“No Alcohol, No Risk. #FASD”– Twitter Activity on Alcohol and Pregnancy among Australian Organizations

Lisa Schölin and Maddie Heenan

Centre for Pesticide Suicide Prevention, Centre for Cardiovascular Science, University of Edinburgh, Edinburgh, UK; The George Institute for Global Health, Newtown, Australia

ABSTRACT

Objective: Research has suggested that information communicated by public health and industry-funded organizations differ, as organizations linked to industry have tended to downplay risks with alcohol more broadly and pregnancy specifically. There is limited knowledge of how alcohol use in pregnancy and associated risks are communicated on social media in Australia. This study set out to describe communication of health risks associated with alcohol use during pregnancy on Twitter by Australian-based organizations and stakeholders.

Methods: We searched for “alcohol” and “pregnancy,” “pregnant,” or “FASD” on Twitter accounts belonging to potentially relevant organizations, of which 17 had tweeted on the topic. Content analysis was undertaken on all tweets and summarized under eight themes.

Results: A total of 347 tweets were identified, posted between 2010 and 2019 mainly by public health and disability nongovernmental organizations. Tweets generally focused on FASD, but other potential consequences of maternal alcohol use were infrequently mentioned and tended to be generic. We found infrequent mentions of direct advice around alcohol use during pregnancy and official guidelines. Overall, tweets reflected ongoing policy debates in Australia – including alcohol warning labeling, disability policy and increased activity was seen particularly before the second parliamentary inquiry into FASD.

Conclusions: The limited number of tweets from relevant organizations over a nine-year period suggests focus has been on FASD while less discussion of alcohol use during pregnancy was evident. We identified an opportunity for more and consistent communication of trusted national health guidance.

Introduction

Twitter is a social media platform that can reach many people quickly with, e.g., health promotion messages (Park et al., 2013). Daily active users in 2019 equaled 145 million (MarketScreener, 2019) and over 500 million tweets per day are posted on the platform (Statista, 2019). The microblogging format, where each “tweet” contains a maximum of 280 characters (originally 140), has been found to be a cost-effective way to communicate health information, such as smoking cessation campaigns (Allom et al., 2018). Health messages around alcohol use on Twitter are, however, mixed with messages from the alcohol industry, which tends to frame its messages to exclude effective policy measures (Casswell, 2013). A study exploring Twitter activity of Social Aspects/Public Relations Organizations (SAPROs) found that these organizations, which are linked with the alcohol industry, were less likely to include information about broader risks to health compared to independent health organizations (Hessari et al., 2019). SAPROs are industry front organizations designed to provide a positive public image, and have been found to downplay, discredit, and omit information regarding the health risks of alcohol consumption (Petticrew et al., 2018; Pietracatella & Brady, 2020).

Current alcohol guidelines in Australia recommend that pregnant women abstain from alcohol but acknowledge that the risk is likely to be low if small amounts have been consumed (NHMRC, 2009). However, no “safe limit” has been identified, making the recommendation of abstinence the safest option (Mamluk et al., 2017). Clear and concise health messaging, to avoid confusion regarding risks associated with alcohol use during pregnancy, is therefore key. Research on the communication of this topic has to date focused on discourses within the media. A media analysis from Australia revealed two narratives; sympathy for children with fetal alcohol spectrum disorders (FASDs) and shame toward pregnant women who drink. The authors concluded that such conflicting messaging can cause confusion and may not be helpful in preventing future harm (Eguiagaray et al., 2016). Another media analysis in Australia, which also included interviews with women, showed that alarmist or stigmatizing messages did not resonate with women. The authors therefore suggested that future public health information should use expert sources to
communicate information using messages that focus on framing risk in relation to women’s rights to make informed decisions about drinking (Holland et al., 2015).

