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Evaluation outcomes of an alcohol and pregnancy campaign targeting multiple audiences

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Funding information
Western Australian Mental Health Commission

Abstract

Introduction: The aim of this study was to evaluate the effectiveness of a mass media campaign alerting the public to the potential harms of alcohol to unborn babies and to inform future intervention efforts.

Method: An online survey was administered to 889 adult Western Australians. The survey assessed demographic characteristics, typical alcohol use, recognition and perceptions of the campaign, and behavioural changes resulting from campaign exposure. A multiple regression analysis was conducted to identify factors associated with perceived campaign effectiveness.

Results: Most respondents reported having seen/heard the campaign on at least one form of media (71%). Most considered the campaign to be believable (89%), clear (88%), trustworthy (87%), memorable (82%) and among the best they had seen (78%). As a result of campaign exposure, a large majority reported increased concern about drinking during pregnancy (85%) and most female respondents reported being much less likely to use alcohol during a pregnancy (83%). One-third of female respondents (33%) reported that as a result of being exposed to the campaign they had decided not to consume alcohol while pregnant. Confidence to abstain, awareness of strategies to abstain, lower socioeconomic position, residing in the metropolitan area and recognising the campaign were significantly associated with greater perceived campaign effectiveness.

Discussion and Conclusions: Results indicate the campaign was well received by respondents, increased concern about drinking alcohol during pregnancy and positively influenced women’s intentions to refrain from drinking while pregnant. Well-designed campaigns on alcohol avoidance during pregnancy can be considered acceptable and effective by target audiences.

KEYWORDS
alcohol, campaign, evaluation, pregnancy
1 | INTRODUCTION

Alcohol use during pregnancy can result in impaired growth of the foetus, foetal alcohol spectrum disorder (FASD) and stillbirth [1]. When consumed during pregnancy, alcohol passes through the placenta, resulting in foetal blood alcohol concentration levels being almost the same for the foetus and the mother [2]. There is therefore no known safe level of use [3]. The relevant Australian National Health and Medical Research Council guideline is: ‘To prevent harm from alcohol to their unborn child, women who are pregnant or planning a pregnancy should not drink alcohol’ [4]. An abstinence-based recommendation has been in place in Australia since 2009, however awareness remains suboptimal [5, 6] and 2019 data suggest around 35% of women consume at least some alcohol during their pregnancies [7].

Damage to the foetus from alcohol exposure during pregnancy is permanent, making it critically important to develop and implement effective preventive interventions [1, 8]. Increasing awareness about the risks of drinking during pregnancy has been identified as an important first step in this process [9] and a key element is the provision of unambiguous information about the risks associated with alcohol use during pregnancy [10]. It has been argued that the public has a right to know about these risks [11, 12] and recommended population-level educational interventions include warning labels on alcohol products [11, 13, 14] and public education campaigns [6, 15–18].

Pregnancy is a time when women can be motivated to undertake changes in lifestyle behaviours to optimise the well-being of their offspring [1]. This is evidenced by a majority of Australian women reducing or abstaining from alcohol use once they are aware they are pregnant [6, 19]. There is some evidence that this heightened motivation to adopt healthier lifestyle behaviours during the prenatal phase may also occur among male partners [19, 20]. The inclusion of men as a target group for alcohol and pregnancy interventions is important for multiple reasons, including the impact of their drinking on their partners’ choices and the potential to improve health outcomes for men through reduced alcohol use [19]. Health messages promoting the reduction or cessation of alcohol use during pregnancy are therefore ideally developed to be suitable for multiple target audiences.

