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STAD in Europe (SiE): Process and outcome evaluation of Wrexham's Drink Less Enjoy More intervention

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Executive summary

The STAD in Europe (SiE) project

The SiE project aims to reduce binge drinking and associated harms in young people, through the development of locally tailored community based interventions designed to tackle heavy episodic drinking in different drinking environments. The project is based on the original STAD programme in Sweden, which combines three core components (community mobilisation, bar staff training in responsible beverage service, and stricter law enforcement) aiming to tackle alcohol-related harms in nightlife environments. The SiE project focuses on transferring the STAD model to four drinking settings: nightlife; festivals; public environments (e.g. streets, parks and beaches); and, private environments (e.g. home drinking). The project involves the development and piloting of interventions to tackle heavy episodic drinking for one of these settings in seven pilot areas in: the Czech Republic, Germany, the Netherlands, Slovenia, Spain, Sweden and the United Kingdom (UK).

The UK pilot intervention

The UK SiE pilot intervention was implemented in Wrexham (North Wales) and aimed to reduce drinking amongst young people in private drinking environments prior to going out in the night-time economy (i.e. preloading). In the UK, preloading appears to be common practice, particularly amongst young people, with the proportion of 18-21 year olds reporting preloading ranging from 75%-83% across two UK nightlife environments [1, 2]. Tackling preloading is a complex issue; there is no UK legislation around adults consuming excessive amounts of alcohol in private settings [3]. However, preloading has relevance to policies concerning licensed premises. Theoretically, if legislation which prohibits the service of alcohol to, or purchase of alcohol for, drunks was adhered to, individuals would not be able to acquire more alcohol in nightlife venues. This may both reduce levels of drunkenness in the nightlife environment and deter patrons from consuming excessive amounts while preloading. Thus, the UK SiE pilot intervention, Drink Less Enjoy More (DLEM), aimed to discourage and reduce preloading behaviour by changing the acceptability of drunkenness in the nightlife environment, both upon entry and throughout the night out, by increasing nightlife user awareness of relevant legislation and alcohol-related harms and vulnerability associated with preloading, and preventing the sale of alcohol to drunks in licensed premises in the town centre. The pilot Drink Less Enjoy More (DLEM) intervention was modelled on the three core components of the STAD programme, and closely based on the previous adaptation of the STAD model to UK nightlife settings across England and Wales [2, 4, 5]. The pilot intervention was implemented over a six week period (November - December 2017) and contained all core components of the original STAD model including:

- Establishment of a multi-agency steering group, including representatives from: Wrexham County Borough Council (Trading Standards, Licensing, Community Safety and Communications); North Wales Police; Public Health Wales; youth services; education; and, the LJMU SiE project team;
- Community engagement with licensees, door security personnel and young people at local educational establishments;
- Implementation of an awareness raising campaign on legislation around the sale and purchase of alcohol for drunks and vulnerability associated with preloading and intoxication, through email, blogs, posters in venues, local and national press, and social media;
- Responsible Bar Staff (RBS) training for on and off-licence premise licensees and heads of door security on associated legislation, vulnerability associated with drunkenness, and the DLEM

intervention; and, vulnerability training with the local university captains of clubs and societies on vulnerability associated with intoxication;

- Police engagement with the licensing trade to cultivate self-policing practices, prevent the sale of alcohol to drunks and increase awareness of vulnerability associated with drunkenness; and, re-enforcement by officers policing the night-time economy of the values of DLEM stressing to nightlife users that drunkenness is not acceptable.

Methods

As part of the evaluation of the broader SiE project, the Public Health Institute, Liverpool John Moores University conducted a process and outcome evaluation of the pilot intervention in Wrexham. The research had two core objectives:

- To monitor, document and describe the development and piloting of the intervention (process evaluation).
- To identify if a STAD-based intervention can be developed and piloted across the pilot site, and the potential impacts of the intervention (outcome evaluation).

A range of methods were used to meet research objectives.

Semi-structured interviews/review of project documentation

Qualitative semi-structured interviews were carried out with stakeholders who had a key role in the design or implementation of the intervention. Interviews were conducted prior to (n=3), and following the intervention (n=6) and focused on: how the pilot area designed and implemented the intervention; barriers and facilitators to implementation; and, perceptions of effectiveness on aimed outcomes. Documentation, materials and correspondence produced throughout the development and piloting of the intervention were collated and reviewed. This information was used to supplement the findings from the stakeholders interviews.

Population survey

A web-based survey was conducted with people (aged 18 years and over) who live in and/or visit nightlife environments in Wales. The survey explored alcohol consumption patterns and related harms, with a particular focus on preloading and nightlife experiences.

Nightlife user survey

A short anonymous survey was conducted opportunistically with users of Wrexham's night-time economy on a Friday and Saturday night pre (September 2017) and post-intervention (February 2018). The survey explored: alcohol consumption and drinking patterns; expectations of drunkenness; knowledge of the law; alcohol-related harms and adverse events experienced whilst on or after a night out; and, awareness and perceptions of the DLEM intervention (post-intervention survey only).

Alcohol test purchase attempts/venue observations

Alcohol test purchases were made by pseudo-intoxicated actors across two nights (Friday and Saturday) in selected on and off-license premises in Wrexham Town Centre in July 2017 (pre-intervention; n=25) and February 2018 (post-intervention; n=24). Venue observations were made concurrently to test purchases by two researchers. Researchers completed a fieldwork schedule recoding a number of environmental and staffing factors.

Key findings

Pre-intervention alcohol consumption, preloading behaviour and alcohol-related harm

Findings from the pre-intervention nightlife user survey showed that nearly half (49.3%) of drinkers had consumed alcohol at home or a friend's house before coming into the town centre for their night out (preloading). Compared to Wrexham residents, non-residents were significantly more likely to report preloading prior to entering the town centre (residents, 45.2%; non-residents, 70.8%; $p < 0.05$). Males drank significantly more units while preloading compared to females (males, 5.5; females 4.0; $p < 0.05$). Findings from the population survey showed amongst preloaders, the main reasons identified for preloading (selected from a predefined list) were to: have a good time with friends (63.6%); get drunk more quickly (54.5%); go out properly drunk (46.9%); make the rest of the night more fun (42.4%); and to get in the party mood (40.4%).

Overall, the median expected alcohol consumption over the entire night, including alcohol already consumed and expected to be consumed, was 21.0 units, with males expecting to consume significantly more units than females (males, 24.0; females, 16.8; $p < 0.001$). Preloaders expected to consume significantly more units over the course of the entire night out than non-preloaders (preloaders, 25.0; non-preloaders, 18.0; $p < 0.001$). In total, almost one fifth (18.1%) of alcohol estimated to be consumed over the course of the entire night out was drunk prior to entering the town centre's nightlife, while preloading or en route loading. After leaving the town's nightlife 12.8% of drinkers intended to consume more alcohol (i.e. at home/or a friend's house).

Participants in the nightlife user survey were asked a range of questions about harms they experienced whilst on, or after a night out in Wrexham Town Centre in the past three months. Almost six in ten (62.0%) participants reported experiencing at least one alcohol-related harm while on a night out in Wrexham in the past three months. Of those participants who reported experiencing at least one alcohol-related harm, the average number of harms reported was 3.1. The proportion of participants reporting having experienced each alcohol-related harm varied with: 38.6% reporting a serious verbal argument; 36.7% vomiting; 30.4% a physical assault (i.e. fight); 24.1% unprotected sex; 20.3% having been so drunk they needed assistance to walk; 19.0% an injury; 17.1% regretted sex (with someone after a night out). Further, one in ten (10.1%) participants reported experiencing a sexual assault (including unwanted touching/harassment) on, or after a night out in Wrexham Town Centre in the past three months.

DLEM implementation process

Limited resources were available to fund the implementation of the intervention. A small budget was secured from the North Wales Area Planning Board for substance misuse to purchase the awareness raising campaign materials from another local authority who had previously implemented DLEM. Wrexham Local Authority funded radio adverts and advertising on social media. Intervention implementers also utilised freely available material from other relevant local and national campaigns. Staff time for intervention development and design was not budgeted and while, where possible intervention implementers incorporated intervention activities into key stakeholders' day-to-day roles, extra time to implement DLEM over and above normal roles was required from some key stakeholders such as the project coordinator and police licensing.

Overall, the core components of the planned intervention were all implemented to some degree. Rather than a very specific implementation plan, there was ongoing learning, adaptation and development of the intervention throughout the pilot period. In terms of dose and reach of the pilot intervention:

- 1 training session was provided to licensees from all 26 on-licensed premises and 1 session to all 26 heads of door security.
- 2 training sessions were conducted with all university captains of sports and social clubs/societies.
- A policing licensing officer and the project coordinator visited each of the 26 licensed premises and provided them with a framed campaign poster and a reminder of their duties with regard to the law around the service of alcohol to drunks.
- As part of the media awareness raising campaign; 6 blog articles were published with views of over 3,000; 14 Facebook posts generated 437 clicks to the blog, with a total reach of over 13,000; 1 email was sent to Wrexham County Borough Council mailing list which generated 56 clicks to the blog; 48 tweets were posted, with one tweet reaching over 136,000 users; and, 6 media outlets covered the intervention.
- Overall, 33.3% (n=47) of nightlife user survey participants were aware of the DLEM intervention, with the majority (63.8%) of those who were aware having seen an intervention poster, whilst one quarter (25.7%) had seen the campaign on social media.

Facilitators and barriers to intervention implementation

Facilitators

One of the key facilitators in designing the pilot intervention was using learning and evidence from the original STAD model [6], in addition to knowledge from the implementation of the STAD model implemented in English and Welsh contexts (i.e. DLEM [1, 2]). Further, one of the facilitating factors in gaining local support for the pilot intervention was that it was part of the broader SiE project and it included a process and outcome evaluation of the pilot intervention. Established working relationships between stakeholders and ongoing work through various established schemes with licensed premises facilitated an easier formation of the steering group and engagement with the licensees in the pilot intervention. The relatively small size of the pilot site (26 licensed premises) was perceived by implementers to be advantageous as repeated in-person contact could be made by police licensing to encourage engagement with the intervention. By conducting RBS training using a train-the-trainer model whereby licensees and heads of door security were trained by stakeholders, and then asked to train their own staff, this freed up resources and was anticipated to make the programme more sustainable as new staff could be trained on induction by their licensee or head of security. Messages and training around service of alcohol to drunks and excessive consumption of alcohol were framed within a vulnerability context, establishing the link between excessive alcohol consumption and alcohol-related harms. Feedback from licensees, door security and young people suggested that all groups were highly engaged in the vulnerability aspect of intoxication and by association the need to reduce service to drunks and excessive and risky alcohol consumption. Further, such messages around vulnerability support national and local conversations and priorities, particularly sexual harassment and assault, and alcohol consumption, further increasing likelihood of engagement. Small incentives were also included to encourage engagement with the intervention from target groups. For instance, to encourage uptake of the RBS training by licensees, counter-terrorism training was included in the session, as licensees had previously requested this.

Barriers

One of the key barriers to implementation of the intervention was limited resources in terms of finances and staff time, this meant that some planned elements such as engagement with taxi drivers was not carried out within the pilot period. Limited higher-level (e.g. national) support was perceived to be a barrier to obtaining further resources and delivering DLEM messages. It was felt by stakeholders that this had particular impact on the social media awareness raising campaign. They felt

their communications strategy may have had further reach and impact if various strategic agencies had been more involved. While there were many benefits to the tiered training model used to implement the RBS training component, it was also a potential barrier to successful implementation. Stakeholders were unable to ascertain whether the training had been cascaded down to all door and bar staff from their heads of security and licensees. While a multi-agency steering group was formed, there was varying levels of involvement across steering group members and the organisations they represented. An operational sub group consisting of three core stakeholders implemented the majority of the intervention components.

DLEM intervention outcomes

Following the implementation of the pilot intervention there were some initial positive changes for some outcome measures. There was an increase in knowledge of associated legislation around the sale and purchase of alcohol for drunks amongst post-intervention nightlife survey participants (N=147) compared to pre-intervention participants (N=162), although these increases were non-significant (Figure A1). Further, there was a decrease in the proportion of test purchase attempts which resulted in the sale of alcohol to the pseudo-intoxicated actor (Figure A2).

Figure A1: Knowledge of the law around the service of alcohol to, and the purchase of alcohol for drunks, Wrexham DLEM pre (2017) and post-intervention (2018) nightlife user survey

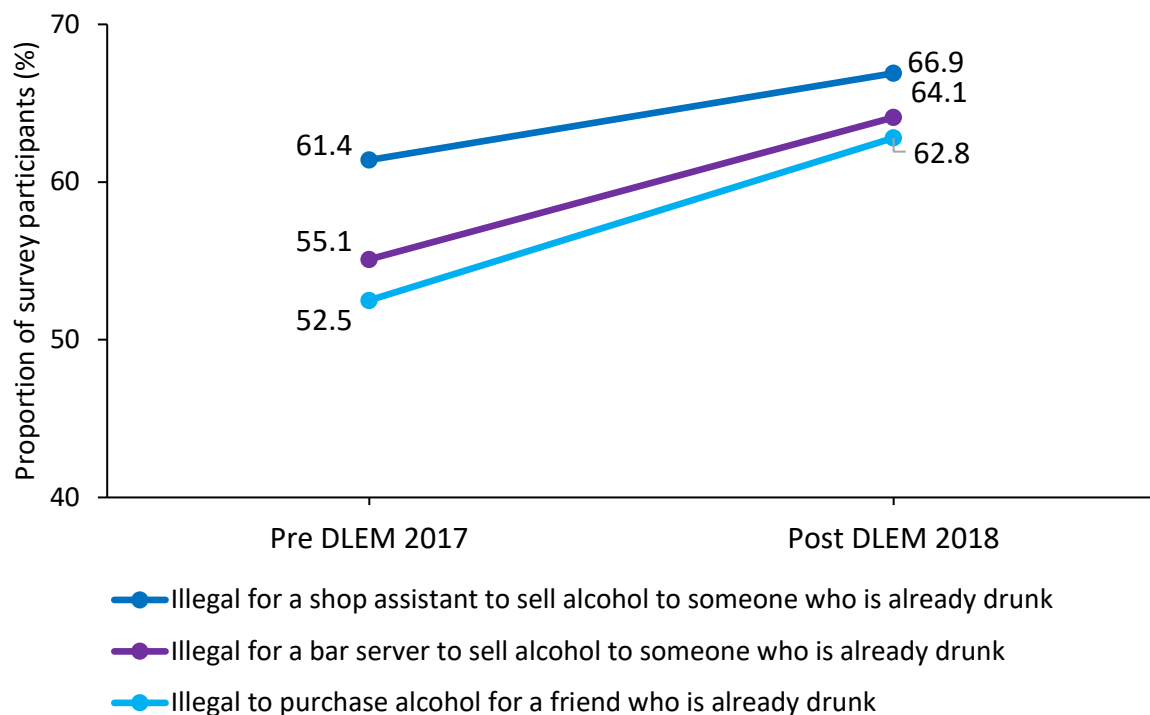
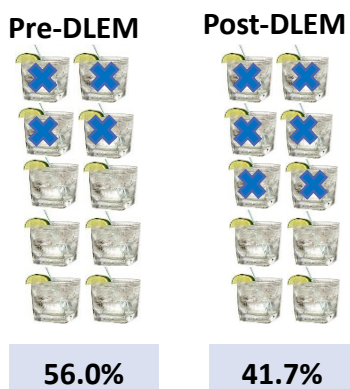


Figure A2: Bar server propensity to serve alcohol to pseudo-intoxicated actors; Wrexham DLEM pre (2017) and post (2018) alcohol test purchases



Conclusion

The piloting of the DLEM intervention in Wrexham, North Wales, has suggested that a STAD-based intervention can be implemented in the UK, and tailored towards preventing preloaded alcohol consumption, drunkenness and related harms amongst nightlife users. The evaluation suggests that the pilot intervention was associated with improvements in awareness and adherence to UK alcohol legislation that prohibits the sale and purchasing of alcohol to drunk people. Such improvements are anticipated to be one of a number of factors that may deter preloading behaviour amongst Wrexham nightlife users. The DLEM intervention should be further refined and continue to be implemented in Wrexham, and if applicable other areas of Wales. Future implementation should be monitored to assess if changes in awareness and adherence to UK alcohol legislation can be sustained and/or improved upon, and if the intervention achieves its longer term aims of reducing preloaded alcohol consumption, drunkenness and related harms amongst nightlife users.

Recommendations

- The intervention should be further developed, refined and implemented over a longer time, considering findings from the evaluation. Future delivery of the intervention should be mapped against partner strengths and resources and, where possible and appropriate, incorporated into already established work programmes to increase sustainability.
- Future delivery of the intervention should consider the motives for preloading and the groups most likely to engage in this behaviour. For instance, socialising with friends was the primary motive for preloading, followed by getting drunk. However, the ability to talk to people in a quiet space and start the night earlier were also key. Partners should consider how Wrexham's nightlife could diversify to encourage people to come out earlier, for example to venues where they can socialise with friends in a quiet space. Further, non-Wrexham residents were significantly more likely to be preloaders. The awareness raising campaign should ensure that non-local visitors to Wrexham's nightlife are exposed to intervention messages, prior to entering the nightlife area.
- The nightlife user survey suggests that preloaded alcohol consumption is not a substitute for nightlife alcohol consumption, meaning that preloaders consume more alcohol over the course of the night out than non-preloaders. Further, preloaders were more likely to experience harms on a night out than non-preloaders. Identifying if young people would change their preloading behaviour if they were aware of the increased risk of excessive alcohol consumption from

preloading, and potential impacts on their night out including restricted access to the nightlife environment and the increased risk of vulnerability and harm, would help inform the development of future campaign messages. Young people's views (including nightlife users and workers) on the campaign materials should also be gathered to ensure that they resonate with the messages presented.

- The awareness campaign should continue to use a range of media (e.g. social/press) and materials (posters), targeted towards young people, nightlife users and workers, and the wider population including parents.
- Partners could consider sharing the vulnerability videos with young people via social media, and at events where young people may gather both within and outside of university/college settings.
- Partners should continue engagement and training with key stakeholders including the alcohol trade, door security, taxi drivers, late night fast food establishments, and educational establishments. Further consideration should be given to other engagement routes to young people, including via local youth groups, schools and parents, to develop positive social norms around use of the nightlife area and preloaded drinking behaviours before young people begin to engage in such activities.
- Partners should monitor uptake of bar staff training, ensuring that it is disseminated amongst existing and future bar staff working in Wrexham's nightlife.
- Partners should discuss the results of the alcohol test purchase with the local alcohol trade, and consider what type of activities may be required to reduce the server rate further. Monitoring sales of alcohol to drunks should form a key part of the intervention, and will allow its impact to be monitored over time.
- Partners should provide feedback on the development, implementation and evaluation of the intervention with relevant stakeholders, at a local and national level, to galvanise support (political, public and financial) for its future development and implementation, across Wrexham, and where applicable other areas in Wales (and the UK).
- If DLEM is to continue in Wrexham, partners should consider a longer-term evaluation, to assess if changes in awareness and adherence to UK alcohol legislation can be sustained and/or improved upon, and if the intervention meets its longer-term aims of reducing preloaded alcohol consumption, drunkenness and related harms amongst nightlife users.

Wrexham Drink Less Enjoy More (DLEM) overview

Wrexham's DLEM intervention aims to reduce preloading, excessive drunkenness and related harms amongst nightlife users, by reducing the acceptability of drunkenness in Wrexham's nightlife. The community based multi-component programme was piloted over six weeks in 2017, & aimed to increase awareness of, and adherence to UK legislation which prohibits the sale, and purchasing of alcohol to drunks.

Community mobilisation

Multi-agency steering group



Engagement with:

- On and off-licensees & door security staff
- Nightlife users & young people



Awareness raising:

- Blogs
- Social media posts
- Press media coverage



Training

Responsible bar staff & vulnerability training for licensees & door security staff



Vulnerability training & DLEM awareness raising at local educational establishments



Strengthened police engagement

Police engagement with licensed trade to cultivate self-policing practices to refuse alcohol to drunks



Promotion of DLEM messages to nightlife users by those policing the night-time economy



Nightlife user awareness & perceptions of DLEM

1 in 3 aware



43.2% agreed DLEM demonstrated drunks would not be served more alcohol



32.4% more likely to come on night out



43.2% would feel safer on a night out

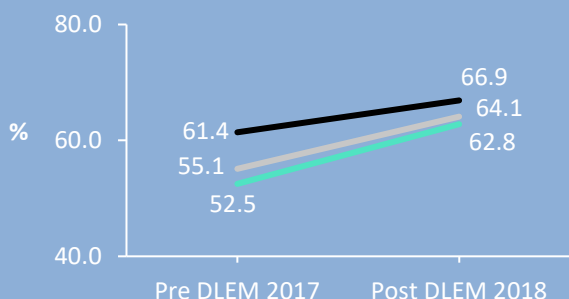


23.3% would drink less alcohol before a night out



29.7% would drink less alcohol in bars

Nightlife user awareness of legislation



DLEM impact

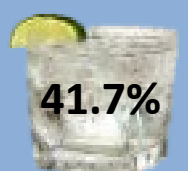
- Illegal to sell alcohol to someone who is already drunk (shop assistant)
- Illegal to sell alcohol to someone who is already drunk (bar staff)
- Illegal to purchase alcohol for someone who is drunk

Sales of alcohol to pseudo-drunk actor

Pre DLEM 2017



Post DLEM 2018



1. Introduction

The STAD in Europe (SiE) project aims to reduce binge drinking and its negative consequences through the development of locally-tailored community-based interventions designed to tackle heavy episodic drinking in young people in different drinking environments. The project focuses on four drinking settings: nightlife; festivals; public environments (e.g. streets, parks, and beaches); and private environments (e.g. home drinking). The project is underpinned by the STAD (Stockholm Prevents Alcohol and Drug Problems) programme, a community-based prevention programme aiming to tackle alcohol-related harms [7]. The STAD programme combines three core components: community mobilisation; bar staff training in responsible beverage service (RBS); and stricter law enforcement (see Box 1). STAD is one of few community-based prevention programmes that have shown significant benefits in reducing the over service of alcohol, underage drinking and alcohol-related aggression in European nightlife settings [8, 9]. Funded by the European Commission, the SiE project involves the development and piloting of STAD-based interventions designed to tackle heavy episodic drinking in young people in seven pilot areas in: the Czech Republic, Germany, the Netherlands, Slovenia, Spain, Sweden and the United Kingdom (UK). The UK pilot intervention focused on reducing drinking by young people in private drinking environments, with Wrexham County Borough, Wales, identified as the pilot site area. Specifically, the intervention aimed to address heavy episodic drinking of alcohol in the home or a friend's home before going on a night out (i.e. preloading). The intervention aimed to discourage and reduce preloading behaviour by changing the acceptability of drunkenness in the nightlife environment, both upon entry and throughout the night out, by increasing nightlife user awareness of relevant legislation and alcohol-related harms, and vulnerability associated with preloading, and addressing the sale of alcohol to drunks by licensed premises in the town centre. This report documents the process of intervention implementation and initial outcomes from the pilot phase.