Pregnant women commonly use the internet to find health information but do not always discuss it with a health professional (Saykhat & Carolan-Olah, 2016). An analysis of information about alcohol and pregnancy on websites of industry-funded SAPROs and public health organizations found that industry-funded organizations downplayed risks. The study showed that industry organizations tended to use language that emphasized the uncertainties of risk and used vague language about not drinking. These organizations were also much less likely to provide information about FASD or other relevant risks to pregnancy or fertility (Lim et al., 2019).

In the past decade, Australia has seen several policy developments in the field of FASD, including two parliamentary inquiries (2012 and 2019), a Government FASD action plan and funding for various FASD projects (Reid, 2018), as well as mandatory warning labels on alcohol products being approved in 2020 (Food Standards Australia New Zealand [FSANZ], 2020a). With these developments, conversations around alcohol use during pregnancy may have featured online, such as on Twitter. No study to date has explored such communication among Australian-based organizations the aim of this study was therefore to describe communication of health risks associated with alcohol use during pregnancy on Twitter by Australian-based organizations and stakeholders. We were particularly interested in: i) how often key Australian organizations tweet about alcohol, ii) how risks are described and whether references are made to the National Health and Medical Research Council (NHMRC) alcohol guidelines, iii) if there are differences between non-industry funded organizations (referred to as “non-industry” throughout) and industry/industry-funded SAPROs (referred to as industry/SAPROs), and iv) how/what images organizations use to represent their message.

Methods

A list of potential organizations to include in the study was compiled from the list of submissions to the Inquiry into FASDs in 2011 (Australian Parliament House, 2019) and Peak bodies and representative groups: A guide to the alcohol industry (MCCAY, 2017); and the research team. Any FASD-specific organizations were excluded due to their exclusive focus on the topic, in line with the approach taken by Lim et al. (2019). From an initial list of 60 organizations (available upon request), we identified 17 organizations that a) had a Twitter account and b) that had tweeted on relevant topics. Searches were undertaken by LS using the “advanced search” function on Twitter including “alcohol” and “pregnancy”, “pregnant”, or “FASD” with no time limit on the search. All tweets were manually downloaded to an Excel spreadsheet for analysis.

Basic information about each tweet was extracted: the name of the organization, organization type, date of tweet, tweet length, and the inclusion of images. The text of tweets was analyzed using content analysis with a deductive approach to coding and summarizing its content (Elo & Kyngäs, 2008). A deductive approach was suitable for the study, as some evidence already exists around how industry-funded bodies and public health organizations frame information about alcohol and pregnancy on websites (Lim et al., 2019). An a priori coding framework was developed to guide the coding, which was applied by all authors double coding 20 tweets. New codes were discussed, and the coding framework was applied to another 20 tweets. After further revisions and additions to the coding framework, each researcher independently coded a third of all remaining tweets, and any new codes created during this stage were noted and discussed. As a final step, LS and TF cross-checked the entire sample. All individual codes were grouped into themes agreed by all three researchers. In this article, we refer to both themes, which are groupings of multiple codes relating to a particular theme, topic or issue, and codes, which are individual descriptors of content in the tweet. Each tweet could contain several codes and fit into more than one theme. In this article, we present each theme and calculated proportion of codes that were represented within each theme.

We were also interested in images used with the tweets about alcohol and pregnancy to better understand how key stakeholders reinforce their message using visual aids. The image coding was conducted iteratively without an a priori framework. All images were coded by LS and checked by MD. The image coding focused on identifying items and characteristics of individuals appearing in the images, for example, “pregnant woman” and “unclothed”, “bump-focused (no face)”. We excluded any images that had no alcohol reference in them.

Reviews posted by non-private accounts are freely available information (Twitter, 2020). While there are ethical and legal issues with using Twitter data, particularly in situations where a user may not know that the tweet is publicly visible and may be collected as data (Ahmed et al., 2017), this study includes organizations that distribute their information publicly. The ethical issues around using Twitter data concern consent and the right to withdrawal (The British Psychological Society, 2017) and therefore no ethical approval for analyzing organizations’ data was needed.

