“If you can have one glass of wine now and then, why are you denying that to a woman with no evidence”: Knowledge and practices of health professionals concerning alcohol consumption during pregnancy.

Abstract

Background: Alcohol consumption during pregnancy has the potential to cause significant harm to the foetus and the current Australian guidelines state that it is safest not to drink alcohol while pregnant. However, conflicting messages often appear in the media and it is unclear if the message to avoid alcohol is being effectively conveyed to pregnant women. **Aims:** This research aims to explore the advice that health professionals provide to pregnant women about alcohol consumption; the knowledge of health professionals regarding the effects of alcohol consumption; and their consistency with following the Australian guidelines. **Methods:** Ten semi-structured face to face interviews were conducted with health professionals who regularly provide antenatal care. These include midwives, obstetricians, and shared care general practitioners. A six-stage thematic analysis framework was used to analyse the interview data in a systematic way to ensure rigour and transparency**.** The analysis involved coding data extracts, followed by identifying the major themes. **Findings:** Health professionals displayed adequate knowledge that alcohol can cause physical and mental difficulties that are lifelong; however, knowledge of the term FASD and the broad spectrum of difficulties associated with alcohol consumption during pregnancy was limited. Although health professionals were willing to discuss alcohol with pregnant women, many did not make this a routine part of practice, and several concerning judgements were noted. **Conclusion:** Communication between health professionals and pregnant women needs to be improved to ensure that accurate information about alcohol use in pregnancy is being provided. Further, it is important to ensure that the national guidelines are being supported by health professionals.

Key words: Health promotion, pregnancy, alcohol drinking, prenatal education, foetal alcohol spectrum disorders

Concern about the effect of alcohol consumption on the developing foetus is not a new phenomenon. In 1968, Lemoine and colleagues identified a range of physical defects and developmental delays in 127 children born to alcoholic mothers in France [1]. Independently, Jones and colleagues in the US identified similar physical and behavioural problems in children of chronic alcoholic mothers in 1973, and were the first to employ the term Foetal Alcohol Syndrome (FAS) [2, 3]. Since then, knowledge regarding the negative consequences of alcohol consumption during pregnancy has continued to increase and it is now well recognized that prenatal alcohol use can lead to a range of adverse effects. These effects are known as Foetal Alcohol Spectrum Disorders (FASD) and are the leading preventable cause of brain damage in unborn children in Western countries[4]. FASD is an umbrella term that describes the range of effects that can occur from prenatal alcohol use; including physical, mental, behavioural, or learning disabilities. FAS falls at the highest end of this spectrum and is characterised by distinctive facial abnormalities and physical birth defects[5]. The prevalence of FASD is difficult to determine as it often goes undiagnosed and there is confusion, even amongst health professionals, between the terms FAS and FASD. However, it is estimated that in the US between 0.5 and 2 births per 1000 are affected by prenatal alcohol use[6]. The prevalence of FASD in Australia is reported to be approximately six per 1000 live births although this figure is likely to be higher due to under-reporting associated with the difficulty in diagnosing FASD[7].

Due to the serious consequences that prenatal alcohol consumption may have, the current Australian guidelines recommend for pregnant women, or women planning a pregnancy, not drinking is the safest option[8]. Despite this, many pregnant women in Australia continue to consume alcohol during pregnancy, even after learning that they are pregnant[9]. Given that FASD is a preventable cause of birth defects and lifelong developmental issues, it is important to understand why women are continuing to consume alcohol during pregnancy.

A recent survey of health professionals in Australia found that only 45% (n = 1143) routinely ask about alcohol use in pregnancy, only 25% (n = 1143) routinely provide information on the consequences of alcohol use in pregnancy and only 13% (n = 1143) provide advice consistent with the current NHMRC guidelines on alcohol consumption in pregnancy[10]. A similar survey among paediatricians in Western Australia found that approximately 21% of paediatricians (n = 17/82) routinely ask about alcohol use during pregnancy and approximately 10% (N = 8/82) routinely provide information about the effects of alcohol consumption on the foetus[11]. Research conducted by Jones et al. (2012) indicated that midwives had limited knowledge of the health risks associated with alcohol use during pregnancy, and that although there was a strong social presumption that pregnant women should not consume alcohol, the women were often not asked about their alcohol use[12]. Other Australian research has shown that midwives and general practitioners were unlikely to ask pregnant women about their alcohol consumption as they believe that their clients already knew not to drink alcohol[13, 14]. Research findings such as these provide insight into a potential underlying lack of information which may be responsible for women continuing to consume alcohol during pregnancy, despite clear government recommendations. This suggests that there are significant areas for improving the dissemination of accurate information by health professionals to pregnant women about alcohol use in pregnancy.

