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"It's difficult when everyone else is drinking, you don't feel part of the tribe": a Delphi study of barriers and enablers to alcohol reduction in mid-life women

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ABSTRACT

Objectives: Midlife women are an important group to target for alcohol reduction, but there is a lack of research on drinking behaviour in this population. To address the gap, this study applied the Behaviour Change Wheel framework, and identified barriers and enablers to alcohol reduction to inform the development of a novel intervention.

Methods and measures: In a three round online Delphi study 310 women aged 40–65 years completed a survey including COM-B measures, and rated the acceptability of 12 clusters of BCTs; 33 women took part in focus group discussions, and 7 took part in a final workshop.

Results: Automatic motivation (habits) and social opportunity (other people's drinking) were the strongest correlates of current drinking behaviour. BCT clusters rated highly were substitution, goals and planning, and identity. Focus groups highlighted the challenges of being a non-drinker in an 'alcogenic' world. Workshop findings suggested an intervention should promote connection with others, and include real life stories from women to promote behaviour change.

Conclusions: Midlife women who choose to change their drinking behaviour may face social pressure and stigma. Interventions need to support women and reduce feelings of judgement: using story-telling may be a way to address these challenges.

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Alcohol; COM-B; Delphi study; intervention development; mid-life; women

Introduction

Alcohol is the third leading risk factor for mortality and morbidity in the UK (Public Health England, 2016). Evidence shows that mid-life women (aged 40–65) drink more frequently than their younger counterparts (Dare et al., 2020; NHS Digital, 2020) and one in five drink at increasing (15–35 units/week) or higher risk levels

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(>35 units/week;1 unit = 8 g or 10 ml alcohol) (NHS Digital, 2023). There are well-established biological (sex) and socio-cultural (gender) differences in drinking harms, consequences and patterns of alcohol use (Erol & Karpyak, 2015; Flores-Bonilla & Richardson, 2020). Although <14 units is considered 'low risk', harms can occur from low levels of alcohol consumption in women (IAS, 2020). Risk of breast cancer increases at any level of alcohol consumption (Bagnardi et al., 2015). Women experience dependence at lower levels of consumption, and liver disease and hepatitis have a shorter onset time in women compared to men (Erol & Karpyak, 2015). At present, there is a lack of evidence for effective, targeted interventions to facilitate alcohol reduction specifically in mid-life women.

Evidence has suggested a rise in risky drinking among mid-life women in recent years (Daly & Robinson, 2021; Niedzwiedz et al., 2021), Women are more likely to under-report their alcohol consumption compared to men (Livingston & Callinan, 2015). Barriers to help seeking for alcohol reduction in mid-life women include fears of stigma, missing the positive aspects of drinking alcohol and feeling as if one is functioning at a high level (Haighton et al., 2016). In light of these barriers, it is unsurprising that only a very small proportion of women with alcohol use disorder ever receive treatment (IAS, 2020). Women who drink heavily are less likely than men to attend their GP and if they do, GPs are less likely to screen, and give less advice to women about alcohol compared to men (Clarke et al., 2024).

In this paper, while there is likely to be variability in life stage and experience, we considered mid-life as aged between 40 and 65, in line with other researchers (Miller et al., 2023; Wright et al., 2022). There are a number of reasons why interventions are needed that have a specific focus on women in mid-life. During mid-life, women face a range of challenges, including menopause transition and caring for children and elderly relatives, whilst working full time—often referred to as working a 'double shift' (Caluzzi et al., 2022).

During challenging times, drinking alcohol can represent a form of self-care for women, and as a way to give and receive care and support from others, for example when sharing stories relating to the stresses of daily life over a drink (Jackson et al., 2018). However, excessive alcohol consumption is often linked with anxiety and depression in mid-life women (Guinle & Sinha, 2020; McCrady et al., 2020; Peltier et al., 2019), with studies showing that women report using alcohol to cope with negative emotions (Fleming et al., 2023). Alcohol may provide a way to escape from the need to manage multiple stressors (Lyons et al., 2014) and be seen as part of women's wellness toolkits (Ward et al., 2022).

In order to be acceptable and effective, interventions must account for the diverse meanings and functions of alcohol in women's lives (Kersey et al., 2022). In previous work, we undertook a focus group study and identified the need to take into account the social benefits that women enjoy during drinking occasions, as well as to consider how alcohol may be used as a coping mechanism (Davies et al. 2024). The current study was part of a larger project, which also explored women's views about alcohol and breast cancer, and how to raise awareness of the association between the two. Using the Behaviour Change Wheel framework (BCW; Michie et al., 2014) this study was conducted to explore barriers and enablers for alcohol

reduction, and to identify acceptable behaviour change techniques (BCTs) to use in an intervention for alcohol reduction in mid-life women. To understand barriers and enablers to alcohol reduction in this study, we therefore employed an overarching model of behaviour—the COM-B model. The COM-B model proposes that behaviour is the result of a dynamic combination of an individual's capability, opportunity, and motivation (Michie et al., 2011). Capability may be physical (skill, strength) or psychological (knowledge, psychological stamina). Opportunity may be physical (in terms of the environment, time or resources) or social (norms, cues, interpersonal influences). Motivation may be reflective (plans or conscious intentions) or automatic (reactions, habits, desires and impulses). Understanding these factors can inform intervention development.

