Public Health Scotland

Evaluating the impact of minimum unit pricing in Scotland on people who are drinking at harmful levels

Briefing paper

Publication date: 7 June 2022

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1. Introduction

Minimum unit pricing (MUP) for alcohol was implemented in May 2018 and is currently set at £0.50 per unit (pu) of alcohol. Public Health Scotland has been tasked by the Scottish Government to evaluate the impact of MUP on a number of different areas. As part of this evaluation we commissioned the University of Sheffield to look at the impact of MUP on those drinking at harmful levels, including those with alcohol dependence.[i,1] People who drink at harmful levels, and particularly people with alcohol dependence, are a diverse group with complex needs and many are likely to drink low-cost high-strength alcohol affected by MUP.

This briefing paper is based on the final report from research by the University of Sheffield, the University of Newcastle, Australia, and Figure 8 Consultancy Services Ltd. There are three work packages. These are: a study of people accessing treatment related to their alcohol dependence and service providers; interviews with those drinking at harmful levels and family members recruited through the community; and analysis of a longstanding self-report survey on drinking behaviour conducted by a market research company. Altogether, a substantial collection of data was gathered from multiple sources, before and after implementation, with over 700 quantitative interviews conducted, over 170 people reached by qualitative interviews and analysis of survey data from over 100,000 participants. In 2021 an interim report[2] was published, which presented a description of collected data and early findings from the first work package about the impact of MUP on people with alcohol dependence who access treatment services.

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[i] The standard UK definition for harmful drinking (also known as high-risk drinking) is consuming more than 35 units a week for women or more than 50 units a week for men. Alcohol dependence is the most severe form of harmful drinking and means having a physical or psychological dependence on alcohol (sometimes referred to as ‘alcohol addiction’ or ‘alcoholism’). It has been estimated that one in five of people who drink at harmful levels have alcohol dependence.

2. Aims of the study

The research aimed to provide evidence in each of the seven areas related to the impact of MUP on people who drink at harmful levels. These are:

1. Impacts on alcohol purchasing and consumption patterns and alcohol dependence.
2. Strategies used to respond to MUP, including any positive or negative secondary effects of the policy.
3. Impacts on health.
4. Impacts on family members and carers.
5. Impacts on those living in remote or rural areas of Scotland.
6. Responses to MUP by alcohol treatment and related services.
7. Additional factors unrelated to MUP that may have affected people drinking at harmful levels, e.g. policy changes unrelated to alcohol.

The aims of each work package are described in the next section.

3. What the researchers did

Before collecting data, the researchers developed a 'theory of change' that describes how MUP could affect people with alcohol dependence and others drinking at harmful levels (Figure 1).[3] Three main pathways that people could follow were identified:

- Stopping drinking for an extended period.
- Adopting short-term strategies, such as drinking less or obtaining additional money, to manage the increased cost of alcohol.
- Continuing as before because spending is unaffected by MUP.

Figure 1: Theory of change for the impact of MUP on people drinking at harmful levels

The researchers used a range of research designs and methodologies to find out how MUP affected people drinking at harmful levels, including any negative consequences for people's health.

3.1. Work package 1: People with alcohol dependence in treatment settings

The aim of work package 1 (WP1) was to investigate the impact of MUP on alcohol consumption and spending of people who are alcohol dependent and accessing treatment services, including any wider positive and negative secondary effects of the policy. It also aimed to identify potential strategies for minimising harm in this population.

To address the aims of WP1, a research design was developed that combined quantitative and qualitative data, collected through survey-based structured interviews.

The research team interviewed adults entering treatment services in Scotland and Northern England. An established screening tool called the Alcohol Use Disorders Identification Test (AUDIT)[4] was used to identify participants likely to have alcohol dependence, as many services also provided support for people with other drug problems. Data were collected from different samples of people taken at three time points: up to 6 months before MUP was implemented (wave 1), 3 to 9 months after MUP implementation (wave 2) and 18 to 22 months after MUP implementation (wave 3). The numbers and types of interviews in WP1 are summarised in Table 1.

