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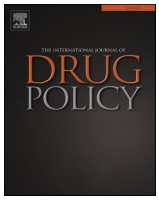

Research Paper

The use of alcohol-free and low alcohol drinks in attempts to restrict alcohol consumption: findings from a cross-sectional survey☆,☆☆,☆☆☆,☆☆☆☆

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ABSTRACT

The sale and consumption of alcohol-free and low alcohol drinks (no/lo drinks) has increased substantially in many high-income countries, including Great Britain (GB). Some people report that using no/lo drinks helped them to restrict (i.e., reduce or stop) their drinking. This study investigated the sociodemographic characteristics of people who use no/lo drinks to restrict drinking and whether consuming no/lo drinks in an attempt to restrict drinking was associated with whether an attempt was successful. We analysed four waves of data (2023–2024) from a nationally-representative cross-sectional survey (Alcohol Toolkit Study) with 1022 GB adults (16+) who attempted to restrict drinking in the last year. Among those, 33 % used no/lo drinks to support the attempt and 77 % reported reduced alcohol consumption since the restriction attempt. Using no/lo drinks to restrict drinking was more common among those consuming no/lo drinks at least monthly (OR_{adj} = 6.34, 95 % CI = 4.63–8.75), and those who attempted to restrict drinking out of concerns about future health problems (OR_{adj} = 1.77, 95 % CI = 1.27–2.49). There was inconclusive evidence on whether using no/lo drinks to restrict drinking was associated with self-reported success of the restriction attempt (OR = 1.47, 97.5 % CI = 1.00–2.19, BF = 5.43; OR_{adj} = 1.26, 97.5 % CI = 0.81–2.00, BF = 1.48). Given the inconclusive association between the use of no/lo and success of the restriction attempts, further research is needed to determine whether no/lo use supports reductions in alcohol consumption and to understand underlying causal mechanisms.

Introduction

Sales of alcohol-free and low alcohol drinks containing ≤1.2 % alcohol-by-volume (ABV; no/lo drinks) have increased rapidly in Great Britain (GB) in recent years (Holmes et al., 2024). The former government of the United Kingdom (UK; consisting of GB and Northern Ireland) pledged to work with the alcohol industry to increase the availability of no/lo drinks by 2025 to reduce alcohol-related harm (Office for Health

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☆☆☆☆ **Data availability statement:** The analysis code and data will be made publicly available upon publication via the Open Science Framework: https://osf.io/jzqc7/.

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Improvement & Disparities, 2023). Additionally, some UK organisations recommend replacing (some) alcohol consumption with no/lo drinks when trying to restrict (i.e., stop or reduce) drinking (Alcohol Change UK, 2025; National Health Service, 2025).

Few studies have examined the role of no/lo drinks in attempts to restrict drinking or support sobriety. Among a convenience sample of US alcohol consumers who also consumed no/lo drinks, 33 % consumed no/lo drinks to restrict drinking (Bowdring et al., 2024). This study also showed that those who screened positive for alcohol use disorder were more likely to consume no/lo drinks to restrict drinking, but no other sociodemographic factors were associated with doing so. Further evidence, including from additional countries and from nationally representative samples, is needed to understand which sociodemographic characteristics are associated with use of no/lo drinks to restrict alcohol consumption, as this shows who might benefit from increased availability of no/lo drinks.

In addition to understanding who uses no/lo drinks to help restrict drinking, it is important to know whether doing so is effective. Time-series analysis of household purchase data (Anderson et al., 2020; Anderson & Kokole, 2022; Anderson et al., 2022; Jane Llopis et al., 2022) and field experiments (De-Loyde et al., 2024; Yoshimoto et al., 2023) showed that increasing the availability of no/lo drinks or providing no/lo drinks for free leads to reductions in alcohol purchasing and consumption. Additionally, in cross-sectional surveys and qualitative studies, people report that consuming no/lo drinks has helped them restrict drinking (Davey, 2023; Nicholls, 2021; Piper & Leyshon, 2025; Portman Group, 2025).