Results

We identified 347 relevant tweets, published between 2010 and 2019 (up until 26 October), from 17 organizations, with a combined number of followers approximating 196,000. This only includes tweets available at the time of data collection – eligible tweets may have existed but removed due to breaching Twitter’s policy or due to individuals choosing to delete them. Twitter increased the character count from 140 to 280 in 2017. The average length of tweets in the sample before 2017 was 102 characters and 180 after the change in 2017. Most tweets were by non-industry organizations (90%, primarily public health or disability NGOs) and a small proportion were from industry/SAPROs (10%) (Table 1). Tweeting on this topic increased over time with the highest number of tweets in 2018 (Figure 1).
Individual codes were grouped into eight themes: FASD, specific consequences and outcomes, generic consequences and outcomes, policy and society, populations, message diffusion, advice and recommendations, and healthcare (Table 2). We noted differences in what themes industry/SAPROs and non-industry organizations tweeted about (Figure 2), however, the number of tweets from industry/SAPROs was low. Notably, no tweets from industry/SAPROs were about specific consequences and outcomes. Specific outcomes would include risks, such as low birth weight, miscarriage, growth restriction or impact on neurodevelopment. Each theme is summarized in the following sections and example tweets are presented in Table 2.

**FASD**

The most common theme across all tweets was those that related to FASD. Often this was as generic references to the condition by using the word or hashtag FASD. Of the 255 tweets including any of the FASD codes, most were by First Peoples Disability Network (FPDN) \((n = 124)\) followed by Foundation for alcohol Research and Education (FARE) \((n = 42)\), National Rural Health Alliance (NRHA) \((n = 25)\), People with Disability (PWD) \((n = 13)\), and DrinkWise \((n = 11)\). The remaining 12 organizations tweeting about this had less than 10 tweets on the topic. As shown in Figure 2, we noted a higher occurrence of the
Table 2. Themes and example tweets.

| Theme | n (%) | Theme description | Example tweets |
|-------|-------|-------------------|----------------|
| FASD  | 255 (73) | Tweets specifically mentioning and naming FASD, or activities related to FASD, whether only by name or abbreviation or with some description of what the condition entails. | We welcome the Commonwealth investment of over $7 million in the prevention, detection and management of Fetal Alcohol Spectrum Disorder (Royal Australasian College of Physicians, 2018) |
| Policy and society | 118 (34) | Tweets that referred to various policy decisions or actions happening in Australia, such as warning labels on alcohol containers. This theme also included references to other societal or social issues such as discussions about recognition of FASD within disability schemes. | Please to work with @DrinkWiseAus to incorporate pregnancy warnings and consumer education messages on wine labels (Australian Grape and Wine, 2012) |
| Generic consequences and outcomes | 103 (30) | Tweets that specifically made a link between alcohol consumption during pregnancy and consequences, often as more vague references such as lifelong disability or that drinking during pregnancy carries risk, without specifying what the risk or impact is. | Facts are 25% of women drink #alcohol during pregnancy -placing thousands of children at risk of lifelong disability each year [...] (Foundation for Alcohol Research and Education, 2018) |
| Populations | 63 (18) | This theme referred to tweets that focused on specific populations such as older women. The focus within such tweets related to highlighting particular groups more at risk or with particular outcomes, such as those experiencing incarceration or otherwise feature in the criminal justice system. | Aussie #wine makers ask you to celebrate responsibly this xmas. Support your pregnant friends. #sparklingwater (Australian Grape and Wine, 2016) |
| Messages diffusion | 49 (14) | This theme related to how information is communicated, what information is considered important or needed, gaps in provision of information, and particular initiatives that focus on delivering information about alcohol and pregnancy or FASD such as the DrinkWise FASD program. | [...] proud to support @DrinkWiseAus FASD Awareness Program. The funds will support this excellent program to help women, their partners [...] (Australian Grape and Wine, 2019) |
| Advice and recommendations | 37 (11) | Tweets where direct advice was communicated with a message about what pregnant women should do. This included references to whether or not there are safe amounts of alcohol consumption during pregnancy. | There is No Proven Safe Amount Of Alcohol In Pregnancy. No Alcohol, No Risk. #FASD (#FDN, 2017) |
| Healthcare | 31 (9) | Tweets that focused on health-care aspects of alcohol use during pregnancy, including particular interventions of efforts made to ensure women receive appropriate care and advice. | The only safe amount of alcohol to drink during pregnancy is no alcohol #pregnancywithoutalcohol #fasd (Diageo, 2015) |
| Specific consequences or outcomes | 8 (2%) | Tweets where more specific effects and links were given, informing the reader not only what, e.g., FASD is but also what the condition entails. | #AMANatCon has voted in support of clinicians advising women who are pregnant or planning a pregnancy to avoid alcohol entirely [...] (Australian Medical Association, 2019) |