Table 1: Numbers and types of interviews in work package 1

Group: People with likely alcohol dependence	Wave 1	Wave 2	Wave 3	Total
Structured quantitative interviews – Scotland	170	190	123	483
Structured quantitative interviews – England	85	86	52	223
Follow-up qualitative interviews – Scotland	21	17	11	49
Follow-up qualitative interviews – England	8	11	3	22

Group: Service providers	Wave 1	Wave 2	Wave 3	Total
Individual/group qualitative interviewees – Scotland	15	19	10	44
Individual/group qualitative interviewees – England	6	5	0	11

Researchers divided respondents into five sub-groups that were likely to be substantially affected by MUP, positively or negatively (some individuals were in more than one group):

• Paid less than £0.50pu for alcohol on average (‘cheap alcohol’).

• Used illicit substances.

• In poor health.

• Economically vulnerable.

• Have dependent children.

In the interviews, people were asked about a wide range of topics relating to alcohol use including: past and recent alcohol and drug use; impact of alcohol use on family, social and work life; and experiences of crime. As part of the interview, participants were asked to complete a retrospective diary recalling the alcohol they had purchased and consumed in the last typical drinking week before treatment, using a method called Time Line Follow Back (TLFB). They were also asked to complete a questionnaire called the Severity of Alcohol Dependence Questionnaire (SADQ) that is used to measure the severity of people's alcohol dependence.

The research team analysed the quantitative data by comparing changes in outcomes pre and post MUP in Scotland to changes over the same time period in England (difference-in-difference analysis). The analyses used weighted data to take account of differences in the type of people sampled at each wave.

The research team analysed the transcripts from the qualitative interviews using a team-based approach to identify key themes in the data. Findings were compared across each wave of data and between countries to understand change and to identify possible explanations for any changes seen.

3.2. Work package 2: People with and without alcohol dependence and their families in community settings

The aim of work package 2 (WP2) was to investigate the impact of implementing MUP on people who drink at harmful levels, with or without alcohol dependence, living in remote, rural and urban areas of Scotland. It also aimed to investigate the impact of the policy on the family members and carers of people drinking harmfully.

The researchers carried out two waves of interviews so that they were able to compare data before and after the introduction of MUP. For the most part, different

people were interviewed in each wave, but some participants were interviewed at both waves.

In WP2, an approach known as participatory research was used. This approach enables members of communities that are affected by the issue being studied to actively contribute to the research and collaborate with the research team. The participatory work in WP2 involved some of the interviews being carried out by Privileged Access Interviewers (PAIs), who were recruited through dependence recovery groups, other local services or support groups in remote, rural and urban areas of Scotland, and then trained to carry out and analyse qualitative interviews. Initial recruitment focused on people drinking harmfully with and without alcohol dependence and targeted those who were not currently in treatment or had never sought it. Through the PAIs' networks in the community or recovery groups, it was possible for PAIs and the wider research team to identify additional people drinking at harmful levels. The researchers also used the same methods to identify family members and carers of people drinking harmfully.

Some participants were interviewed individually and some were interviewed in groups.

The numbers and types of interviews in WP2 were as follows:

- 12 individual interviews conducted by PAIs
- Two individual and seven group interviews by professional researchers involving 15 people drinking at harmful levels, 15 family members and three family members with experience of drinking at harmful levels themselves.

Interviews with drinkers, family members and carers explored: previous alcohol and other drug use; changes in the price, type and location of alcohol purchases; the availability of alcohol products; changes in drinking patterns; wider impacts of MUP; minimising harm from MUP; and other topics the interviewees wanted to address. The researchers analysed the data using a method called thematic network analysis. Thematic networks are web-like illustrations that summarise the relationships between the main themes in pieces of text in a systematic and clear way.

3.3. Work package 3: The impact of MUP on prevalence, patterns and characteristics of harmful drinking within the Scottish population

The aim of WP3 was to evaluate the impact of MUP on the prevalence, patterns and characteristics of people drinking at harmful levels within the general population in Scotland.

The study used individual-level survey data, collected over a period of more than 11 years from 1 January 2009 and 29 February 2020. The researchers used a method known as controlled interrupted time series analysis to study the data. This approach makes it possible to assess whether MUP led to any changes in the outcomes of interest over time in Scotland that were not seen in England.