Method

The study protocol and survey materials are is available on the Open Science Framework (Davies et al., 2023). Procedures were reviewed by Oxford Brookes University Research Ethics Committee (ref 191269). All participants provided informed consent.

Public involvement

An important part of the study was the inclusion of a public advisory group (PAG). Our PAG comprised six women aged 40–65 with (1) lived experience of drinking alcohol at levels that indicate increased risk of health harms (14+ units per week), (2) women with direct experience of breast cancer, and (3) those with experience of reducing their drinking. PAG members could meet all these criteria or just one or two.

Delphi methodology

A Delphi study seeks a consensus of expert opinion through a series of structured questionnaire rounds usually incorporating both quantitative and qualitative measures (van Teijlingen et al., 2006). Experts provide data through several iterations. After each iteration, controlled feedback with the anonymised consolidated responses is provided. The experts in our study were primarily women aged 40–65 years with a range of relevant experiences including those who had experiences of drinking alcohol, those who had a diagnosis of breast cancer and currently or previously consumed alcohol, and those who had experience of moderating or quitting alcohol. Participants included people who met one or more of the key criteria for inclusion. We also included experts who had experience of working with the target group in alcohol and breast cancer charities and support organisations. We employed a modified or 'reactive' Delphi study design, that set out a number of pre-defined areas for participants to respond to in the first round (Tonni & Oliver, 2013) and delved into those areas further in the second and third round. The first round of this Delphi study consisted of a survey, to get feedback on a range of possible BCTs. The second round of this Delphi study incorporated focus groups in order to explore the acceptability of the BCTs in more depth and further understand barriers

and enablers to alcohol reduction. The final round of this Delphi study was a workshop to identify priorities for an intervention aimed at reducing alcohol consumption in women aged 40-65. An important aspect of a Delphi study is that it is iterative in nature. Therefore, results from previous rounds are presented in rounds two and three to explore findings further and agree key recommendations at the end (Davies et al., 2016).

Delphi Round 1: survey – participants

We recruited participants using existing national networks relating to alcohol reduction, breast cancer charities, local patient and public involvement groups, a local library and social media. In total, 412 people clicked the link, 310 of those submitted the survey. Twenty paper surveys were distributed *via* a local library and six were returned. Of the 316, six cases were discarded due to failing attention checks leaving a final sample of 310 (see Table 1).

Measures

Alcohol consumption was measured using the AUDIT-C, which consists of the first three items of the Alcohol Use Disorders Identification Test (AUDIT; Babor et al., 2001). The three items ask about frequency of consumption, number of units consumed on a typical drinking day, and frequency of binge drinking (6 or more units on one occasion).

COM-B measures were adapted from the Alcohol Toolkit study (Stevely et al., 2018). Two additional items relating to social opportunity were adapted from a study on lifestyle behaviours following breast cancer diagnosis (Watson et al., 2022). All items were rated 1–7.

Psychological capability

Knowledge of current NHS alcohol guidelines was assessed using one item and the correct guideline was provided, so that the other questions could be answered accurately. Skills were assessed with one item: *How often, if at all, do you keep track of how many units of alcohol you personally drink each week?*

Physical opportunity

Participants rated the statement: *Do you know where to go if you wanted advice or support to help you cut down on your drinking of alcoholic drinks?*

Social opportunity

Participants rated two statements: *How easy or difficult do you think your lifestyle makes it for you to personally drink 14 or fewer units of alcohol a week?* and *as far as I know, most people who are important to me (e.g. friends/family) drink less than 14 units of alcohol each week.*

Table 1. Characteristics of Delphi study round one participants.

Characteristic		
N = 310	Mean	SD
Age	51.13	7.27
Gender	***N***	**%**
Woman	308	99.4
Man*	1	0.3
Prefer to self-describe	1	0.3
Sex		
Female	309	99.7
Male	1	0.3
Ethnicity		
White British	225	72.6
White Other	25	8
Mixed	12	3.9
Asian or Asian British	24	7.7
Black or Black British	24	7.7
Sexuality		
Straight/heterosexual	291	93.9
Gay or lesbian	4	1.3
Bi-sexual	8	2.6
Other/prefer not to say	7	2.2
Breast cancer		
No prior diagnosis	208	67.1
Diagnosis of breast cancer	99	31.9
Prefer not to say/ missing	3	0.9
Menopausal status		
Premenopausal	41	13.2
Peri-menopausal	108	34.8
Postmenopausal	137	44.2
Not sure	20	6.5
Prefer not to say/missing	4	1.2
Education		
Secondary school GCSES	15	4.8
Secondary school A-Levels	26	8.4
Trade	26	8.4
Batchelor's degree	105	33.9
Master's degree	78	25.2
Doctoral degree	20	6.5
Professional degree	29	9.4
Other/prefer not to say	11	3.6
Occupation		
Employed full time	133	42.9
Employed part time	62	20
Self-employed	46	14.8
Retired	32	10.3
Stay at home mum/homemaker	16	5.2
Unemployed	5	1.6
Unable to work	5	1.6
Student	5	1.6
Other	6	1.9
Alcohol		
Non-drinker	58	18.7
Current drinker	252	81.3

*One man who had experience of breast cancer was recruited. As understanding how to raise awareness of the link between alcohol and breast cancer was another aim of the study, this data was retained in the survey.