Box 1: The STAD (Stockholm Prevents Alcohol and Drug Problems) programme components

Community mobilisation: the creation of a committee to raise awareness and increase knowledge around alcohol-related harms in the community. The committee is comprised of key stakeholders from the community such as the police, council, licensing board, owners/managers of licensed establishments, health authorities and trade unions for licensed premises and their staff. The committee acts as an advisory group who meet regularly to discuss alcohol-related issues, and inform and support the development of policy and practice that aims to prevent alcohol-related harms.

Responsible Bar Staff (RBS) training: the implementation of RBS programmes. Training for service staff regarding alcohol-related harms and how to identify and refuse alcohol to intoxicated and/or underage patrons. Involvement in the intervention is enhanced through a written agreement between licensed premises and intervention implementers, and supported by the police who receive similar training (e.g. identifying and dealing with drunk behaviour). Such co-operation creates a common ground on preventing and dealing with binge drinking.

Strengthened law enforcement: Enforcement efforts are intensified and a joint collaboration between the licensing board and police is set up to meet and discuss methods to better regulate and enforce established laws and RBS training. As part of the STAD project, a licensing board distributed letters to licensed establishments informing them of any reported (primarily police recorded) occurrences of over-serving alcohol to patrons within their establishment.

As part of the evaluation of the broader SiE project, the Public Health Institute, Liverpool John Moores University conducted a process and outcome evaluation of the pilot intervention in Wrexham. The research had two core objectives, which include a range of research questions.

1. To monitor, document and describe the development and piloting of the intervention (process evaluation).
 - To understand the extent to which the intervention was piloted as planned (fidelity).
 - To identify how much of the intervention was piloted (dose).
 - To explore the uptake of the intervention amongst the target population (reach).
 - To elicit the facilitators and/or barriers to intervention development and piloting.

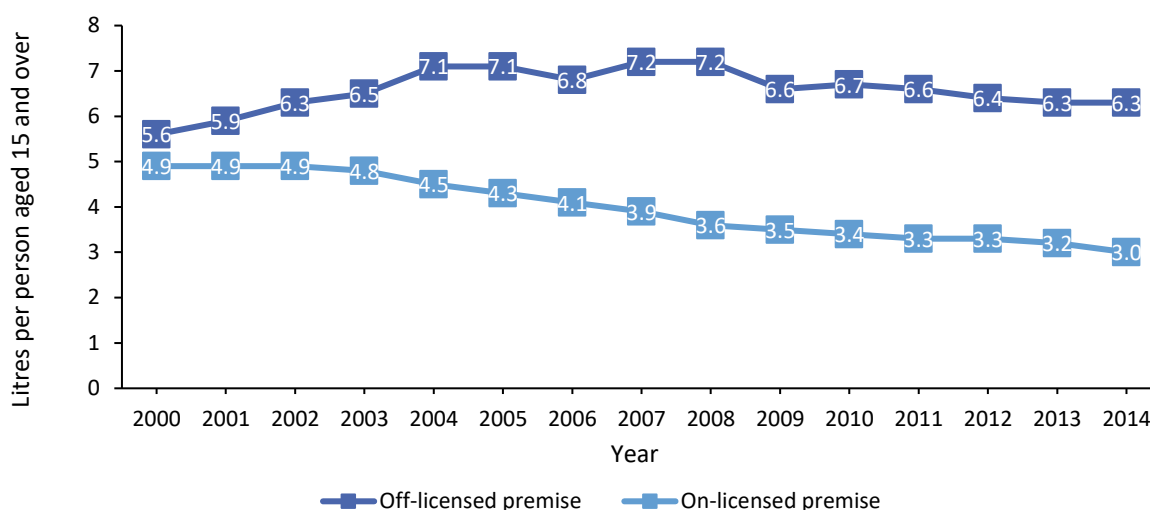
2. To identify if a STAD-based intervention can be developed and piloted across the pilot site, and the potential impacts of the intervention (outcome evaluation).
 - To identify the transferability of the STAD principles to the pilot site drinking environment (i.e. private setting).
 - To explore if a local partnership can be formed with sufficient capacity and support to develop and pilot a STAD-based intervention relevant to the pilot site drinking environment (i.e. private setting).
 - To explore nightlife user patterns of alcohol consumption (including preloading) and associations with alcohol-related harms.
 - To explore nightlife users' awareness and perceptions of the intervention.
 - To determine the impact of the intervention on:
 - Knowledge of the laws around the sale of alcohol to, and purchasing of alcohol for drunks; perceptions and acceptance of drunkenness in nightlife; and alcohol consumption patterns on a night out, including levels of preloading.
 - Bar server propensity to serve alcohol to intoxicated patrons (i.e. pseudo-intoxicated actors).

2. Literature review

In the UK, binge drinking and drunkenness in young people is common [10], particularly in alcohol-focused nightlife environments, which young people frequent to socialise and relax [11, 12]. Studies conducted with users of UK nightlife environments have shown that the median number of units of alcohol expected to be consumed over the course of the night out ranges from between 16 and 20 units of alcohol; considerably higher than the UK daily safer drinking guidelines [1, 2, 5, 13, 14, 15]. Further, evidence suggests that many young people perceive alcohol as integral to a good night out and heavy alcohol use as normative in nightlife environments [11]. Previous research across England and Wales have shown that many nightlife users expect to get drunk on a night out, report their ideal level of drunkenness as high, expect others to be drunk, and find getting drunk to be socially acceptable in nightlife settings [1, 14]. Thus, the socialising of young people has increasingly developed a culture that reinforces the need for drinking and intoxication to participate and belong in nightlife environments [16].

Over the past decade, alcohol has become more affordable in the UK, with research consistently showing that greater affordability is linked with higher levels of consumption in the population [17]. While alcohol has become more affordable over the past decade, this has been accompanied by an increasing disparity between on and off-licence consumption (Figure 1; [18]), suggesting a shift towards home drinking [17]. Crucially, the home drinking behaviour referred to as preloading (consuming alcohol at home or a friend's house before a night out) significantly contributes to the high levels of drunkenness in nightlife environments [19]. In the UK, preloading appears to be common practice, particularly among young people, with the proportion of 18-21 year olds reporting preloading ranging from 75%-83% across two UK nightlife environments [1, 2]. Further, up to a third of total night out alcohol consumption has been found to be consumed while preloading, meaning individuals enter nightlife settings already, or close to being excessively drunk [1].

Figure 1: UK on-licensed and off-licensed premise consumption, litres of pure alcohol, 2000-2014
(Source: The British Beer & Pub Association cited in [18])



Motivations behind preloading are multiple and complex in nature. One important motive for preloading appears to be economic, with price disparity between on and off-licence sales cited as the motive behind consuming alcohol prior to going on a night out, as off-licence alcohol is often cheaper

[20, 21, 22]. There are indications that low off-licence prices lead both to a rise in preloading, and also to increases in total alcohol consumption and binge drinking among young people [23, 24]. While such financial motives to engage in preloading would suggest that the intention is for preloading to simply replace a portion of on-licensed drinking, research suggests this is not the case, and contrary to replacing on-licensed consumption, preloading considerably increases the amount of alcohol consumed over the course of the night out [5, 15, 25]. For example, one study of UK nightlife users reported that, preloaders were over four times more likely to report drinking >20 units on a usual night out and 2.5 times more likely to have been involved in a fight in the city's nightlife in the previous 12 months compared to non-preloaders [25]. Other research from the UK and US report similar findings, with preloading consistently linked with greater alcohol consumption, intoxication and alcohol-related risks [26].

Preloading behaviour also facilitates important social functions prior to going to loud, busy venues where socialising is more superficial and difficult [27, 28]. Previous research suggests that preloading both fosters social cohesion amongst friends and builds confidence for later socialising with potential partners [20, 21]. This represents a challenge in addressing preloading behaviour as environmental management strategies, which aim to reduce the price disparity between on and off-licence premises such as minimum unit pricing (MUP), may not be sufficient to discourage the behaviour without also addressing social and cultural norms.

Contributing to the issue of preloading prior to entering the night-time economy, and the acceptability of drunkenness in nightlife settings, is the propensity for bar servers to serve alcohol to drunks. In the UK it is illegal to knowingly sell alcohol to, or purchase alcohol for, intoxicated individuals and flouting these laws can result in fines being imposed on the bar server, the holder of the premise licence, the premise supervisor, or the person who purchases alcohol on behalf of an intoxicated individual [29]. Despite this, public awareness of the law, bar server compliance and convictions for flouting the law all appear to be low. Studies with nightlife users across several UK night-time economies have shown relatively low levels of public awareness of the law around the sale of alcohol to, and purchase of alcohol for drunks [1, 14]. In 2013, a study examining bar server propensity to sell alcohol to drunks in one UK nightlife setting found that 84% of alcohol purchase attempts by pseudo-intoxicated actors were successful [30]. Test purchase studies in other UK nightlife settings have found similar high levels of service of alcohol to pseudo-intoxicated actors (e.g. 71%-90%), suggesting that it is common practice for bar staff to serve alcohol to drunk customers [4, 31]. Findings from surveys with nightlife users also support this, with six in ten participants interviewed in one study agreeing that: bar staff in the city centre do not care if people get drunk on their premises; that if someone was drunk and tried to get served alcohol on a night out they would usually be served; and, in the city centre it is easy for people who are drunk to buy more alcohol [1]. Further, prosecutions for breaching the legislation are extremely rare with, for instance, just two in 2014 [32].

Across the UK, a broad range of policies and interventions have been implemented at a local and national level to address alcohol-related harms in nightlife environments such as high profile policing, modifications to licensing laws and environmental measures to improve safety (e.g. late night transport security, street lighting and closed circuit television camera networks) [33]. Whilst such measures may contain and manage alcohol-related harms, they do not address excessive levels of nightlife user intoxication, or harmful and permeating cultures of drunkenness, and do little to deter preloading behaviour [1, 2, 33]. Tackling preloading, in particular, is a complex issue. From a legislative point of view it is not illegal to drink excessive amounts of alcohol in private dwellings [3]. However, preloading has particular relevance to policies concerning licensed premises, and such policies afford the opportunity to deter individuals from preloading excessive amounts of alcohol in the home prior

to entering the night-time economy. Theoretically, if legislation regarding the service of alcohol to, or purchase of alcohol for, drunks was adhered to, individuals would not be able to acquire more alcohol in nightlife venues and this may both reduce levels of drunkenness in the nightlife environment and deter patrons from consuming excessive amounts while preloading.

In recent years, efforts to address cultures of drunkenness in nightlife environments and associated behaviours such as preloading have been made by local partners across several areas of England and Wales [14, 15]. Partners aimed to achieve this by reducing the propensity of bar staff to sell alcohol to intoxicated patrons; increase nightlife user and bar staff awareness of UK laws around the sale of alcohol to, and purchase of alcohol for, drunks; and, change social norms around drunkenness and alcohol consumption in nightlife environments [15]. These interventions were based on the STAD multicomponent community action model, incorporating community mobilisation and media awareness campaigns, RBS training and strengthened law enforcement. Evaluation of STAD has shown significant reductions in the sale of alcohol to pseudo-intoxicated patrons and related harms in nightlife settings [6]. Further, through reductions in violent crime, estimates suggest that STAD saved €39 for every €1 invested (across criminal justice, health and other systems) [34]. Evaluations of two such interventions, implemented in Liverpool (Drink Less Enjoy More (DLEM)) and South Wales (Know the Score #drinklessenjoy more (KTS)), suggests that STAD based interventions are transferable to the English and Welsh context [14, 15].

While implementation methods and campaign messages have varied across areas to suit the local context, the model has shown improvement in both nightlife user awareness of legislation and bar server propensity to serve alcohol to drunks, across both areas. In Liverpool, sales of alcohol to drunks significantly reduced from pre to post-intervention test purchase periods (from 83.6%, May 2013 to 26.0%, November 2015; $p < 0.001$) [5]. Further, in demographically adjusted analyses, the odds of service refusal were over 14 times higher at follow-up ($p < 0.001$) [35]. Liverpool's DLEM intervention has now been implemented and evaluated over a three and a half year period. In follow-up test purchase in 2016 and 2017, the rate of service to pseudo-intoxicated actors remained significantly lower than in the pre-intervention period (post DLEM 2016, 36%; post DLEM 2017, 22%), suggesting that the intervention has been successful in sustaining a low level of service of alcohol to pseudo-intoxicated actors [15]. In South Wales, there was a significant increase in the proportion of nightlife users who knew it was illegal for: a bar server to sell alcohol to someone who was drunk from pre to post-intervention (from 48.0% to 62.4%; $p < 0.01$); and, a person to buy alcohol for a friend who is already drunk (from 50.2% to 63.4%; $p < 0.01$). Similarly, in Liverpool, there were significant increases in nightlife user knowledge of the law, with knowledge amongst drinkers over two times higher at follow-up in 2016 [35]. Crucially, this improved nightlife user knowledge of associated alcohol legislation was sustained across each evaluation wave [15].

Changing bar staff propensity to serve alcohol to intoxicated individuals and educating nightlife users around associated legislation represents a crucial first step in changing social norms and drinking behaviours. While wider impacts of the interventions on nightlife alcohol consumption and drinking behaviours, and social acceptability of drunkenness have not been observed to date, changing cultures is a complex task that previous intervention studies have shown can take many years to achieve [7]. Further, while preloading behaviour was considered as part of the broader intervention to address alcohol consumption and drunkenness in the night-time economy, it did not form the main focus of the intervention. Such a prevalent behaviour as preloading may require a more focused approach to successfully support change, combined with broader societal changes (e.g. implementation of MUP).

3. Methodology

To meet research objectives, a range of methods were implemented.

3.1 Methods

3.1.1 Review of project documentation

Documentation, materials and correspondence produced throughout the development and piloting of the intervention were collated and reviewed. This included the needs assessment¹, intervention planning documents, meeting notes, and external and public communication (including media and social media content). In addition, researchers regularly observed the development and piloting of the intervention through attending steering group meetings and stakeholder events. Information collected through such review and observations is used throughout the findings to complement data collected by other methods (e.g. stakeholder interviews).

3.1.2 Semi-structured interviews

Qualitative semi-structured interviews were carried out with stakeholders who had a key role in the design and/or implementation of the intervention. Interviews were conducted at two stages: pre (n=3) and post-intervention (n=5) piloting. Interview length ranged in time from 24 minutes to 1 hour 8 minutes, and were carried out face-to-face (n=2) and over the telephone (n=6). All interviews were audio recorded and transcribed.

Interview questions focused on how the pilot area designed and implemented the intervention, issues that were encountered during the roll out of the intervention, and perceptions of how successful the intervention has been.

3.1.3 Population survey

A web-based survey was undertaken with people (aged 18 years and over) who live in and/or visit nightlife environments in Wales. The survey was based on existing tools in the UK and elsewhere and explored alcohol consumption patterns and related harms, with a particular focus on preloading and nightlife experiences [1, 36, 25]. The survey was developed and conducted using Your Voice Wrexham, an online platform used to gather public views on issues relevant to Wrexham and neighbouring areas². The survey was available in both the English and Welsh language. The link to the survey was shared by steering group members via their organisations' communication channels (e.g. social media; websites). It was also strategically promoted among the local universities to capture the 18 to 25 year cohort. In total 285 adults completed the survey (Table A). Analyses were limited to Welsh residents only, and thus 244 completed surveys were included for analysis.

¹ As part of the development of the SiE project in Wrexham, a needs assessment was conducted to: identify the target group for the intervention; understand alcohol consumption, including preloading, and associated problems; gather information on existing social norms, enforcement and training and identify what could be changed; and, identify relevant legislation, resources needed to implement the intervention, potential facilitators and barriers to implementation and relevant stakeholders and their potential role in the intervention.

² Hosted by Wrexham Public Service Board (WPSB).

Table A: Sample characteristics; web-based preloading survey (2017)

Sample characteristics		n	%
Area of residence	Wales	244	86.2
	England	30	10.6
	Other	9	3.2
Welsh residents only			
Age group (years)	18-24	56	23.0
	25-34	53	21.7
	35-44	35	14.3
	45-54	39	16.0
	55-64	32	13.1
	65+	29	11.9
Sex	Male	93	38.1
Relationship status	Partner	98	53.6
	Widowed/separated/divorced	24	13.1
	Single	61	33.3
Ethnicity	White	185	75.8
Employment	Employed	105	54.7
	Student	50	26.0
	Other	37	19.3
Qualification	Degree level	102	53.1

3.1.4 Nightlife user survey

A short, anonymous survey was conducted with eligible participants in Wrexham Town Centre on a Friday and Saturday (8.45pm – 2.10am) in September 2017 (baseline – pre-intervention), and February 2018 (post-intervention). Surveys were administered opportunistically by researchers through an interview process with eligible participants (i.e. aged 18 years or over; on a night out in Wrexham Town Centre). Prior to approaching potential participants, researchers visually assessed their level of intoxication based on criteria used by the police and in previous research [37, 38]. Individuals who were judged to be too intoxicated and not reasonably able to provide consent to participate in the study were not approached. Potential participants were approached with a standard dialogue introducing who the researchers were, the aim of the study and inviting them to participate. Of 236 individuals approached at baseline and 243 at post-intervention, 55 and 85 refused to participate respectively. Those who wished to participate were provided with a copy of the participant information sheet which provided further study information and assurances of confidentiality. Researchers also verbally summarised the information sheet to ensure participants fully understood what the study entailed and what they were consenting to. Throughout the explanation of the study and survey completion, researchers continued to monitor and assess participants' levels of intoxication. 19 participants at baseline and 11 participants at post-intervention who started the survey were deemed too intoxicated to continue, or showed signs they did not want to continue. In these circumstances, the researchers politely ended the survey and thanked the individual for their time. Thus, in total, 162 baseline and 147 post-intervention surveys were included in the final analyses.

The survey explored: alcohol consumption³ and drinking patterns; expectations of drunkenness; and, knowledge of the law. To understand the nature and extent of alcohol-related harms occurring among nightlife users while visiting Wrexham’s night-time economy, participants were also asked whether they had experienced a number of adverse events on a night out in the previous three months, including assaults, vomiting, and being asked to leave or refused service at a venue. Participants in the post-intervention survey were also asked about their awareness and perceptions of the Drink Less Enjoy More intervention and potential behaviour change because of the intervention.

While the survey is limited by its cross-sectional design and thus, different participants taking part in each wave, there was no significant difference in sample characteristics or time of surveys between pre and post intervention (Tables B).

Table B: Sample characteristics and survey time; Wrexham DLEM pre (2017) and post-intervention (2018) nightlife user survey

		Pre 2017	Post 2018	
		%	%	<i>p</i>
	(n)	162	147	
Age group (years)	18-21	38.9	34.0	NS
	22-29	39.5	38.8	
	30+	21.6	27.2	
	Male	64.2	53.1	NS
	Wrexham resident	84.6	76.2	NS
	Student	23.6	20.4	NS
Survey time	8-9.59pm	25.5	27.6	NS
	10-11.59pm	45.3	40.0	
	12-1.59am	25.5	32.4	
	2-4.59am	3.7	0.0	

3.1.5 Pseudo-intoxicated actor alcohol test purchases

Building on methodologies previously used in research in Scandinavia, the USA and the UK (by the LJMU SiE project team), test purchases of alcohol were made in selected on and off-licensed premises in Wrexham Town Centre by pseudo-intoxicated actors. Test purchases were conducted prior to the implementation of the pilot intervention (July 2017) and repeated in February 2018 (post-intervention).

The test purchases followed a protocol adapted from previous test purchase studies [5, 30]. A standardised act, which demonstrated a high level of intoxication (e.g. slurred speech, difficulty walking) was used for the pseudo-intoxicated purchase attempts. The test purchases were made with one actor and one researcher in a pair, or one actor and two researchers in a group of three. Following

³ Alcohol consumption was converted to UK units (1 unit is equivalent to 8 grams of pure alcohol) using the following conversions: 125ml glass of wine, 1.5 units; 175ml glass of wine, 2.1 units; 250ml glass of wine, 3.0 units; pint of lager/beer/cider, 2.0 units; bottle of lager/beer/cider, 1.7 units; can of lager/beer/cider, 2.0 units; bottle of alcopops, 1.5 units; a single (25ml) shot of spirits, 1.0 unit; and a pitcher of cocktail, 6.0 units [65].

each service attempt, actors completed research tools to provide feedback on their experiences at the bar (or off-license counter/till) and staff reactions to the purchase attempt. All 26 pubs, bar and nightclubs in the town centre were selected for potential inclusion in the study. Pre-intervention alcohol test purchases were conducted in 25⁴ venues over two nights (Friday, 14 venues; Saturday 11 venues) in July 2017, between the hours of 8.25pm and 1.45am. The test purchases were repeated in February 2018 in 24 of the same venues⁵ (Friday 10 venues; Saturday 14 venues). Wherever feasible, attempts were made to retest venues on the same day and time (before or after midnight) as in the first test purchase. Of the four off-license premises in Wrexham town centre, two were identified by local partners as being used by individuals, whilst on or after a night out in Wrexham, to purchase more alcohol. Alcohol test purchases by pseudo-intoxicated actors were conducted in both these off-licenses during the pre and post-intervention period using the same protocol as used for on-licensed premises.

3.1.6 Venue observations

Venue observations were made concurrently to test purchases by two researchers in on-licensed venues in Wrexham Town Centre. Researchers completed a fieldwork schedule recording a number of environmental and staffing factors including the presence of markers of poorly managed and problematic (PMP) bars and the reaction of staff to the pseudo-intoxicated actor. Where test purchases were performed with one actor and one researcher in a pair, the researcher completed the venue observation sheet in conjunction with the actor.

3.2 Data analyses

Quantitative analyses were undertaken in SPSS (v23) using descriptive statistics, chi-square for independence (with Yates Continuity Correction), chi-square for trend, t-tests, Mann-Whitney U, and Kruskal-Wallis tests. Thematic analysis was used to analyse the data from the stakeholder interviews [39]. The analysis is presented with illustrative quotes where appropriate to highlight key findings.

3.3 Ethical approval

Ethical approval was obtained from Liverpool John Moores University (REC no. 17/PBH/045), and the study adhered to the Declaration of Helsinki.

⁴ One venue held ticketed only events and was not accessible on the nights of pre and post-intervention test purchases.

⁵ One venue had closed down and therefore a re-test was not possible. Some venues had also changed names between test periods.

4. Findings

4.1 Pilot site local context pre-intervention implementation

4.1.1 Wrexham's nightlife environment

The pilot site area, Wrexham Town Centre, is the largest night-time economy in North Wales [40] and thus draws large numbers to the town centre, particularly at weekends, from both the immediate vicinity and other local areas. Wrexham Town Centre's nightlife area has 26 on-licensed venues (i.e. pubs, bars and nightclubs) and four off-licensed venues (e.g. shops, supermarkets) where the target group can obtain alcohol. Wrexham Town Centre's 26 on-licensed premises are spread across 11 streets totalling ≈2km [41]. Each venue has a license that will specify the terms under which they can sell alcohol, including for example the hours when alcohol may be sold. Many of these venues are open late into the night (including some off-licences), however local agreements mean that most on-licensed venues can only be accessed by patrons up until 2.30am, after this time, patrons in the venue can remain in the venue (and continue to purchase alcohol within agreed alcohol serving times) however no new patrons may enter the venue.