The data came from Alcovision, a commercial market research survey collected by Kantar. Alcovision uses a survey of behaviours and attitudes as well as a one week drinking diary to provide detailed information on the drinking behaviours of around 30,000 adults living in Great Britain each year.

The analysis estimated the impact of MUP on each of a set of outcomes while taking account of seasonal variation in drinking and other factors that affect consumption. The primary outcome was the proportion of adults who reported consuming alcohol at harmful levels. The 10 secondary outcomes examined consumption at lower levels, the types of alcohol consumed by people drinking harmfully (e.g. strong cider, vodka) and their drinking patterns (e.g. number of drinking days, number of units per occasion and number of occasions involving drinking alone). The researchers also explored whether the results for the primary outcome differed for particular groups of people, namely those on living with a partner, living with children or of lower socioeconomic position.

3.4. Work package 4: The impact of MUP on people identified as drinking at harmful levels within primary care

A fourth work package looking at the impact of MUP on health outcomes for people identified as drinking at harmful levels in primary care was planned.[5] However, this could not be carried out due to delays and increased costs arising during the COVID-19 pandemic that meant it was not possible to secure access to the necessary data within the timescales of the project.

4. What did the researchers find?

The researchers synthesised findings from all the work packages to assess key outcomes. The synthesis also assessed whether findings from multiple sources aligned with each other and with other studies that have explored the impact of MUP. These findings are summarised in Table 4 and described in detail in the report. Key findings are described in this section.

4.1. Prices paid and consumption

There was an increase in the prices paid for alcohol by people with alcohol dependence after the implementation of MUP, with minimal evidence of continued purchasing below £0.50 per unit. Not all people with alcohol dependence were substantially affected by MUP because some of those providing data already paid more than the price floor.

In WP1, no clear evidence was found of a reduction in alcohol consumption among people drinking at harmful levels or those with alcohol dependence following the implementation of MUP. In WP3, when the researchers looked at trends in the prevalence of moderate, hazardous and harmful drinking over a long period of time from before and after MUP in survey data, they found small changes in the prevalence of harmful and moderate drinking that were not statistically significant, and a statistically significant decrease in the prevalence of hazardous drinking (3.5%).

In the quantitative data from structured interviews in WP1, although the mean number of units consumed by people with alcohol dependence in treatment settings in Scotland ranged between 168 and 192 units per week across the three waves, the difference-in-difference analysis found these changes were not statistically significant.[ii] In the qualitative interviews in work packages 1 and 2, some individuals reported reducing their consumption, particularly where people switched to products that were higher in strength but sold in lower volumes (for example vodka) and therefore contained fewer units of alcohol in total.

4.2. Financial strain, products purchased and drinking patterns

Clear evidence was found in WP1 of increases in financial strain among some people drinking at harmful levels and their family members. Findings from the qualitative interviews show that participants found ways to obtain extra money for purchasing alcohol, including reduced spending on food and utility bills, increased borrowing from family, friends or pawnbrokers, running down savings and using foodbanks or other forms of charity.

In WP1, of those with alcohol dependence in treatment settings, a substantial minority responded that they had reduced spending on things other than alcohol after the implementation of MUP (20% at wave 2 and 29% at wave 3). Average total spending on alcohol in this group increased from £83 to £107 per week. More generally, participants coped by using, and often intensifying, strategies they were familiar with from previous periods when alcohol was unaffordable for them. These strategies typically included obtaining extra money whereas reducing alcohol consumption was often seen as a last resort.

[ii] A statistically significant finding is one that would be very unlikely to be observed in a sample of data simply by chance if there is no real underlying change or difference in the wider population.

There were mixed findings from the evidence sources about changes in the products purchased by people drinking at harmful levels. In the qualitative interviews there were several direct reports of people with alcohol dependence responding to MUP by switching from purchasing high-strength ciders or beers to either lower strength products or spirits, particularly vodka. Interviewees noted that high strength cider was often unavailable post-MUP. In WP1, in the quantitative structured interviews in treatment settings, the proportion of people with alcohol dependence consuming high strength cider during the TLFB[iii] week fell from 25% at wave 1 to 9.5% at wave 2 and 6.7% at wave 3 in Scotland. This proportion also declined in England, from 19.5% to 12.8% to 8.0% in consecutive waves. There was also some evidence of an increase over time in the proportion of consumption that is vodka among people drinking at harmful levels. However, these findings could be due to chance as they were not statistically significant.[ii]

In the qualitative data from WP2 some people drinking at harmful levels and their family members reported concerns about increased intoxication after they switched to consuming spirits rather than cider. Some family members and carers raised concerns about the potential for increased conflict or violence within their homes, either due to financial strain or the perceived higher levels of intoxication among those drinking spirits instead of cider. No evidence was found within this study that these concerns about increased violence were realised.