FASD codes within non-industry than industry/ SPRO tweets.

Many tweets highlighted a sense of urgency regarding increasing numbers of Australians with the condition, as well as calling out for injustices for people living with FASD. Within this theme, tweets about screening, diagnosis, and services, many of which specifically related to criminal justice, were most common. In particular, tweets about the impact of incarcerating Indigenous people with FASD occurred frequently and many related to the story of Rosanne Fulton – an Indigenous woman who remained in prison without charge due to the lack of suitable facilities to support her in the community (The Guardian, 2016). Other ongoing policy debates featured in tweets about FASD, including investment from the Commonwealth Government to improve diagnosis and management, the need for strategic approaches to prevention, or more specifically political developments addressing FASD.

Specific consequences and outcomes

This theme focused on the mentions of what can happen when alcohol is used during pregnancy, which included defined, specific effects or conditions, as well as more generic or vague statements. Specific risks were only mentioned in eight tweets and included references to learning disability, birth defects, and neurological conditions. For example, the AMA tweeted that FASD is “the leading preventable cause of prenatal brain injury, birth defects, and developmental and learning disability worldwide” (Australian Medical Association, 2018). While few tweets overall, we noted that none of the tweets relating to specific outcomes were from industry/SAPROs.
Generic consequences and outcomes

The broader and more generic risks included "disability", "pregnancy risk", and "risk to the fetus". In these tweets, it was less clear what the risk was, for example, the Royal Australasian College of Physicians tweeted about "significant risk to babies". In another example, DrinkWise tweeted "Learn about the affects alcohol has on pregnancy" and in another about the need the need to be in "best physical and mental shape" when planning a pregnancy.

Policy and society

The most common topic tweeted about within this theme was warning labels on alcohol products, with most of the tweets from 2018 and 2019, when the FSANZ board consulted on the development of a mandatory pregnancy warning labeling scheme (FSANZ, 2020b). Australian Grape and Wine tweeted four times encouraging producers to ensure their labels include the DrinkWise logo on vintage wines and promoting the voluntary DrinkWise labeling scheme (Table 2). No tweets were identified from other industry/SAPROs regarding warning labels. From non-industry organizations, tweets focused on either the progress of the FSANZ process or calling for the need to make labels mandatory. In the latter, some were critical of the industry's opposition to making labels mandatory. This linked in with a broader topic around industry tactics and interference in policy and practice. One particular focus of tweets, was the issue of posters designed by DrinkWise, which were used around the country in antenatal clinics, stating that it is safest not to drink during pregnancy while also stating "It's not known if alcohol is safe to drink when you are pregnant" (Koplin, 2018). The AMA tweeted about the confusing and misleading information in the DrinkWise posters (Table 2). Others also tweeted about the conflict of interest in industry/SAPRO's providing health information.

The other major issue within this theme was around inconsistencies in why FASD was not recognized within disability policy, compared to other lifelong disabilities. Organizations tweeting about this were calling for the condition to be formally recognized as a disability within the social security system in Australia, with some emphasizing that FASD is a congenital condition with significant impairment.