4.1.2 On-licensed premise observations

Prior to the implementation of the DLEM intervention, unobtrusive observations were made in 25 venues in Wrexham Town Centre on a Friday and Saturday night between 8.30pm and 1.45am⁶. Venues varied widely in terms of busyness, with between 4 and 130 (approximately) patrons observed in the venue. In almost half of venues (48.0%) patrons were observed to be mixed in age. Patrons were typically observed to be young (under 25 years) in just 3 (12.0%) venues, while the remaining 40.0% of venues were observed to have primarily older (26 years and over) clientele. Food was being served/consumed in just two venues at the time of observation⁷. There were door staff on over half of the venues (56.0%), and the average number of bar staff was three (range 1 to 5) at the time of observation.

4.1.3 Licensed premise staff propensity to serve alcohol to drunks

Over half (56.0%, n=14) of test purchase attempts in on-licensed premises resulted in the sale of alcohol to a pseudo-intoxicated actor. Test purchases were also conducted in another nightlife area in North Wales during the same time period. Of the 14 venues tested, 64.3% of attempts resulted in the sale of alcohol to the actor. This was not a significantly different rate of service to that in Wrexham.

In over half (57.1%) of all successful test purchase attempts in Wrexham Town Centre, actors were offered a double measure of spirit by the bar server, instead of the single requested. One third (28.6%) of bar staff who served the actor asked to see age identification prior to service, compared to no requests by staff who refused service (p=0.166). Notes from the actors suggest that occasionally bar staff recognised drunkenness and still proceeded with the sale of alcohol (see Box 2). However, signs of good practice were also observed where staff who refused sales to the actor also took steps to decrease drunkenness (e.g. providing water).

Eight out of ten (80.0%) test purchases conducted after midnight resulted in the sale of alcohol to the pseudo-intoxicated actor compared to one in four (40.0%) sales during test purchases conducted prior to midnight; however, this difference was non-significant (p=0.118). The rate of test purchases resulting in the sale of alcohol to the actor was higher on Friday compared to Saturday night, although

⁶10 observations took place after midnight.

⁷ Both observations occurred before 11pm.

this difference was non-significant (Friday, 64.3%; Saturday, 45.5%; $p=0.592$). The majority (85.7%) of test purchases with younger (<26 years) male servers resulted in the sale of alcohol to the actor, however this was not significantly higher than sales by older (26+ years) male (50.0%), younger female (50.0%), or older female bar servers (33.3%; $p=0.269$). In venues where door staff were present, bar staff were significantly more likely to serve the actor compared to venues with no door security (door staff, 78.6%; no door staff, 27.3%; $p<0.05$). In the majority of refusals, the bar staff indicated to the actor the reason was being too intoxicated to be served more alcohol (81.8%). In over one third of refusals (36.4%), the bar staff offered the pseudo-intoxicated actor water, while three in ten used caring statements while refusing service (27.3%). Two venues ignored the actor as a means of avoiding service while in one venue the bar server had to seek help from other staff to refuse the sale (9.1%) (see Box 2 for examples of such tactics used in exchanges with actors).

Box 2: Example extracts from actors' notes on exchanges with bar servers

Test purchases resulting in alcohol service:

- Didn't hesitate to serve me... asked if I wanted a double and I said 'no'.
- I asked at the bar 'can I please have... the bar server interrupted me and said 'a glass of water'. I said no a [spirit]. They said 'ok, but just one'.
- It was extremely busy and it took ages to be served. The bar server barely looked at me whilst the exchange took place.
- The bar was empty except for us. Bar server did not hesitate to serve and asked if I wanted a double.
- I asked for a drink and the bar server asked for my ID. I gave it to them and they served me.

Test purchases resulting in refusal of alcohol service:

- Direct refusal. I didn't get the chance to order. The bar server just said 'you're too drunk sorry'.
- They tried to ignore me for a few minutes. I asked for a drink, the bar server said 'no, I think you've had enough'.
- I asked for a drink, the bar server said 'you're too drunk, sweetie, I can't serve you'. She asked if I had a good night and when I said yes, she said 'that's good but I think it's time for bed'.
- I asked for a drink. The server told me to wait a minute and then he called the bouncer to take me out.
- I asked for a drink. The bar server said that I was too drunk and asked me if I wanted any water.

Ten markers of poorly managed and problematic venues (PMP)⁸ were drawn from the observational data using an established tool by Graham et al [42]. There was no significant association between the total number of PMP markers, or any of the individual PMP markers, and the sale of alcohol to pseudo-intoxicated actors (Appendix 1, Table A1). While there was no significant association with each of the individual markers, the presence of each marker was associated with a higher service rate.

⁸ PMP, poorly managed and problematic bars: low seating, <50% venue floor with seating; young bar staff, >50% appear <25 years; young customers, most appear <25 years; drinks promotions, general and cheap drinks advertised; noisy bar, crowded bar, poor lighting, dirty bar, rowdy bar, drunk customers, ratings of 5 or over on scales of 0 to 9 grading the presence of the marker (e.g. noisy bar; 0=very quiet/easy to talk, 9=hurt ears/cannot talk).

Alcohol test purchases were also carried out in two off-licence premises which were identified by local partners as selling alcohol to nightlife users during, or after a night out in Wrexham Town Centre. Both off-licences served the actor, with no hesitation and seemed to recognise signs of drunkenness either laughing at the actor or looking annoyed (Box 3).

Box 3: Example extracts from actors' notes on exchanges with servers in off-licences

- The man kept on laughing at me and then he asked which brand of vodka I wanted.
- I asked for a [brand] bottle of vodka. He asked 'big or small'. I said 'small'. He served me and looked at me with disgust.

4.1.4 Nightlife user use of the night-time economy

Approximately three quarters (77.2%) of pre-intervention nightlife user survey participants had arrived in Wrexham Town Centre for their night out before 10pm. Almost one fifth (19.1%) reported entering between the hours of 10pm and 11.59pm, while 3.7% reported coming into the town centre past midnight. Over half (57.8%) of all participants intended to leave the town's nightlife between the hours of 12am and 3.59am, while 30.8% anticipated they would go home after 4am. On average, from the time of entry until anticipated home time, nightlife user survey participants expected to spend six hours in Wrexham's nightlife. Three in ten (35.8%) nightlife users reported that they typically go on a night out in Wrexham Town Centre once a week or more, with 16.0% reporting going on a night out 2-3 times per month and 40.7% once a month or less. Over one in twenty (7.4%) nightlife users were on their first night out in the town. Non-Wrexham residents were significantly less likely than Wrexham residents to regularly go on a night out in Wrexham Town Centre once a month or more (non-residents, 24.0%; residents, 78.8%; $p < 0.001$).

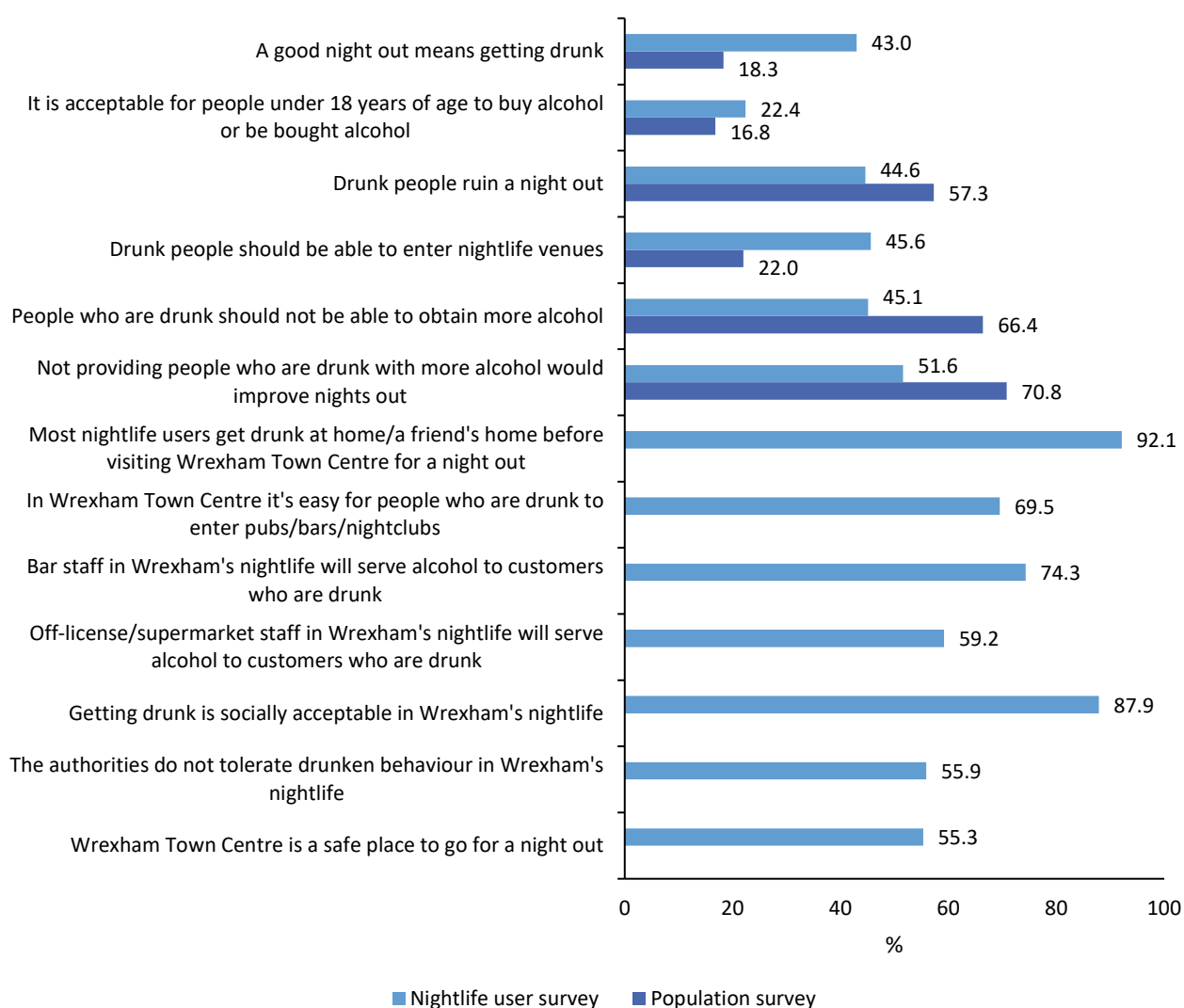
Findings from the population survey found that amongst Welsh adult drinkers, 86.7% had been on a night out in the past 12 months, 13.3% at least once a week. Four in ten (49.1%) participants reported that the first venue type visited upon entering the night-time economy on their last night out was a pub, 27.4% a bar, 10.4% a nightclub, and 9.4% a restaurant or other venue type.

4.1.5 Cultures and acceptance of drunkenness in Wrexham Town Centre

Participants in the nightlife user survey and population survey were asked how much they agreed or disagreed with a number of statements relating to Wrexham's night-time economy and drinking behaviours using a five point scale from strongly agree to strongly disagree⁹ (Figure 2). Amongst participants in the nightlife user survey, a significantly lower proportion of preloaders (38.9%) agreed that not providing people who are already drunk with more alcohol would improve nights out than non-preloaders (62.4%; $p < 0.05$). A significantly lower proportion of preloaders (33.8%) agreed that people who are drunk should not be able to obtain more alcohol compared with non-preloaders (54.9%; $p < 0.05$). There was no significant difference between preloaders and non-preloaders in the proportion of nightlife user survey participants who agreed with the other statements.

⁹ Strongly agree, agree, neither, disagree, and strongly disagree (those who answered 'don't know' were excluded from analyses).

Figure 2: Proportion of participants agreeing⁹ with selected statements on drunkenness; Wrexham DLEM pre-intervention nightlife user survey (2017) & population survey (2017)¹⁰



Nightlife users were asked a range of questions about their behaviours whilst drunk on a night out in Wrexham’s nightlife in the past three months. Approximately one sixth of participants had been refused entry to a venue (16.5%) or asked to leave a venue (13.9%) in the past three months because they were too drunk. Less than one in ten (8.9%) reported being refused the service of alcohol at the bar because they were too drunk, whilst only 3.8% of participants reported having asked their friend to purchase alcohol for them at the bar because they were too drunk to get it themselves. Approximately one quarter of participants reported trying to appear sober to gain entry to a venue (27.2%) or get served at the bar (26.6%) whilst on a night out in Wrexham in the past three months. Findings from the population survey found that amongst Welsh adult drinkers who had been on a night out in the last 12 months, over one in twenty reported being refused service at the bar (6.1%) or entry to a venue (7.7%) due to being too drunk in the last 12 months whilst on a night out. A quarter tried to appear sober to gain entry to a venue (25.0%) or get served at the bar (23.1%), whilst 4.6% had asked a friend to buy alcohol for them due to them being too drunk to get served.

¹⁰ Not all statements were included in the population survey.

Amongst nightlife user survey participants, males were significantly more likely than females to have been refused entry to a venue because they were too drunk (males, 23.0%; females, 5.2%; $p < 0.01$). There were no other significant associations between socio-demographics or preloading behaviour and behaviours whilst drunk on a night out in Wrexham's nightlife.

Using a scale of one (completely sober) to 10 (very drunk), participants were asked: how drunk they felt at the time of the survey; how drunk they thought they would be when they left the town's nightlife that evening and what they thought the typical level of drunkenness was that people reach on a night out in Wrexham Town Centre. Of those who had drunk prior to survey participation, just one in ten (10.8%) reported feeling completely sober. The mean score for how drunk drinkers felt at the time of the survey was 4.2. The mean score for how drunk drinkers¹¹ felt they would be when they left Wrexham's nightlife that night was 7.0. The mean score reported by participants for the perceived level of drunkenness that people reach on a night out in Wrexham was 9.0.

The scales of drunkenness were grouped into two levels: low (scores one to five) and high (scores six to ten). The majority (96.8%) of participants in the nightlife user survey thought people on a night out in Wrexham typically reach a high level of drunkenness. At the time of the survey, three in ten (31.1%) participants rated their current level of drunkenness as high, while three quarters (76.9%)¹¹ expected their level of drunkenness to be high when they left the town's nightlife that night. There was no significant association between preloading and levels of drunkenness for any of the scales.

Findings from the population survey found that amongst Welsh adult preloaders, the mean score for how drunk they were before arriving at the first pub/bar/nightclub they visited on their last preloading night out in the last 12 months was 3.9. The mean score for how drunk they felt they got overall on their night out was 6.6. A third of preloaders achieved a high level of drunkenness before arriving at the first pub/bar/nightclub (33.3%) and 73.1% overall on their night out.

4.1.6 Nightlife user alcohol consumption levels and patterns

Prior to participation in the nightlife user survey, the majority (93.2%) of nightlife users had consumed alcohol (referred to as drinkers). Almost three in ten (28.8%) drinkers had consumed their first drink before 6pm, whilst 61.7% started drinking between 6pm and 9.59pm, and 9.4% after 10pm. Nearly half (49.3%) of drinkers had consumed alcohol at home or a friend's house before coming into the town centre for their night out (preloading) (Table 1). Compared to Wrexham residents, non-residents were significantly more likely to report preloading prior to entering the town centre (residents, 45.2%; non-residents, 70.8%; $p < 0.05$). Males drank significantly more units while preloading compared to females (males, 5.5; females 4.0; $p < 0.05$). One sixth (16.0%) of drinkers reported consuming alcohol after leaving home or a friend's house, but prior to arriving in the town centre (en route loading). Approximately four in ten participants reporting en route loading consumed alcohol on transport/within transport settings (e.g. taxi, train, airport) (43.5%) and/or at a licensed premise outside of the town centre (e.g. local pub) (43.5%), whilst 8.7% reported consuming alcohol on the street (4.3% at another location). There was no significant differences between age, sex, area of residence, student status, or preloading behaviour in the proportion of individuals who reported en route loading, or the number of units drank while en route loading (Table 1).

The majority (94.7%) of drinkers had consumed alcohol in a town centre bar, pub or nightclub prior to survey participation. A significantly lower proportion of students (students, 81.8%; non students, 98.3%; $p < 0.001$) reported drinking in a town centre bar by the time of survey participation. The

¹¹ Including those who had not drunk prior to the survey but intended to do so on the remainder of their night out.

number of units consumed in pubs, bars and nightclubs was significantly higher for males than females (males, 10.0; females, 6.3; $p < 0.01$). Less than five drinkers reported having consumed alcohol purchased from an off-licence or supermarket and consumed in the nightlife environment prior to participation in the survey.

By the point of the survey, drinkers had consumed a median of 11.1 units, with males consuming significantly more units than females (males, 13.9; females, 9.0; $p < 0.01$). Preloaders had consumed significantly more units by the point of the survey than non-preloaders (preloaders, 14.1 units; non-preloaders, 8.4 units; $p < 0.001$). The median number of units drinkers consumed over the course of the night out prior to survey completion was: 4.5 units while preloading; 3.6 units during en route loading; 8.0 units in bars, pubs and nightclubs in the town centre; and 7.9 units of alcohol which were purchased from an off-licence and consumed in the nightlife area. By the time of survey participation, two thirds (66.7%) of drinkers had consumed spirits, over half (56.0%) beer or lager, 24.7% cider, 19.3% wine, and 8.7% alcopops.

Participants were then asked about their intention to drink any alcohol after survey participation, during the rest of their night out. The majority (89.3%) of those who had already consumed alcohol intended to consume more during the remainder of their night out (88.8% of all participants). Of those who intended to consume more alcohol, the median number of units expected to be consumed was 10.0, with participants aged 18-21 years and Wrexham residents expecting to consume more units after taking part in the survey than their counterparts (18-21 years, 10.2; 22-29 years, 9.1; 30+ years, 6.8; $p < 0.01$; residents, 10.0; non-residents, 6.0; $p < 0.05$). Overall, the median expected alcohol consumption over the entire night, including alcohol already consumed and expected to be consumed, was 21.0 units, with males expecting to consume significantly more units than females (males, 24.0; females, 16.8; $p < 0.001$). Preloaders expected to consume significantly more units over the course of the entire night out than non-preloaders (preloaders, 25.0; non-preloaders, 18.0; $p < 0.001$). In total, almost one fifth (18.1%) of alcohol estimated to be consumed over the course of the entire night out was drunk prior to entering the town centre's nightlife, while preloading or en route loading. After leaving the town's nightlife 12.6% of all participants (12.8% of drinkers) intended to consume more alcohol (i.e. at home/or a friend's house).

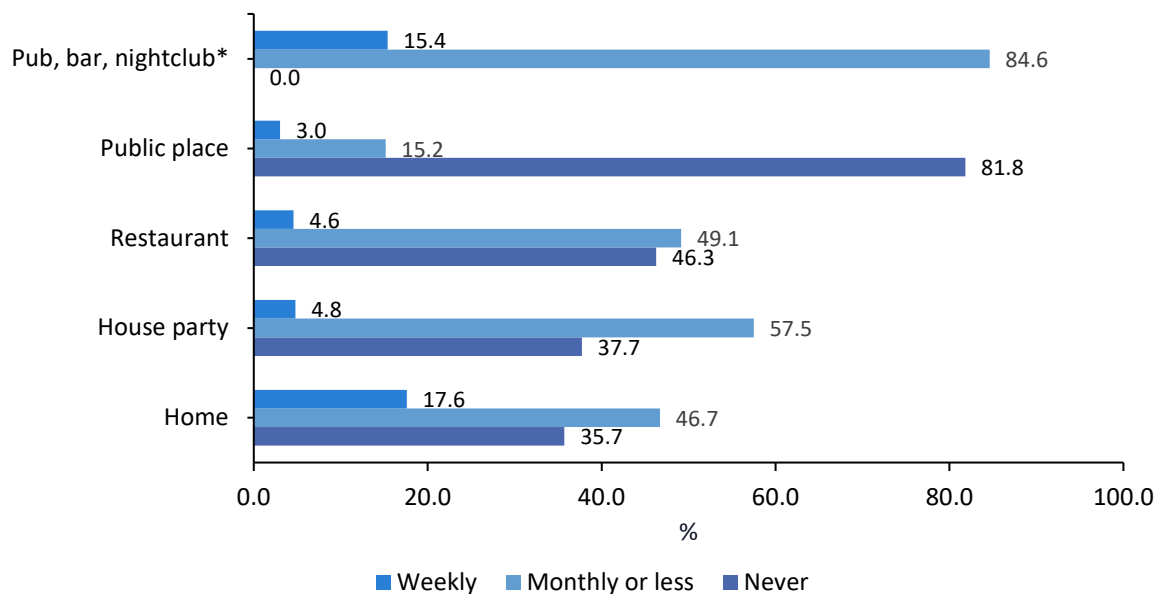
Table 1: Alcohol consumption over the course of the night out; Wrexham DLEM pre-intervention nightlife user survey (2017)

Alcohol consumption		Sex				Age (years)				Student status			Wrexham resident			Preloaders		
		All	Male	Female	<i>p</i>	18-21	22-29	30+	<i>p</i>	No	Yes	<i>P</i>	No	Yes	<i>p</i>	No	Yes	<i>p</i>
Preloading*	%	49.3	47.4	52.7	NS	58.6	44.1	42.4	NS	45.7	60.6	NS	70.8	45.2	<0.05	-	-	-
	Units	4.5	5.5	4.0	<0.05	5.0	5.6	3.0	NS	4.5	4.0	NS	4.0	5.0	NS	-	-	-
On route loading*	%	16.0	14.7	18.2	NS	12.1	23.7	9.1	NS	16.4	15.2	NS	12.5	16.7	NS	15.8	16.2	NS
	Units	3.6	2.9	3.8	NS	5.1	2.0	3.5	NS	3.5	3.7	NS	2.0	3.7	NS	3.1	3.6	NS
Town centre nightlife - purchased in pubs/bars/nightclubs*	%	94.7	95.8	92.7	NS	89.7	100.0	93.9	NS	98.3	81.8	<0.001	91.7	95.2	NS	98.7	90.5	NS
	Units	8.0	10.0	6.3	<0.01	7.1	9.0	8.0	NS	8.0	7.1	NS	8.5	8.0	NS	8.0	8.0	NS
Town centre nightlife - purchased from off- licences/supermarkets*	%	2.7	3.2	1.8	NS	5.2	1.7	0.0	NS	3.0	2.6	NS	12.5	0.8	<0.01	1.3	4.1	NS
	Units	7.9	6.8	9.0	NS	6.8	9.0	-	NS	9.0	6.8	NS	9.0	6.8	NS	9.0	6.8	NS
Total units consumed prior to survey completion*	Units	11.1	13.9	9.0	<0.01	10.0	13.1	10.0	NS	11.1	11.0	NS	13.1	11.0	NS	8.4	14.1	<0.001
Expected units consumed post survey^	Units	10.0	10.0	9.6	NS	10.2	9.1	6.8	<0.01	10.0	10.0	NS	6.0	10.0	<0.05	10.0	10.0	NS
Total units consumed during night out ⁺	Units	21.0	24.0	16.8	<0.001	22.0	22.5	18.8	NS	22.0	17.5	NS	17.8	21.0	NS	18.0	25.0	<0.001

Note. Units presented are median value. NS = not significant. *Of those who had consumed alcohol pre survey only. ^Of those who reported that they would drink alcohol post survey only. +Including reported and, or expected alcohol consumption.