4.3. Wider outcomes

Little evidence was found of other negative outcomes following the implementation of MUP. In the qualitative work, few people reported consuming illicitly-produced alcohol, stealing alcohol or committing other crimes to obtain alcohol or the money to pay for it. Few people reported substituting illicit drugs for alcohol and those doing so were often already using other substances before the introduction of MUP. In WP1,

[iii] Participants were asked to complete a retrospective diary recalling the alcohol they had purchased and consumed in the last typical drinking week before treatment, using a method called Time Line Follow Back (TLFB).

in the quantitative structured interviews of people with alcohol dependence in treatment settings, no significant changes were found in involvement in illegal activities, being a victim of crime or of the police being called to domestic arguments.

With regard to health and health-related outcomes, since WP4 could not be completed it was not possible to assess whether there were any changes in hospitalisation or death rates among people drinking at harmful levels. However, among those with alcohol dependence in treatment settings in WP1, there was no evidence of changes in general health. There is also no clear evidence of a change in the severity of alcohol dependence symptoms among those presenting for treatment. There were no reports of increased incidents of acute withdrawal symptoms in any of the work packages. One potentially positive effect of MUP is that a small minority of respondents said that MUP contributed to decisions to enter treatment, but this was described as a modest contribution and one among many considerations.

Among people drinking at harmful levels who lived close to the Scotland-England border (e.g. within one hour's drive), the findings from qualitative interviews in WP2 indicate an increase in purchasing of alcohol across the border in England. Increased cross-border trading included moving the weekly grocery shopping to England, buying alcohol when crossing the border for work or other reasons and travelling to England specifically to make bulk purchases of alcohol. Each of these instances typically required the use of a private vehicle. There was no evidence of people purchasing alcohol in England to provide or sell to others. There was also no evidence of cross-border purchasing among those living greater distances from the Scottish border, including in the Central Belt.

4.4. Awareness, support and additional factors

The researchers found that those with alcohol dependence and/or drinking at harmful levels mostly had only a limited awareness and understanding of MUP. This included a low level of understanding of the details of the policy, its purpose or the price increases it would cause. Most people with alcohol dependence reported receiving no additional information or support during or after the introduction of MUP from

either treatment services or other sources of information. People with alcohol dependence in treatment settings also expressed a need for support to prepare for price rises when asked about MUP before it was implemented but were not aware of any being available. There was no evidence that a lack of support led to any harmful outcomes from the policy.

Universal Credit was rolled out after the introduction of MUP and came into effect during the study period. This meant that some people drinking at harmful levels had to adjust to a switch in the frequency of benefit payments from weekly or fortnightly to monthly intervals, compounding the difficulty of managing household budgets that were already strained by increased spending on alcohol.

There was no evidence that the introduction of MUP intersected substantially with other potentially relevant factors, including the early stages of the COVID-19 pandemic. This project did not use data collected after early March 2020, so it cannot provide information on how MUP intersected with the pandemic in general.

Table 2: Summary of findings

Outcome	Overall description of findings	Work packages from which findings drawn, and coherence across evidence sources.
Prices paid	Increase in prices paid, with minimal non-compliance by retailers.	Coherent findings from interviews in both treatment settings and in the community, including from quantitative analysis of the survey data (WP1 and WP2).
Products purchased	Reduction in purchasing of strong ciders, with some indication of switching from ciders to other drinks, including spirits.	Coherence across all sources. However, although there was a drop in strong cider consumption seen in quantitative analyses, this was not statistically significant.
Consumption level	No clear evidence was found of a reduction in alcohol consumption.	Mixed findings: the quantitative analyses found no significant changes (WP1). Some participants described drinking less in qualitative interviews (WP1 and WP2).

