club scene and alcohol consumption. There needs to be more dry LGBT spaces*" (non-binary and/or genderqueer). Indeed, the need for sober queer social spaces was a recurrent sentiment: "*I have already reduced my drinking in the last couple of years due to issues I've had. I think the type of [support] that would be useful is a focus on sober spaces especially that cater to queer people in the evenings rather than just the day time. I'd love to still be able to go out and dance in a*

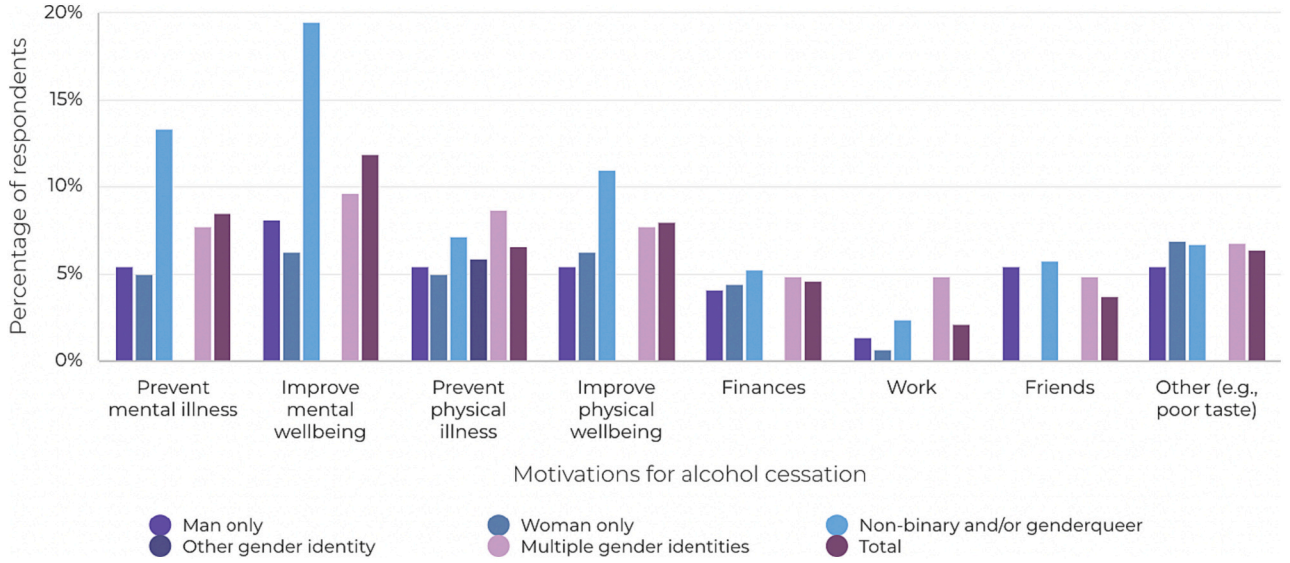

Fig. 1. Motivations for alcohol cessation by gender identity.