Various issues need to be considered when developing such messages, including sociocultural factors influencing alcohol use and people’s exposure to competing messages, including those disseminated by the alcohol industry [6, 9, 21–25]. The challenge is to disseminate messages that are informative and motivating for target audiences while mitigating any unintended negative consequences such as triggering mental counterarguments or a perceived need to terminate the pregnancy [26, 27]. There are few published campaign evaluations on this topic and additional work is needed to inform future intervention efforts [16]. The few published evaluations to date indicate campaigns can improve understanding of the risks associated with alcohol use [10, 17, 18, 28], prompt discussions with others about alcohol use during pregnancy [17] and result in abstinence or reduced use [29, 30]. However, highly variable campaign types have been assessed and evaluation methods applied, resulting in a small and largely non-comparable evidence base [30]. In addition, almost all available research has been conducted with women and little is known about the effectiveness of such education campaigns on male audiences. Finally, no Australian pregnancy alcohol harm reduction campaign evaluation studies appear to have been published to date. Local context research is important given the strong sociocultural role of alcohol in Australia [31] and the resulting implications for attempting to promote alcohol abstinence during pregnancy.

To build on the limited available evidence on the characteristics of effective alcohol abstinence in pregnancy communications, the aim of the present study was to evaluate the ‘One Drink’ mass media campaign implemented in Western Australia. Outcomes relating to perceived effectiveness and behaviour change were assessed across multiple adult target groups, including females who were pregnant or trying to conceive, other females and males. The results can inform future intervention efforts relating to promoting alcohol abstinence during pregnancy.

1.1 | Campaign description

The ‘One Drink’ campaign was funded by the Western Australian Mental Health Commission and developed in collaboration with Cancer Council Western Australia. It aimed to inform Western Australian adults that there is no safe level of alcohol use during pregnancy and that women who are pregnant or planning a pregnancy should not drink alcohol. The advertising featured novel visual imagery of a glass mould of a foetus being filled with red wine via a glass placenta (see Figure 1; video advertisement available at https://alcoholthinkagain.com.au/campaigns/alcohol-and-pregnancy-one-drink).

The female voiceover stated ‘To you, it’s just one drink. But because your placenta does not protect your baby from alcohol, any amount you drink, your baby drinks. Which can lead to lifelong physical, mental and behavioural disabilities. Women who are pregnant or planning a pregnancy should not drink alcohol’.
The campaign was on air January to June 2021 and was disseminated state-wide using television, radio, out-of-home (e.g., billboards, shopping centre ads) and online media (e.g., internet banner ads and social media). The television ad was shown state-wide in a mix of high rating primetime (6 pm to 10:30 pm) and cost-efficient TV programs, and the radio ads were scheduled state-wide Monday to Sunday in breakfast, morning, afternoon and drive programming. Further details of the media buy are provided in the Supporting Information.

2 | METHODS

2.1 | Sample

A market research company (Lightspeed Research) was commissioned to recruit a sample of approximately 850 respondents from their existing web panel and administer an online survey. Quotas were specified to achieve a sample of adult Australians characterised by the following parameters: 65% females, at least one-third of whom were currently pregnant, recently pregnant (within the previous 12 months), planning a pregnancy or already had children; 35% males, at least 50% of whom already had children or their partners were currently or recently pregnant; at least two-thirds in the 18–44 years age group; one-third in each socioeconomic position ter- tile; and 75% residing in the metropolitan area and 25% in regional/remote areas. The total sample size was based on applying the research agency’s estimated incidence rates and establishing a minimum cell size of \( n = 30 \) respondents per sample subgroup (e.g., females planning a pregnancy residing in the metropolitan area in a low socio-economic suburb). Respondents provided informed consent and the study received approval from the University of New South Wales Human Research Ethics Committee.

2.2 | Measures

The survey instrument included items relating to demo- graphic characteristics (age, sex, postcode [for derivation of socioeconomic position [32]], education, parental status, Aboriginal and Torres Strait Islander heritage), knowledge items, usual alcohol intake [33], recognition of the campaign, attitudes towards the campaign [adapted from 34] and behavioural outcomes [adapted from 29]. The list of items is provided in the Supporting Information.