However, these studies have several limitations. Firstly, several studies (Anderson et al., 2020; Anderson & Kokole, 2022, 2022; Jane Llopis et al., 2022; Yoshimoto et al., 2023) were supported, directly or indirectly, by the alcohol industry, which might have influenced the study design or other methodological decisions (McCambridge & Mialon, 2018). Secondly, the time series and experimental studies focused on the general population and therefore cannot provide insight on the roles of no/lo consumption as part of deliberate attempts to restrict alcohol consumption. Thirdly, the studies that focused on no/lo drinks as part of attempts to cut down relied on convenience samples recruited through alcohol charities and online sober communities, some of which sell (Davey, 2022) or promote no/lo drinks as tools to cut down (Alcohol Change UK, 2025). Therefore, recruitment might have been biased towards people with more favourable opinions of no/lo drinks. Finally, hazardous drinking (Anderson et al., 2021; Clarke et al., under review; Katainen et al., 2023; Perman-Howe, Holmes, Brown, & Kersbergen, 2024), high social grade (Anderson et al., 2021; Clarke et al., under review; Katainen et al., 2023; Perman-Howe et al., 2024), cutting down to improve health and wellbeing (Nicholls, 2021), and being part of a peer support community to cut down (Davey, 2023; Piper & Leyshon, 2025) were associated with no/lo consumption, but have each also been shown to be associated with increased likelihood of trying to restrict drinking (Beard et al., 2017) or sustained reductions in drinking (Adamson et al., 2009; Matzger et al., 2005; Reif et al., 2014). Therefore, sociodemographic characteristics, reasons for cutting down and other tools used to restrict drinking might partially explain identified associations between no/lo consumption and reduced alcohol consumption.

The current study therefore used a nationally representative survey to test whether consuming no/lo drinks to restrict drinking is associated with reduced alcohol consumption. It first investigated the multivariable associations between the use of no/lo drinks to restrict drinking (primary outcome) and (i) sociodemographic and behavioural characteristics, including social grade and hazardous drinking, (ii) reasons for restricting drinking, and (iii) use of other tools to restrict drinking. Then, we tested the association between the use of no/lo drinks to restrict drinking and our secondary outcome: self-reported reductions in subsequent alcohol consumption. We also tested whether any association between using no/lo drinks to restrict drinking and reduced alcohol consumption among those attempting to restrict drinking was changed after adjusting for the three groups of factors above, which would suggest the presence of confounding or mediating factors.

Methods

Design

We analysed four waves of the Alcohol Toolkit Study (ATS; October 2022, February 2023, April 2023, August 2023), which is a repeat cross-sectional telephone survey of a nationally representative sample of adults (aged 16+) resident in GB. The ATS uses a combination of random probability and quota sampling. Briefly, this involves random digit dialling, with selection probability being proportional to the household density of the postcode (for landlines) or the known mobile network share (for mobile phones), and targeted mobile sampling. Mobile, targeted mobile and landline sampling are carried out in approximately equal proportions. Targeted mobile sampling relies on Ipsos data about likely characteristics of potential participants on age, location, sex, income, and other demographic characteristics. These participants are targeted to fulfil quotas on the likelihood of answering. Therefore, unlike random probability sampling, it is not appropriate to record the response rate. The full methods are described in detail elsewhere (Beard et al., 2015; Kock et al., 2021). Comparisons with other national surveys indicate the design and weighting achieve a nationally representative sample (Fidler et al., 2011). We added questions on no/lo consumption frequency and whether participants had reduced or stopped drinking alcohol since their most recent restriction attempt and extended the sample for the standard ATS questions on restriction attempts to all alcohol consumers who attempted to restrict drinking in the past year. These questions were co-designed with members of the public. Ethical approval for the Alcohol Toolkit Study was granted by the University College London Ethics Committee (ID 0498/001). The ethical approval process covers the additional no/lo questions.

Power calculation

We calculated how many waves were required for a sufficient sample using Stata's *powerlog* package (Ender, 2002; StataCorp, 2023). To the best of our knowledge, no previous research has reported the success rate of self-led attempts to reduce alcohol consumption among the general population. Therefore, we based our expected success rate on previous research which showed that 23 % of those who met criteria for alcohol dependence within a general population sample were abstinent or moderating their alcohol use without entering any alcohol treatment (Weisner et al., 2003). We needed 996 participants to detect a five-percentage point increase in the success rate in a logistic regression at 80 % power, which required four survey waves.

Inclusion and exclusion criteria

Participants were included in the analysis if they had, in the last 12 months, consumed alcohol and attempted to restrict their alcohol consumption. To preserve power for the analyses including sex, we excluded participants who described their sex in another way than male or female, but we present descriptive statistics for all sexes.

Variables

The full questions and response options of ATS questions are shown in the supplementary materials.

Outcomes

Use of no/lo drink to help restrict drinking (primary outcome; binary)

Participants reported which, if any, of 12 tools (including no/lo drinks) they used during their most recent restriction attempt. Participants were categorised as using no/lo drinks to help restrict drinking (1),

vs not (0; reference category).

Reduced alcohol consumption since most recent restriction attempt (secondary outcome; binary)

Everyone who reported at least one restriction attempt was asked to describe their drinking since their most recent restriction attempt. Participants who reported that they completely stopped drinking, drank fewer alcoholic drinks or drank less frequently than before their attempt were categorised as having reduced drinking (1). Participants who did not select any options that indicated they had reduced drinking, or who reported not having changed their drinking, drinking more alcoholic drinks or drinking more frequently than before their restriction attempt were categorised as not having reduced drinking since their most recent restriction attempt (0; reference category).