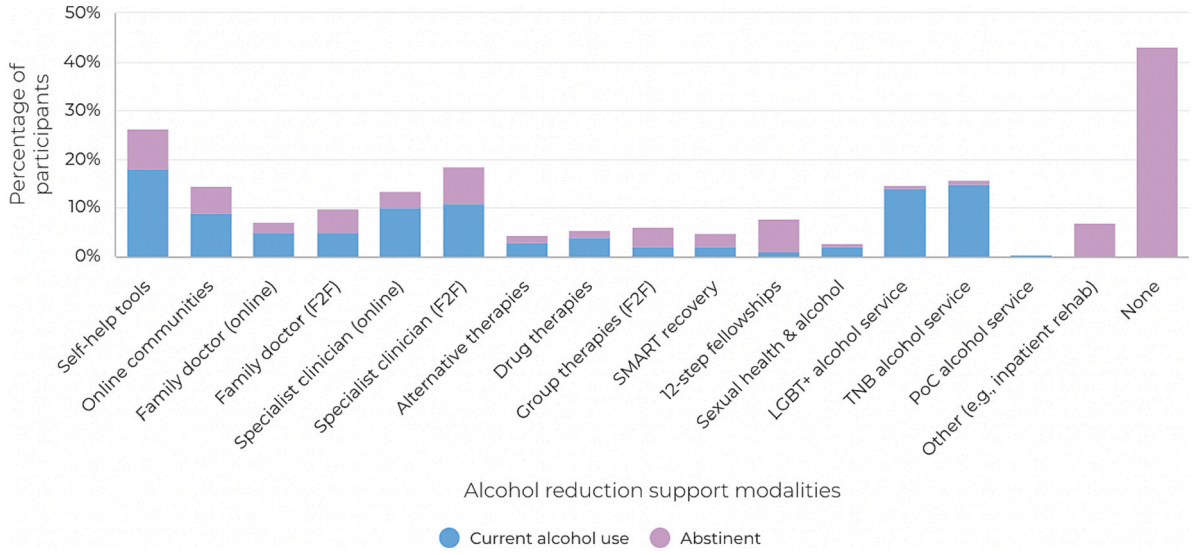

Fig. 2. Preferred or utilised alcohol reduction support modalities by participants who do and do not use alcohol, respectively.

sober space" (non-binary and/or genderqueer). Another participant shared:

> *We need more queer and trans spaces that allow us to socialize without the pressure of drinking alcohol…there's so little queer culture that isn't club and pub focused. When I used to drink more, I would never have accessed specialist services because I wouldn't have seen them as being "for" me, but I would have really benefited from queer social activities that offered alternatives to drinking.*
>
> (non-binary and/or genderqueer)

The need for community connectedness was implicit throughout the data. Participants' accounts suggested concern surrounding how to sustain connections, often facilitated by alcohol, in abstinence.

3.1.2. Mental illness as antecedent and consequence of heavy alcohol use

Concordant with the level of distress identified by the participants' K6 scores, respondents frequently reported mental health difficulties in OQs. There was considerable variation in how the participants described the relationship between their mental health and alcohol use. However, participants agreed that "*poor mental health in general in the [trans] community is the reason for a [high] alcohol intake*" (man only).

Many used alcohol to cope with distress. One respondent characterised alcohol as medicinal and described this as a barrier to cessation: "*It took many attempts to stop, as I often felt unable to make it through the evening, and get to sleep, without the pain relief that the alcohol provided - as laying awake, trying to sleep is when my negative ruminations were at their strongest*" (woman only).

However, participants also reported that drinking exacerbated mental illness: "*I didn't drink frequently, but when I did I would blackout frequently. It worsened my anxiety and depression, I often did embrassing things which would lead me to isolate myself for months at a time. I've also been in hospital for alcohol poisoning twice so I thought maybe it was time to stop*" (non-binary and/or genderqueer). One participant reported life-threatening mental states following alcohol use: "*When I had intrusive thoughts, drinking was especially dangerous. I had two suicide attempts while under the influence*" (non-binary and/or genderqueer). This quote highlighted the fraught state that alcohol may bring about for people who

already experience substantial distress.

Some participants felt that the need for alcohol reduction services was ultimately subordinate to adequate mental health and social care:

> *Alcoholism tends to come from inadequacy in a person's life, ie depression, financial difficulties etc. Support for cutting down on alcohol consumption needs to address the root of the problems and not shaming an individual for spiraling into an addiction. I think working on that mentality will help people to help others reduce their drinking.*
>
> (woman only)

However, such care was not always forthcoming. One participant reported that they "*tried to get help through mental health services but [were not] taken seriously*" (woman only). Another was "*Told that services are oversubscribed etc.*" (woman only).