Another major topic of concern within this theme was tweets that focused on the scale of the problem. This included tweets quoting statistics, such as the tweet from the FPDN referencing "hundreds of undiagnosed FASD cases in Barkly", or more vague references, including "hidden epidemic" from FARE and "unprecedented levels" of FASD in prison settings from the AMA. We noted no industry/SAPROs tweets in reference to the scale of the problem.

Populations

This theme included tweets where particular populations were discussed, including Indigenous populations, people experiencing incarceration, and socioeconomic status. The most common topic amongst these tweets was criminal justice, focusing on overrepresentation of individuals with FASD in prisons in Australia and whether the justice process for individuals affected by FASD was fair. The broader theme of different populations addressed aspects of sociodemographic characteristics or social contexts. For example, a tweet from the Australian College of Midwives indicated that "older, educated women" were more likely to drink during pregnancy. In a small number of tweets, the wider social groups around women, including partners, were discussed. This included tweets from the industry/SAPROs,
such as one from Australian Grape and Wine, which encouraged responsible celebration over Christmas and to “support your pregnant friends” (Table 2). However, the tweet did not specify how to support pregnant friends.

**Message diffusion**

This theme focused on spreading information about alcohol and pregnancy, most commonly through awareness-raising. For this particular topic, we noted that one third of tweets were from industry/SAPROs. DrinkWise mentioned their FASD program that aims to “create greater awareness among Australians that FASD is a preventable disorder and reaffirm the risks of drinking alcohol while pregnant, planning a pregnancy or breastfeeding” (Drinkwise, 2020). A lot of tweets on this topic were from the 9th September, which is FASD Awareness Day. Most tweets were simply stating that it is important to raise awareness, such as NRHA tweeting a link to a video created by the Indigenous Hip Hop Project with the short tweet “raise awareness #FASD” (the title of the song), but not providing information within the tweet of the key message (e.g., do not drink when pregnant). In many of these tweets, the reader was signposted to a link about FASD Awareness Day activities or information.

A smaller number of tweets in this theme related to aspects of accuracy of information. This included tweets that argued that there is a lot of misinformation around alcohol and pregnancy or that women are receiving mixed messages. None of these were from industry/SAPROs but some directed criticism toward the alcohol industry as contributing to mixed messages, such as through the DrinkWise posters (see “Policy and society”). We also found some tweets where we noted linguistic aspects that contribute to the framing of the issue. This included the use of metaphors, as well as tweets where compassion or stigma for women and/or individuals affected by FASD was described. Metaphors appeared to have negative connotations, for example, People with Disability Australia tweeted: “Anger at ‘sleeping monster’ of foetal alcohol disorders” (PWD Australia, 2014), which included a link to an article from The Australian with the same title, also tweeted by FPDN. Another example was a tweet about “alcohol-damaged kids with FASD”, instead of simply referring to children with FASD. Finally, we noted a small number of tweets focusing on the stigma related to FASD and the need for compassion toward women who have consumed alcohol during pregnancy. For example, FPDN tweeted “…Time to Stop Focusing on Fear and Shame #FASD #disability” (FPDN Australia, 2016) which was linked to a Huffington Post article with the same title.

**Advice and recommendations**

This theme focused on direct messages about what pregnant women are recommended to do. We observed that this theme commonly featured tweets from industry/SAPROs, with 85% of all industry/SAPRO tweets featuring advice and recommendations (although overall numbers were low). The most common advice was “it is safest not to drink when pregnant”, with a smaller number featuring a variation to this advice, including “no alcohol is safe”, “any alcohol can cause harm”, “alcohol and pregnancy don’t mix”, “abstinence when breastfeeding”, “safest not to drink while breastfeeding”, “avoid alcohol”, “responsible drinking”, and “alcohol-free pregnancy”. While there was implicit mention of national health guidelines in tweets that recommended abstinence, only one tweet explicitly referenced the NMHRC guidelines and specified that the advice is national or government health advice (i.e., a trusted source). We noted that messages around “safest not to drink when breastfeeding” and “responsible drinking” only appeared in tweets from industry/SAPROs, while there were no tweets from industry/SAPROs that “any alcohol can cause harm”.