Reflective motivation

Participants rated two statements: *To what extent do you intend to regularly drink less than 14 units of alcohol each week?* and *to what extent do you intend to have at least two alcohol free days each week?*

Automatic motivation

Participants rated two statements, firstly *to what extent do you want to avoid regularly drinking more than 14 units of alcohol each week, rather than just thinking that you should?* Secondly, *Drinking alcohol is something that belongs to my daily routine*. The first item was reverse scored so that a high score indicated higher levels of automatic motivation towards drinking.

Behaviour change techniques

A list of 12 groups of BCTs was identified in the literature search (see supplementary file 1) and from a previous study (Davies et al., 2024). We wrote descriptions of each cluster of BCTs and provided examples (see Table 2). For example, under the heading 'Substitution' the examples were:

- replacing alcoholic drinks with non-alcoholic drinks.
- instead of drinking alcohol, using another activity to unwind at the end of the day/weekend.
- instead of going to the pub with friends, doing another activity, such as going for coffee, playing sport, or seeing a film.

Each participant saw a random selection of six of the 12 BCTs (to reduce participant burden on advice of the PAG) and were asked to rate whether they liked them (from 1 strongly dislike to 7 strongly like). This question was adapted from a theory-based acceptability questionnaire proposed in a previous study (Sekhon et al., 2022). They then rated perceived effectiveness (from 1 highly ineffective to 7 highly effective).

Participants were asked about their age, gender, sex registered at birth, sexuality, ethnic group, menopause status, rating of self-reported health, education and current occupation. Participants who wanted to be contacted to receive information about subsequent stages of the project could leave an email address.

Analysis

Correlations between COM-B components and AUDIT-C scores were explored to understand factors for subsequent targeting in the intervention. We used descriptive statistics to average ratings for each BCT in terms of how much people liked each group and how effective they thought each would be. As they were highly correlated – ranging from $r = 0.668$ (environment) to $r = 0.836$ (knowledge), the two scores were summed to provide an overall acceptability rating. These ratings were explored by AUDIT-C score (comparing non-drinkers with those who drink) and breast cancer status.

Round 1 results

Survey participants

The average age of the sample was 51.13 (SD = 7.27) and 72.6% of the sample identified as White British (see Table 1). The sample was predominantly

Table 2. BCT clusters and example BCTs presented in Round 1 survey.

Number	Strategy	Examples
1	Goals and planning.	• setting a daily or weekly goal for the number of alcohol units consumed or number of alcohol free days. • identifying different places or feelings that will generate the urge to drink. • making a plan of what to do when you have the urge to drink.
2	Feedback and monitoring	• getting feedback from someone else about how much alcohol has been consumed. • personally recording how much alcohol has been consumed or impacts of drinking less, e.g. better sleep, not feeling hungover.
3	Social support	• getting practical support from friends e.g. to remove alcohol products from the house • getting emotional support from a friend or family member when experiencing the urge to drink
4	Shaping knowledge	• getting advice about how to measure units of alcohol. • getting advice about the number of units in different alcoholic drinks.
5	Consequences	• Getting information about the health effects of alcohol. • Thinking about how you might feel if you drink more than you intend to.
6	Making comparisons to other people	• Seeing another person successfully reducing their own alcohol consumption • Comparing oneself to others who have successfully reduced their alcohol consumption. • Getting information about what other people think about reducing their drinking.
7	Substitution	• Replacing alcoholic drinks with non alcoholic drinks • Instead of drinking alcohol, using another activity to unwind at the end of the day/weekend. • Instead of going to the pub with friends, doing another activity, such as going for coffee, playing a sport, or seeing a film.
8	Comparing outcomes	• Hearing from a celebrity who has successfully reduced their alcohol consumption. • Comparing the pros and cons of reducing alcohol consumption.
9	Rewards	• Being encouraged to reward yourself with a material object (e.g. new clothes, new gadget) for reducing your alcohol consumption. • Being rewarded by other people such as friends or family members for for reducing your alcohol consumption.
10	Changing the environment	• Making sure there are no alcoholic drinks in the house. • Avoiding places where you normally drink alcohol.
11	Identity	• Thinking about your personal strengths or values that don't include alcohol consumption. • Thinking about your new identity as a person who has reduced their alcohol consumption.
12	Self belief	• Imagining a scenario where you successfully avoided alcohol or drank less than usual. • Telling yourself about how good you will feel waking up in the morning after a non-drinking night.

heterosexual (93.9%), a third (31.9%) had a diagnosis of breast cancer and 18.7% were non-drinkers. Most were educated to at least degree (33.9%) or master's level (25.2%).

Table 3. Correlations between study measures for people who currently drink alcohol.