Moreover, exactly what constituted the 'right' kind of support was heavily influenced by participants' mental health. In the absence of adequate mental health care, participants required alcohol reduction services to account for these needs, where possible:

> *…I believe I have undiagnosed PTSD and have tried talking to them about this and again dismissed…I've tried services like [named service] but pandemic lockdown meant that everything was online and zoom meetings are off putting. Prior to this drop ins were on an afternoon on a weekday and I have work. To be honest I find support groups with everybody talking about their problems pretty triggering and I often drink straight after so not entirely sure what the answer is in my case.*
>
> (woman only)

This account suggests that, just as for the general population, a range of therapeutic options are required for trans and non-binary people.

Post-traumatic stress was reported by several participants, who each reported different triggers, suggesting there will be no 'one size fits all' solution: "*As someone who has PTSD due to their upbringing in a fundementalist religious cult, it's important for me to get access to non-theist based support*" (non-binary and/or genderqueer). Another participant reinforced this observation: "*I do however smoke weed most days, which is how I manage not to drink without support…or any therapy. This is something I'd like to change but I really struggle to access therapy due to my neurodivergence*" (non-binary and/or genderqueer). Since most of the sample reported neurodivergence, this is an important consideration for those providing support.

3.1.3. Gender dysphoria, gender affirmation, and self-acceptance

Most OQ respondents reported either using alcohol to cope with gender dysphoria or an ability to reduce their consumption following personal, social, or medical gender affirmation. However, for others, alcohol clouded this self-understanding, and it was only through abstinence that they were able to understand and come to terms with their gender identity.

Whether unnamed or understood as gender dysphoria, this distress overwhelmed participants and alcohol was used to 'self-medicate':

> *I think "reducing alcohol consumption" is a worthy goal, but one with downsides. Alcohol DID free me from society's expectations and let me be honest with myself. Breaking that iron cage took a dangerous amount of alcohol; but if you were alone in a cage with a stick of dynamite and a match, wouldn't you set it alight to free your own self, despite the risks? My dysphoria used to be so bad I would drink myself to blackout once a month so I could get a good night's sleep without being troubled by my dreams.*
>
> (woman only)

Another participant, who reduced alcohol consumption in preparation for gender-affirming surgery, became entirely abstinent post-operatively. They described:

> *I was drinking 2 bottles of spirits a day until I had to scale it back for top surgery. Post top surgery I was able to reevaluate my place in the world and within myself and quit drinking cold turkey while my GP monitored me and put me on antidepressants. I never realised how expensive or destructive a habit it was until I stopped. No amount of friends or family expressing concern got through to me. 7 years sober and I wholly believe it was my way of self medicating dysphoria.*
>
> (man only)

Similarly, participants reported that gender-affirming medical interventions facilitated alcohol reduction: "*Either being out, or maybe HRT itself, seems to have let me better balance my drinking. It's easier to have non-drinking days, and easier to decide to stop sooner*" (non-binary and/or genderqueer). For some participants, the gender affirmation associated with self-acceptance facilitated alcohol reduction: "*I think a lot of people don't have the tools to cope without alcohol to rely on. I had a tough life and I think it has it's purpose but accepting I was trans and starting my transition was the point at which I really started to care for myself and my wellbeing*" (woman only).

Other participants described a struggle to understand their own experiences. Alcohol reduction provided clarity surrounding their distress, which possibly reinforced ongoing sobriety: "*Getting sober not only saved my life but allowed me to be honest with myself about my gender and live openly*" (non-binary and/or genderqueer). A lack of understanding surrounding experiences of gender dysphoria seemed to stem from a lack of education surrounding gender minority lives, providing an example of societal trans and non-binary exclusion: "*alcohol [is] the plaster on a wound. acceptance from a [young] age would help to avoid the wound….*" (non-binary and/or genderqueer). Other participants reiterated this sentiment:

> *Alcohol was a huge crutch for me when I didn't understand myself when I was a teenager, it was an easy escape and it was cool to [get] drunk (until it wasn't..). I wish there was more education on differe[nt] [sexual orientations] and gender identities in high school as it would have opened my eyes much earlier, and I may have been able to work on myself positively rather than hate myself for what I perceived as flaws.*
>
> (woman only)

To allow trans and non-binary people to use alcohol (or not) in a way that is acceptable to them, causing minimal harm to their health, participants assert the need to "*Give trans people healthcare, stop the segregated healthcare system that denies life saving medicine to a minority (genocide)*" (woman only). Providing this care and an awareness of gender diversity from a young age are paramount to normalising trans and non-binary identities for both members of these communities and their peers to minimise the risk to themselves and from others.