Sociodemographic and behavioural variables

At least monthly no/lo consumption

Participants were asked how often they consumed an alcohol-free or low alcohol drink with response options ranging from `*never*' to `*almost every day*'. We categorised responses into at least monthly consumption (1) vs less than monthly consumption (0; reference category).

AUDIT-C score (hazardous drinking)

We used the validated Alcohol Use Disorders Identification Test–consumption (AUDIT-C; Khadjesari et al., 2017) as a measure of hazardous drinking. We treated this variable as a continuous variable, because it met the linearity assumption.

Sex

Sex was categorised as male (1), female (0; reference category), and other sex (not included in inferential analyses that include sex as a predictor).

Age

Participants reported actual age, which we categorised into age bands 16–24 (5), 25–34 (4), 35–44 (3), 45–54 (2), 55–64 (1), 65+ (0; reference category). We used age bands, rather than continuous age, to aid interpretation of the results, because previous research has found non-linear associations between age and alcohol consumption (Opazo Breton et al., 2024) and no/lo consumption (Perman-Howe et al., 2024).

Social grade

Social grade was measured using the National Readership Survey social grade system based on occupation (National Readership Survey, 2025). We categorised responses into ABC1 (managerial, administrative or professional occupations; 1), and C2DE (manual workers, casual workers, and those who depend on welfare benefits for income; 0; reference category).

Variables relating to the restriction attempt

Use of evidence-based tools to restrict drinking

Participants who reported using medicines, attending one-to-one or group support sessions, or attending a specialist alcohol clinic or centre to support their most recent attempt to restrict drinking (Jackson et al., 2022; Jackson et al., 2021) were categorised as using evidence-based tools (1) vs not (0; reference category).

Number of restrictions attempts in last year

Number of attempts to restrict drinking in the last 12 months was categorised as 1 (reference category), 2, 3, or 4+.

Reasons for restricting drinking

Participants reported which, if any, of 14 reasons contributed to their most recent restriction attempt. This question was devised for use in the ATS (Beard et al., 2015). We selected reasons that were endorsed by at least 15 % and no more than 85 % of the sample, as this would still achieve acceptable power to detect small effects (Alkhalaf & Zumbo, 2017). Selected motives were i) ``a decision that drinking was too expensive", ii) ``a concern about future health problems", iii) ``improve my fitness", iv) ``help with weight loss", and v) ``to give up alcohol for a month (e.g., taking part in Dry January)". These were each categorised as endorsed (1) vs not endorsed (0; reference category). The other reasons were not included in the primary analyses.

Whether the attempt was a serious attempt

Participants reported whether their most recent attempt to restrict drinking was a `serious attempt to cut down on your drinking permanently" (1) or not (0; reference category).

Analyses

All analyses were conducted in R 4.4.1.

Changes to pre-registered analyses

The full analysis protocol was preregistered at https://osf.io/mryj5. In addition to the pre-registered analyses, we also calculated Bayes Factors for the analyses of the secondary outcome to interpret the extent to which non-significant findings represented evidence for the null hypothesis.

Missing data

Because only 5.9 % of cases had missing data on any of the included variables, a complete case analysis was undertaken (Dong & Peng, 2013).

Sampling weights

Data were weighted to match the demographic profile of GB. Data were weighted to be representative of the population using a rim (marginal) weighting technique. This involves an iterative sequence of weighting adjustments whereby separate nationally representative target profiles are set (gender, working status, prevalence of children in the household, age, social grade and region) and the process repeated until all variables match the specified targets. Weights ranged from 0.21–4.05.

Primary analyses

Association between sociodemographic, behavioural and attempt-related factors and use of no/lo drinks to help restrict drinking during most recent attempt to restrict drinking (primary outcome).

We conducted one multivariable binary logistic regression. The dependent variable was use of no/lo drinks to help restrict drinking. Independent variables were: self-reported at least monthly consumption of no/lo drinks; number of restriction attempts in last year; AUDIT-C score; sex; age; social grade; use of evidence-based tools to restrict drinking; reasons for restricting drinking. We used standardised residuals to test the assumption of the absence of extreme outliers and removed two cases to meet this assumption. All other assumptions were met.

Association between no/lo use during most recent restriction attempt and self-reported successful reduction in alcohol consumption (secondary outcome)

We conducted two binary logistic regressions. The dependent variable was reduced alcohol consumption since most recent restriction attempt. Model 1 was an unadjusted model with use of no/lo drinks during the attempt as the independent variable. Model 2 also included the following additional independent variables: self-reported at least monthly no/lo consumption; number of attempts in last year; AUDIT-C score; sex; age; social grade; use of evidence-based tools to restrict drinking; motivations for restricting drinking. Alpha levels were set at α

= 0.025 to adjust for multiple hypothesis testing. We calculated Bayes Factors (BF) for the use of no/lo drinks in each model using the Bayes Factor shiny app (Tattan-Birch, 2025), using OR = 1.29 as our hypothesised effect size for a one-tailed test. In line with conventions (Dienes, 2014), we considered BF > 3 to indicate moderate evidence for the hypothesis, BF < 0.33 to indicate moderate evidence for the null hypothesis, and BF between 0.33 and 3 to indicate inconclusive evidence. We used standardised residuals to test the assumption of the absence of extreme outliers and removed five cases to meet this assumption. All other assumptions were met.