	1	2	3	4	5	6	7	8	9
M (SD)	5.40 (3.06)	4.09 (2.42)	4.88 (2.06)	9.67 (2.96)	12.24 (2.61)	11.95 (2.56)	6.12 (2.04)	3.45 (0.94)	3.99 (2.38)
1. AUDITC	–								
2. Psychological capability	−0.165**	–							
3. Physical opportunity	0.97	0.156*	–						
4. Social opportunity	−0.435*	0.004	−0.012	–					
5. Reflective motivation	−0.301**	0.183**	0.175**	0.224**	–				
6. Automatic motivation	0.582**	−0.261**	0.117	−0.443**	−0.604**	–			
7. Cancer knowledge	0.021	0.074	−0.004	0.001	0.032	−0.033	–		
8. Self-reported health	0.060	0.079	0.096	−0.006	0.087	−0.018	0.000	–	
9. BCa awareness	0.046	0.270**	0.123	−0.177**	0.210**	−0.083	0.149*	0.195**	–
10. Age	−0.046	0.084	0.022	−0.048	0.106	−0.094	−0.050	0.091	0.245**

**$p < .01$; *$p < .05$.

Correlations

Correlations between study measures for those who were current consumers of alcohol are shown in Table 3. The strongest association was between AUDIT-C and automatic motivation (habit). Those who consumed more alcohol had higher automatic motivation scores (e.g. drinking was more of a habit and they did not believe they should reduce alcohol consumption). Participants with higher levels of social opportunity (i.e. their lifestyle made it easy to stick to 14 units or fewer, and their friends/family were supportive) also had lower AUDIT-C scores. Those who were more motivated to stick to 14 or fewer units each week, and have two or more alcohol free days (strong reflective motivation to reduce) had lower AUDIT-C scores. Prior awareness of the link between alcohol and breast cancer was associated with being older, and with higher levels of reflective motivation.

Behaviour change techniques

Although there was little variability between the ratings (see Table 4) with most averaging between 9 and 11 (out of a possible 14), some patterns in the results were identified. The substitution cluster (replacing drinks or activities) was the most highly rated ($M = 11.18$, SD = 2.39), whereas the reward cluster (rewarding self or being rewarded by others for reducing drinking) was rated the lowest ($M = 9.02$, SD = 3.22). Participants with breast cancer rated the identity cluster (personal strengths values or new identify as someone who has successfully reduced) the highest ($M = 10.93$, SD = 2.21) and changing the environment (not having alcohol in the house) the lowest ($M = 9.14$; SD = 3.22). Non-drinking participants (e.g. they had experience of reducing successfully) rated substitution ($M = 11.47$; 2.53) the highest, followed by identity ($M = 11.13$; SD =2.53) followed by social support (practical or emotional support from others) ($M = 10.83$; SD = 2.17). Non-drinkers gave the lowest average rating for the reward cluster of all the groups ($M = 8.26$; SD = 3.16). Statistical comparisons were

Table 4. BCT ratings for the whole sample, for drinkers/non-drinkers and those with/without breast cancer.

BCT group	Whole sample	With a diagnosis of breast cancer	No diagnosis of breast cancer	Effect size (Cohen's d) for difference	Current drinker	Non-drinker	Effect size (Cohen's d) for difference
Goals and planning	**10.70 (2.46)**	10.21 (2.34)	**10.92 (2.48)**	**.291**	**10.82 (2.37)**	10.27 (2.73)	0.222
Feedback and monitoring	10.06 (2.74)	10.12 (2.67)	10.00 (2.77)	.043	10.29 (2.73)	*9.19 (2.64)*	*0.405*
Social support	9.94 (3.02)	10.11 (2.94)	9.78 (3.03)	*.108*	*9.73(3.15)*	**10.83 (2.17)**	**0.367**
Shaping knowledge	*9.70 (3.15)*	10.51 (2.75)	*9.32 (3.28)*	.383	9.82 (3.17)	9.08 (3.06)	0.237
Consequences	10.05 (2.82)	10.53 (2.56)	9.79 (2.91)	.263	10.04 (2.92)	10.07 (2.41)	0.009
Making comparisons	10.06 (2.88)	10.36 (2.66)	9.91 (2.98)	.158	9.90 (2.91)	10.78 (2.69)	0.304
Substitution	**11.18 (2.39)**	**10.65 (2.66)**	**11.44 (2.21)**	**.333**	**11.11 (2.36)**	**11.47 (2.53)**	**0.149**
Comparing outcomes	*9.79 (3.11)*	*10.06 (3.03)*	*9.68 (3.17)*	*.123*	*9.70 (3.12)*	*10.18 (3.09)*	*0.153*
Rewards	*9.02 (3.22)*	*9.36 (3.07)*	*8.84 (3.30)*	*.162*	*9.23 (3.22)*	*8.26 (3.16)*	*0.300*
Changing the environment	9.88 (3.22)	*9.14 (3.22)*	10.20 (3.17)	.334	9.77 (3.17)	10.50 (3.48)	0.227
Identity	**10.46 (2.67)**	**10.92 (2.21)**	**10.29 (2.73)**	**.243**	**10.29 (2.69)**	**11.13 (2.53)**	**0.314**
Self-belief	10.22 (2.76)	10.71 (2.79)	10.06 (2.70)	.238	10.21 (2.71)	10.29 (3.13	0.029

Bolded text indicates the three most highly rated BCTs and text in italics indicates least favoured BCTs in each column.

not calculated due to the number of multiple comparisons, which would inflate the type 1 error rate. However, effect sizes are shown in Table 4 to give an indication of the magnitude of differences between the ratings.