Outcome	Overall description of findings	Work packages from which findings drawn, and coherence across evidence sources.
Prevalence of harmful, hazardous and moderate drinking	Reduction in the prevalence of hazardous drinking and non-significant changes in the prevalence of harmful and moderate drinking. It cannot be determined from prevalence analysis whether there was any change in the amount of alcohol consumed by people drinking at harmful, hazardous or moderate levels.	From WP3 only (population level market research data).
Drinking patterns and practices	Some reports of fear of, and actual, increased intoxication. Equivocal evidence of change in units per drinking occasion.	Mixed findings from WP1, WP2 and WP3.
Severity of alcohol dependence	No clear evidence of changes in the severity of dependence for with the condition.	From WP1 only (structured interviews in treatment settings).
Financial strain	Increases in financial strain among some individual drinkers and their family members. Increased alcohol spending and cut-backs on other spending.	Coherent findings from interviews in both treatment settings and in the community (WP1 and WP2).
Cross-border shopping	Increased among those close (less than 1 hour drive) to the border with the means to do so. There was no indication of cross-border activity among those living further from the border.	Coherent findings from qualitative interviews in both treatment settings (WP1) and in the community (WP2).
Substitutes for alcohol	Little evidence found with reported cases only among those with previous experience of using illicit drugs.	Coherent findings from interviews in both treatment settings and in the community, including from quantitative analysis (WP1 and WP2).

Outcome	Overall description of findings	Work packages from which findings drawn, and coherence across evidence sources.
Theft of alcohol	Little or no evidence.	Coherent findings from interviews in both treatment settings and in the community, including from quantitative analysis (WP1 and WP2).
Illicit alcohol	Little or no evidence.	Coherent findings from interviews in both treatment settings and in the community, including from quantitative analysis (WP1 and WP2).
Seeking treatment	Some indication that MUP may have been a moderate influence on some decisions to seek treatment, as one among many factors.	Coherent findings from interviews in both treatment settings and in the community, including from quantitative analysis (WP1 and WP2).

5. What these findings mean

This study provides a unique source of evidence about the experiences of people drinking at harmful levels before and after the implementation of MUP.

A key strength of the study is the broad range of research methods used across the populations studied and outcomes examined. This study design has made it possible for the various sources of evidence to be compared, contrasted and brought together. Through this process we can identify which of the findings we can have greater confidence in, and identify areas where the findings are mixed or less clear.

Another strength of the study is that data were gathered before and after implementation of MUP, and in Northern England as well as Scotland. Doing so enables comparisons to be made and increases our ability to assess whether changes observed in the study were attributable to MUP.

An important limitation of the study is that it includes data only from people who are in contact with treatment services or recovery groups and from members of online

market research panels. This means that a large number of people drinking at harmful levels were not able to participate in the study and reflects well-known challenges in accessing representative samples of people who drink harmfully for research purposes. The termination of WP4 adds to this limitation as it planned to study a large sample of people identified as drinking harmfully in primary care.

Another limitation stems from interview data being collected in different samples of people at different time points (known as repeat cross-sectional study design). This design was chosen rather than following a group of individuals over time (known as longitudinal study design) because of the challenges of retaining participants from wave to wave and, importantly, because it would not be possible to distinguish between effects due to MUP or due to treatments.

There are some points to consider when interpreting the findings on consumption. Some of the key evidence came from people with alcohol dependence, who are a minority, so results from this population may have limited applicability to the broader population of those drinking at harmful levels. Also, with regard to the structured interview data, the report details a number of reasons why the results are not very precise in statistical terms, and therefore it is possible that the study did not detect real changes that occurred, particularly if they were modest in size. Regarding the analysis in WP3 on the prevalence of harmful, hazardous and moderate levels of drinking, these analyses only tell us whether the prevalence of these groups changes and do not enable us to examine changes in the amount consumed by people in each group over time.

The study found no evidence of widespread negative consequences, such as a shift to using illicit, stolen or non-beverage alcohol or other substances following the introduction of MUP. This finding is notable because there were concerns about potential negative effects prior to the implementation of MUP.