Secondary analysis

We repeated the primary analyses restricted to participants who self-reported that their most recent restriction attempt was a `serious attempt'.

Sensitivity analyses

Unweighted analyses

We report unweighted analyses in the supplementary materials.

Alternative variable operationalisation

To understand to what extent the operationalisation of predictor variables affected the results, we repeated the primary analyses with the following alternative operationalisation of predictor variables. The primary model as originally described was run with changing just one variable to an alternative; this process was repeated for each alternative.

- *Self-reported no/lo consumption (binary)*: Instead of at least monthly consumption of no/lo drinks, we used: i) at least yearly consumption; ii) at least weekly consumption; and iii) exclusion of frequency of no/lo drinks consumption as a predictor. The latter operationalisation was not pre-registered.
- *Hazardous drinking:* Instead of AUDIT-C score as a continuous variable, we used hazardous drinking status based on AUDIT-C scores (low risk [1–4], increasing risk [5–7], higher risk [8–10], and possible dependence [11–12]; ordinal variable).
- *Use of tools to restrict drinking:* Instead of the use of evidence-based tools, we used all individual tools to restrict drinking in one model.
- *Reasons for restricting drinking:* Instead of using only the five selected reasons for restricting drinking, we used all individual reasons to restrict drinking in one model.

Results

Participant characteristics

N = 1022 participants met our inclusion criteria. Of those, 33 % used no/lo drinks to support their restriction attempt (35 % of those who undertook a serious attempt) and 77 % reported reduced alcohol consumption since the restriction attempt (90 % for serious attempts). Table 1 shows the sample characteristics.

Association between sociodemographic, behavioural and attempt-related factors and use of no/lo drinks to help restrict drinking during most recent attempt to restrict drinking (Table 2).

The logistic regression model was a significant improvement on the null model (all attempts: $\chi^2(18) = 214.7$, $p < 0.001$; serious attempts: $\chi^2(18) = 102.2$, $p < 0.001$). Participants who drank no/lo drinks at least monthly (all attempts OR = 6.34, 95 %CI = 4.63–8.75; serious attempts OR = 5.25, 95 %CI = 3.34–8.38), and those who attempted to restrict drinking due to concerns about future health problems (all attempts OR = 1.77, 95 %CI = 1.27–2.49; serious attempts OR = 2.41, 95 %CI = 1.50–3.91) were more likely to use no/lo drinks to help restrict drinking during their most recent attempt to restrict drinking. This was true for all attempts and serious attempts. Women were more likely than men to use

Table 1
Sample characteristics.

Characteristic	Full Sample		Complete case sample	
	Unweighted *N* = 1022	Weighted *N* = 1113	Unweighted *N* = 962	Weighted *N* = 1063
Used no/lo drinks to restrict drinking, *n* (%)	330 (32 %)	363 (33 %)	312 (32 %)	349 (33 %)
Successful reduction in alcohol consumption since most recent restriction attempt, *n* (%)	784 (77 %)	854 (77 %)	740 (77 %)	816 (77 %)
At least monthly no/lo consumption, *n* (%)	357 (35 %)	384 (34 %)	337 (35 %)	369 (35 %)
Hazardous drinking (AUDIT-C); Mean (SD)	5.60 (2.58)	5.59 (2.63)	5.62 (2.58)	5.61 (2.63)
Missing; *n* (%)	13 (1.3 %)	15 (1.3 %)	-	-
Sex, *n* (%)				
Male	556 (54 %)	571 (51 %)	522 (54 %)	546 (51 %)
Female	457 (45 %)	533 (48 %)	440 (46 %)	517 (49 %)
In another way	4 (0.4 %)	4 (0.4 %)	0 (0 %)	0 (0 %)
Missing	5 (0.5 %)	5 (0.4 %)	-	-
Age, *n* (%)				
16–24	122 (12 %)	155 (14 %)	106 (11 %)	140 (13 %)
25–34	154 (15 %)	196 (18 %)	145 (15 %)	186 (17 %)
35–44	171 (17 %)	212 (19 %)	164 (17 %)	207 (19 %)
45–54	204 (20 %)	200 (18 %)	196 (20 %)	193 (18 %)
55–64	190 (19 %)	182 (16 %)	177 (18 %)	173 (16 %)
65+	180 (18 %)	168 (15 %)	174 (18 %)	164 (15 %)
Missing	1 (<0.1 %)	1 (<0.1 %)	-	-
Social grade, *n* (%)				
ABC1	244 (24 %)	401 (36 %)	239 (25 %)	394 (37 %)
C2DE	736 (72 %)	682 (61 %)	723 (75 %)	669 (63 %)
Missing	42 (4.1 %)	30 (2.7 %)		
Used evidence-based tools to restrict drinking, *n* (%)	23 (2.3 %)	33 (2.9 %)	20 (2.1 %)	30 (2.8 %)
Number of restriction attempts in last year, *n* (%)				
1	505 (49 %)	546 (49 %)	478 (50 %)	523 (49 %)
2	189 (18 %)	212 (19 %)	176 (18 %)	202 (19 %)
3	117 (11 %)	123 (11 %)	110 (11 %)	118 (11 %)
4+	211 (21 %)	233 (21 %)	198 (21 %)	221 (21 %)
Whether last restriction attempt was a serious attempt, *n* (%)	510 (50 %)	539 (48 %)	478 (50 %)	512 (48 %)
Reason for restriction attempt				
Drinking was too expensive, *n* (%)	154 (15 %)	184 (17 %)	145 (15 %)	175 (16 %)
Concern about future health, *n* (%)	352 (34 %)	377 (34 %)	337 (35 %)	363 (34 %)
Improve fitness, *n* (%)	367 (36 %)	390 (35 %)	350 (36 %)	378 (36 %)
Weight loss, *n* (%)	350 (34 %)	369 (33 %)	337 (35 %)	360 (34 %)
Give up alcohol for a month, *n* (%)	176 (17 %)	187 (17 %)	170 (18 %)	182 (17 %)