Delphi Round 2: focus group

Round two consisted of online hour long focus groups with a subsample of round one participants. In addition, we facilitated two focus groups with stakeholders representing alcohol charities, support groups, online communities and others working to support women to reduce their alcohol consumption. Participants received a voucher worth £30 for taking part. In line with a Delphi methodology, focus group were used to understand more about the survey results. For example, to find out more about why substitution was rated highly in the survey, whereas social support and rewards were rated the least acceptable. Focus groups were appropriate for this round as they allow group members to reflect on the perspectives of others and to move towards consensus about what should be taken forwards.

Round 2: participants

Of the 95 participants who left an email address at the end of the survey we contacted a range of those who had experience of breast cancer, experience of moderating their drinking, drank four or more times a week, and a range of ethnicities, until we had seven groups of six participants planned ($N = 42$). Of the 42 who were sent an invitation to a group, 33 attended one of the seven online focus groups. The

groups had 4–6 participants in each. Participants ranged from 40 to 62 years of age ($M = 48.47$, SD = 6.14). Most focus group participants identified as heterosexual (88%). Two-thirds of participants (67%) identified as white British. Over half of the focus group participants (59%) reported that their highest educational qualification was degree level. Forty-four percent of participants said that they had received a diagnosis of breast cancer. Focus group participants had AUDIT-C scores ranging from 0 to 11—eight were non-drinkers.

Two additional focus groups were conducted with seven stakeholders. Group one consisted of two participants; one breast cancer researcher and one representative from an alcohol charity. Group two consisted of five participants: one representative from a breast cancer charity, one alcohol researcher, one breast cancer researcher and two representatives from organisations that support women to drink less.

Procedure

The focus group schedule was developed following analysis of Round 1 data. The sessions included a brief presentation of the findings of Round 1 and structured questions to prompt further discussion. Discussion in focus groups therefore focussed on understanding more about the BCTs, as well as exploring views on the others. All focus groups were audio-recorded and transcribed.

Analysis

Focus group data was analysed using reflexive thematic analysis (Braun & Clarke, 2019); an iterative process consisting of six steps. We began with a deductive approach, with the aim of exploring responses to particular BCTs, and then moved to an inductive approach to understand other important factors. For the data familiarization step, Author 2 read the transcripts while checking and correcting the zoom transcripts, making notes pertinent to the study aims. NVivo 14 was used to code the data in step two. Step three involved identifying themes, by organizing codes into higher level topics. Author 1 and 2 met several times to discuss themes. At step four, we refined the themes by interrogating the candidate themes by revisiting the data coded to the component codes. Step fived entailed refining the names of themes and ensuring that they occupy the same semantic plane. Finally, during the process of writing up the themes, we further clarified our thinking about the analysis and interpretation with all authors. Findings were also presented to the PAG for discussion and interpretation

Round 2: results

Theme 1 acceptability and possible effectiveness of a range of BCTs

In general, focus group participants thought that all BCTs were useful in helping reduce consumption of alcohol to a certain extent, but due to the presentation of survey findings, discussion points focussed on substitution, social support and rewards.

Substitution

Many focus group participants felt that being able to replace alcoholic drinks with something else was important. For them it allowed non-drinkers to continue to maintain relationships and socialise while remaining sober. There was a lot of discussion about the taste of non-alcoholic drinks and a general observation that this had improved, with the exception of non-alcoholic wine. It was thought that this was important because wine was often the drink of choice for mid-life women. Participants thought that the range of non-alcoholic drinks was improving, but a good selection was not always available especially in bars and pubs.

> They are getting better. Some of them taste absolutely disgusting, and they do tend to be cheaper if you buy them in the supermarkets. But if you go low or no alcohol alternatives are either not available, or they are as expensive as alcoholic drinks

A minority of focus group participants thought that substitution would not work for them because there was nothing to take the place of alcohol and the social settings in which it is consumed. Furthermore, if you were looking for the psychoactive effects of alcohol then this would be lacking.

> I'm glad that they do work for many people. But one of the difficulties is that alcohol, in spite of the problems, is from my experience is very enjoyable. And something that I wouldn't want to cut out altogether. And so it's about managing that which is difficult,

Social support

Focus group participants mentioned the difficulty of trying to become and remain a non-drinker in the family and related social environment. Social support was therefore recognised as valuable during the discussions, even though it had not been highly rated in the survey.

> I think it's interesting, because I don't think I probably put social support very high up. But as we've been talking about it, it really does feel like it's an important aspect of a campaign

Participants talked about the need to have a supportive partner, or friendship group, and to be able to trust that they would not be judged for drinking less than those around them.

> Sometimes if I go outside with a wine glass and chat with the neighbours, and I've got something I don't know my pink lemonade in it, but they think it's rose I think that would be fine, but if I go out with a cup of tea, especially from one lady in particular, you know she will say, 'Only on the tea. Why are you drinking the tea' [said in a critical tone], and sort of take the Mickey a bit out me, you know.