4. Discussion

4.1. Key findings

This study recruited a large, neurodiverse, and mostly non-heterosexual sample of UK-based trans and non-binary people who reported a high prevalence of loneliness and severe psychological distress. >15 % of the sample no longer drink alcohol. Of these, the majority reported long-term abstinence which was achieved without external support and was motivated by a loss of control over drinking behaviour and a desire to improve both physical and mental health.

Most of the sample continue to drink alcohol and, on average, reported hazardous use. Participants expressed a preference for specialist alcohol reduction services for LGBT+ people or trans and non-binary people only. SMART and 12-step recovery were unpopular support options. Participants reported in OQs that mental illness, gender dysphoria, and an alcogenic culture nationally and within LGBT+ communities were major precipitants of alcohol use. Moreover, the

paucity of sober queer social spaces, lack of accessible personalised mental health and substance use care, and limited provision of gender-affirming interventions were reported as barriers to alcohol reduction. Some participants also reported that sobriety provided insight on gender modality/identity.

4.2. Findings in context

The percentage of participants reporting that they wanted to reduce their alcohol use and seek help to do so (approximately 30 % and 10–20 %, respectively) was congruent with reports from trans and non-binary Global Drug Survey respondents (Connolly et al., 2020). Again, similar to existing cervical cancer screening research (Berner et al., 2021), this study found that those who would like support would prefer a trans and non-binary specialist health service. Group environments, including 12-step fellowships and SMART groups, were unpopular support modalities, in keeping with previous research that found that trans and non-binary people experience exclusion from these spaces, even those purporting LGBT+-inclusivity (Dimova et al., 2022; Leven et al., 2020).

There is a known high burden of mental illness among trans and non-binary people in the UK (McNeil et al., 2012) and existing research from Scotland has found that alcohol use both "self-medicates" and exacerbates this: "*I drink to drown my sorrows. I don't have non-binary friends that I can go to, hang out with – I don't have that social connection, so I drink on my own, and self-harm comes into it, because alcohol numbs the skin for when you go to self-harm – it makes it easier*".

While there is a lack of data on how wider populations of trans and non-binary people have become sober, a scoping review which sought to identify specialist services found these were not currently available in the UK (Chapa Montemayor & Connolly, 2023). Many abstinent participants stopped drinking without support. However, a 2018 Alcohol Concern and Alcohol Research UK report suggested that limited provision of and access to alcohol reduction services may also be an issue for the general population (Alcohol Concern, 2018).

4.3. Limitations

This study, which was among the first to survey alcohol use in UK-based trans and non-binary communities, adhered to both a pre-specified protocol and guidance for conducting research with trans populations (Adams et al., 2017). All authors and the CAG felt that the within-group approach of this study demanded a single, maximally inclusive gender identity question. However, the heterogeneity of responses meant that participants were re-categorised into one of five gender groups that did not capture some participants' identities in their entirety.

Collaboration with the diverse, paid CAG and partner organisations was a strength, ensuring that design, recruitment, analysis, and dissemination were accessible and informed by lived experience. The large sample recruited can likely be attributed to the purposive sampling approach which is known to be effective in accessing hidden populations (Turban et al., 2022). However, the opportunistic sample was non-representative and has limited generalisability due to the homogeneity of location and ethnicity in the sample. Respondents from Scotland (n = 58), Wales (n = 22) and Northern Ireland (n = 4) were underrepresented. While it is possible that a disproportionate percentage of the trans and non-binary population are located in England (specifically London), partnership with an almost exclusively England-based CAG and community partner organisations may have introduced bias. Of particular concern was the underrepresentation of and poor generalisability to people of colour (<10 %). Work is planned to explore use of other drugs and specific behaviours (e.g., sexualised drug use). Priority will be given to diversifying these teams and collaborating with community organisations which are led by people of colour.