Table 2
Association between sociodemographic, behavioural and attempt-related factors and use of no/lo drinks to help restrict drinking during most recent attempt to restrict drinking for all attempts and serious attempts only. Significant predictors at $p < 0.05$ are indicated in bold.

Variables	All attempts			Serious attempts		
	Odds Ratio	Confidence Interval (95 %)	*p*	Odds Ratio	Confidence Interval (95 %)	*p*
Intercept	**0.20**	**0.11–0.36**	**<0.001**	**0.16**	**0.06–0.37**	**<0.001**
At least monthly no/lo consumption (reference: less than monthly)	**6.34**	**4.63–8.75**	**<0.001**	**5.25**	**3.34–8.38**	**<0.001**
Hazardous drinking (AUDIT-C)	0.98	0.92–1.04	0.503	1.04	0.95–1.14	0.411
Male sex (reference: female sex)	0.74	0.53–1.02	0.065	**0.50**	**0.31–0.80**	**0.004**
Age (reference: 65+)						
16–24	1.05	0.58–1.89	0.868	1.73	0.69–4.32	0.238
25–34	0.99	0.58–1.68	0.971	0.92	0.43–1.96	0.834
35–44	0.78	0.46–1.32	0.351	1.10	0.53–2.31	0.789
45–54	0.86	0.51–1.46	0.584	1.24	0.60–2.55	0.558
55–64	0.78	0.45–1.34	0.363	0.74	0.36–1.53	0.423
Social grade ABC1 (reference: C2DE)	0.99	0.72–1.38	0.972	1.30	0.81–2.11	0.287
Used evidence-based tools to restrict drinking (reference: Did not use evidence-based tools)	0.99	0.38–2.46	0.977	0.93	0.28–2.97	0.906
Number of restriction attempts in last year (reference: 1 attempt)						
2	0.76	0.49–1.17	0.220	0.78	0.41–1.44	0.433
3	1.18	0.70–1.96	0.532	1.26	0.60–2.62	0.545
4+	1.11	0.73–1.66	0.626	0.81	0.45–1.46	0.492
Reason for restriction attempt (reference: reason not endorsed)						
Drinking was too expensive	1.51	0.98–2.30	0.058	1.06	0.57–1.94	0.848
Concern about future health	**1.77**	**1.27–2.49**	**0.001**	**2.41**	**1.50–3.91**	**<0.001**
Improve fitness	**1.45**	**1.01–2.07**	**0.042**	1.20	0.72–1.97	0.486
Weight loss	1.34	0.93–1.93	0.116	1.27	0.75–2.12	0.369
Give up alcohol for a month	1.06	0.69–1.61	0.785	0.73	0.36–1.44	0.377
Observations	960			478		
R^2 Tjur	0.199			0.191		

Table 3
Association between no/lo use during most recent restriction attempt and self-reported successful reduction in alcohol consumption for all attempts and serious attempts only. Significant predictors at $p < 0.025$ are indicated in bold.