Other BCTs

Rewards (e.g. giving yourself something, or being rewarded by someone else) were the lowest rated BCT group in the survey. Focus group participants tended to feel that this would not lead to long-term behaviour change as rewards would not overcome the craving for alcohol, and might not address the underlying reasons for drinking.

> You've got to have that desire to actually want to change in the first place, in order for that to be effective, otherwise you'll find yourself rewarding yourself and not doing anything.

Participants also raised concerns about the effectiveness of focusing on long-term health consequences of consuming alcohol. Instead, it was felt that encouraging people to focus on short term benefits of non-drinking would be more effective. In particular, improved sleep seemed important to many participants. While goals and planning BCTs were highly rated, some participants raised concerns that these methods might be difficult for those with conflicting priorities.

> Goals and planning I think that might be harder. Because people are really busy. And when I look at that, and I think trying to find the time to sit down and plan and set goals. I don't think that would work for me personally, because it would be time consuming.

Further concerns were raised about the practicality of using monitoring and feedback. For some, it would depend on how the feedback was provided. For others, simply adding up weekly alcohol consumption could be effective in bringing to mind what was consumed.

> The other thing that really shocked me was when we became, when we had to recycle our bottles, it was, how many wine bottles were going in that in a week,

Theme 2: challenging the normalisation of alcohol consumption

Evidence within the transcripts pointed towards the challenge of alcohol reduction for those that wished to cut down. Participants discussed the entrenched nature of alcohol consumption in work, leisure, education and family life. Some also suggested any deviation from heavy episodic drinking would be questioned.

> I have found pressure from friends and family to drink and they make me feel sad that I can't join in.

Although drinking alcohol was mainly focused on the home environment for participants, and in line with survey findings, the habits and routines relating to alcohol were important drivers of behaviour. Many participants highlighted how hard it could be to change established behaviours and expectations.

> [we should be] Reinforcing the concept that you can have a great time and be sober. Challenge social pressures that you are miserable or a party pooper if you don't drink…

> Wine o'clock etc. The culture is so enabling.

An individual level intervention would need to consider the social, commercial and legislative environment within which recipients were operating. If not, even highly acceptable BCTs will fail to help people who want to reduce their alcohol consumption.

Summary of stakeholder focus groups

In group one, the participants agreed that setting goals relating to consumption, and social support were useful and evidence-based tools for interventions, but highlighted

that a 'menu of options' approach would allow people to select strategies that appeal to them and work together. Stakeholder 2 raised an issue regarding substitution of no and low (no/lo) alcohol products (beers, wines, spirits or cocktails produced without the ethanol content, or with comparatively low levels of ethanol; Okaru & Lachenmeier, 2022).

> No/lo products are marketed the same as alcohol and this reinforces norms around alcohol suggesting we need to have alcohol to have a good time – so substitution will inadvertently feed this narrative and there's no scientific evidence on no/lo helping people to cut down yet

In group two, participants discussed the difficulties people face when considering changing their drinking behaviours. Stakeholders suggested that people often search for signs their drinking is 'normal' and the environment provides plenty of information (e.g. advertising) that it is. Often, home drinking is not recognised as 'drinking'. They highlighted that middle class drinking is celebrated and lower-class drinking may be judged, while drinking in some cultures (e.g. South Asian) may be hidden. They also discussed the difficulty of perceptions of harmful drinking, e.g. that people who are not blacking out do not think of their drinking as harmful. They also agreed that to connecting and supporting others is important and that community motivates people to change, but that people really need practical ways to change their drinking.

> Any public health messages need to be practical and land in the context of the resources people already have or frankly it's a waste of time

They agreed with group one that variation in tools and strategies is important and that paper formats as well as online formats are needed.

Delphi Round 3: workshop

Sample characteristics

Nineteen of the focus group participants expressed an interest in taking part in a workshop, all of whom were sent information and invited to take part. Of those, six were available and interested in taking part in the workshop about alcohol reduction and on the day five participants attended. Participants were aged 42–58, 3/5 were white ethnicity, all were heterosexual, two previously had breast cancer, one was a non-drinker and four were educated to degree level or above. Participants received a £75 Amazon voucher to compensate them for their time in preparing for and attending the 90-minute workshop.

Workshop summary and findings

Before the workshop, participants were asked to complete some tasks for discussion. The first task was to explore one existing alcohol reduction website or app (NHS drink free days, Club Soda, We are with you, Drink Less app, and Alcohol Change UK website). Each person was allocated one of the apps/sites and was asked to be prepared to speak about what they liked or disliked about it in the workshop, as well as talk about other apps/websites and tools they liked. It was highlighted that our

intervention would not solely be online, and they should consider other methods. The second task was to think about suggestions for relaxing without alcohol, and to ask friends and family for their suggestions. As a warm up task, participants brainstormed ideas on Mentimeter about the benefits of drinking less (See Figure 1). Then, the main themes from the focus groups were presented. Following this, participants introduced and discussed their app/website and shared their priorities for an intervention, including the suggestions for ways to relax without drinking alcohol. The workshop was conducted on Zoom and was audio-recorded.

Key points of consensus from the workshop

A range of views was discussed in the workshop, and consensus was identified in the following areas.