6. How the findings fit with other MUP studies published so far

This study adds to our understanding of the impact of MUP gained from other studies published to date. The quantitative and qualitative interview data add new information gathered from people drinking at harmful levels, including those with alcohol dependence in treatment and community settings, as well as service providers, and family and carers. This is particularly valuable because there is little existing research evidence in these hard-to-reach populations.

This study also provides analyses of survey data that adds new information about trends in the prevalence of drinking at moderate, hazardous and harmful levels in the general population from before to after the implementation of MUP.

The finding that few participants in Scotland reported purchasing alcohol less than £0.50 pu is consistent with other studies. Our compliance study[6] reported that licensing practitioners considered compliance to be high. The Small Retailers study[7] found that such retailers reported taking compliance seriously and that there were few observed instances of products priced below MUP in the retailer audit conducted after MUP implementation. Similarly, and consistent with high compliance, studies have also reported that the price of alcohol in Scotland increased after MUP.

That little evidence was found in this study of wider negative effects, such as increased crime or substitution from alcohol to other drugs, is consistent with other studies.[8]

Several of the findings from interviews in a community setting from WP2 are consistent with, and complemented by, those from a qualitative study that aimed to capture the experiences of MUP among homeless drinkers, street drinkers and the support services that work with them.[9] For example, that study found that impacts of MUP on the quantity and type of alcohol consumed were varied, with some individuals reducing their drinking, some unaffected and some switching drinks. The study also found little evidence of switching to drugs in those that did not already use drugs.

The findings from qualitative interviews from this study of increased cross-border shopping among those close to the border with the means to do so adds to knowledge from a report bringing together evidence from several perspectives on cross-border purchasing.[10] That study found that, while cross-border purchasing does happen, the extent is small relative to the purchasing behaviours of Scotland's population as a whole, and that there is a distance-based effect of cross-border alcohol purchasing, with most cross-border sales occurring in households in close proximity to the border.

Assessing the impact of MUP overall will require reports from all the MUP evaluation studies and these will be pulled together for a report due in 2023.

7. Other evidence of the impact of MUP on people drinking at harmful levels

This paper provides a briefing of the final report from the three work packages that constitute the 'Harmful drinking' study. Other related studies are outlined in this section.

The finding in this study of a large increase in price paid by people drinking at harmful levels was anticipated by previous research that identified a preference among people drinking at harmful levels, and particularly those with alcohol dependence, for the cheaper and stronger products affect by the floor price.[11,12]

The finding from this study of no clear evidence for a reduction in consumption differs from another study that analysed a different dataset over time. That study examined alcohol purchasing data from a household panel study and concluded that the highest purchasing fifth of households reduced their purchasing by more than other households after the introduction of MUP in Scotland.[13]

The findings from this study about the ways in which people with alcohol dependence cope with alcohol affordability are consistent with previous research that finds there is a diverse range of approaches that reflect individual characteristics and previous behaviours.[14]

The ‘Harmful drinking’ study is complemented by additional studies on the impact of MUP on alcohol attributable health harms[15] that will assess the impact of MUP on population-level hospitalisation and deaths that happen as a result of alcohol consumption. Analysis of the alcohol-specific causes that are associated with heavy drinking, such as alcohol-specific liver disease, will provide further evidence on whether or not those drinking at harmful levels (but not necessarily dependent) are drinking less after MUP implementation.

8. Conclusion

This study examined the potential impact of MUP on people drinking at harmful levels from a broad range of perspectives. These perspectives were gained from a substantial collection of rich data from multiple sources, before and after implementation, with over 700 quantitative interviews conducted, over 170 people reached by qualitative interviews and analysis of survey data from over 100,000 participants. The study found that there was a marked increase in the prices paid for alcohol by people with alcohol dependence and those drinking at harmful levels after the introduction of MUP. There was no clear evidence found of any change in consumption or severity of dependence although such an effect cannot be ruled out.

The study found increased financial strain among some economically vulnerable groups but no clear evidence that it caused wider negative consequences, such as increased crime, use of illicit substances or acute withdrawal. The study also found that people with alcohol dependence had only a limited awareness and understanding of MUP and reported receiving little information or support before its introduction. The findings from qualitative interviews in particular highlight the importance of understanding the complex needs and circumstances of people drinking at harmful levels when examining how and why they may be impacted by MUP and amongst other factors.

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