Findings from the population survey found that amongst Welsh adult drinkers (92.5% of participants), the majority (89.2%) had consumed their first alcoholic drink before the age of 18 years; 24.2% before the age of 14 years. Of those aged 14+ years, a third (33.8%) reported that they received their first alcoholic drink from an on-licensed premise, 33.8% from a parent/sibling, 23.6% from a friend and 8.9% from elsewhere. Half (50.1%) of Welsh adult drinkers consumed five or more standard alcoholic drinks on a typical drinking day. Around a fifth reported binge drinking (consuming 6+ standard drinks in one occasion) at least weekly at home (17.6%). All who had been on a night out in the last 12 months reported having consumed 6+ standard drinks in one occasion in a pub/bar/nightclub, (15.4%) at least weekly (Figure 3).

Figure 3: Frequency of binge drinking by location, Welsh adult drinkers aged 18+ years; population survey (2017)



* Of those who have been on a night out in last 12 months

Amongst those who had been on a night out in the last 12 months, the majority (79.6%) had preloaded prior to going on a night out; 12.2% reported preloading often or always. Amongst preloaders, the main reasons identified for preloading (selected from a predefined list) were to: have a good time with friends (63.6%); get drunk more quickly (54.5%); go out properly drunk (46.9%); make the rest of the night more fun (42.4%); and to get in the party mood (40.4%) (Figure 4).

Over a third (37.3%) of preloaders reported consuming five or more standard alcoholic drinks on their last preloading occasion (Table 2). On the same night, 11.6% reported drinking five or more alcoholic drinks on route to the night-time economy; 75.5% also drank this amount whilst in the pubs/bars/nightclubs. Over one in ten reported using illicit substances either whilst preloading (13.7%) or within the night-time economy (9.4%) on their last preloading occasion. 16.1% reported consuming off-licensed purchased alcohol whilst on route to the night-time economy, 25.0% whilst in pubs/bars/nightclubs, and 26.4% elsewhere after leaving the night-time economy.

Figure 4: Reasons for preloading amongst Welsh preloading drinkers aged 18+ years; population survey (2017)

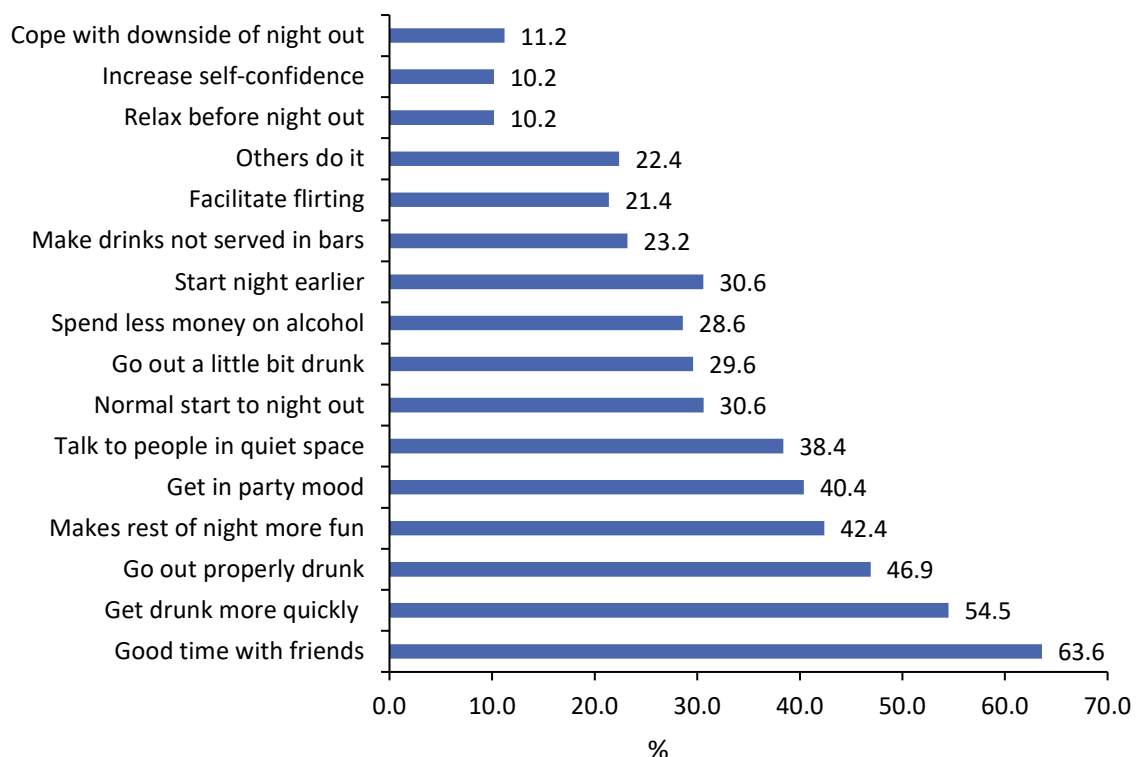


Table 2: Alcohol consumption, drug use, drunkenness and use of the night-time economy over the course of a night out, last preloading drinking occasion, Welsh preloaders aged 18+ years; population survey (2017)

		Preloading	On route loading	In night-time economy	After night out
		%	%	%	%
Alcohol consumption	0	-	68.0	4.1	-
	1 or 2	24.2	14.6	7.1	-
	3 or 4	38.5	5.8	13.3	-
	5 or 6	14.3	2.9	14.3	-
	7 to 9	12.1	2.9	27.6	-
	10 or more	11.0	5.8	33.7	-
Drunkenness*	High	33.3 (mean 3.9)	-	73.1 (mean 6.6)	-
Use of drugs	Any	13.7	-	9.4	-
First venue type visited	Restaurant	-	-	9.4	-
	Pub	-	-	49.1	-
	Bar	-	-	27.4	-
	Nightclub	-	-	10.4	-
	Other	-	-	3.8	-
Off-licensed alcohol consumption		-	16.1	25.0	26.4

*Drunkenness was rated on a scale of one (completely sober) to 10 (very drunk), scores one to five were grouped as low drunkenness and six to ten high drunkenness.

4.1.7 Alcohol-related harms in Wrexham Town Centre

Participants in the nightlife user survey were asked a range of questions about harms they experienced whilst on, or after a night out in Wrexham Town Centre in the past three months. Almost six in ten (62.0%) participants reported experiencing at least one alcohol-related harm while on a night out in Wrexham in the past three months. Of those participants who reported experiencing at least one alcohol-related harm, the average number of harms reported was 3.1. The proportion of participants reporting having experienced each alcohol-related harm varied with: 38.6% reporting a serious verbal argument; 36.7% vomiting; 30.4% a physical assault (i.e. fight); 24.1% unprotected sex; 20.3% having been so drunk they needed assistance to walk; 19.0% an injury; 17.1% regretted sex (with someone after a night out). Further, one in ten (10.1%) participants reported experiencing a sexual assault (including unwanted touching/harassment) on, or after a night out in Wrexham Town Centre in the past three months.

Nightlife user survey participants aged 18-21 years, and students were significantly more likely to have experienced a sexual assault (including unwanted touching and harassment) whilst on or after a night out in Wrexham in the past three months (Table 3). A significantly higher proportion of 18-21 year olds and 22-29 year olds reported regretting having sex with someone after a night out in Wrexham in the past three months compared with participants aged 30+ years (Table 3). Males were significantly more likely than females to have had a serious verbal argument or been involved in a physical assault whilst on or after a night out in Wrexham in the past three months (Table 3). A significantly higher proportion of 18-21 year olds and 22-29 year olds reported at least one alcohol-related harm whilst on or after a night out in Wrexham in the past three months compared to participants aged 30+ years (Table 3). Participants in the population survey were asked a similar range of questions about harms they experienced whilst on, or after a night out in Wrexham Town Centre in the past twelve months. Findings are presented in Figure 5.

Figure 5: Experience of alcohol-related harms during or following a night out; Wrexham DLEM pre-intervention nightlife user survey (2017) & population survey (2017)

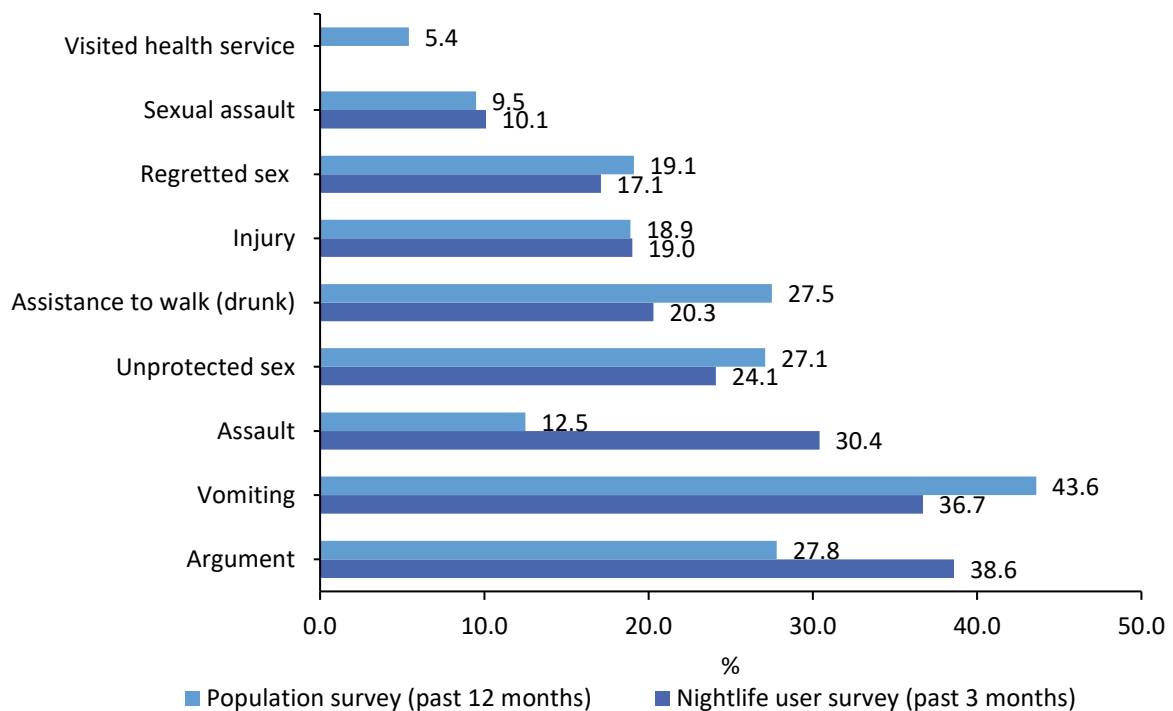


Table 3: Experience of alcohol-related harms by sociodemographics and nightlife behaviour; Wrexham DLEM pre-intervention nightlife user survey (2017)

Alcohol-related harms	All %	Sex			Age (years)				Student status			Wrexham resident			Preloaders		
		Male %	Female %	<i>p</i>	18-21 %	22-29 %	30+ %	<i>p</i>	No %	Yes %	<i>p</i>	No %	Yes %	<i>p</i>	No %	Yes %	<i>p</i>
Sexual assault	10.1	8.0	13.8	NS	17.5	8.2	0.0	<0.01	5.9	23.7	<0.01	16.0	9.0	NS	8.1	12.5	NS
Regretted sex	17.1	19.0	13.8	NS	22.2	19.7	2.9	<0.05	15.1	23.7	NS	4.0	19.5	NS	16.3	18.1	NS
Injury	19.0	23.0	12.1	NS	20.6	18.0	17.6	NS	15.1	28.9	NS	12.0	20.3	NS	16.3	22.2	NS
Assistance to walk (drunk)	20.3	25.0	12.1	NS	28.6	11.5	20.6	NS	16.8	28.9	NS	12.0	21.8	NS	20.9	19.4	NS
Unprotected sex	24.1	32.0	10.3	<0.01	30.2	23.0	14.7	NS	24.4	21.1	NS	16.0	25.6	NS	17.4	31.9	NS
Assault	30.4	38.0	17.2	<0.05	33.3	29.5	26.5	NS	26.9	39.5	NS	20.0	32.3	NS	27.9	33.3	NS
Vomiting	36.7	40.0	31.0	NS	39.7	39.3	26.5	NS	34.5	42.1	NS	28.0	38.3	NS	30.2	44.4	NS
Serious verbal argument	38.6	46.0	25.9	<0.05	41.3	42.6	26.5	NS	37.0	44.7	NS	24.0	41.4	NS	36.0	41.7	NS
≥1 harm	62.0	68.0	51.7	NS	68.3	65.6	44.1	<0.05	58.0	73.7	NS	48.0	64.7	NS	55.8	69.4	NS

4.1.8 Preexisting legislation, and public awareness of relevant legislation

Preexisting legislation

There is no legislation or police powers currently in the UK which specifically legislates for drinking alcohol in private settings, such as the home [3]. While there are no specific laws to tackle drunkenness in private settings, legislation related to the night-time economy is particularly relevant in tackling one type of private setting drinking – preloading. The Licensing Act 2003 regulates the sale and consumption of alcohol in the UK [43]. The Act places restrictions on the sale and purchasing of alcohol. All premises selling alcohol, such as pubs, bars, nightclubs, restaurants and shops, must hold a license to sell alcohol, provided and authorised by the local authority. Under the act it is an offence to knowingly sell or attempt to sell alcohol to someone who is drunk or for a person to buy alcohol for consumption by a person who is drunk. Further, it is an offence for a drunk or disorderly person to fail to leave a licensed premise when requested to do so by a police officer or a staff member, or to enter or attempt to enter a premise after being refused. Legislation also exists to address nightlife users' behaviours within licensed premises. Under the Licensed Premises (exclusion of certain persons) Act 1980, exclusion orders can be issued by the Court for persons involved in incidents in licensed premises [44]. These cases are usually related to binge drinking. A summary of UK legislation, relevant to the pilot intervention, is provided in Box 3.

Box 3: Key UK alcohol and licensing legislation relevant to DLEM intervention

Licensing Act 2003 [43]

Part 7 Offences: Drunkenness and disorderly conduct

- Section 141 makes it an offence to sell or attempt to sell alcohol to a person who is drunk, or to allow alcohol to be sold to such a person on relevant premises.
- Under section 142 a person commits an offence if, on relevant premises, he knowingly obtains or attempts to obtain alcohol for consumption on those premises by a person who is drunk.
- Under section 143 it is an offence for a drunk or disorderly person, without reasonable excuse, to fail to leave relevant premises when requested to do so by a constable or a person working at the premise, or to enter or attempt to enter such premises after that person has requested him not to do so.

In practice the police (including police licensing officers) and the local authority (including licensing officers) aim to achieve compliance to the above legislation through education and advice. Both partner agencies (police and local authority) have an agreed enforcement protocol in place for dealing with non-compliance within licensed premises. This approach includes an advisory visit first, if no improvement follows then the premise can be issued with up to two formal warnings with associated action plans before the premises licence is brought for review by the Council's Licensing Committee. Under the Anti-Social Behaviour, Crime and Policing Act 2014 [45], the police or local authority can also quickly close premises or groups of premises which are being used, or are anticipated to be used, to commit nuisance or disorder.

Public awareness of legislation

Despite such legislation being in place, public awareness of relevant legislation is relatively low. Just over half of participants in the nightlife user survey (55.1%) and the population survey (67.7%) knew it was illegal for a bar server to sell alcohol to someone who is already drunk. Approximately six in ten nightlife user (61.4%) and population survey participants (68.2%) correctly responded it was illegal for a shop assistant to sell alcohol to someone who is already drunk. Approximately half of nightlife user

(52.5%) and population survey participants (45.5%) knew it was illegal to purchase alcohol for a friend who is already drunk.

4.1.9 Preexisting local partnership working

In England and Wales, it is mandatory for statutory partners to collaborate locally to address crime and disorder [46]. Prior to the implementation of the DLEM intervention across Wales [2], reducing alcohol consumption and preventing related harms was high on the Government's agenda. *Working Together to Reduce Harm: The Substance Misuse Strategy for Wales 2008-2018* is the Welsh Government's 10 year strategy to address substance use [47]. It sets out the harm reduction agenda for the Welsh Government and partners and recognises the need for investment in the prevention of alcohol use, including increasing awareness of the harms of alcohol amongst the Welsh population. Further, the North Wales Police and Crime commissioner made delivering safer neighbourhoods and sexual abuse two of the priority areas for police objectives in the Police and Crime Plan 2017-2021. Reducing alcohol consumption is related to these two priorities.

Such strategies and objectives fostered the development of several multi-agency agendas and partnerships in Wrexham to tackle alcohol use and alcohol-related harms. Partners were already working together prior to the implementation of DLEM to create a safer neighbourhood in Wrexham by reducing alcohol-related violence. Wrexham had a local alcohol action plan in place which made a multi-agency commitment to "make Wrexham a safe and healthy place to live by reducing alcohol-related crime and disorder". This involved a partnership approach between police, local government (e.g. public health and licensing) and the police and crime commissioner. Wrexham is also one of 33 local areas participating in the UK Government Local Alcohol Action Area initiative. A key part of that work programme was to promote the sharing and use of multi-agency data to inform prevention activity and reduce the sale of alcohol to drunks. Thus, Wrexham County Borough Council and other local and national partners had a commitment to address alcohol-related issues in the pilot site area prior to the design and implementation of the pilot DLEM STAD-based intervention. Local stakeholders also work in partnership to run the Wrexham Alcohol Treatment Centre. Referrals to the centre highlight partnership working between organisations in the night-time economy. While people can self-refer, most are brought to the centre by other agencies working in the night-time economy (e.g. police, street pastors), others are alerted through door staff, police or CCTV operators via the Crimelink¹² radio requesting assistance at the scene of an incident.

In addition to multi-agency working between statutory partners, there was also a history of engagement and working with licensees in Wrexham Town Centre. This was reflected upon by stakeholders who discussed several schemes and forums which were already in existence prior to the implementation of the pilot intervention such as Nightsafe/Pubwatch and Best Bar None. Best Bar None is a national scheme aimed at reducing alcohol-related incidents and violence in the UK by raising the standards of licensed premises and building positive relationships with business regulators. In Wrexham, 22 out of 26 on-licensed premises voluntarily take part in the Best Bar None scheme. A local licensee group also meets monthly with partners such as the police and council as part of the

"Historically we have loads of good working partnerships with the licensees and with initiatives like 'Best Bar None'... those links with Trading Standards, licensing and other partners have been there." – police, pre-intervention interview

¹² This is a means of communication between stakeholders in the nighttime economy including door staff, police, staff at the welfare centre and CCTV operators.

Nightsafe/Pubwatch programme, and runs a scheme that aims to reduce access to venues for those causing harms (e.g. violence, disorderly behaviour) in the nightlife environment. Information is shared regularly amongst the group, regarding problematic individuals, with steps put in place to effectively ban them from entering any of the participating venues, thus reducing their access to alcohol in those venues. In addition to engagement with the licensed trade, there was also a history of partnership working with Wrexham taxi drivers. A condition of the taxi driver licence in Wrexham is to undertake sexual violence vulnerability training, and over half of all current taxi drivers have completed this training.

4.2 Pilot intervention site and target group identification

Following initial discussions between the LJMU SiE project team and Public Health Wales, Wrexham (North Wales) was identified as the potential UK pilot site area. Following successful negotiations with Wrexham County Borough Council, they formally committed to take part in the SiE project as the UK pilot site area, and an intervention steering group was established led by a project coordinator (see 4.3.1).

Initial discussions amongst stakeholders in early steering group meetings focused on identifying where the intervention pilot site should be. Partners discussed local issues and priorities in relation to alcohol consumption amongst young people in private settings. Two key issues were identified: preloading drinking prior to a night out and drinking by young people in house parties. Local data were not available to identify the extent of these issues; however, partners were aware of them through both professional and personal experience.

“We have done a lot of work around young people purchasing alcohol from off-licenses, so that again, has raised concerns about easy access to alcohol.” – police, pre-intervention interview

Following partner discussion about how the issues may be identified and addressed, and if and how success could be measured, partners suggested that focusing on preloading drinking behaviour would be feasible within the timescales of the SiE project. A broader discussion was also held about how the SiE project could form part of a longer-term approach to reducing alcohol consumption amongst young people.

Discussions initially focused on defining young people as those aged 16-25 years, and designing the intervention to address drinking behaviours before and after the legal drinking age¹³. However, it was felt that this would require different interventions/focues directed towards children (under 18 years) and adults (18+ years). The group agreed that the focus of this pilot intervention should be those aged 18-25 years. Future interventions may focus on younger age groups (e.g. 13-17 years) to intervene before they reach the legal drinking age.

“I think the purpose of the message is to address any age, but obviously we have identified that those most at risk are the 18 to 25s. Clearly the desire is that we will roll the programme out to the pre-18 group and link that to work we were doing with the LAAA programme.” – police, pre-intervention interview

¹³ 18 years in the UK.