Alcohol consumption was assessed using items from the Australian Institute of Health and Welfare’s National Drug Strategy Household Survey [33]. Respondents reported how often they ‘have a drink containing alcohol’ (eight response options ranging from ‘Never’ to ‘6 or 7 days per week’, with no specific timeframe nominated). Those who reported consuming alcohol were shown a standard drinks information graphic and asked to state the number of standard drinks they consume on a typical drinking day.

A knowledge item asked, ‘Have you heard of Fetal Alcohol Spectrum Disorder (FASD) or Fetal Alcohol Syndrome (FAS)?’ with Yes/No response options (FASD is a broader term covering those affected by alcohol but not meeting the full diagnostic criteria for FAS [35]). This item served as an indicator of awareness of potential risks associated with alcohol use during pregnancy. Other knowledge items were related to awareness of alcohol avoidance strategies (‘I’m aware of strategies I/my partner can use to avoid alcohol during pregnancy’, 10-point Completely disagree to Completely agree scale) and confidence to avoid alcohol during pregnancy (Female item: ‘How confident are you in your ability that you would be able to stop drinking alcohol completely during your pregnancy?’; Male item: ‘How confident are you in your
partner’s ability to stop drinking alcohol completely during pregnancy?”, 10-point Not at all confident to Extremely confident scale).

Campaign exposure was assessed by measuring recognition. Respondents were shown three examples of the campaign materials and asked to report if they had seen them previously. These materials were the television advertisement, an image used on social media and out-of-home advertising, and the radio ad. The order of media type was randomised across respondents. Respondents were then asked a range of attitudinal questions relating to perceived effectiveness of the campaign. These questions were able to be asked of all respondents due to exposure to campaign materials being part of the campaign recognition measure. The attitudinal questions were semantic differential items on five-point Likert scales (e.g., ‘It is one of the worst health education campaigns I’ve seen’ to ‘It is one of the best health education campaigns I’ve seen’). All attitudinal items (shown in Results) were asked of all respondents with the exception of one relating to whether the campaign has had an effect on how likely they would be to drink alcohol during a pregnancy, which was only asked of females.

The behavioural question was phrased, ‘Have you done any of the following as a result of seeing or hearing the campaign ads?’. The assessed behaviours included seeking more information, having conversations about the campaign with friends and family, and speaking to a health professional about the effects of alcohol while pregnant, breastfeeding or planning a pregnancy, with Yes/No response options. Two additional behavioural questions were only asked of female respondents: ‘Decided I would not drink alcohol at all during a current or future pregnancy’ and ‘Spoke to my partner, friends, or family about strategies that would help me avoid alcohol during pregnancy’. The survey was in field June and July 2021.

2.3 | Data analysis

Frequencies were calculated for responses to the recognition, attitudinal and behavioural variables. A mean score for the attitudinal variables was calculated to create a composite perceived effectiveness variable (excluding ‘make me a lot less likely to drink alcohol during a pregnancy’, which was only asked of females). The composite score demonstrated good internal consistency (α = 0.799) and was used as the dependent variable for the multiple linear regression analysis. Based on previous research, the independent variables for the regression analysis were age, sex, education level, socio-economic position, location (metro vs. regional/remote), pregnancy status, usual alcohol intake (prior to pregnancy), campaign recognition, FASD awareness, confidence in own/partner’s ability to abstain while pregnant and awareness of strategies to abstain [6, 15, 19, 36].

3 | RESULTS

3.1 | Descriptive results

Consistent with the applied quotas, the sample of 889 respondents comprised approximately two-thirds females and one-third males, one-quarter of females either pregnant or planning a pregnancy, two-thirds in the 26–45 year age group, one-third in each of the socio-economic position tertiles and one-quarter residing in regional/remote areas (Table 1). Levels of reported alcohol use indicate 32% of the sample typically exceeded the 2020 National Health and Medical Research Council Australian guideline to reduce health risks from alcohol (i.e., drinking more than 10 standard drinks per week or more than 4 on a single occasion) [4]. This is comparable to results from the 2019 National Drug Strategy Household Survey (33% of adults exceeded the guideline) [37].