Variables	All attempts			Serious attempts		
	Odds Ratio	Confidence Interval (97.5 %)	*p*	Odds Ratio	Confidence Interval (97.5 %)	*p*
Unadjusted model						
Intercept	**3.08**	**2.52–3.80**	**<0.001**	**8.36**	**5.64–12.97**	**<0.001**
Used no/lo drinks to restrict drinking	1.47	1.00–2.19	0.03	1.69	0.78–4.02	0.145
Observations	957			477		
R^2 Tjur	0.004			0.003		
Adjusted model						
Intercept	**3.15**	**1.56–6.51**	**<0.001**	**11.98**	**2.58–64.83**	**0.001**
Used no/lo drinks to restrict drinking	1.26	0.81–2.00	0.246	1.84	0.63–6.01	0.217
At least monthly no/lo consumption (reference: less than monthly)	1.11	0.73–1.71	0.571	0.88	0.33–2.41	0.767
Hazardous drinking (AUDIT-C)	0.93	0.86–1.00	0.031	**0.82**	**0.69–0.98**	**0.013**
Male sex (reference: female sex)	0.96	0.65–1.41	0.793	1.37	0.55–3.51	0.439
Age (reference: 65+)						
16–24	1.99	0.95–4.36	0.042	2.87	0.42–40.71	0.271
25–34	1.35	0.71–2.57	0.302	1.35	0.35–5.44	0.614
35–44	1.14	0.62–2.08	0.636	**7.63**	**1.26–84.36**	**0.023**
45–54	1.42	0.74–2.70	0.225	2.37	0.54–12.32	0.203
55–64	0.88	0.47–1.65	0.657	0.84	0.24–2.78	0.751
Social grade ABC1 (reference: C2DE)	1.15	0.78–1.69	0.432	1.28	0.51–3.19	0.538
Used evidence-based tools to restrict drinking (reference: Did not use evidence-based tools)	0.98	0.34–3.36	0.969	0.30	0.06–1.95	0.114
Number of restriction attempts in last year (reference: 1 attempt)						
2	0.98	0.58–1.69	0.919	1.50	0.38–8.05	0.539
3	0.55	0.30–1.01	0.025	0.41	0.12–1.56	0.117
4+	**0.52**	**0.32–0.86**	**0.003**	0.56	0.18–1.74	0.247
Reason for restriction attempt (reference: reason not endorsed)						
Drinking was too expensive	**2.40**	**1.26–4.97**	**0.004**	5.33	0.90–111.46	0.087
Concern about future health	**2.25**	**1.45–3.58**	**<0.001**	1.44	0.56–3.88	0.391
Improve fitness	1.17	0.76–1.82	0.430	0.84	0.32–2.31	0.689
Weight loss	1.54	0.98–2.45	0.033	1.98	0.72–6.07	0.147
Give up alcohol for a month	**0.48**	**0.30–0.77**	**<0.001**	0.65	0.20–2.63	0.445
Observations	957			477		
R^2 Tjur	0.085			0.113		

no/lo drinks to help restrict drinking during serious attempts only (although the *p*-value for all attempts was also close to significance: $p = 0.065$; all attempts OR = 0.74, 95 %CI = 0.53–1.02; serious attempts OR = 0.50, 95 %CI = 0.31–0.80). Those who attempted to restrict drinking to help with improving fitness were more likely to use no/lo drinks to help restrict drinking across all attempts (OR = 1.45, 95 %CI = 1.01–2.07), but not during serious attempts (OR = 1.20, 95 %CI = 0.72–1.97).

Unweighted analyses showed the same significant predictors as the weighted analyses and also that those who attempted to restrict drinking because it is too expensive were more likely to use no/lo drinks to help restrict drinking across all attempts, but not serious attempts (Table S1). Changing the operationalisation of key predictors as outlined in the sensitivity analyses did not alter the pattern of results (Table S2).

Association between use of no/lo drinks to help restrict drinking during most recent restriction attempt and self-reported successful reduction in alcohol consumption (Table 3)

The unadjusted regression model was a significant improvement on the null model for all attempts ($\chi^2(1) = 5.6$, $p = 0.018$), but not serious attempts ($\chi^2(1) = 2.4$, $p = 0.12$). The adjusted regression model was a significant improvement on the unadjusted model for all attempts ($\chi^2(18) = 85.7$, $p < 0.001$) and serious attempts ($\chi^2(18) = 48.3$, $p < 0.001$).

Of those who used no/lo drinks in their restriction attempt, 81.9 % reported reduced alcohol consumption since their attempt (93.4 % for serious attempts), compared to 75.5 % of those who did not use no/lo drinks (89.3 % for serious attempts). There was no evidence of a significant association between using no/lo drinks to restrict drinking and self-reported success of attempts to restrict alcohol consumption (OR=1.47, 95 %CI: 1.00 to 2.19, $p = 0.027$). The Bayes Factors indicated strong evidence for the hypothesised effect in the unadjusted model of all attempts (BF = 5.43), and inconclusive evidence in the other models (adjusted model of all attempts BF = 1.48; unadjusted model of serious attempts BF = 1.72; adjusted model of serious attempts BF = 1.42). Unweighted analyses also showed no evidence of a significant association between using no/lo drinks to help restrict drinking and the success of reduction attempts (Table S3). Changing the operationalisation of key predictors did not alter the pattern of results (Table S4).