4.3 The Drink Less Enjoy More (DLEM) pilot intervention

The intervention was modelled on the three core components of the STAD programme; community mobilisation, responsible bar staff training, and strengthened law enforcement. Further, the intervention was closely modelled on the previous adaptation of the STAD model to UK nightlife settings across England and Wales [14, 1, 5, 13, 15]. The pilot intervention had four primary long-term aimed outcomes:

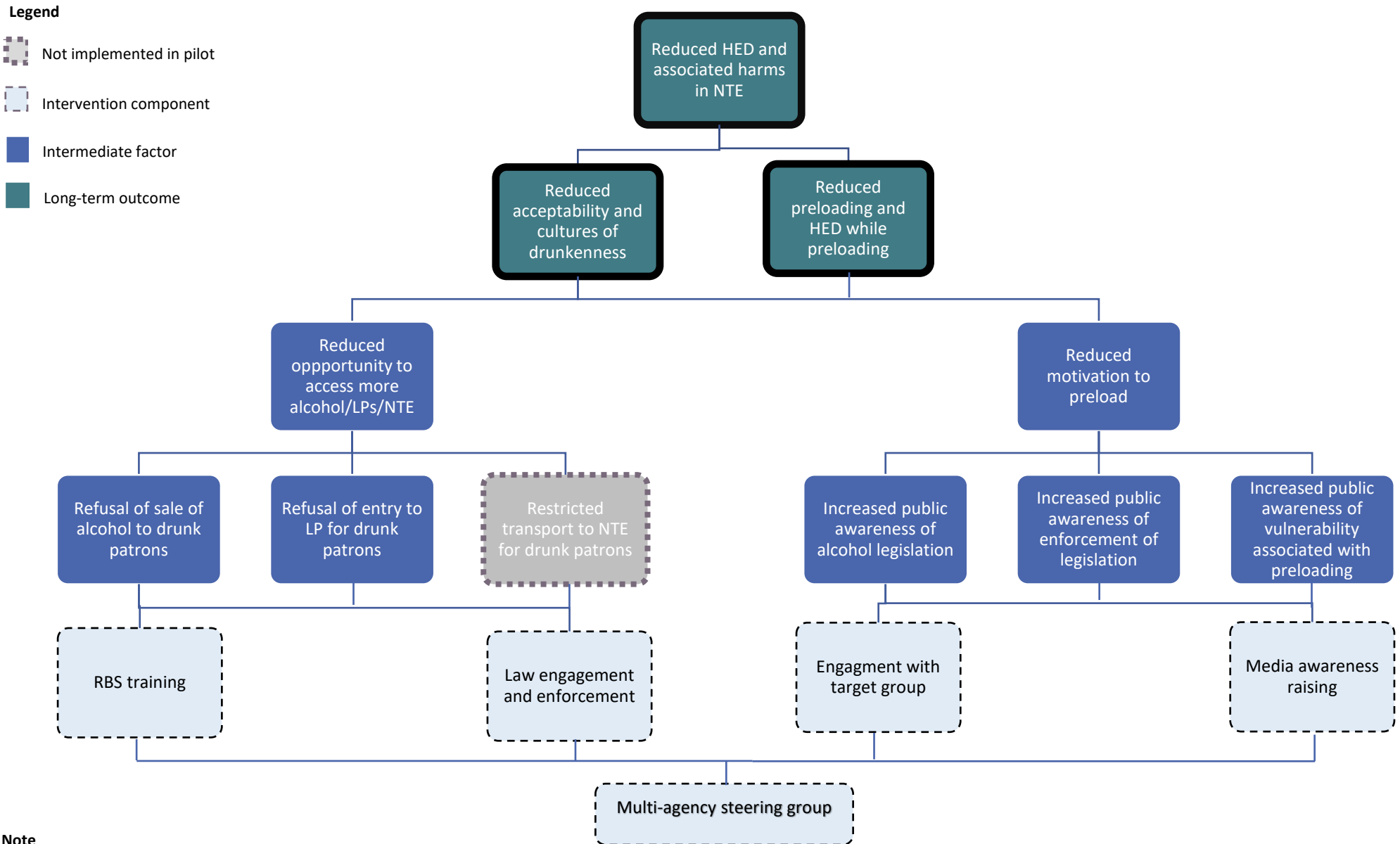
- Reduce nightlife user acceptability of drunkenness in the night-time economy, including prior to entry;
- To reduce heavy episodic drinking in the home environment prior to entering Wrexham's nightlife (preloading);
- To reduce alcohol-related harms in Wrexham's nightlife; and,
- To reduce heavy episodic drinking and associated harms in Wrexham's nightlife.

To achieve this, the intervention aimed to alter a number of intermediate factors that are expected to contribute to the achievement of the above long-term aims, including to:

- Raise awareness of harms (including vulnerability) associated with preloading and excessive drinking behaviour across young people using Wrexham's nightlife;
- Raise nightlife user and bar staff awareness of UK laws around the sale of alcohol to, and purchase of alcohol for, drunks; and,
- Reduce the propensity of bar staff to sell alcohol to drunks in Wrexham's nightlife.

A theory of behaviour change including how the core intervention components are theorised to impact on intermediate factors, which in turn may contribute to achieving long-term outcomes, is provided in Figure 6.

Figure 6: Theory of preloading behaviour change, DLEM Wrexham, UK



Note

HED – heavy episodic drinking
 NTE – night-time economy
 LP – licensed premise
 RBS – responsible bar server

4.3.1 Community mobilisation

The pilot intervention had a three-pronged approach to community mobilisation.

- i. The establishment of a multi-agency intervention steering group to design and implementation the intervention, which was led by a project coordinator.
- ii. Engagement with intervention target groups, including the licensed trade and users of Wrexham's night-time economy (including preloaders and non-preloaders).
- iii. Creation of a public awareness campaign implemented through media sources to promote awareness of the intervention and its key messages to the public, particularly users of the night-time economy (including preloaders and non-preloaders, and workers).

i) Establishment of a multi-agency steering group

A member of the community safety team from Wrexham County Borough Council was identified as the most appropriate individual to be the project coordinator and had also been part of the initial discussions with the LJMU SiE project team. The project coordinator already had good working relationships with relevant stakeholders for alcohol control and alcohol-related harm prevention activities (see section 4.1.9). Thus, key stakeholders from a range of health, social and justice agencies were contacted by the project coordinator, informed about the project and invited to sit on the steering group. The initial steering group included representatives from: Wrexham County Borough Council (Trading Standards, Licensing, Community Safety and Communications), North Wales Police, and Public Health Wales. Additional stakeholders who did not usually form part of the partnership working on alcohol prevention activities were also identified as being relevant due to the target age group of the intervention including: youth services and education. Lead UK SiE project team members from Public Health Institute, LJMU also sat on the steering group.

"I don't think I emphasised enough how important partnership work is to the success of the project. I was lucky to have very good contacts in all the partner agencies who supported the project and helped make things happen." – project coordinator, post-intervention correspondence

ii) Engagement with intervention target groups

While the target group of the pilot intervention was young people preloading prior to entering the night-time economy, the licensed trade also represented a target group for the intervention. Steering group members engaged with both groups in different ways.

Through the student welfare officer who occasionally attended NightSafe/Pubwatch meetings, the project coordinator was able to establish contact with the local university's student union. A meeting between the project coordinator and student union representative was set up and it was agreed that the project stakeholders could have a stall at the fresher's fair¹⁴ free of charge. The project coordinator and representatives from Public Health Wales attended the fresher's fair to recruit students to the preloading population survey and promote a general message about reducing the potential for vulnerability when intoxicated (as this was prior to the intervention launch, DLEM was not promoted). Individuals from Public Health Wales gave input on alcohol, health and youth services where students could access further help. Engagement with the survey and the messages was incentivised by having free packages on the stall consisting of a panic alarm and a plastic glass which shows measures of alcohol. Both items were used as a way of reinforcing the two key messages being promoted, reducing vulnerability and sensible alcohol consumption. A tiered approach to engagement, training and

¹⁴ An event targeted towards new (and existing) university students.

"[the club captains] were quite receptive and supportive. They were all very engaged in the subject and asked questions." – **project coordinator, post-intervention interview**

communication of the key message of the pilot intervention (vulnerability linked to intoxication) was implemented. The project coordinator attended induction days for university sports and social club captains. Through these induction days the project coordinator trained the captains using similar materials to licensee training (see section 4.3.2). It was noted by the project coordinator that the club captains were engaged and related to the vulnerability message, with some

providing anecdotes of situations in which they had experienced vulnerability. The stakeholders also identified another educational establishment, Coleg Cambria, at which a large population of young people were registered for apprenticeships as being an appropriate setting to engage with the intervention target group.

Engagement with the licensed trade regarding the pilot intervention took place initially through the NightSafe/Pubwatch meeting. The LJMU SiE project team introduced the SiE project, the STAD model and its outcomes. They also presented findings from other similar UK STAD-based interventions. The project coordinator and the police licensing lead then spoke about the pilot intervention which was being designed and would be implemented in Wrexham Town Centre. This meeting was to raise awareness amongst the licensees about the intervention and gauge their level of interest in it. Other engagement activities with licensees included: the project coordinator and police licensing lead visiting each bar during the implementation period, reminding licensees of the key elements and messages and providing them with a framed DLEM poster for display in their venue; and, RBS training for each licensee to cascade down to their staff (see section 4.3.2). Engagement also took place with off-license premises through Trading Standards (council licensing) and their work around underage sales with additional information provided on the DLEM intervention and its aims (see section 4.3.2).

"We started with an introduction of the campaign at the NightSafe meeting... to raise awareness with licensees. I find the gentle approach to things better, rather than going in heavy handed." – **police licensing, post-intervention interview**

"They [security teams] were like yes that [DLEM] is great. What do you want from us? I think that was really good and they really wanted to be part of it." – **police licensing, post-intervention interview**

Engagement took place between intervention stakeholders and venue security personal. Two security companies provide the door staff for all licensed premises in Wrexham Town Centre. An initial meeting was held between the project coordinator and the police licensing lead with the two security teams to explain the intervention concept. The intervention concept was well received. All heads of security were trained with the same RBS content as licensees and were expected to cascade that training down to their staff (see section 4.3.2).

iii) Media awareness raising campaign

A multi-agency awareness raising media campaign was ran throughout the intervention period to deliver key campaign messages to the target groups. The premise was to utilise the media and in particular social media to drive peer-to-peer cascading and sharing of the campaign messages. A digital marketing officer in the communications team in Wrexham County Borough Council was approached by the project coordinator to run the campaign on Wrexham Council News Blog and social media accounts, including Twitter and Facebook. The DLEM pilot intervention was officially launched through partner social media accounts (including police, council and health authority), and national

and local media (e.g. BBC Wales news piece, local media outlets/websites). All content was posted in both the English and Welsh language. Content was based on materials purchased from another area which had previously ran the DLEM campaign [31] but edited to suit local context, and supplemented with freely available material from national alcohol prevention campaigns (e.g. Drinkaware, Home Office campaigns) with any additional local content (e.g. videos with stakeholders) conceptualised primarily by the council.

The blog, ran on Wrexham Council website, was updated weekly and published over a period of six weeks in the run up to New Year's Eve. Blog content focused on positive messages encouraging behaviour change including: top tips for a night out, how partners are working to make Wrexham a safe place for a night out, and the intervention launch (see Box 4). Quotes from key night-time economy stakeholders were included in blog posts to reinforce partners' involvement in the intervention and enhance the delivery of particular messages. As part of the blog content, videos promoting key campaign messages were included. For example, week two's blog content included a video filmed with a partner from the police who sat on the steering board, discussing the law and reinforcing the message that you will not be served if you are too drunk.

"We produced some films as well, little interviews that we had with some partners. We chose the police officer for obvious reasons, and also a red cross volunteer who worked in the wellbeing centre in town, to get more of an angle on the actual night-time economy and what she does. That went down really well." – **communications officer, post-intervention interview**

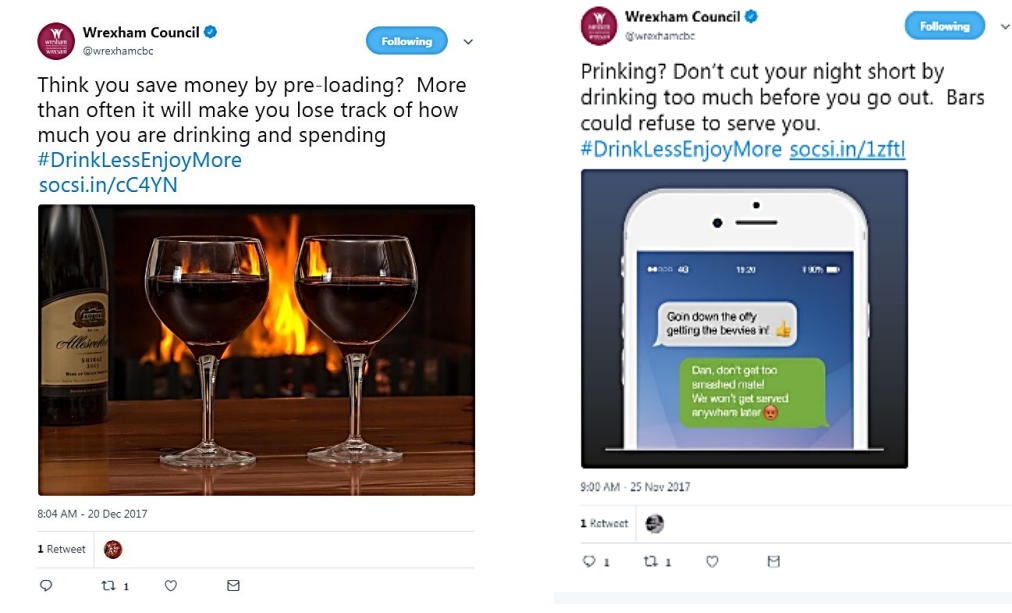
In addition to the blog, Wrexham Council ran content on their social media pages, including Facebook and Twitter (Figure 7). Campaign messages focused on discouraging preloading and promoting knowledge of the law around the sale of alcohol to, and purchase of alcohol for, drunks. Wrexham Council used post boosts¹⁵ and pay-per-click advertising¹⁶ during the social media campaign. Facebook and Twitter posts were both linked to the Council blog on the campaign and were the largest drivers of traffic to the blog content. Other intervention partners, particularly the police, also retweeted and shared the council's posts. Intensified efforts were made at key peak nightlife periods such as in the run up to weekends, payday or big local events.

Other methods of promoting the campaign included, distributing a DLEM bulletin email to the Council's mailing list and featured pieces on the DLEM campaign in national and local media (Box 4). The radio campaign featured interviews with key intervention stakeholders, including the project coordinator and police, and promoted key campaign messages. Campaign posters (Appendix 2) were also framed and personally delivered by the project coordinator and police licensing.

¹⁵ Post boosts are ads that can appear in different places on Facebook, and which can be shown to a defined audience. Post boosts are a way of reaching new people who are likely interested in your content but don't follow you on Facebook. Boosting a page may help get more people to like, share and comment on posts and can include a button to drive people to other actions such as links to the blog [73].

¹⁶ Pay-per-click advertising is a model of internet marketing in which advertisers pay a fee each time one of their ads is clicked.

Figure 7: Sample tweets for the pilot intervention by Wrexham County Council



Box 4: Local and national media coverage of DLEM

- **BBC Wales TV news piece** (approx. 2min 22nd December 2017): Featured an interview with the project coordinator on the DLEM intervention and key aims and messages.
- **Wrexham.com** (22nd December 2017): Article 'Party-goers encouraged to stay safe as town gears up for weekend of festival celebrations.'
- **The Leader** (22nd December 2017): Article 'Party-goers encouraged to stay safe over Christmas period'.
- **News North Wales** (22nd December 2017): Article 'Party-goers encouraged to stay safe over pre-Christmas weekend'.
- **The Leader** (15th December 2017): Article 'Wrexham Town Inspector: 'Know your limits on Mad Friday'.

Wrexham Council News DLEM blog

- **Week 1 (15 November 2017):** Drink Less Enjoy More launch
<http://www.webcitation.org/717y4SK1w>
- **Week 2 (23 November 2017):** Find out how we are making Wrexham a safe place for a night out this Christmas
<http://www.webcitation.org/717ywQ15Y>
- **Week 3 (1 December 2017):** Top tips for a great night out in Wrexham this Christmas
<http://www.webcitation.org/717yzHPcr>
- **Week 4 (6 December 2017):** The 'safe space' that helped over 300 people last Saturday night... and why you need to know about it
<http://www.webcitation.org/717zMscKa>
- **Week 5 (14 December 2017):** Caring, listening, helping. Meet Wrexham's street pastors
<http://www.webcitation.org/717zNz9dZ>
- **Week 6 (22 December 2017):** Meet the people helping to keep you safe on your night out this Christmas
<http://www.webcitation.org/717zTtiWY>

4.3.2 Training

RBS training followed a train-the-trainer and tiered distribution model. It consisted of two types of training aimed at two cohorts.

- i. Responsible bar staff and vulnerability training for licensees to cascade down to their bar staff and for heads of door security to cascade down to their door staff.
- ii. Vulnerability training with captains of Glyndor University clubs and societies for peer-to-peer sharing of messages, and vulnerability training and DLEM intervention awareness raising amongst Coleg Cambria apprentices by their mentors.

i) Licensee and heads of door security training

The project coordinator and the police licensing lead coordinated the training session for the licensees through the NightSafe/Pubwatch forum. The training included three elements: RBS and awareness raising of the DLEM intervention aims, components and messages; vulnerability; and, counter-terrorism. The RBS training and DLEM intervention awareness was led by the project coordinator. The materials used in the RBS training had been purchased as part of the package (including the campaign posters and artwork) from another local authority, which also ran DLEM [31]. It included a video interview with a local authority licensing officer discussing the law¹⁷. The video also had interviews with various bar staff and their experiences of refusing intoxicated customers. It included different purchase attempt scenarios and associated penalties. The video also included recognising signs of intoxication, tips on how to refuse service and how to assist vulnerable intoxicated customers. A member of the sexual assault and referral unit facilitated the vulnerability training. Vulnerability training content was taken and adapted from material shared by South Wales police. In addition a freely available video from New Zealand¹⁸ depicting an intoxicated vulnerable female whilst on a night out and a range of adverse events which could happen to her and at what points different stakeholders in the night-time economy could intervene was shown. The aim of the vulnerability training was to frame the moral responsibilities of licensees and their staff in not facilitating individuals becoming vulnerable through the over-service of alcohol. The third component involved counter-terrorism training by an individual from the Welsh Extremist and Counter Terrorism police unit, which the licensees had requested and which was used as an incentive to get them to attend. Licensees were expected to show their staff the videos, inform them of the DLEM intervention and associated legislation in their own internally held training sessions.

In addition, training was carried out with staff from the four off-licenses situated in Wrexham Town Centre. As part of a visit by Trading Standards (council licensing) regarding sales to underage customers, staff were also informed of the law and consequences (including penalties and increased vulnerability of customers) around the service of alcohol to drunks, and the pilot intervention.

An initial meeting was held between the project coordinator and the police licensing lead with the owners of the two security companies to explain the intervention concept and arrange a date for the training to take place. All heads of security were trained with the same RBS content as licensees and were expected to cascade that training down to their staff. The vulnerability training was taken by one of the heads of security staff and while the message was similar to that which was delivered to licensees it was adapted to be situationally relevant to door staff's role in the night-time economy preventing and responding to vulnerability. The video depicting nightlife user vulnerability on a night

¹⁷ <http://www.webcitation.org/717zV2ahi>

¹⁸ <http://www.webcitation.org/717zWFGkQ>

out when intoxicated was also different from the one shown to licensees (see section 4.4.2). The project coordinator delivered the DLEM intervention component, during which they briefly introduced the DLEM intervention, its aims and what it involved and showed the DLEM video (the same one which was shown to licensees). In addition to the training, the owners of the two security companies were keen to develop a code of good practice around vulnerability prevention to share with their staff. The code was developed jointly between the owners and the project coordinator and was based on a similar code that had been developed in Scotland. The 'see...intervene...act...' code was delivered as part of the vulnerability training to heads of door security with pocket size cards provided to other door staff.

*"So [head of door security company] suggested coming up with something like a vulnerability code so we'll tie in that they should be considering the people coming in and how drunk they are and how they're behaving and how that might impact on others... give them a code of how they should behave and how they can look after people."
– project coordinator, pre-intervention interview*

Information on the cards included factors to look out for which made individuals vulnerable including: alcohol and drugs; young people under 18 years; sexual predators; unwanted attention; being alone; domestic abuse; and, ejected or refused entry. The last factor was key as this was part of door security's role in the night-time economy to refuse entry to severely intoxicated patrons, thus heightening awareness around their responsibility for those they refuse. The code also contained tips on how to help vulnerable nightlife users including: how to reunite a person with friends; seek help from the Welfare Centre; use the Crimelink¹² radio; seek help from Wrexham Street Pastors; call a taxi; and call the police.

ii) Target group training

The project coordinator attended an induction day for the clubs and societies' captains at the local university. Similar to the licensees and head of security training, training followed a tiered distribution approach, where the intention was that club and society captains would spread the message among their peers and club members either personally or using social media/club webpages. The same vulnerability materials used in licensee and security training were also used with the captains. An additional video on sexual consent, which was publicly available was also shown¹⁹. This aimed to reinforce messages around vulnerability, intoxication and appropriate behaviour in these contexts.

In addition, the project coordinator contacted another local educational establishment. Materials on the DLEM intervention and the vulnerability videos were provided to mentors of young people at the organisation. A briefing note on how to discuss the topics was also included. Mentors have one-to-one meetings with their young people on issues around education and wellbeing and during these sessions showed the vulnerability video and introduced DLEM.

¹⁹ <http://www.webcitation.org/717zZ42lA>

4.3.3 Strengthened police engagement and enforcement

The pilot intervention had a two-pronged approach to strengthening police engagement focusing on the alcohol trade and users of the night-time economy:

- i. Engagement by police licensing with licensees to cultivate self-policing practices, ensure good governance within licensed premises and prevent the sale of alcohol to drunks and reduce vulnerability due to excessive drunkenness.
- ii. Enforcement by licensed premises of restricting alcohol access to intoxicated nightlife users, and re-enforcement by officers policing the night-time economy of the values of DLEM stressing drunkenness is no longer socially acceptable.

i) Police engagement with licensees

For the pilot intervention, police aimed to work in unison with the alcohol trade to cultivate self-policing practices and ensure good governance within licensed premises. Police reported that at this initial pilot stage no formal sanctions were placed on licensees

“On its [high levels of intoxication] own we would conduct an advisory visit, highlight concerns and remind them of their responsibilities.” – police licensing, post-intervention interview

identified as potentially selling alcohol to drunks. Monitoring of licensed premises was conducted as part of standard police practice which aims to generate intelligence and risk profiles of licensed premises in order to identify problematic venues in both the on and off-licensed sectors. This involves officers observing premises and reporting back to the police licensing lead who will then speak with the licensees. Police licensing also sent a letter to licensees requiring them to attend the RBS training.

“It’s just awareness raising I think really at this stage... with licensees of the law and general engagement about the subject.” – project coordinator, pre-intervention interview

ii) Multi-stakeholder enforcement on nightlife users

Standard policing of the night-time economy was in force during the intervention period. Typically this involves one sergeant and 5-6 special police officers²⁰ who police the general nightlife area, conduct license premise visits and monitor nightlife users in the town centre after premise closing time. As part of the intervention, all special police officers were provided with the DLEM and vulnerability training. Policing strategies focused on high visibility patrol in areas frequented by individuals consuming alcohol to prevent, deter and manage alcohol-related violence and disorder and reinforce the values of DLEM in order to change attitudes towards drunkenness so that it is no longer socially acceptable. Further, re-enforcement of the DLEM values on nightlife users was also facilitated by other stakeholders in the night-time economy such as street pastors, Red Cross workers at the alcohol treatment centre and most significantly, door and bar staff who could refuse entry or sale of alcohol to intoxicated patrons.

“If people are aware of it [the law] or at least drinking too much and how that can affect you rather than just being sick or falling over, there can be more serious consequences and that it’s illegal to buy for a drunk friend or for someone to sell you a drink when you are too drunk.” – project coordinator, pre-intervention interview

²⁰ Volunteer police officers who have the same powers to arrest.

4.4 DLEM implementation process

The following sections discuss the process of intervention implementation in terms of resource, fidelity, dose and reach.

4.4.1 Resources

Resources required to design and implement the intervention consisted of the following:

- i. Financial resources;
- ii. Freely available material;
- iii. Staff time.

i) Financial resources

Limited financial resources were available to fund the implementation of the intervention. A small budget was secured from the North Wales Area Planning Board for substance misuse (£3,000). This was used to purchase the awareness raising campaign communication materials (e.g. poster artwork) from another local authority who had previously implemented DLEM [31]. The editing of the design and printing of the campaign posters was done and paid for by the graphic and printing department of North Wales Police. The total cost was £304.13, which included £300 for the design of the five posters and social media graphics and £4.13 to print 50 A3 double sided posters. A further £1,320 was provided by the local authority and used to fund the radio advert campaign (£1,000), social media advertising (£112.49)²¹, and panic alarms (£200).

ii) Freely available materials

To supplement the material which was purchased from another local area, intervention implementers also utilised freely available materials from other relevant local and national campaigns. The vulnerability video shown to heads of door security were produced by Best Bar None Scotland²² and was freely available online [48], while the vulnerability video shown to licensees was produced by the 'who are you' campaign ran in New Zealand and also freely available [49]. Both campaigns had similar objectives to the DLEM intervention, in discouraging high levels of intoxication through education about vulnerability while intoxicated.