- Mode of delivery.
- Accessibility – different platforms are needed for different people. A website could point towards other avenues e.g. social media, and printed leaflets should be available.
- Needs to be visually exciting using soft friendly colours and look more like a lifestyle than medical website/leaflet.
- Needs a statement of purpose and needs to be clear who the audience is.
- Needs to be clear that people should not feel shame or stigma.

Content and tools.

- Needs to be a starting point for information and explain how to use any tools.
- There was a strong preference for including real life stories.
- Can include short videos and demonstration/practice of drink refusal skills.

Figure 1. Workshop warm up task: Brainstorming benefits of drinking less.

- Options to log things such as an event diary/drink diary/money/feelings/cravings.
- Tips for non-alcoholic drinks and socialising, relaxing and coping with mental health.
- An online chat function to connect to other people (or connect on other platforms).

Participants then brainstormed about alternatives to drinking and ensuring content is relatable and realistic as well as taking into account a range of stressors that could be impacting the individual. Consensus was that using stories and narratives from real people would ensure that the intervention was relatable.

Intervention development summary

Findings from this Delphi study were mapped onto the COM-B framework (see Table 5) and a logic model for an intervention based on these findings is shown in Table 6. An intervention that incorporates personal stories and a range of BCTs was recommended.

Table 5. COM-B and TDF mapping – target behaviour of consuming no more than 14 units of alcohol per week.

COM-B Components	What needs to happen for the target behaviour to occur?	TDF Domain from BCW	Intervention functions from BCW	BCT Group (s) from the BCIO
Physical capability	Assessed as not applicable to the behaviour	N/A	N/A	N/A
Psychological capability	Knowledge of alcohol units. Confidence to be able to drink less than 14 units per week.	Knowledge Memory/ attention and decision making	Education Enablement	• Guide how to perform behaviour • Increase awareness of consequences
Physical opportunity	Awareness of and access to alcohol free products.	Environmental context and resources	Environmental restructuring	• Advise specific behaviour • Restructure the environment
Social opportunity	Supportive friends and family. Social norms and expectations about drinking.	Social influences	Modelling Enablement	• Social support
Reflective motivation	Belief that reducing drinking is a good thing. Intentions to keep to 14 units per week.	Beliefs about capabilities Intentions Beliefs about consequences	Education Persuasion Modelling	• Prompt focus on self-identity • Goal directed
Automatic motivation	Changed habits relating to drinking. Consideration of emotions attached to drinking. Stress and coping responses altered to replace alcohol with other behaviours.	Emotion Behavioural regulation	Persuasion Enablement Modelling	• Monitoring • Advise how to change emotions

Table 6. SPACES intervention logic model – BCTs and mechanisms of action from the BCIO.

BCT group	Specific BCT	Hypothesised mechanism of action	Short term impact / mediators.
Increase awareness of consequences	Inform about negative health consequences	Belief about severity of an outcome Belief about health consequences of behaviour	Increased awareness about alcohol harms.
Guide how to perform behaviour	Suggest how to perform behaviour	Behavioural capability Self-efficacy	Increased feelings of confidence
Advise specific behaviour	Substitute behaviour	Belief about need satisfaction Situational self-efficacy belief	Increased likelihood of substitution
Restructure the environment	Add objects to the directly experienced environment	Mental plan for a behaviour Behavioural intention	Changed purchasing habits
Social support	Arrange emotional support Advise to seek emotional support	Social behavioural capability Need for sense of belonging	Increased feeling of being supported and connected
Prompt focus on self-identity	Adopt changed self-identity	Personal value	Personal identification as a person who consumes < 14 units of alcohol
Goal directed	• Set behaviour goal • Action planning • Make a goal public	A self-regulation capability to modulate one's behaviour.	Increased self-regulation, Increased confidence
Monitoring	Self-monitor behaviour	Awareness	Increased knowledge of habits
Advise how to change emotions	Advise sensory/ behavioural/cognitive ways to increase positive emotions.	Emotional self-regulation capability	Increased self-regulation Alternative coping strategies

The SPACES (Storytelling Promoting Alcohol Choice, Empowerment, and Sharing) intervention will be developed in the next phase of work to target all COM-B components other than physical capability, with particular emphasis on changing habits and coping with social pressures to drink (Davies et al., 2024). Taking into account feedback from the PAG and the participants SPACES will emphasise the experiences of women similar to those in the target group. BCT groups from the Behaviour Change Intervention Ontology (BCIO)(Marques et al., 2023) that link to the identified facilitators and barriers to consuming no more than 14 units of alcohol each week are shown in Table 5 along with the hypothessed mechanisms of action. The next steps will be to develop a prototype intervention and assess if this would be feasible and acceptable.

Discussion

Survey findings suggested that automatic motivation (e.g. habits) and social opportunity (e.g. other people's drinking, prevalent norms) were the primary COM-B components to be targeted in interventions to support mid-life women who would like to drink less. Highly rated BCTs were substitution (replacing alcoholic drinks or replacing alcohol-centric activities), goals and planning (e.g. setting targets for drink free days), and identity (e.g. identifying personal strengths that do not involve alcohol consumption). The importance of social support emerged as a key consideration in a context where regular and sometimes heavy drinking was normalised and indeed

former drinkers rated social support highly. Personal stories were a preferred intervention format because they were perceived to be relatable and potentially less threatening than health information provided by other sources.