Discussion

This study aimed to understand who uses no/lo drinks in attempts to restrict drinking and whether this helps them to succeed. Our results showed that a third of those who made an attempt to restrict drinking used no/lo drinks in their most recent attempt. Those who regularly consumed no/lo drinks and who attempted to restrict drinking due to concerns about future health problems were more likely to do so. However, it was inconclusive whether or not using no/lo drinks to restrict drinking was associated with the self-reported success of restriction attempts.

Our findings are in line with previous research that suggest people often use no/lo drinks in attempts to restrict drinking (Bowdring et al., 2024; Davey, 2023; Nicholls, 2021). Unlike previous research showing that heavier alcohol consumers and those from more affluent backgrounds are more likely to consume no/lo drinks (Anderson et al., 2021; Clarke et al., under review; Katainen et al., 2023; Perman-Howe et al., 2024), our results showed that people from higher social grades were no more likely to use no/lo drinks to restrict drinking than other social grades. Additionally, whereas previous research showed that men consumed no/lo drinks more frequently than women (Davies et al., 2025; Katainen et al., 2023; Perman-Howe et al., 2024), our results suggested that women were more likely than men to use them to restrict drinking. The social patterning of no/lo consumption shown in previous research may therefore be due to these groups consuming no/lo drinks for purposes other than cutting down, e.g., in addition to alcoholic drinks for enjoyment, to replace soft drinks, to replace alcohol consumption in occasions where it is undesirable, such as when planning to drive. We also found an association between self-reported current consumption of no/lo drinks and use of these drinks to help restrict drinking. However, due to the cross-sectional and retrospective nature of the data, it is unknown whether consumption of no/lo drinks preceded or followed the restriction attempt. Those who consume no/lo drinks regularly may be more likely to consider them when seeking ways to restrict drinking, but it is also possible that those who used no/lo drinks as a tool to restrict drinking are more likely to continue consuming them regularly following the attempt. Our finding that restricting alcohol consumption out of a concern for future health problems is associated with consumption of no/lo drinks as part of a restriction attempt echoes similar motivations reported in qualitative research (Nicholls, 2021). This might reflect that no/lo producers position these drinks as fitting within health and wellbeing trends (Howell et al., in prep). Given that no/lo brands have partnered with the official UK Dry January campaign since 2022 (Lucky Saint, 2025), it was notable that we found no evidence of a significant association between giving up alcohol for a month and a higher likelihood of using no/lo drinks to support this attempt.

There was some evidence that using no/lo drinks as a tool to restrict drinking was associated with reduced alcohol consumption since the attempt. However, this was only seen in the unadjusted analysis. We found no evidence of a significant association in the adjusted analysis, and the BF indicated inconclusive evidence. This suggests that the study was not sufficiently powered to detect the identified effect size in this analysis, which may have been smaller due to confounding variables. It is possible that the association between no/lo purchasing and reduced alcohol purchasing in previous research (Anderson et al., 2020; Anderson & Kokole, 2022, 2022; Jane Llopis et al., 2022), which is small in practical terms (Rehm et al., 2023), may also be attenuated once controlling for these confounders. It is also possible that increased consumption of no/lo drinks is associated with reduced alcohol consumption at a population level, whilst also not leading to greater success in efforts to restrict drinking at the individual-level. For example, people might purposely choose no/lo drinks to restrict drinking because they find them helpful, and those that do not find them helpful may select other tools that are helpful for them. Another possibility is that no/lo drinks might be used to support short-term changes in consumption, which would not have been captured in our study. Further experimental and quasi-experimental research, independent of the alcohol industry, is needed to understand the causal effect of no/lo consumption in attempts to restrict drinking.

This was the first study to investigate whether using no/lo drinks to restrict drinking was associated with reductions in alcohol consumption. The strengths of this research are that the study was powered to detect small effect sizes and used data from a nationally representative sample, meaning that results are generalizable to the GB population. We also compared general attempts with serious attempts. We were also able to demonstrate the robustness of our main findings to a range of alternative methodological decisions.