"I've basically trawled YouTube for like DrinkAware ones [videos] and Scotland have theirs [vulnerability video] on their site which is great I could use those. Otherwise we wouldn't be able to afford a video ourselves." – project coordinator, post-intervention interview

This saved both stakeholder time and costs associated with producing such materials. Further, it provided a degree of consistency with what had previously been used and well received in other areas. In addition to the videos, stakeholders also used free resources from Public Health Wales, including a cup with drink measures to hand out to the intervention target group while engaging with them at the University fresher's fair.

iii) Staff time

In general, stakeholder time for designing and implementing the pilot intervention was supplementary to their day-to-day roles. There was no budget to cover staff time from any of the organisations for their involvement in any of the intervention components (including attendance at steering group meetings, or engagement with target groups (licensees and young people)). However, by basing the design of the intervention on the STAD model and UK DLEM interventions, implementers were able

²¹ The pay-per-click promotion cost 10p per click.

²² The same initiative for licensed premises which is also in place in Wrexham.

to save time in designing the intervention. Further, the LJMU SiE project team were able to provide information on the original STAD model, UK DLEM interventions (also evaluated by the LJMU SiE project team) and, as the SiE project progressed, information on the SiE pilot interventions in the other EU countries.

Rather than having a specified budget for staff time's involvement in the project the intervention implementers made use of forums, partnerships, and work programmes already in place and staffed by individuals from organisations who sat on the steering group. For example, special police officers were already in place to police the night-time economy, thus they were informed of the intervention aims and received the training provided to licensees, in order to increase their awareness of vulnerability and intoxication in the night-time economy. This meant increased financial resources for law enforcement activities were not necessary as special police officers work in a voluntary capacity. Similarly, engagement with licensees was done through already established forums of engagement between the local authority, police licensing and licensees; the NightSafe/Pubwatch programme. Attendance at this is covered under police licensing's day-to-day role. Further, engagement with off-licensed premises was also incorporated into existing work streams (i.e. Trading Standards delivering DLEM training while conducting visits regarding underage sales). The blog and social media campaign was another example of using existing staff resources, with a member of the communications team within the council running the campaign.

“Doing it [implementing the intervention] on a shoestring meant that people have had to work over and above their expected hours to get it done.” – police, post-intervention interview

While, where possible, intervention implementers incorporated intervention activities into stakeholders' day-to-day roles, the intervention would not have been fully implemented without supplementary time provided by key stakeholders such as the project coordinator and the police licensing lead. Thus, a desire to implement the intervention and belief in its aims and potential impacts was also a necessary resource.

4.4.2 Fidelity

The planned intervention was modelled on the three core components of the STAD programme; community mobilisation, RBS training, and strengthened law enforcement, and was closely based on the previous adaptation of the STAD model to UK nightlife settings across England and Wales [1, 5, 13, 14, 15]. In general the core components of the planned intervention were all implemented to some degree. There was ongoing learning, adaptation and development of the intervention throughout the pilot period. For example, following feedback from licensees that the vulnerability training video was limited as it only depicted one lone female, other videos, which depicted a male and older female, were sourced and these were used in the training with the heads of door security. There were also however, some key differences between the planned intervention based on the STAD model and what was implemented during the pilot period. Differences were both positive and negative (Table 4) and are discussed further in their role as barriers or facilitators to intervention implementation (see sections 4.5.1 and 4.5.2).

“It was constantly evolving, we did have to change our approach to account for local partnerships, situations that arose and resources available.” – project co-ordinator, pre-intervention interview

Table 4: Key positive and negative differences between planned and implemented pilot intervention

Negative differences	Positive differences
No engagement with taxi drivers or fast food establishments.	Use of the vulnerability perspective in discouraging intoxication and sales of alcohol to drunks.
No focus groups with young people conducted.	Inclusion of counter-terrorism training in RBS training.
Limited engagement from some stakeholders.	
Lack of dissemination of awareness raising messages on local businesses social media accounts.	

4.4.3 Dose and reach

The following sections describe the dose and reach of each component of the intervention. It lists how much of each component of the intervention was implemented during the intervention period and figures on how many individuals were exposed to the intervention. Wrexham County Borough had a population of approximately 135,000 in mid-year estimates for 2016 [50] of whom, approximately 13,000 were aged 16 to 24 years.

i) Steering group meetings

- The initial meeting between the project coordinator and the LJMU SiE project team was held in December 2016.
- 6 steering group meetings were held between the 13th February 2017 and 14th February 2018.
- In addition, separate face-to-face meetings, phone calls, skype meetings and email correspondence were exchanged between various members of the steering group throughout the intervention period.

ii) Awareness raising campaign

The awareness raising campaign was delivered through blog articles, Facebook and Twitter posts, local media, radio adverts, campaign posters, and email. The dose and reach of each awareness raising component is listed below:

- 26 framed DLEM campaign posters were given to licensed premises in Wrexham Town Centre (with a further 24 distributed elsewhere). Researchers observed DLEM posters in 41.7% of venues visited post-intervention while doing venue observations.
- Wrexham County Borough Council:
 - 6 blog articles were published on the website during the intervention period, which had total views of over 3,000;
 - 14 Facebook posts from 15th November 2017 to 1st January 2018; 3 were boosted during the campaign and generated 437 clicks to the blog. The most popular Facebook post during the campaign had over 360 clicks to the council blog. The pay-per-click (PPC) advertising generated a total of 546 clicks to the blog, with a total reach of 13,003. A third of all traffic to the campaign blog came from PPC advertising;
 - 12 Twitter posts from 15th November to 10th February. The #DrinkLessEnjoyMore (in both English and Welsh) was used over 70 times during the campaign period. The Wrexham Council twitter post with the highest reach was a #DrinkLessEnjoyMore tweet with a reach of 136,300;

- 1 email was sent out to the 13,137 subscribers of Wrexham County Council mailing list, with a delivery rate of 98.5%. The email was opened by 3,963 recipients (21% open rate), with 56 total link clicks to the council blog.
- 36 Twitter posts from other stakeholders including: BRC North Wales ILCR (street pastors); Safe Wrexham; North Wales Police Communications Safety East; Wrexham Says Hello; Betsi Cadwaladr UHB (Public Health Wales); and, five independent accounts.
- 6 media outlets covered the pilot intervention. Local media outlets including Wrexham.com, the Leader and BBC Wales news which have a reach of approximately 16,000, 19,000 and 270,000 respectively.
- 52 x 30 second commercials over two weeks and across all time bands in the day on Capital radio.
- **One third (33.3%)** of post-intervention nightlife user survey participants reported being aware of the Drink Less Enjoy More (DLEM) intervention. Of participants who were aware of the intervention, the majority were able to identify the key message of the media campaign (e.g. 'drink less to have a good night'). Of the respondents who were aware of the intervention, six in ten (63.8%) reported having seen the intervention posters (34.0%, in a venue; 29.8%, elsewhere (e.g. university)). One quarter of participants who were aware of the intervention had seen the campaign on social media (25.7%), whilst approximately 3.0% had seen an article in a newspaper/magazine, a bus stop advert or heard it on the radio.
- Participants who were aware of the intervention were asked how much they agreed⁹ with a range of statements about the intervention. Four in ten (43.2%) agreed that the campaign demonstrated that people who were drunk in venues would not get served more alcohol. Approximately one third (32.4%) agreed that the intervention would make them more likely to come on a night out in Wrexham Town Centre, with over four in ten (43.2%) agreeing that the campaign would make them feel safer while on a night out in Wrexham. Approximately a quarter of participants who were aware of the campaign agreed it would make them drink less alcohol before coming on a night out (24.3%) or while in bars in Wrexham Town Centre (29.7%) (Appendix 1, Figure A1).

iii) Training

Four training sessions were delivered to three different groups; licensees, heads of door security and two sessions at each induction day for university club and society captains.

- 1 training session was delivered to all 26 licensees and lasted for approximately two hours. The number of bar staff who received the training from their licensees is unknown.
- 1 training session was delivered to all 26 heads of door security and lasted for one hour. The number of door staff who received the training from their head of security is unknown.
- 2 training sessions were conducted at each induction day for all the university captains of sports and social clubs (induction day was mandatory). The session lasted for 40 minutes. The number of club members who received the training and were exposed to the messages is unknown.
- All four off-licenses in Wrexham Town Centre were also informed about the DLEM intervention, the law around the sale of alcohol to drunks and consequences for flouting the law.

iv) Police engagement and enforcement

- Police licensing and the project coordinator visited each of the 26 licensed premises and provided framed campaign posters, in addition to reminding licensees of their duties with regard to the law around the service of alcohol to drunks.

- Standard law enforcement was in place throughout the intervention period in the night-time economy. No extra officers or police operations were in place specifically related to the campaign (although the officers had been trained as part of the intervention).

4.5 Facilitators and barriers to intervention implementation

4.5.1 Facilitating factors for implementation of the pilot intervention

This section discusses the factors which facilitated the implementation of the pilot intervention in Wrexham. Eight key themes of facilitating factors emerged from the evaluation of the process of intervention implementation including:

- i. Using learning and models from similar interventions implemented elsewhere;
- ii. Established working relationships between key stakeholders;
- iii. Established working relationships with one of the target groups (licensed premises);
- iv. Linking key intervention aims and messages with other target group priorities;
- v. Tiered training model;
- vi. Relatively small intervention pilot site;
- vii. Use of incentives to engage target groups; and,
- viii. Having the pilot intervention evaluated.

i) Using learning and models from similar interventions implemented elsewhere

In the first instance the pilot site were approached by the LJMU SiE project team to gauge interest in participating in the SiE project as the UK pilot site. Thus from the start the planned intervention would be based on the core components of the STAD model. This gave stakeholders a basis for the design of the intervention. Further, the LJMU SiE project team were able to provide learning, knowledge and evidence of effectiveness for the STAD model in tackling alcohol consumption in the night-time economy. This was helpful as it saved resources in terms of time spent researching the model and implementation methods. In addition to the use of the learning from the STAD model, the intervention implementers were able to draw on examples of the STAD model implemented in English and Welsh contexts. Intervention implementers were able to learn about the STAD based DLEM intervention designed and implemented in these areas from both the LJMU SiE project team (who were also involved in evaluation of these interventions) and key contacts from the intervention areas. Additional support and learning was gathered as part of being a Local Alcohol Action Area (LAAA) which provided implementers with knowledge of similar interventions run in other areas part of this scheme. These factors were considered a key facilitator to intervention implementation in reducing the time and resources needed to design the pilot intervention. It also provided evidence on what the potential impact of the intervention may be.

“I think what it has done is reinforce evidence-based policing is a good way to move things forward. I think the fact we were able to hit the ground running with proper academic support and paperwork that supported the theory meant it was much easier as opposed to saying this is innovative and a new way that may lead to these tangible benefits and outcomes.” – police, post-intervention interview

“The advantage of the LAAA was they put you in touch with people who have done this before. so that was very helpful... and it saves you time you know it’s impossible to find out about everything.” – project coordinator pre-intervention interview

ii) Established working relationships between key stakeholders and licensees

As one of 33 local areas participating in the UK Government LAAA initiative, Wrexham County Borough Council and other partners had a commitment to address alcohol-related issues in the pilot site area prior to the design and implementation of the pilot intervention (see section 4.1.9). The work programme involved a partnership approach between police, local government (e.g. public health and licensing) and the police and crime commissioner. This facilitated an easier formation of the steering group and engagement and support for the intervention from stakeholders.

“There’s a strong relationship between [council] licensing, police licensing and trading standards because they have worked together over many years on initiatives, such as underage sales... so partners and relationships were already there, there wasn’t much work to do to get them together and getting them on board because that was already well established which was a big advantage to us really.” – project coordinator, pre-intervention interview

iii) Established working relationships with one of the target groups (licensed premises)

Work was already ongoing through various schemes (e.g. Best Bar None) with licensed premises, and police and council licensing had established good working relationships with all licensees in the town centre (see section 4.1.9). Previous experience of introducing similar schemes with licensees was considered to be quite positive by stakeholders working with them. The presence of an already established forum for discussions between licensing and licensees (NightSafe/Pubwatch) and the positive reaction by licensees to other campaigns facilitated the introduction of the pilot intervention.

“I just thought that the benefit was that we already had an excellent relationship with the licensees. If we ever introduce a campaign or an initiative they are generally on board.” – police licensing lead, post-intervention interview

iv) Linking key intervention messages with other target group priorities

The key concept behind the intervention was to reframe messages around reducing alcohol consumption and preventing the sale of alcohol to drunks in the context of vulnerability. It was felt such messages that aim to encourage individuals to reduce their alcohol consumption are ineffective and largely ignored. It was also felt that messages that are overtly negative (don’t drink to excess) and which focus on the health and long term consequences of alcohol consumption are ineffective with young people. Further there was a perception that licensees and bar staff had started to disengage with messages around alcohol consumption from campaigns. Thus, the aim was to motivate both stakeholders and users of the night-time economy to consider the moral implications of serving someone who is already intoxicated and the vulnerability and alcohol-related harms associated with excessive alcohol consumption, as mechanisms to bring about overall reductions in alcohol consumption. Issues around vulnerability, sexual assault and consent were topical in the local and national media and government policy at the time of the intervention implementation [47]. This made incorporating the vulnerability aspect in the messages around the sale of alcohol to drunks and

“The person then took over the mantle of chairing the student union and his brief for this last year was to look at vulnerabilities amongst students and raise awareness of vulnerabilities. So he actually felt that what we were doing would satisfy that and help him achieve that.” – project coordinator, post-intervention interview

discouraging high levels of alcohol consumption a key driver in making the messages acceptable, relevant and engaging to the target group. For instance, the president of the local university student council had a work programme to tackle vulnerabilities amongst the student population. This encouraged the president to support the messages from the intervention and link the project coordinator in with the captains of the clubs and societies to engage with them and promote the messages and training. Further, there was support from licensees to tackle the issue of preloading, as it is better from a business perspective to encourage patrons into their venues earlier and purchase drinks in venues

“They [the licensees] don’t want people to preload. They want them to come out earlier and support their businesses. They host different types of events trying to encourage people in.” – police licensing lead, post-intervention interview

rather than drinking at home prior to entering the night-time economy. The impact of preloading also means that licensees often make very little sales to a severely intoxicated patron but are responsible for looking after them and dealing with the consequences of intoxication in their venue. The feedback from intervention implementers was that this was a really positive approach and licensees, door security and the intervention target group (i.e. young people) were all highly engaged with the vulnerability aspect and by association the need to reduce service to drunks and excessive alcohol consumption by individuals.

“We felt, just from generally talking that perhaps with young people it’s quite hard to talk about the health effects and the health messages. It doesn’t really mean much to them and their immediate environment and their immediate health. You don’t kind of think long-term necessarily as a young person so we felt an angle where we could get in and where everyone can be immediately affected is vulnerability. Vulnerability rings true with a lot of young people and young people that we talk to did identify with what we are saying and about the problems with drinking too much does make you vulnerable either to assault, criminal prosecution or to sexual assault. So people did engage with that approach, focusing on vulnerability, obviously their health effects as well but that’s the main way we used was vulnerability.”– project coordinator, post-intervention interview

v) Tiered training model

RBS training followed a train the trainer model in which the project lead, police licensing and other colleagues ran training sessions for licensees and heads of door security, with the intention that this training and information would then be disseminated by attendees to their staff (see section 4.3.2). This model had several advantages which facilitated implementation. Firstly, it provided a means of overcoming the limited resources available to implement the pilot intervention. Only one session for licensees and one session for heads of door security was needed to reach the whole target group. This would have necessitated several sessions if all door and bar staff were to be trained by the implementation team, which would have been difficult given the limited staffing resources already available. Further, it was highlighted by one stakeholder that licensees may not be prepared or

“I’ve been to every premise through our Best Bar None visits and each one of them [licensees] has said that they thought a link and training was much more manageable for them and a good way of delivering... Whereas the places that had to give up staff particularly in independent ones, it’s not the same for chains, but for independent ones it’s a big issue giving up staff for training. They were quite positive for that way of training.”– project coordinator, post-intervention interview

have the resources to pay staff or have the capacity to release staff for such training. Thus training their staff during allocated staff meeting time was also more feasible for the licensees. This model was anticipated to make the training programme more sustainable. Changes in licensees in the town centre are rare, while staff turnover is higher. Thus by licensees having the capacity to continuously train new staff, the training is more sustainable in the long-term, with the additional advantage of being able to provide refresher training at key intervals. A similar approach was taken with raising awareness amongst the intervention target group, where captains of the local university clubs were trained in order to encourage peer-to-peer sharing and promoting of the campaign messages around alcohol, vulnerability and preloading.

vi) Relatively small intervention pilot site

The small size of Wrexham Town Centre in terms of the number of licensed premises was also considered a facilitating factor in implementing the intervention. The reach of the intervention in terms of the number of licensees and door staff who received the training was comprehensive. It also allowed the project coordinator and the police licensing lead to meet face-to-face with each licensee, deliver them the campaign awareness raising materials, remind them of their duties regarding the law and build on their working relationship with them.

“We visited every town centre premise and gave them a framed poster and we also gave them other posters to put up in the toilets and wherever. I appreciate you can’t do that in a big town but we managed to do it over three or four days. We felt that this extra bit of work was beneficial as face-to-face contact with licensees does make a difference to get them to engage with an initiative. We have the luxury of a smaller place we can do that.” – project coordinator, post-intervention interview

vii) Use of incentives to engage the target groups

While incentives formed only a minor part of the intervention, due to limited resources, intervention implementers were able to use some small incentives to encourage engagement with the intervention from target groups. For instance, glasses with alcohol unit measures and panic alarms were provided to students who engaged with intervention implementers at the University fresher’s fair. Further, an important factor in encouraging uptake of the RBS training by licensees was the inclusion of counter-terrorism training in the session, which licensees had previously requested.

“The carrot to bring all the licensees together was an anti-terrorism training which they specifically asked for that, so we delivered that.” – project coordinator, post-intervention interview

viii) Having the pilot intervention evaluated

One of the facilitating factors in gaining support for the implementation of the pilot intervention was that it would form part of the broader SiE project. As already discussed this gave intervention implementers access to information and support, and increased confidence of senior members within the local authority of the value in funding such a pilot intervention. Further, the accompanying evaluation of the pilot intervention was considered invaluable in securing that higher level approval and support.

“Also the input and advice from LJMU... was invaluable. That really helped and the fact that the project was being evaluated increased its value in terms of elected member and senior officer interest within the council.” – project coordinator, post-intervention email correspondence

4.5.2 Barriers to implementation of the pilot intervention

Four key barriers emerged from the evaluation of the process of intervention implementation including:

- i. Limited resources;
- ii. Limited evidence on reach of cascaded training to bar and door staff;
- iii. Limited engagement from some stakeholders; and,
- iv. Limited political and higher level support.

i) *Limited resources*

While some resources were secured for the pilot intervention, these were limited and it was considered that with more resources in terms of staff time and finances, additional planned aspects of the intervention could have been implemented and other aspects enhanced. For example, it was initially planned to engage with taxi drivers and provide them with the same vulnerability training to discourage them from bringing already highly intoxicated individuals from their homes into the night-time economy. However, the project coordinator reported that this required some more intensive face-to-face initial engagement to get them to attend the NightSafe/Pubwatch meetings and training but the resources were not available in terms of staff time to do this. Further, as the reliance was on stakeholders implementing the intervention in addition to their day-to-day role rather than having specific allocated time, momentum was often lost due to other priorities. Stakeholders reflected that issues around resources may have been overcome if, in the initial stages a budget had been drawn up with contribution from steering group stakeholders.

“I just think we needed to assign somebody to the actual campaign or at least specific time from their role because I felt it lost momentum due to our own work load.” – police licensing lead, post-intervention interview

“In hindsight, when we started the initial dialogue with [the LJMU SiE project team], we should have got a budget, looked at partner agencies contributing money towards the programme... We should have had some terms of reference really. Doing it on shoestring meant that people had to work over and above their expected hours to get it done.” – police lead, post-intervention interview

ii) *Limited evidence on reach of cascaded training to door and bar staff*

While there were many benefits to the tiered training model used to implement the RBS training component (see section 4.5.1), it was also a potential barrier to successful implementation. It was impossible for stakeholders to know that the training had indeed been cascaded down from licensees and heads of door security to their bar and door staff. A training log was provided to licensees to record dates of training of their staff however, stakeholders had limited access to this information, thus it may have been the case that not all bar and door staff in all venues were fully trained. In this pilot phase, it was felt there was not much of an alternative as premises, particularly small independent ones, would not have capacity to release their staff for training.

“I think where we might have made a difference was the training aspect, I’m still thinking it was a stumbling block relying on them to show videos to their staff... I still feel that there isn’t much of an alternative on the training approach because of all the small independent venues. I’m not quite sure how to work on that.” – project coordinator, post-intervention interview

iv) Limited political and higher level support

One of the barriers to securing further resources in terms of finances and staff time was considered to be the lack of political and higher level support for the pilot intervention. Other competing public health issues (e.g. illegal highs) can be a barrier to obtaining funding to address alcohol consumption and alcohol-related harms. Further, wider bodies such as the North Wales Area Planning Board, were initially keen to not limit the intervention to just one area and wanted it rolled out across all of the geographies under their remit. However, once the rationale behind the SiE project and the pilot nature

“We have struggled to get recognition from either the Welsh Assembly or further afield.”– police lead, post-intervention interview

of the intervention was explained, the board were happy to support the piloting of the intervention in Wrexham Town Centre. One stakeholder perceived it was difficult to get higher-level political support due to the distance from the capital city of Wales where the government is located. It was felt that support for similar interventions in this region (South Wales) was stronger than the support that was received for the piloting of the

intervention in Wrexham (North Wales). The lack of national support was considered to have affected the level of exposure of the intervention and its messages across social media.

v) Limited engagement from some stakeholders

While a multi-agency steering group was formed there was varying levels of involvement across steering group members and the organisations they represented. One of the identified issues was that specific roles and responsibilities were not assigned at the beginning during the design of the intervention. This led to the formation of an operational sub group consisting of three core stakeholders who implemented the majority of the intervention activities. As already discussed, no specific staff time was assigned to the implementation of the intervention, thus the burden of implementation fell on a few stakeholders who were already working on the intervention in addition to their day-to-day role and responsibilities. It was acknowledged however, that all stakeholders were involved in the intervention in addition to their day-to-day roles, thus asking for further work was difficult. It was also difficult to garner support from licensees for the awareness raising aspect of the intervention. Part of the communications strategy was to encourage licensees to retweet and share the social media posts, as it was likely that they would reach more of the target audience for the intervention than the council or police social media accounts. However, intervention implementers were unaware of any such activities done by licensees.