3.2 | Campaign diagnostics

Just over half (57%) of respondents demonstrated spontaneous recall when asked whether they had heard or seen a campaign about alcohol and pregnancy recently (Table 1). Once shown examples of the campaign materials, 71% of respondents reported recognising the campaign. Recognition was lowest among those aged 36–45 years (65%, Table 1) and highest among females who were pregnant or trying to conceive (85%, Table 2).

Table 2 displays the campaign outcome results by respondent category. For the attitudinal outcomes, large proportions of respondents reported that the campaign was believable (89%), clear (88%), trustworthy (87%), memorable (82%) and one of the best health education campaigns they had seen (78%). Most reported the campaigned increased their concern about drinking alcohol during pregnancy (85%) and just over half (54%) felt the campaign taught them something new. Most of the female respondents (83%) reported that exposure to the campaign made them a lot less likely to drink alcohol during a pregnancy. Female respondents describing themselves as pregnant or trying to conceive exhibited the highest scores for all attitudinal variables. Their scores were significantly higher than those of the male respondents in all cases except for ‘Taught me something new’, but only significantly different to those of
other women in the sample for ‘Aimed at people like me’ (69% vs. 45%).

Behavioural outcomes were only assessed among those exhibiting campaign recognition (n = 632). The most commonly reported behavioural outcome resulting from campaign exposure was deciding not to consume alcohol at all while pregnant (Table 2). This question was only asked of female respondents, 33% of whom agreed with this statement. The next most common actions (across males and females) were speaking about the campaign message to friends or family (15%), speaking about the message to their partner (14%) and looking up more information about the effects of drinking alcohol during pregnancy (13%). There were some significant differences

<table>
<thead>
<tr>
<th>Demographics</th>
<th>Total sample, n = 889</th>
<th>Recognised the ‘One Drink’ campaign (71%), n = 632</th>
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<tr>
<td></td>
<td>n</td>
<td>%</td>
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Note: Due to rounding percentages may not sum to 100%.
Abbreviations: FAS, foetal alcohol syndrome; FASD, foetal alcohol spectrum disorder.
aDerived from postcode as per the Australian Bureau of Statistics’ Socio-Economic Index For Areas Index of Relative Disadvantage [31].
bMultiple responses allowed so totals may exceed 100%.
cNational Health and Medical Research Council guideline = no more than 10 standard drinks per week and no more than 4 on a single occasion [4].
between subgroups, notable examples being male respondents indicating they were more likely to have spoken to their partner (20%) or a health professional (10%) about the potential impacts of drinking during pregnancy as a result of campaign exposure than female respondents who were not pregnant/trying (10% and 5%, respectively).

3.3 Regression results: Factors associated with perceived campaign effectiveness

The multi-linear regression assessed factors associated with perceived campaign effectiveness, which was
The aim of this study was to assess the effectiveness of the ‘One Drink’ public education campaign that communicated the harms of alcohol use in pregnancy and promoted abstinence during this life stage. The campaign was found to have high recognition among the sampled adult Western Australians (71%) and rated highly on perceived effectiveness criteria (e.g., 89% described the campaign as believable, 88% as clear and 87% as trustworthy). Factors significantly associated with higher levels of perceived effectiveness were confidence in own/partner’s ability to abstain, awareness of strategies to abstain, lower socio-economic position, residing in the metropolitan area and campaign recognition. The results relating to confidence (i.e., self-efficacy) and awareness of strategies are consistent with previous research reporting that these are important determinants of whether women abstain while pregnant [15, 27]. The inverse relationship between socio-economic position and perceived campaign effectiveness indicates the campaign has the potential to improve health equity. Importantly, 85% of respondents reported that the campaign made them very concerned about the potential harms of alcohol use during pregnancy and 81% indicated they had become more likely to support others not to drink during pregnancy.