There are also several limitations. First, this was a retrospective cross-sectional study so we cannot draw causal inferences. Additionally, the Toolkit asks participants to report their drinking behaviour for the previous 12 months, including hazardous drinking, consumption of no/lo drinks, attempts to restrict drinking and success of restriction attempt. Therefore, reported drinking behaviour already incorporates any effect of the restriction attempt on drinking behaviour. This makes it harder to interpret associations between drinking behaviour (e.g. AUDIT-C scores and no/lo drinks consumption) and our dependent variables. For example, if no/lo drinks increase the success of restriction attempts, AUDIT-C scores may be lower, which would attenuate the association between AUDIT-C scores and odds of using no/lo drinks in a restriction attempt. Because we found no evidence of a significant difference in the success of restriction attempts between those who do and do not use no/lo drinks in these attempts, it is unlikely this limitation would bias the

association between hazardous drinking score and use of no/lo drinks in restriction attempts. It may have a greater effect on our models estimating the success of cutdown attempts where drinking behaviour variables are a covariate in adjusted models alongside use no/lo drinks to restrict drinking. However, the unadjusted models point towards similar conclusions, limiting the impact of this concern. Future research should consider how recently the restriction attempt took place and measure drinking behaviour before and after the attempt.

Second, there are two possible sources of selection bias. Firstly, those who were unsuccessful in their restriction attempt may have been less likely to report undertaking a restriction attempt. Previous work on underreporting of smoking cessation attempts estimated that a substantial proportion of unsuccessful quit attempts were not reported, particularly those that lasted a short time, occurred longer ago and were unaided (Perski et al., 2022). We do not know how many restriction attempts are not reported in this study. If the number of unreported attempts is high, our analysis may overestimate or underestimate the association between no/lo use and success of the restriction attempt. Given that the proportion of respondents who reported using no/lo drinks in restriction attempts in this study (33 %) is very similar to the proportion of GB adults who report ever consuming no/lo drinks (31.3 %; Perman-Howe et al., 2024)), there is currently no strong evidence to expect that no/lo use is associated with whether an attempt was unreported which limits the influence of this bias. However, the unobservability of no/lo consumption within unreported attempts means this possibility remains open. Secondly, participants who reported "never" drinking alcohol in the last 12 months on the AUDIT-c were not asked about restriction attempts in the last 12 months. However, some participants who have stopped drinking in the last 12 months may have chosen to report never drinking in this period (e.g. because the response options do not cover changes in behaviour). Excluding from the analysis participants who successfully restricted their drinking in this way could bias our estimates, but this would only occur if those with this reporting behaviour were a large proportion of those restricting their drinking and unequally distributed across groups of interest (e.g. more likely to use no/lo drinks in restriction attempts). There is no strong evidence to suggest this is the case, and 7 % of participants reported being abstinent since their most recent restriction attempt (Table S5), which suggests that our sampling did not by definition exclude all successful abstainers. Future research should seek to include all those who stopped drinking and consider that those who abstain may identify themselves as "never" drinking alcohol on the AUDIT-C.

Third, retrospective self-report measures might suffer from recall bias, and people are likely to remember recent attempts more accurately than distant attempts. As we did not measure when the attempt took place, it is unclear to what extent participants report more recent or more distant attempts. Third, participants might have provided socially desirable responses and might have underreported their alcohol consumption (Schell et al., 2021) and over reported success of restriction attempt (e.g., (Miller et al., 2008; Taber et al., 2009). To the best of our knowledge, this is the first study that investigated the success of restriction attempts among non-clinical populations. Therefore, it is unclear how these findings might compare to other surveys of similar populations, although reported success rates among people meeting criteria for alcohol dependence within a general population sample were substantially lower than the current study (Weisner et al., 2003).

To conclude, those who regularly consumed no/lo drinks and who attempted to restrict drinking due to concerns about future health problems were more likely to drink no/lo drinks to support restriction attempts. However, it is still inconclusive whether or not using no/lo drinks to restrict drinking was associated with the self-reported success of restriction attempts. Based on these findings, organisations should be cautious about making strong claims about the benefits of using no/lo drinks as a tool to restrict drinking, particularly in comparison to other evidence-based tools.

CRediT authorship contribution statement

Inge Kersbergen: Writing – original draft, Methodology, Funding acquisition, Formal analysis, Conceptualization. **Melissa Oldham:** Writing – review & editing, Methodology. **Jamie Brown:** Writing – review & editing, Methodology, Funding acquisition. **Parvati Perman-Howe:** Writing – review & editing, Methodology. **John Holmes:** Writing – review & editing, Methodology, Funding acquisition, Conceptualization.

Declaration of competing interest

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests. IK, MO, JB, JH have received funding for ongoing, unrelated research on alcohol-free and low-alcohol drinks from Alcohol Change UK (ACUK), which received <0.6 % of its funds in 2024-5 from Lucky Saint, an organisation that produces and sells alcohol-free and low alcohol drinks, and owns a pub that sells standard alcoholic drinks. In March 2025, Lucky Saint became an associate member of The Portman Group, a self-regulatory organisation that is fully funded and controlled by the alcohol industry. ACUK has a strict policy of not accepting any funds from, nor being subject to any influence whatsoever from, the alcohol industry, including through its investment portfolio. ACUK has stated that it is in full compliance with its policy.

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.drugpo.2025.105030.

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