*“Yes it is not sustainable, and something has to give. There are other people that could have helped but haven’t... The work streams haven’t been shared equally, which isn’t best practice.”
– police lead, post-intervention interview*

“In fact [police lead], [police licensing lead] and I formed, in effect an operational subgroup to the Steering Group and we discussed problems, solutions and encouraged each other when things seemed not to be working so well.”– project coordinator, post-intervention email correspondence

“Perhaps looking back on it I didn’t involve people as much as I could have done but then I was conscious of how much work they had to do so I couldn’t give them more to do because I know how constrained they were.”– project coordinator, post-intervention email correspondence

4.6 DLEM intervention outcomes

4.6.1 Anticipated impact of intervention on identified intermediate factors

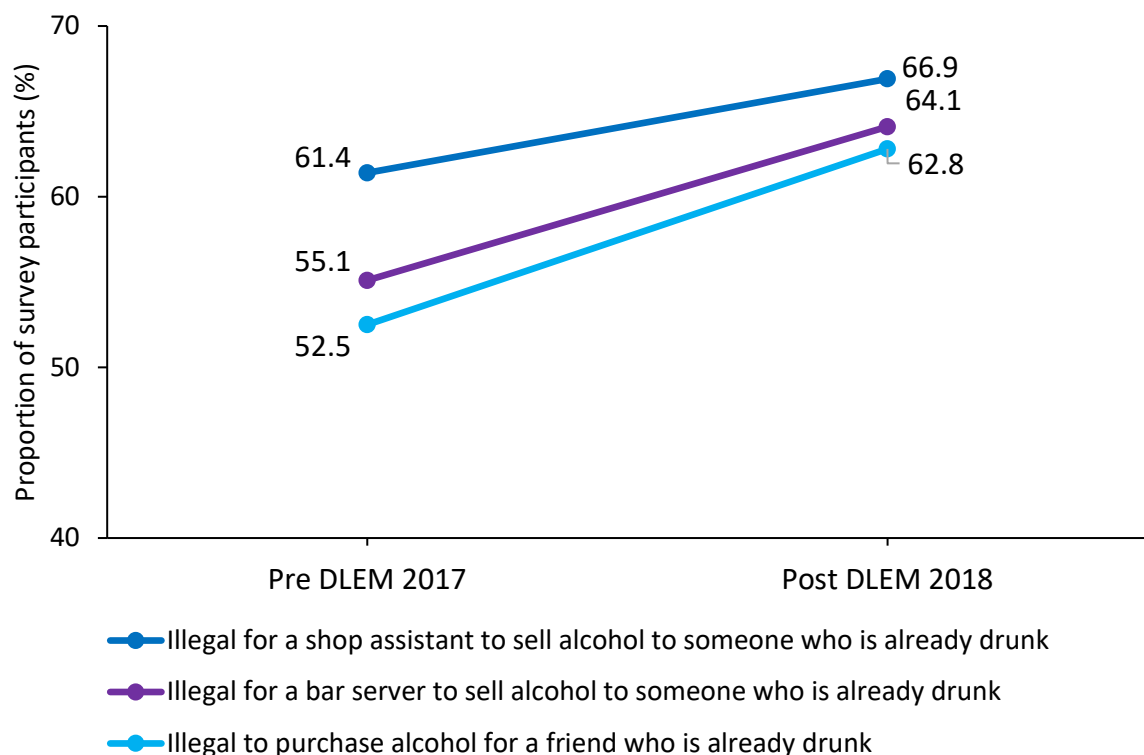
The pilot DLEM intervention in Wrexham aimed to alter a number of intermediate factors that were anticipated to contribute to the long-term achievement of the aimed outcomes including:

- i. Raise nightlife user and bar staff awareness of UK laws around the sale of alcohol to, and purchase of alcohol for, drunks;
- ii. Reduce the propensity of bar staff to sell alcohol to drunks in Wrexham's nightlife.

i) *Nightlife user knowledge of the law*

There was an increase in knowledge of associated legislation around the sale and purchase of alcohol for drunks amongst post-intervention nightlife survey participants (N=147) compared to pre-intervention participants (N=162). The proportion of participants who knew it was illegal to purchase alcohol for a friend who was already drunk increased from the pre to the post-intervention nightlife user survey, although this difference was non-significant (Figure 8; $p=0.093$). There was also an increase in the proportion of participants who knew it was illegal for a bar server ($p=0.136$) or shop assistant ($p=0.380$) to sell alcohol to someone who was drunk, although these increases were also non-significant (Figure 8). Of those who were aware of the DLEM intervention ($n=47$), three quarters knew it was illegal for a bar server (76.6%) or shop assistant (76.6%) to sell alcohol to someone who is drunk and for someone to purchase alcohol for a friend who is already drunk (74.5%).

Figure 8: Knowledge of the law around the service of alcohol to, and the purchase of alcohol for drunks, Wrexham DLEM pre (2017) and post-intervention (2018) nightlife user survey

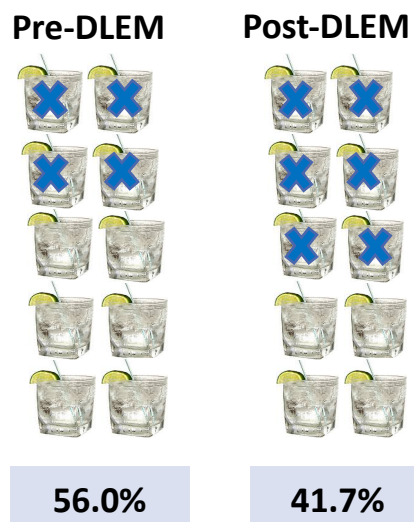


ii) Licensed premise staff propensity to serve alcohol to drunks

Alcohol test purchases were made by pseudo-intoxicated actors in 25 venues prior to the implementation of the intervention. The test purchases were repeated in 24²³ venues following the implementation period. The rate of service to the pseudo-intoxicated actor was lower in the post-intervention test purchase period (41.7%) than the pre (56.0%; Figure 9). 8 venues served the actor in both the pre and post-intervention test purchase attempt, and 8 refused in both. 5 venues served in the pre but not in the post, and 2 refused in the pre but served in the post²⁴. Both off-licences who served the actor in the pre-intervention test purchase attempt, also served in the post-intervention attempt, again with little hesitation and one attempted to upsell to a bigger bottle of spirit.

There was no significant difference in the types of tactics used to refuse the sale of alcohol to the pseudo-intoxicated actor. Of successful test purchase attempts, a lower proportion of bar servers in the post-intervention test purchase attempted to upsell the actor a double measure, although this difference was not significant (pre, 57.1%; post, 20.0%; $p=0.162$).

Figure 9: Bar server propensity to serve alcohol to pseudo-intoxicated actors; Wrexham DLEM pre (2017) and post-intervention (2018) alcohol test purchases



4.6.2 Impact of intervention on long-term outcomes

Through the changing of intermediate factors, the DLEM intervention aimed to eventually influence more long-term outcomes. It was not expected in this pilot stage to see much change in the long-term outcomes such as cultures of drunkenness or alcohol consumption patterns and levels, which previous research has shown can take many years to achieve [6]. However, some comparisons have been provided here to inform future development and implementation of the intervention and monitor future work. Further information on post-intervention nightlife drunkenness, alcohol consumption and related harms is provided in Appendix 3.

i) Cultures and acceptability of drunkenness in Wrexham Town Centre

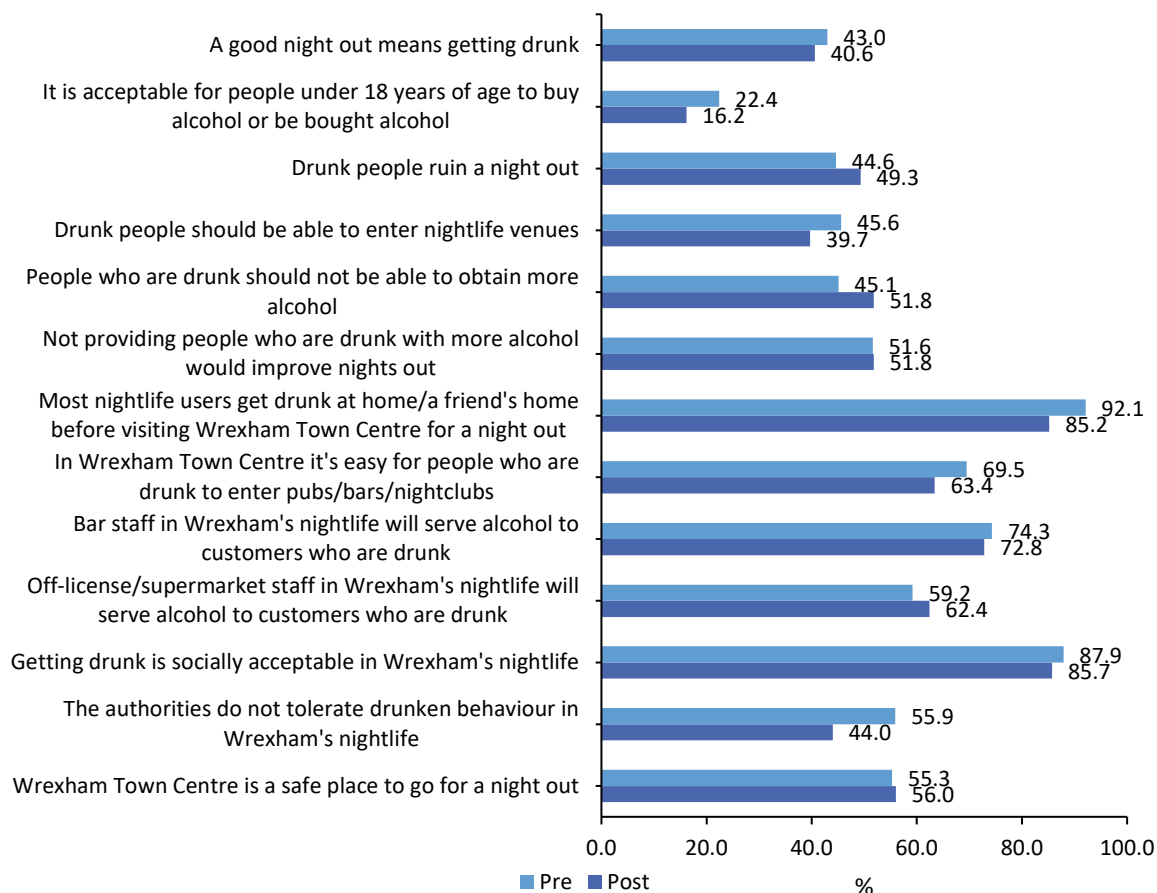
Participants in the nightlife user survey were asked how much they agreed or disagreed with a number of statements relating to Wrexham's night-time economy and drinking behaviours using a five point scale from strongly agree to strongly disagree⁹ (Figure 10). There were no significant differences in the

²³ 1 venue closed, 21 of the same venues repeated.

²⁴ 3 venues were not tested in both waves (due to closures) and have been excluded here.

proportion of participants agreeing with any of the statements between the pre and post-intervention survey wave.

Figure 10: Proportion of participants agreeing⁹ with selected statements on drunkenness; Wrexham DLEM pre (2017) and post-intervention (2018) nightlife user survey



ii) Alcohol consumption and alcohol-related harms

There was no significant difference between survey waves in the proportion of survey participants who reported preloading or the number of units consumed while preloading. Over the course of the entire night out drinkers²⁵ in the post-intervention survey estimated consuming significantly less units of alcohol compared to pre-intervention survey participants (pre, 22.0; post, 16.0; $p < 0.001$).

Of preloaders only, post-intervention survey participants had consumed significantly less units of alcohol up to the point of the survey compared with pre-intervention participants (pre, 14.1; post, 12.0; $p < 0.05$). A significantly lower proportion of post-intervention survey participants reported experiencing at least one harm²⁶ whilst on or after a night out in Wrexham in the past three months, compared to pre-intervention survey participants (pre, 62.0; post, 44.8%; $p < 0.05$). There was also a difference amongst preloaders reporting at least one alcohol-related harm between survey waves (pre, 69.4%; post 51.5%; $p < 0.05$).

²⁵ Including those who had not drunk alcohol prior to survey participation but intended to do so over the rest of the night out.

²⁶ Including sexual assault, injury, assistance to walk, physical assault, vomiting and argument. Regretted having sex or unprotected sex were not asked in the post-intervention survey and thus are excluded from the count here.

5. Discussion, recommendations and conclusion

The UK SiE pilot intervention, implemented in Wrexham (North Wales) aimed to reduce drinking by young people in private drinking environments prior to going out in the night-time economy (i.e. preloading), through the implementation of a STAD based multi-component intervention. The Public Health Institute, Liverpool John Moores University conducted a process and outcome evaluation of the pilot intervention, to:

- Monitor, document and describe the development and piloting of the intervention (process evaluation); and,
- Identify if a STAD-based intervention can be developed and piloted across the pilot site, and the potential impacts of the intervention (outcome evaluation).

Transferability of the STAD principles to private drinking settings

The evaluation sought to identify whether the STAD principles were transferable to private drinking environments to tackle high episodic drinking while preloading. The original STAD model, implemented in Sweden, was designed to tackle alcohol consumption and alcohol-related harm in nightlife environments. It consists of three core components community mobilisation, RBS training for bar staff and law enforcement, which together represent both formal and informal control measures [7]. Formal measures include minimum age restriction, or rules that prevent over-serving of alcohol, in combination with stricter enforcement of legislation [6]. Informal control measures address social norms and behaviour of ‘servers’ and other social sources of alcohol (relatives and older friends) supporting them not to supply alcohol [51]. Previous research suggests that such control measures, which restrict the availability of alcohol, are one of the most effective ways of reducing binge drinking [52]. However, the most suitable form of control differs across drinking settings. While both formal and informal control measures can be implemented in licensed drinking environments, formal measures of control may be unsuitable for environments (e.g. private settings) where no alcohol legislation applies. From a UK legislative perspective there is no formal controls on drinking excessively or legislation related to alcohol use in private dwellings [3].

To address binge drinking while preloading in private settings, local partners across Wrexham tailored the messages and approaches of the original STAD model to specifically discourage preloading. This was done by retaining the core components of the STAD model but widening the responsibility of formal and informal control to include other key groups. For example, whilst there is no specific legislation around preloading, policies and legislation regarding licensed premises have relevance to preloading behaviour and such policies afford the opportunity to deter individuals from preloading excessive amounts of alcohol in the home prior to entering the night-time economy. Theoretically, if legislation or policies which restricted intoxicated individuals’ opportunity to access the night-time economy (e.g. transport), entry to venues (e.g. door security staff), or further alcohol service (e.g. bar staff) were routinely enforced, individuals would not be able to continue their night out or acquire more alcohol. This may both reduce levels of drunkenness in the nightlife environment and deter patrons from consuming excessive amounts of alcohol while preloading.

Intervention implementers took a tiered approach to enforcement by engaging with licensees and door security to raise awareness and provide training around refusing entry or sale of alcohol to heavily intoxicated individuals²⁷. The aim was to promote enforcement practices amongst key night-time economy stakeholders that would indirectly discourage preloading behaviour. Findings from the

²⁷ The same approach was planned, but not implemented, with taxi drivers in the pilot phase.

population survey showed that two of the main motivations for preloading were to get drunk more quickly and to go out properly drunk. This is consistent with research from elsewhere which suggests that young people perceive alcohol as integral to a good night out and heavy alcohol use as normative in nightlife environments [11]. Further, findings from the pre-intervention nightlife user survey suggest that approximately seven in ten participants believed that bar staff in Wrexham nightlife would serve alcohol to drunk customers and it is easy for people who are drunk to get into venues in Wrexham. Changing nightlife users' social norms around what night-time economy stakeholders tolerate in terms of acceptable levels of drunkenness may represent the first step in influencing behaviour change around preloading and on-licensed alcohol consumption.

Other formal measures of control such as outlet density, restrictions on hours of service, and alcohol taxes have been argued elsewhere to be amongst the most effective prevention methods [53]. Whilst outside the scope of this intervention, Wales are implementing minimum unit pricing in 2019 [54], which is anticipated to reduce alcohol consumption and related harms [55]. Introduction of such legislation is argued to reduce the disparity in cost of alcohol between on and off-licence premises and encourage people back into controlled alcohol environments and away from cheap off-licence alcohol to consume at home [3]. Whilst such legislation would further support and compliment the DLEM intervention in deterring preloading, findings from our study suggest cultural aspects, including social norms around excessive alcohol consumption and diversification of the night-time economy, may still need to be targeted in addition to financial motivations. Contrary to previous studies [20, 21, 22], financial factors were not one of the top motivations for preloading amongst population survey participants in this study. In addition to motivations related to getting drunk, one of the main reasons for preloading amongst population survey participants in this study was to have a good time with friends. Thus, social norms and peer influence as to what constitutes a good time with friends may be a key factor in influencing change [56]. The pilot intervention aimed to establish informal control measures through engagement with the target group and awareness raising campaigns and encourage peer-to-peer sharing of associated messages. It was felt by intervention implementers that young people rarely engaged with overtly negative messages (e.g. don't drink to excess) or messages which focus on associated health risks and long-term consequences of heavy alcohol use [57]. Thus, the key concept used to engage young people was to frame heavy episodic drinking within the context of associated vulnerabilities, which research from elsewhere has shown to be effective [58]. Feedback from young people suggested they responded well to the messages and identified with the associated vulnerabilities while intoxicated. Using a message which young people are more engaged with may encourage peer-to-peer sharing of the messages, support changing social norms around acceptability of drunkenness and what constitutes a good time with friends prior to a night out [58, 59].

Furthermore, the finding that individuals preload to have a good time with friends, is similar to findings from other international research which suggests that preloading can be motivated by a desire to spend time with friends prior to going to loud, busy venues where socialising is more superficial and difficult [27, 28]. This may suggest that such behaviour is amenable to change if there are appropriate environments which facilitate this interaction. Intervention implementers in Wrexham spoke about how they were trying to encourage a 'café culture' in the town and noted that licensees were keen to encourage people to come out earlier. Further development of activities in environments which facilitate social interaction between young people that are not loud, crowded, and purely alcohol focused may encourage them to come into Wrexham's nightlife earlier and reduce preloading.

Informal control measures may also include parental influence. Preloading behaviour is by definition done by those of legal age to consume alcohol in licensed environments, but parents may play a role in modelling responsible preloading behaviour. Findings from our nightlife user survey showed that

four in ten pre-intervention nightlife user survey participants aged 30+ had preloaded. Thus, parental and older sibling modelling of such behaviour may establish social norms around its prevalence and acceptability to both underage children and legal adults living in the home. While initial discussions between intervention implementers focused on young people both below and above the legal age limit to consume alcohol, the final decision was to focus on those of legal age in the pilot intervention. Exploration of interventions with parents may also be useful in establishing informal control measures around preloading.

Piloting a STAD-based intervention focused on private drinking settings

Full details of the design and implementation of the pilot intervention are provided in the findings section but overall, local partners succeeded in developing and piloting a STAD-based intervention in their local area, focused on private drinking settings. The implemented intervention contained all the core components of the original STAD model including: establishment of a multi-agency steering group, community engagement and awareness raising; RBS training for on and off-licence premise licensees and heads of door security; and, police engagement with the licensing trade. While resources to implement the pilot intervention were limited, partners were able to overcome this to some extent by using freely available and already designed materials purchased from elsewhere (e.g. [5]). Existing working relationships between stakeholders facilitated an easier formation of the steering group, however, an initial lack of delegation of responsibilities subsequently led to the formation of a core operational group who implemented most of the intervention components. Intervention implementers believed that while less financial resource would be needed for future phases of implementation due to developed materials etc., broader political support might be necessary to fund allocated staff time specifically to the intervention. In this pilot phase, implementers worked on the intervention in addition to their day-to-day roles, thus, the pilot intervention may not be sustainable in this format. Good working relationships between police, licensing and licensees and door security staff were already in place prior to the implementation of the intervention. This facilitated licensee and door security engagement with the intervention and participation in RBS training, however it was difficult for intervention implementers to ascertain how much of the training had been filtered down from licensees and heads of door security to bar and door staff. Implementers were unsure of an alternative to this method as many licensed premises would be unable to provide staff with the time to attend training in person. Intervention implementers considered the relatively small size of the pilot site (26 licensed premises) an advantage as repeated face-to-face contact with licensees could be made by police licensing to encourage them to continue to engage with the intervention. The pilot intervention ran for six weeks and was perceived by partners as a valuable piece of work which they are continuing to implement during key periods since the pilot.

Awareness and perceptions of the DLEM pilot intervention

Generally, the perceptions of the DLEM pilot intervention were positive amongst steering group members. Crucially, the intervention was also well received by key stakeholders in the night-time economy including, licensees, door staff, and those policing and assisting nightlife users in Wrexham Town Centre. Overall awareness of the pilot intervention amongst nightlife users was significantly higher than another pilot intervention implemented elsewhere over the same number of weeks (Wrexham, 33.3%; other area, 17.2%; $p < 0.001$) [1]. While awareness of the campaign was comparatively high, a relatively low proportion of nightlife users agreed that the intervention would make them more likely to drink less alcohol before or whilst on a night out in Wrexham. Focus groups were initially planned to gain young people's views on the intervention materials, but did not take place due to resource issues. Future qualitative work with young people may inform potential changes to these materials. Further, while vulnerability messages were the focus of the engagement sessions, they did not form part of the main messages distributed by partners on social media. Young people

seemed engaged with the vulnerability messages and future awareness raising campaigns could also incorporate this message.

Impact of the intervention on intermediate factors

Following the implementation of the pilot intervention there was an increase in the proportion of nightlife user survey participants who knew the sale of alcohol by a bar server or shop assistant, or the purchase of alcohol for someone who is already drunk was illegal. Whilst these differences were non-significant, the intervention only ran for six weeks. Further, nightlife user pre-intervention legislation awareness was slightly higher than levels reported from similar studies in other UK nightlife environments [1, 2]. Reasons for this may have been a result of possible spill-over and exposure to the DLEM messages from other areas; preventing sales of alcohol to drunks is also increasingly becoming a national priority. Crucially, of those who were aware of the DLEM intervention, the majority correctly answered questions on associated legislation suggesting the key messages were being successfully communicated.

There was a decrease in the proportion of test purchase attempts which resulted in the sale of alcohol to the pseudo-intoxicated actor, following DLEM implementation. Wrexham had a lower pre-intervention service rate than that found in another nightlife area in North Wales and in studies of other UK nightlife areas [1, 4], which may have influenced the smaller reduction in service following the intervention period, compared to the other areas. However, when informed of the test purchase results, intervention implementers also felt the small reduction might be due to other factors. Firstly, RBS training was done with licensees and not directly with bar staff, thus making it difficult to know the reach of the training to bar staff. Secondly, intervention implementers reflected that they may have seen a larger reduction if they had provided feedback to licensees following the pre-intervention test purchases and offered further support and training. Monitoring and feedback through the use of the pseudo-intoxicated actors methodology has formed an integral part of similar DLEM interventions implemented in other areas [15, 31] and may be an important additional component of future implementations of the intervention.