**Healthcare**

This theme included a small number of tweets and mainly reflected ongoing efforts around training and education in antenatal and primary care, which was the most common topic. Many tweets were direct in their content as they signposted to websites with information about training programs, specifically many tweets were about FARE’s Women Want to Know training program for health professionals (FARE, n.d.-b). A few tweets addressed the issue of clinical antenatal care guidelines, which did not have up-to-date information about alcohol, as well as mobilization of action among clinicians. No tweets covering the theme of health care were found from industry/SAPROs.

**Image analysis**

Eighty-five images (24% of tweets) from 12 organizations were identified and analyzed. In total, 41 codes were identified through iterative coding of the dataset. The most common feature in photos was of a pregnant woman. Of the 31 images featuring a pregnant woman, most (n = 25) focused on the woman’s stomach (pregnant bump) without showing a face. Almost all of these (n = 22) were non-industry organizations. Six images featured a woman’s bump and face, of which two were non-industry organizations and four industry/SAPROs. Six photos featured pregnant women who were drinking or holding an alcoholic beverage, all of which were from non-industry organizations. A smaller proportion of images featured non-pregnant women, children, researchers or professionals, people holding drinks, or the DrinkWise poster.

**Discussion**

This is the first study to explore Twitter activity on alcohol and pregnancy among organizations in Australia. The study provides a descriptive account of the activity and content of tweeting, showing increased activity over time and increased activity in relation to political and policy activities, with the largest number of tweets in the lead-up to the
most recent inquiry into FASD in Australia in 2019 (Australian Parliament House, 2019).

While the number of identified tweets was relatively low for the number of organizations and period included, the impact of each tweet may have varied. The Department of Health, for example, only tweeted five times and had 45,900 followers, while DrinkWise, which tweeted 20 times, only had 762 followers. In the case of the DrinkWise tweets, these 20 tweets only received a total of 31 retweets and 45 likes, some tweets without any retweets or likes. The reach in terms of retweets and likes was however out of scope for the study and we did not assess this systematically. The potential audience for these tweets is also limited to who uses the platform. A 2017 social media in Australia report found that 32% of respondents used Twitter, with slightly lower proportion females than males (28 and 35%, respectively). The highest usage is among those aged 18–29 (70%), compared to 20% of those aged 30–39 years (Sensis, 2017). This is compared to 17% of respondents using Twitter in 2015 and less than 10% in 2011 (Sensis, 2015). The reach of tweets included in this article is therefore limited to a smaller, and younger, part of the population; however, reach is increasing year on year.

We observed an overall trend in highlighting FASD as a significant condition with many tweets calling out inequalities relating to Indigenous populations and an overrepresentation of individuals with FASD in the criminal justice system. However, while FASD was mentioned in most tweets, specific information about the sort of difficulties individuals live with was not mentioned. In tweets where recommendations about drinking during pregnancy were included, we observed a great variation of wording, of which some was vague. In general, tweets were reflective of ongoing policy developments or campaigns within Australia. These findings may help us understand what messages pregnant women, and the general public, are exposed to.

Defining risks from prenatal alcohol use

While FASD was commonly mentioned or hashtagged, we identified a lack of references to specific outcomes, including what FASD entails. Previous research has highlighted a lack of information relating to alcohol consumption and fertility and miscarriage on industry/SAPRO websites, in comparison to public health organizations (Lim et al., 2019). We however found no such references and in general few tweets named outcomes or risks beyond mentioning FASD. We believe this is important given the identified general lack of recognition of FASD in Australia (Reid, 2018). Since most tweets included generic references to FASD, communications would be improved by tweeting about manifestation and implications of FASD, as well as other risks to pregnancy such as miscarriage.