The most prominent barrier for those that wanted to reduce their alcohol consumption was the widespread acceptance of (heavy) drinking across a multitude of occasions. Women now in mid-life reached legal drinking age during a time when drinking norms became more permissive, and alcohol has been embedded into many aspects of their lives (Kersey et al., 2022). In addition, life women's alcohol consumption often fulfils a role in demarking time out from responsibilities (Emslie et al., 2015). Many of our participants had experience of reducing their alcohol consumption successfully and the use of no/lo products had been helpful. However, there is still a need for more evidence around the effectiveness of no/lo products for alcohol reduction, and the extent to which no/lo products may inadvertently reinforce or widen health inequalities (Davies et al., 2025).

Overall, our findings point towards the need for intervention recipients to have access to a choice of BCT options, which could be explored depending on the resources and motivation of the individual. Self-monitoring has been shown to be effective in bringing more awareness to habitual drinking (Michie et al., 2012) and may allow people to identify where some drinks can be removed. However, it is often difficult to measure alcohol consumption retrospectively, and understanding alcohol in units is perennially challenging (Furtwängler & de Visser, 2017). It is well known that knowledge alone is insufficient for behaviour change (Marteau, 2016), but providing information in accessible formats alongside practical BCTs may provide a further motivation for change.

Storytelling

Workshop participants indicated a preference for the use of stories from real people. In previous work we also found they were perceived as less judgemental than hearing information from health professionals, being advised to count units, or simply reading information (Davies et al., 2024). Recent research has cemented the notion that women commonly feel shame and fear about being labelled as an alcoholic (Lamb & Kougiali, 2024). Thus, it may be useful to build storytelling into an intervention aimed at this target group, and we have conceptualised an intervention that delivers BCTs using storytelling (SPACES—see Table 5). Previous evidence suggests that storytelling interventions have the potential to change attitudes relating to alcohol in college students (Perrier & Martin Ginis, 2016) but as yet, it is not known if this approach has the potential as a mechanism for the delivery of BCTs for alcohol reduction in mid-life women. The online community Soberistas includes a range of resources for (paid) members, which include personal stories about how members stopped drinking and this is particularly valued by users of the site (Sinclair et al., 2017). Recent research with women in recovery further highlights how connecting with other people's stories could be a turning point (Lamb & Kougiali, 2024). Using storytelling may also be able to challenge the dominant narratives relating to alcoholism as a disease and sobriety as the only response (Morris, 2022).

Box 1. Collaborative Google doc activity – brainstorming relaxation ideas that do not involve alcohol.

Reading, going for walks, some sort of exercise, talking to friends, going to the cinema, listening to a podcast whilst going for a walk, discovering a new hobby. Making your own AF drinks using a nice glass! Mindfulness, yoga
Brain games apps
Walking
Pilates
Gym
Cooking
Baking
Call a family member
Call a friend
Organising cupboards/bedroom
Art exhibitions
Museums
Reading
Lay in a nice bath
Walking
Time alone
Being outside
Listen to music
Alcohol free drinks; the association /cognitive aspect can be relaxing
Cooking
Walking
Reading
Pilates
Massage
Mindfulness
Listen to music
Games apps
reading sit with a cup of tea
Meet a friend
relaxation/meditation; regular, daily practice, to imbed the cognitive change
Yoga
Regular retreats
Learn something new
Take up a hobby
reading books, day trips to tourist sites, museum visits, going to the gym, walking, church activities, volunteering at the foodbank

Strengths and limitations

The study contributes to gaps in the literature about mid-life women's alcohol consumption, and about how to support women who would like to reduce their drinking. The survey sample had a range of diverse characteristics and the online data collection methods allowed women from a range of geographical locations to take part. Nonetheless, online data collection methods may exclude some groups of women, including those in lower socio-economic groups and from South Asian backgrounds. The COM-B measures were based on those from a study in the general population (Stevely et al., 2018), and so lacked nuance about the full range of key drivers for alcohol consumption in mid-life women. Further surveys should employ a more detailed range of questions to assess the constructs. The focus group and workshop samples were less diverse than the survey. Social class in particular shapes perception of alcohol related harms in women (Meyer et al., 2022), and so further work to explore a range of socio-economic perspectives is needed.

Conclusions

In summary, this study has provided important new insights into the barriers and facilitators for alcohol reduction in mid-life women, a population that has received less attention compared to younger groups in the existing alcohol research. Further research is required about the use of no/lo products as an aid to reduce drinking, and in particular if this approach appeals to specific groups, whilst excluding others. Further work is also needed in order to understand the potential mechanisms of action around storytelling within an intervention. Interventions aimed at helping mid-life women reduce alcohol consumption must contend with an array of potentially stubborn social practices and norms. They must also take into account the array of drinking motives within this population. We strongly suggest that while digital tools may appeal to people less likely to access treatment services—such as women (White et al., 2010)—interventions should not solely be available online in order to cater to a range of experiences.

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Data availability statement

The data that support the findings of this study are available from the corresponding author, [ED], upon reasonable request.

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