4.4. Clinical, policy, and research recommendations

This study highlights a need for alcohol reduction support among UK-based trans and non-binary people. Providers of non-specialist services should be trained in providing gender-affirming care. The feasibility of developing specialist alcohol reduction services for trans and non-binary people should be explored and the availability of specialist LGBT+ services increased, particularly digital services that permit anonymity and passive participation (Dimova et al., 2022). To determine the required scale of these services, UK estimates of the population prevalence of problematic alcohol use in trans and non-binary communities are required (Connolly et al., 2022). Therefore, the two-stage approach to measuring gender modality (gender identity x sex registered at birth) should be incorporated into representative national surveys of people who use alcohol (e.g., National Drug Treatment Monitoring Service) and the general population (Connolly et al., 2022; Freestone et al., 2022). This approach has been successfully implemented in the 2021 UK census, the GP Patient Survey and the Cancer Patient Experience Survey, which can, for the first time, report disaggregated findings for trans and non-binary people.

Participants also cited gender dysphoria as a precipitant of problematic alcohol use and a need to upscale the provision of gender-affirming medical interventions. Trans and non-binary people now wait up to five years for a first assessment with a Gender Identity Clinic (*UK Gender Service Wait Times: TransgenderUK*, n.d.). The sequelae of gender dysphoria are broader than alcohol-related harm and can be life-threatening (García-Vega et al., 2018). The extremely limited access to these services is a public health crisis.

Participants also reported a need for alcohol-free queer social spaces to reduce the pressure to consume alcohol. We call on local authorities as well as organisations that support the well-being of trans and non-binary people to allocate funding to the provision and/or development of spaces and events where people can connect in the absence of alcohol (e.g., "conscious clubbing"; Hill et al., 2022). This investment is particularly important given the role of community connectedness in mitigating gender-based minority stress (Meyer, 2003).

Follow-up research is needed to develop our understanding of these findings. Future studies should aim to understand and improve the experiences of trans and non-binary people who have sought or would like to seek help to reduce their alcohol consumption. Further research should aim to build upon this study's community collaboration by a) involving stakeholders from all UK regions with a particular focus on racially minoritized groups; b) training peer researchers to collect and interpret qualitative data; c) recruiting experts by lived experience to create a set of recommendations for alcohol reduction service provision based on these findings and future qualitative work.

5. Conclusions

Concerns surrounding physical and mental health and a perceived loss of control over drinking behaviour were the main reasons for alcohol cessation among the 15 % of participants who became sober, largely without support. Thirty percent of people who drank at the time of the survey wanted to reduce their alcohol consumption. While participants preferred self-help tools and trans and non-binary or LGBT+ specialist services over other individual or group modalities, they expressed a need for systemic changes to make a meaningful reduction in alcohol-related harm. These included increased access to gender-affirming care, a reduction in societal transphobia, improved access to alcohol reduction services following a reduction in gender binarism and the development of more sober, queer social spaces.

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CRediT authorship contribution statement

Dean J. Connolly: Formal analysis, Writing – review & editing, Writing – original draft, Visualization, Project administration, Methodology, Investigation, Conceptualization. **Beth Thayne:** Writing – review & editing, Methodology, Conceptualization. **Jacob Bayliss:** Writing – review & editing, Methodology, Conceptualization. **Xan Hughes:** Writing – review & editing, Methodology, Conceptualization. **Zhi Holloway:** Writing – review & editing, Methodology, Conceptualization. **Stewart O'Callaghan:** Writing – review & editing, Methodology, Conceptualization. **Emma Davies:** Writing – review & editing, Supervision, Methodology, Funding acquisition, Formal analysis, Conceptualization.

Declaration of competing interest

None.

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