Communication about the health implications of alcohol use, in addition to informing the general public, may also improve and build understanding among policy makers. In Australia, health warning labels on alcohol products have recently been approved by ministers following more than 20 years of discussion, lobbying, and consultation (Smith et al., 2020). The prolonged process may in part have been because of a lack of awareness of the impact of FASD in Australia. Woodruff and Roberts (Woodruff and Roberts, 2019) found that US legislators believed opioid addiction, rather than alcohol use, was a problem among pregnant women despite evidence of higher prevalence of prenatal alcohol use. Importantly, legislators often formed their opinions based on personal information or anecdotes from trusted sources.

Twitter, among other communication channels, could therefore be a useful platform for public health and human rights-focused organizations to target policy makers and the general population. Public health and human rights-focused organizations in Australia advocating for mandatory warning labels used Twitter in their campaign strategy. It is possible that frequent, clear, and consistent messaging on Twitter assisted with the successful campaign.

Providing recommendations and advice

The short length of tweets limits the amount of information that can be included. In the entire dataset, we only found one explicit reference (within the tweet itself) of the NHMRC guidelines. Previous research has shown that Australian women advocated for consistent communication of one clear message to avoid confusion or conflicting advice from different sources (Anderson et al., 2014). This was also a major feature of the campaign for mandatory pregnancy warning labels (FARE, n.d.-a). Reiterating the official health guidelines from the Twitter accounts of relevant and trusted organizations is an opportunity to amplify messages about recommendations for pregnant women. This may be particularly important as statements like “avoiding alcohol” and “alcohol and pregnancy don’t mix” are vague and confusing.

It is notable that industry/SAPROs had the highest proportion of tweets overall in the theme about recommendations and advice and was the only organization type to tweet about abstinence when breastfeeding. We acknowledge that previous reports have indicated that industry/SAPROs misrepresent or downplay risks of drinking during pregnancy (Lim et al., 2019), meaning our findings in tweets may not correspond to organizations’ dedicated websites. It was outside the scope of this study to explore the content of associated websites, and as sites relevant to non-recent tweets are likely to have changed since 2019, it would be difficult to establish if other information was available alongside the tweet. Further research to explore in detail what information the organizations included in this study have on their websites could offer more insight into variations in communication on this topic by different types of organizations.

While we identified a variety of ways in which recommendations were communicated, there is limited evidence of how phrasing of recommendations impacts on women’s behavior. Previous research has suggested that the uncertainty of risk from low levels of prenatal alcohol use does
influence healthcare professionals’ and students’ attitudes around whether consuming some alcohol during pregnancy is harmful (Coons et al., 2017; Crawford-Williams, Steen, et al., 2015). Similarly, consistent communication of a clear abstinence message may mitigate any interpretation of “grey areas” and conflicting advice, where reliance on personal experience may determine which message to adhere to (Anderson et al., 2014). Future research may therefore consider exploring the perceptions of any messages other than abstinence that we found in this study, such as “alcohol and pregnancy don’t mix” and “it’s safest not to drink when pregnant”, and how they resonate with women who are or may become pregnant.

Language and images in communicating risk

To date, there is limited evidence on how public health campaigns or health communication about alcohol and pregnancy should be developed to influence behavior change (Crawford-Williams, Fielder, et al., 2015; Schölin, 2016). We identified metaphors, or other expressive language which in some instances we regarded as having negative connotations (such as “the sleeping monster of FASD”). Using strong metaphors may have a negative impact and undermine the message it is trying to convey. An analysis of framing of FASD in Australian media suggested that framing FASD as a crisis or blaming mothers for their children’s condition did not resonate with women in a positive way (Holland et al., 2015). While some industry/SAPROs at times used vague language, such as “alcohol and pregnancy don’t mix”, it could be argued that both expressive language (with potentially negative connotations) made by other organizations and vague language can adversely impact the desired behavior. Many tweets were auto-generated, for example, a news article with the title “sleeping monster” mentioned above. We would argue that authoring original tweets, using clear language regarding desired behavior and avoiding the use of metaphors that can be interpreted as negative or stigmatizing may enhance the organization’s message.