The behavioural outcomes need to be interpreted in the light of the survey question directly attributing changes to campaign exposure, meaning that those who had previously made such changes were unlikely to have responded in the affirmative. One-third (33%) of all female respondents reported making the decision to not drink alcohol during a current or future pregnancy as a result of their exposure to the campaign, which was higher among those who were currently pregnant or trying to become pregnant (38% vs. 31% of other females, non-significant difference). Given previous estimates of around 35% of women consuming alcohol at some stage during their pregnancy [7], the results of the present study may indicate the potential to favourably influence many of those who would otherwise have chosen to drink over this period. If extrapolated to the population of individuals at this life stage, this result is likely to represent a meaningful improvement in outcomes for offspring. However, it is important to recognise that factors other than knowledge can influence women’s decision to drink during pregnancy (e.g., social norms and other psychosocial or environmental factors [38]), highlighting the importance of addressing broader determinants of health as well as information provision.

### 4 | DISCUSSION

The suboptimal awareness of the abstinence in pregnancy guideline observed in previous Australian research [5, 6] is likely to be at least partially due to lack of information dissemination via mass media campaigns. Such
campaigns have been demonstrated to be effective in informing the public about health advice and positively influencing health-related behaviours across numerous health domains [39]. The present study provides evidence that mass media campaigns can provide valuable information about the harms associated with alcohol consumption during pregnancy and are therefore likely to constitute an important element of a comprehensive approach to this important health issue.

The results provide insights into potential focal areas for future campaigns on this topic and highlight the need for further research to support these efforts. In particular, the identified role of confidence in own/partner’s ability to not use alcohol while pregnant (i.e., self-efficacy) and awareness of strategies to abstain is consistent with the results of previous research reporting that these are important determinants of whether women abstain while pregnant [15, 27]. The provision of specific and user-friendly information about strategies that can be used to avoid alcohol during pregnancy should therefore be a key element of future campaigns seeking to build on the increased awareness produced by campaigns such as ‘One Drink’.

The findings of the present study also offer insights of relevance to health practitioners working with those who are planning or experiencing pregnancy. Just over half the responses prevented analysis of the performance of the small number of Aboriginal and Torres Strait Islander respondents. The findings that perceived campaign effectiveness was higher among those with greater confidence in their own/partner’s ability to avoid alcohol while pregnant suggests that as well as awareness raising, future campaigns could focus on self-efficacy to enhance outcomes.

5 | CONCLUSION

Growing evidence on the risks associated with alcohol use in pregnancy highlights the need to communicate effectively with the public to address social norms about drinking during this phase of life. The results of this study indicate that well-designed education campaigns on the topic of alcohol abstinence during pregnancy can be considered acceptable and effective by multiple target audiences. The finding that perceived campaign effectiveness was higher among those with greater confidence in their own/partner’s ability to avoid alcohol while pregnant further suggests that as well as awareness raising, future campaigns could focus on self-efficacy to enhance outcomes.

AUTHOR CONTRIBUTIONS

Each author certifies that their contribution to this work meets the standards of the International Committee of Medical Journal Editors.

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ETHICS STATEMENT

Ethics approval was obtained from the University of New South Wales Human Research Ethics Committee (Approval number HC210942). The study was performed in accordance with the ethical standards laid down in an appropriate version of the Declaration of Helsinki (as revised in Brazil 2013).

CONFLICT OF INTEREST

The Mental Health Commission (authors Tahnee McCausland and Kelly Kennington) funded Cancer Council WA (author Julia Stafford) to deliver the
campaign and The George Institute for Global Health (authors Simone Pettigrew, Leon Booth and Mia Miller) to conduct the evaluation. The authors have no other conflicts of interest to declare.

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SUPPORTING INFORMATION
Additional supporting information can be found online in the Supporting Information section at the end of this article.