Impact of the intervention on long term outcomes

Through the changing of intermediate factors, the DLEM intervention aims to change cultures and acceptability of drunkenness and alcohol consumption levels in the long-term. It was not expected in this pilot stage to see change in long-term outcomes, which previous research has shown can take many years to achieve [7]. While there were significant reductions in the total units nightlife users estimated they would drink over the course of the night out and alcohol-related harms in the past three months from pre to post-intervention, this should be interpreted with caution. Nightlife user surveys are done opportunistically and whilst there were no significant differences between participant demographics other external factors may have impacted the cohort of individuals surveyed (e.g weather, events). Further research is needed to confirm these findings.

Informing future development and refinement of the pilot intervention

Prior to the implementation of the pilot intervention no data existed on preloading behaviour and associated alcohol-related harms in the night-time economy. Thus collecting such data to inform future waves of intervention was an important aspect of the evaluation. Almost half of drinkers in the pre-intervention nightlife user survey had preloaded prior to entering Wrexham's night-time economy for their night out. There was no significant difference between age, sex or student status and the proportion of drinkers reporting preloading. However, non-Wrexham residents were significantly more likely to preload than Wrexham residents. Importantly, non-Wrexham residents were significantly less likely than Wrexham residents to go on a night out to Wrexham at least once a month and thus may not be exposed to or aware of interventions in Wrexham Town Centre. Wrexham has

the biggest night-time economy in North Wales and attracts large numbers of individuals from other local areas. This cohort may represent an important target for future waves of the intervention by expanding it to incorporate other local areas. Alcohol-related harms were relatively high amongst pre-intervention nightlife survey participants, with over six in ten reporting experiencing at least one alcohol-related harm in the past three months. Crucially, one in ten and three in ten participants reported experiencing a sexual or physical assault respectively. With the strong emphasis on vulnerability associated with intoxication in the pilot intervention, such data may encourage all stakeholders in the night-time economy to continue to work collectively to address and reduce such vulnerabilities and harms.

The median number of units consumed while preloading by males and females in the current study was over half the amount considered to be heavy episodic drinking. Similar to research from elsewhere [5, 15, 25], findings from this study showed that preloading did not replace a proportion of alcohol consumption in the night-time economy. There was no significant difference between preloaders and non-preloaders in the median number of units consumed in licensed premises in Wrexham Town Centre. Thus, preloaded alcohol was in addition to alcohol consumed in the night-time economy. Crucially, preloaders expected to consume significantly more units over the course of the entire night out than non-preloaders. A higher proportion of preloaders than non-preloaders also reported at least one alcohol-related harm whilst on or after a night out in Wrexham in the past three months (although this difference was non-significant). Tackling preloading may therefore have significant impacts on levels of drunkenness and alcohol-related harm in the town centre.

5.1 Conclusion

The piloting of the DLEM intervention in Wrexham, North Wales, has suggested that a STAD-based intervention can be implemented in the UK, and tailored towards preventing preloaded alcohol consumption, drunkenness and related harms amongst nightlife users. The evaluation suggests that the pilot intervention was associated with improvements in awareness and adherence to UK alcohol legislation that prohibits the sale and purchasing of alcohol to drunk people. Such improvements are anticipated to be one of a number of factors that may deter preloading behaviour amongst Wrexham nightlife users. The DLEM intervention should be further refined and continue to be implemented in Wrexham, and if applicable other areas of Wales. Future implementation should be monitored to assess if changes in awareness and adherence to UK alcohol legislation can be sustained and/or improved upon, and if the intervention achieves its longer term aims of reducing preloaded alcohol consumption, drunkenness and related harms amongst nightlife users.

5.2 Recommendations

- The intervention should be further developed, refined and implemented over a longer time, considering findings from the evaluation. Future delivery of the intervention should be mapped against partner strengths and resources and, where possible and appropriate, incorporated into already established work programmes to increase sustainability.
- Future delivery of the intervention should consider the motives for preloading and the groups most likely to engage in this behaviour. For instance, socialising with friends was the primary motive for preloading, followed by getting drunk. However, the ability to talk to people in a quiet space and start the night earlier were also key. Partners should consider how Wrexham's nightlife could diversify to encourage people to come out earlier, for example to venues where they can socialise with friends in a quiet space. Further, non-Wrexham residents were significantly more likely to be preloaders. The awareness raising campaign should ensure that non-local visitors to Wrexham's nightlife are exposed to intervention messages, prior to entering the nightlife area.

- The nightlife user survey suggests that preloaded alcohol consumption is not a substitute for nightlife alcohol consumption, meaning that preloaders consume more alcohol over the course of the night out than non-preloaders. Further, preloaders were more likely to experience harms on a night out than non-preloaders. Identifying if young people would change their preloading behaviour if they were aware of the increased risk of excessive alcohol consumption from preloading, and potential impacts on their night out including restricted access to the nightlife environment and the increased risk of vulnerability and harm, would help inform the development of future campaign messages. Young people's views (including nightlife users and workers) on the campaign materials should also be gathered to ensure that they resonate with the messages presented.
- The awareness campaign should continue to use a range of media (e.g. social/press) and materials (posters), targeted towards young people, nightlife users and workers, and the wider population including parents.
- Partners could consider sharing the vulnerability videos with young people via social media, and at events where young people may gather both within and outside of university/college settings.
- Partners should continue engagement and training with key stakeholders including the alcohol trade (including off-licences), door security, taxi drivers, late night fast food establishments, and educational establishments. Further consideration should be given to other engagement routes to young people, including via local youth groups, schools and parents, to develop positive social norms around use of the nightlife area and preloaded drinking behaviours before young people begin to engage in such activities.
- Partners should monitor uptake of bar staff training, ensuring that it is disseminated amongst existing and future bar staff working in Wrexham's nightlife.
- Partners should discuss the results of the alcohol test purchase with the local alcohol trade, including off-licences, and consider what type of activities may be required to reduce the server rate further. Monitoring sales of alcohol to drunks should form a key part of the intervention, and will allow its impact to be monitored over time.
- Partners should provide feedback on the development, implementation and evaluation of the intervention with relevant stakeholders, at a local and national level, to galvanise support (political, public and financial) for its future development and implementation, across Wrexham, and where applicable other areas in Wales.
- If DLEM is to continue in Wrexham, partners should consider a longer-term evaluation, to assess if changes in awareness and adherence to UK alcohol legislation can be sustained and/or improved upon, and if the intervention meets its longer-term aims of reducing preloaded alcohol consumption, drunkenness and related harms amongst nightlife users.

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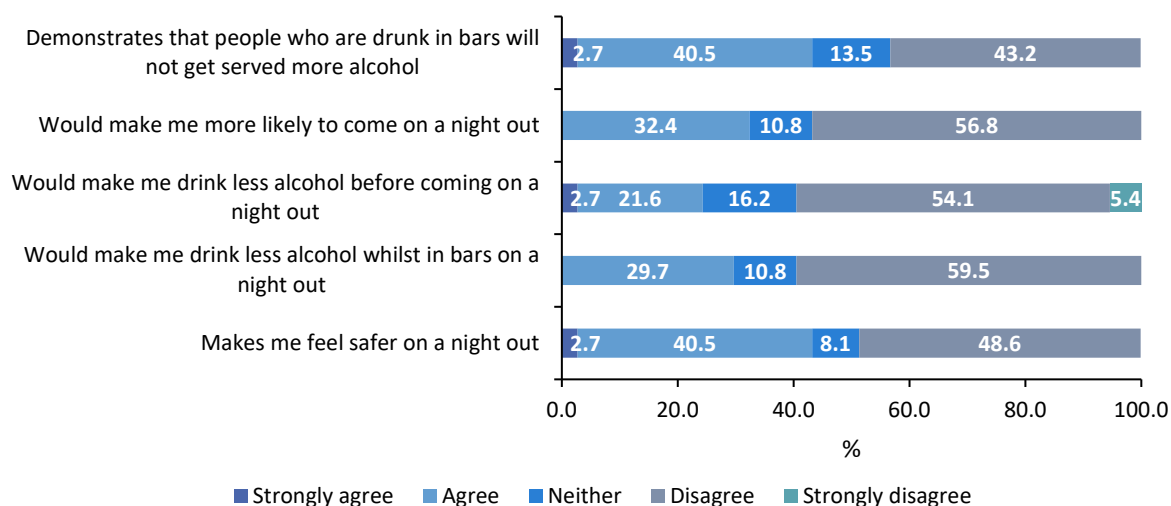
7. Appendices

Appendix 1: Additional data

Table A1: Service rates to pseudo-intoxicated actors in venues with and without markers of poorly managed and problematic (PMP) bars pre DLEM (2017)

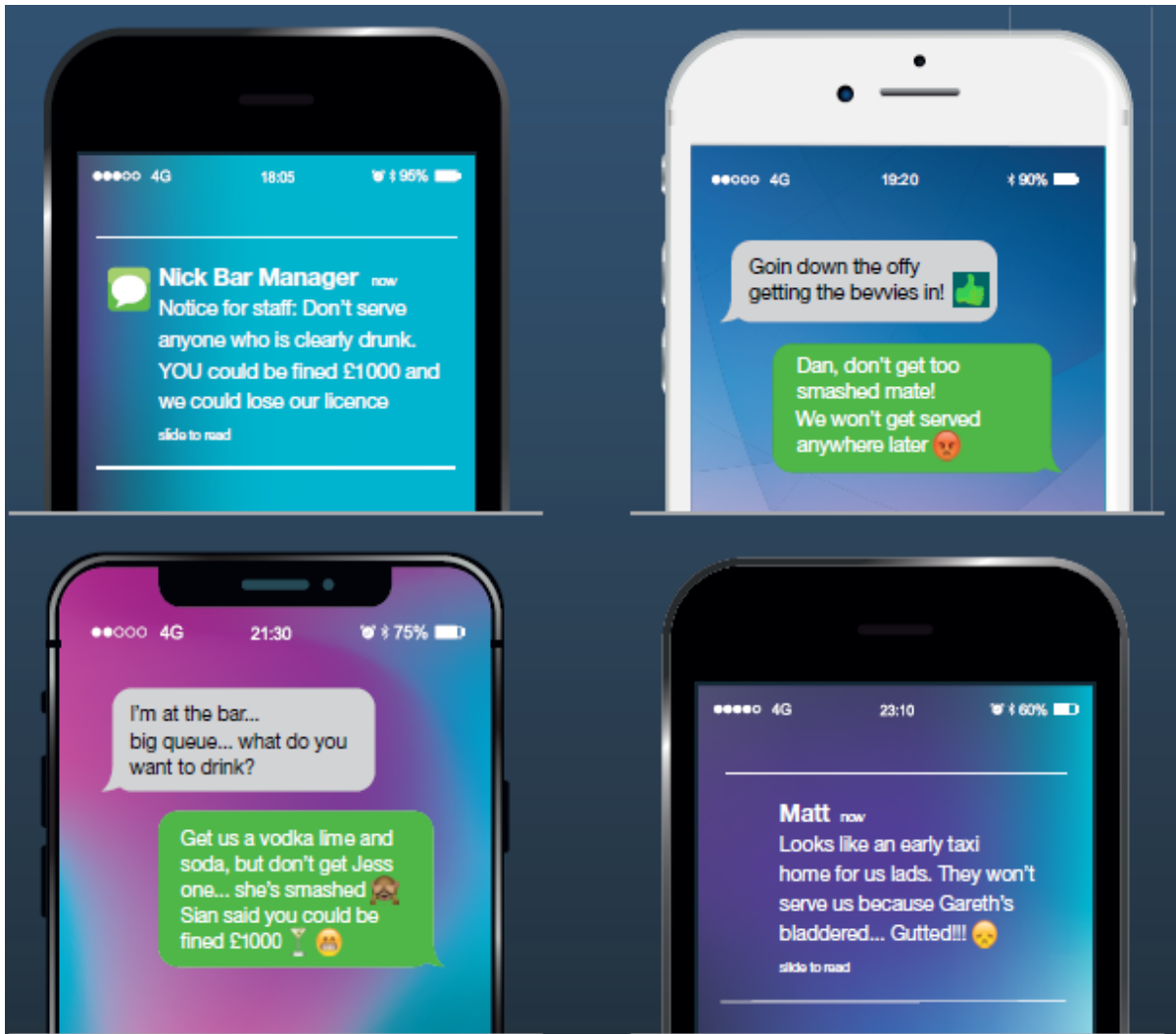
PMP markers		% served	χ^2	p
Low levels of seating	No	42.9	1.183	0.277
	Yes	57.1		
Drink promotions	No	50.0	0.007	0.934
	Yes	60.0		
Young bar staff	No	45.5	0.287	0.592
	Yes	64.3		
Young customers	No	54.5	0.000	1.000
	Yes	66.7		
Noisy bar	No	50.0	0.076	0.783
	Yes	63.6		
Crowded bar	No	46.7	0.548	0.459
	Yes	70.0		
Poor lighting	No	52.6	0.017	0.895
	Yes	66.7		
Rowdy bar	No	53.3	0.000	1.000
	Yes	60.0		
Dirty bar	No	43.8	1.502	0.220
	Yes	77.8		
Drunk customers	No	53.3	0.000	1.000
	Yes	60.0		
Number of PMP markers	None	0.0	5.384	0.250
	1 or 2	50.0		
	3 or 4	100.0		
	5-7	50.0		
	8-10	66.7		

Figure A1: Participants' perceptions of the Drink Less Enjoy More intervention, Wrexham DLEM post-intervention nightlife user survey (2018)



Appendix 2: Drink Less Enjoy More intervention posters

English version

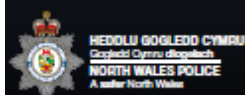


It is illegal to serve alcohol to the clearly drunk.

It is against the law for pubs, bars and off licensed premises to serve alcohol to anyone who is clearly drunk. They could lose their licence and YOU could be fined £1000.

North Wales Police are enforcing these laws.

#DrinkLessEnjoyMore



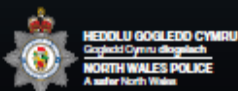


Mae hi yn anghyfreithlon gwerthu alcohol i unrhyw un sydd yn amlwg wedi meddwi.

Mae hi yn groes i'r gyfraith i dafarndai, bariau a siopau trwyddiedig werthu alcohol i unrhyw un sydd yn amlwg wedi meddwi. Mi allent gollu eu trwydded a gallech CHI gael dirwy o £1000. Gofynnwch i'r Rheolwr Bar am fwy o wybodaeth.

Mae Heddlu Gogledd Cymru yn gweithredu'r cyfreithiau hyn

#YfwchLaiMwynhewchMwy



Appendix 3: Impact of intervention on long-term outcomes (further detail)

A3.1 Cultures of drunkenness in Wrexham Town Centre

Using a scale of one (completely sober) to 10 (very drunk), participants were asked: how drunk they felt at the time of the survey; how drunk they thought they would be when they left the town's nightlife; and, what they thought their typical level of drunkenness was that other nightlife users reach on a night out in Wrexham Town Centre. There was a significant difference between pre and post-intervention survey waves in level of drunkenness at the time of the survey, with post-intervention survey drinkers reporting a lower mean level of current drunkenness (3.7) than pre-intervention survey drinkers (4.2; $p < 0.05$). However, there was no significant difference in the mean score for how drunk participants thought they would be when they left Wrexham's nightlife between pre (7.0) and post-intervention survey (6.9; $p = 0.649$) participants. There was also no significant difference between survey waves in the mean drunkenness score participants perceived other nightlife users to be in Wrexham's nightlife (pre, 9.0; post, 8.8; $p = 0.263$). There was also no significant difference amongst preloaders between survey waves in mean current drunkenness, expected drunkenness when leaving or other nightlife users drunkenness.

These scales of drunkenness were grouped into two levels: low (scores one to five) and high (scores six to ten). There was no significant association between survey wave and: a high level of drunkenness at the time of the survey (pre, 31.1%; post, 22.3%; $p = 0.123$); a high level of drunkenness when leaving Wrexham's nightlife (pre, 76.9%; post, 72.9%; $p = 0.505$); or, perceived high level of drunkenness amongst other nightlife users (pre, 96.8%; post, 97.2%; $p = 1.000$). Amongst preloaders, there was also no significant difference between survey waves in the proportion of individuals reporting a high level of current drunkenness, a high level of expected drunkenness when leaving the nightlife or a high level of drunkenness amongst other nightlife users.

A3.2 Nightlife user alcohol consumption levels and patterns

There was no significant difference between survey waves in the proportion of nightlife users who reported consuming alcohol prior to survey participation (pre, 93.2%; post, 94.6%; $p = 0.788$). There was also no significant difference between survey waves in the proportion of survey participants who reported preloading, en route loading, consuming alcohol in a town centre venue or consuming alcohol in the town centre which had been purchased in an off-licence or supermarket (Table A3). There was no significant difference in the number of units consumed while preloading or en route loading between survey waves.

There was a significant difference in the median number of units consumed in Wrexham Town Centre venues across survey waves, with participants in the pre-intervention survey consuming significantly more units than those in the post-intervention survey (pre, 8.0; post, 6.0; $p < 0.01$). Post-intervention drinkers had also consumed significantly less units by point of the survey than pre-intervention drinkers (pre, 11.1; post, 9.0; $p < 0.01$). Further, of those who intended to consume alcohol post participation in the survey, post-intervention survey participants expected to consume significantly less units (8.0) than pre-intervention survey participants (10.0; $p < 0.05$). Over the course of the entire night out drinkers²⁸ in the post-intervention survey estimated consuming significantly less units of alcohol compared to pre-intervention survey participants (pre, 21.0; post, 16.0; $p < 0.001$).

Of preloaders only, post-intervention survey participants had consumed significantly less units of alcohol by the point of participation in the survey, compared with pre-intervention participants (pre,

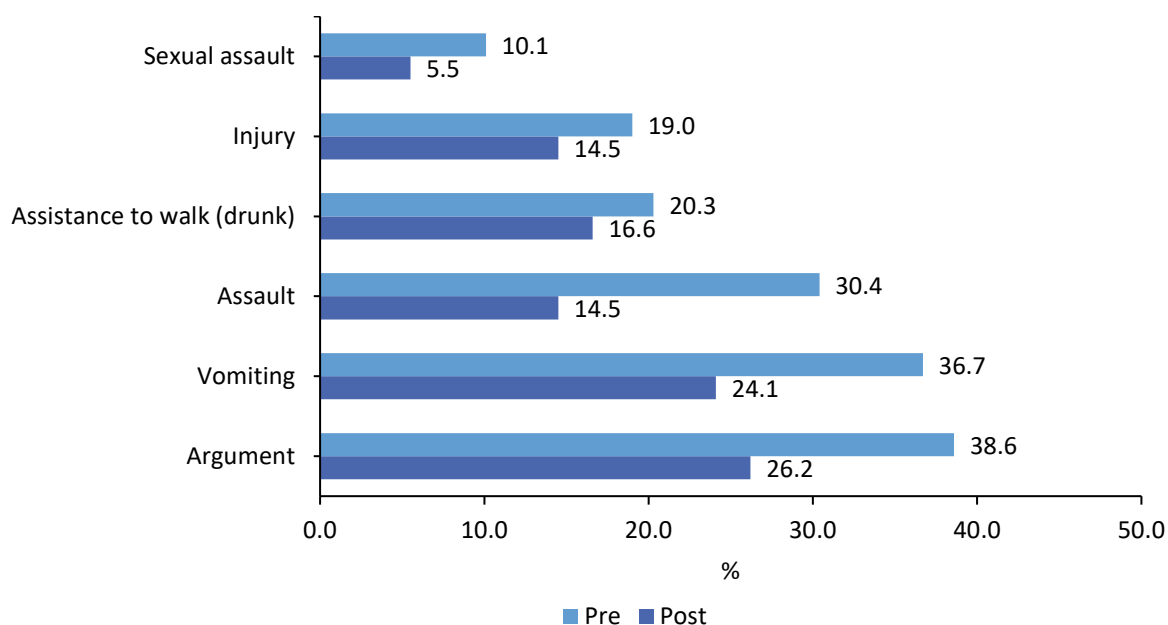
²⁸ Including those who had not drunk alcohol prior to survey participation but intended to do so over the rest of the night out.

14.1; post, 12.0; $p < 0.05$). Post-intervention preloaders had also consumed significantly less units of alcohol in Wrexham Town Centre premises (pre, 8.0; post, 6.0; $p < 0.05$) and intended to consume less units after survey participation survey (pre, 10.0; post, 7.5; $p < 0.05$) compared to pre-intervention preloaders. Of preloaders only, there was also a significant difference between survey waves the median number of units expected to be consumed over the course of the whole night out, with a lower median number of units reported by post-intervention preloaders compared to pre (pre, 25.0; post, 21.2; $p < 0.05$).

A3.3 Alcohol-related harms in Wrexham Town Centre

A significantly lower proportion of post-intervention survey participants reported experiencing at least one harm²⁹ whilst on or after a night out in Wrexham in the past three months, compared to pre-intervention survey participants (pre, 60.1%; post, 44.8%; $p < 0.05$). Prevalence of all individual alcohol-related were lower amongst post-intervention participants compared to pre (Figure A2), with statistically significantly lower rates of arguments ($p < 0.05$); assaults ($p < 0.01$); and vomiting ($p < 0.05$) amongst post compared to pre-intervention survey participants. Amongst preloaders only, there was no significant difference between survey waves in the proportion of participants reporting at least one harm or any of the individual harms.

Figure A2: Experience of alcohol-related harms during or following a night out in the last three months; Wrexham DLEM pre (2017) and post-intervention (2018) nightlife user survey



²⁹ Including sexual assault, injury, assistance to walk, physical assault, vomiting and argument. Regretted having sex or unprotected sex were not asked in the post-intervention survey and thus are excluded from the count here.

Table A3: Alcohol consumption over the course of the night out – full sample and preloader subsample; Wrexham DLEM pre (2017) and post-intervention (2018) nightlife user survey

		Full sample			Preloaders only		
		Pre DLEM 2017	Post DLEM 2018	<i>p</i>	Pre DLEM 2017	Post DLEM 2018	<i>p</i>
Preloading*	%	49.3	48.9	NS	-	-	-
	Units	4.5	4.1	NS	-	-	-
En route loading*	%	16.0	15.1	NS	16.2	11.8	NS
	Units	3.6	3.4	NS	3.6	2.0	NS
Wrexham nightlife – purchased in pubs/bars/nightclubs*	%	94.7	92.1	NS	90.5	91.2	NS
	Units	8.0	6.0	<0.01	8.0	6.0	<0.05
Wrexham nightlife - purchased from off-licences/supermarkets*	%	2.7	2.9	NS	4.1	4.4	NS
	Units	7.9	2.0	NS	6.8	2.0	NS
Total units consumed prior to survey completion*	Units	11.1	9.0	<0.01	14.1	12.0	<0.05
Expected units consumed post survey^	Units	10.0	8.0	<0.05	10.0	7.5	<0.05
Total units consumed during night out	Units	21.0	16.0	<0.001	25.0	21.2	<0.05

Note. Units presented are median value. NS = not significant. *Of those who had consumed alcohol pre survey only. ^Of those who reported that they would drink alcohol post survey only. +Including reported and, or expected alcohol consumption.