Besides the choice of language, images may be an important way to enhance the message impact and attract more engagement, such as retweeting (Chapman & Freeman, 2015). A study analyzing tweets during breast cancer awareness month found that tweets with images or photos generated more retweets compared to tweets without (Chung, 2017). While we did not assess the impact of using images, we observed some differences in their content. Previous research on industry/SAPROs’ Twitter activity identified greater use of images of people drinking, compared to public health organizations (Hessari et al., 2019). In contrast, this study did not identify any images used by Australian industry/SAPROs featuring alcohol containers or a person holding an alcoholic beverage. On the other hand, several images used by non-industry organizations featured a pregnant woman with a drink in her hand. These images were to a great extent of a pregnant woman where no face was shown. The use of stock photos which exclude body parts other than the pregnancy bump has been described as dehumanizing and illuminates issues around bodily autonomy during pregnancy (Glausiusz, 2019; Lowe, 2016). Future research should explore how the use of images of pregnant women with/without faces showing resonates with women and whether it is likely to enhance the message. Furthermore, considering the criticism of the so-called “headless bump” stock photo, organizations tweeting about alcohol and pregnancy may want to consider the use of alternative images to humanize their message. The use of personal stories has been shown to support advocacy efforts (Sinclair et al., 2014) and the use of appropriate supporting imagery arguably should aim to reflect this personalization and humanization of the health issue.

Limitations

This study was limited to text appearing in tweets, which often related to news articles or linked to other forms of media where a more in-depth description of the organization’s position may have been found. Accounts tweeting about FASD may have been deleted, or closed by Twitter itself, and therefore not appearing in our searches. This may have skewed the analysis as tweets of a particular character may have been deleted over time. In particular, if tweets have been deleted it is more likely that these would be more controversial. Furthermore, this content analysis was focused on providing a descriptive account of Twitter activity and did not perform any inferential statistical tests to assess differences between organization types. This study excluded FASD-specific organizations because they exclusively communicate around this topic and their messages may differ from general public health and medical organizations. Furthermore, tweets by individual accounts might differ from that of organizations advocating, for example, for change in policy.

Conclusions

Twitter offers a short means of communicating information around alcohol and we found a relatively small number of tweets over a nine-year period from 17 Australian organizations. Activity was largely reflective of ongoing policy debates in Australia with calls for raising awareness and promoting rights of people living with FASD. Few tweets offered description of specific risks related to alcohol use during pregnancy or what impact FASD has on individuals. The short nature of tweets offers little space for details but there are opportunities to enhance messages around alcohol and pregnancy by reiterating the NHMRC guidance, in particular as Twitter use is highest among Australians under 30 years and may be a key group to provide accurate information to. Additionally, few public health and medical organizations provided recommendations or advice around drinking during pregnancy, with most Tweets with recommendations or advice coming from industry/SAPROs. Due to the inherent conflict of interest in industry/SAPROs providing health advice regarding alcohol consumption, it is important that health
and medical organizations look to improve their communication in this area. These findings may be of interest to organizations wanting to enhance their Twitter communication and call for more research to understand the impact of identified messages on women's perceptions and behavior.

Acknowledgments
This research was undertaken while all authors were employed by the Foundation for Alcohol Research and Education (FARE) and the authors would like to thank FARE for making the research possible. The authors are grateful to Professor Mark Petticrew who provided input on the article.

Declaration of interest
The authors report no conflicts of interest. The authors were employed by FARE at the time of undertaking the study.

Funding
The author(s) reported there is no funding associated with the work featured in this article.

ORCID
Lisa Schölin http://orcid.org/0000-0002-1348-672X

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