Rationale

Women are continuing to consume alcohol during pregnancy, and the incidences of FAS and FASD are not decreasing. Past qualitative research has suggested that advice from health professionals about alcohol consumption during pregnancy is desired by many pregnant women, and may be persuasive in reducing consumption[15, 16]. For this reason, an in-depth exploration into the knowledge and attitudes of health professionals was deemed necessary to investigate any barriers to providing accurate information about alcohol use to pregnant

women. The current research focused on a range of health professionals, including midwives, shared-care General Practitioners (GPs) and obstetricians, and used in-depth interviews to gain an understanding of the knowledge and practices of these health professionals in relation to alcohol use during pregnancy.

Participants and methods

A literature review was conducted to determine the major issues for health professionals in the area of alcohol consumption during pregnancy and following this an interview protocol was developed. The protocol explored health professionals' knowledge of the effects of alcohol consumption during pregnancy, their current practice in questioning pregnant women about alcohol use and the information they provide about the use of alcohol during pregnancy. The interview protocol contained questions and prompts for the interviewer to follow.

Participants

A purposive sample of ten participants was recruited using word-of-mouth. Participants were included if they were health professionals who regularly provide antenatal care, and have had more than six months experience in antenatal care. Ten semi-structured interviews were conducted with health professionals including: four midwives, three GPs, and three obstetricians.

Procedure

Eligible health professionals were contacted via email by the first author (FCW). Forty two emails were sent and health professionals who expressed interest in the research were contacted to arrange an interview time. Ten participants were initially selected; approximately equal numbers from each profession. Data saturation was reached after this number and therefore no further interviews were arranged.

Data collection

The interviews were conducted between January and May 2014 by the first author (FCW) at the health professional's place of work, which included GP practices and antenatal clinics across Adelaide. Interviews ranged from 22 to 48 minutes.

Data analysis

Interviews were audio-taped and transcribed verbatim, with field notes and summaries of the key points written by the researcher at the end of each interview. A six-step protocol described by Braun and Clarke (2006) was used to analyse all interview transcripts using thematic analysis techniques[17] . The analysis involved deriving data extracts from field notes, summaries, and verbatim transcripts. Extracts of data were then coded into logical concepts, and these codes were categorised, re-categorised and condensed to identify the major themes. The themes and sub-themes identified through the analysis were reviewed and cross-checked with other members of the research team, before naming and defining [17]. Throughout the thematic analysis process, codes and themes that arose were discussed by the research team to ensure agreement with interpretation and grouping of data.

Ethical considerations

Approval was granted by both the University of South Australia's Human Research Ethics Committee (HREC) and the Women's and Children's Health Network HREC prior to the study's commencement (Protocol no. 0000031358 and HREC/13/WCHN/121 respectively). Participants took part in the research after written consent was obtained to conduct and record the interview. Participants were assured that anonymity and confidentiality would be upheld. The researcher (FCW) conducting the interviews did not have any clinical relationships with the participants prior to recruitment; this therefore reduced any potential bias. The interviewer explained the goals of the research at the commencement of each interview. All aspects of this research conformed to the *National Statement on Ethical Conduct in Human Research (2007)* by the National Health and Medical Research Council of Australia.

Findings

Demographic information

Participants' age ranged from 27 to 62 years. The ten health professionals included five participants from private practice (one general practitioner (GP), one midwife, and three obstetricians) and five from the public sector (three hospital midwives, and two GPs). Seven participants were female and three were male.

Results of the thematic analysis

From the extracts of data recorded from the interviews with health professionals, five major themes were identified. These were: (1) perception of harm; (2) knowledge and information; (3) society and culture; (4) practice and procedures; and (5) life impacts. Figure 1 displays the thematic map. Verbatim quotes from participants are provided to illustrate these themes.

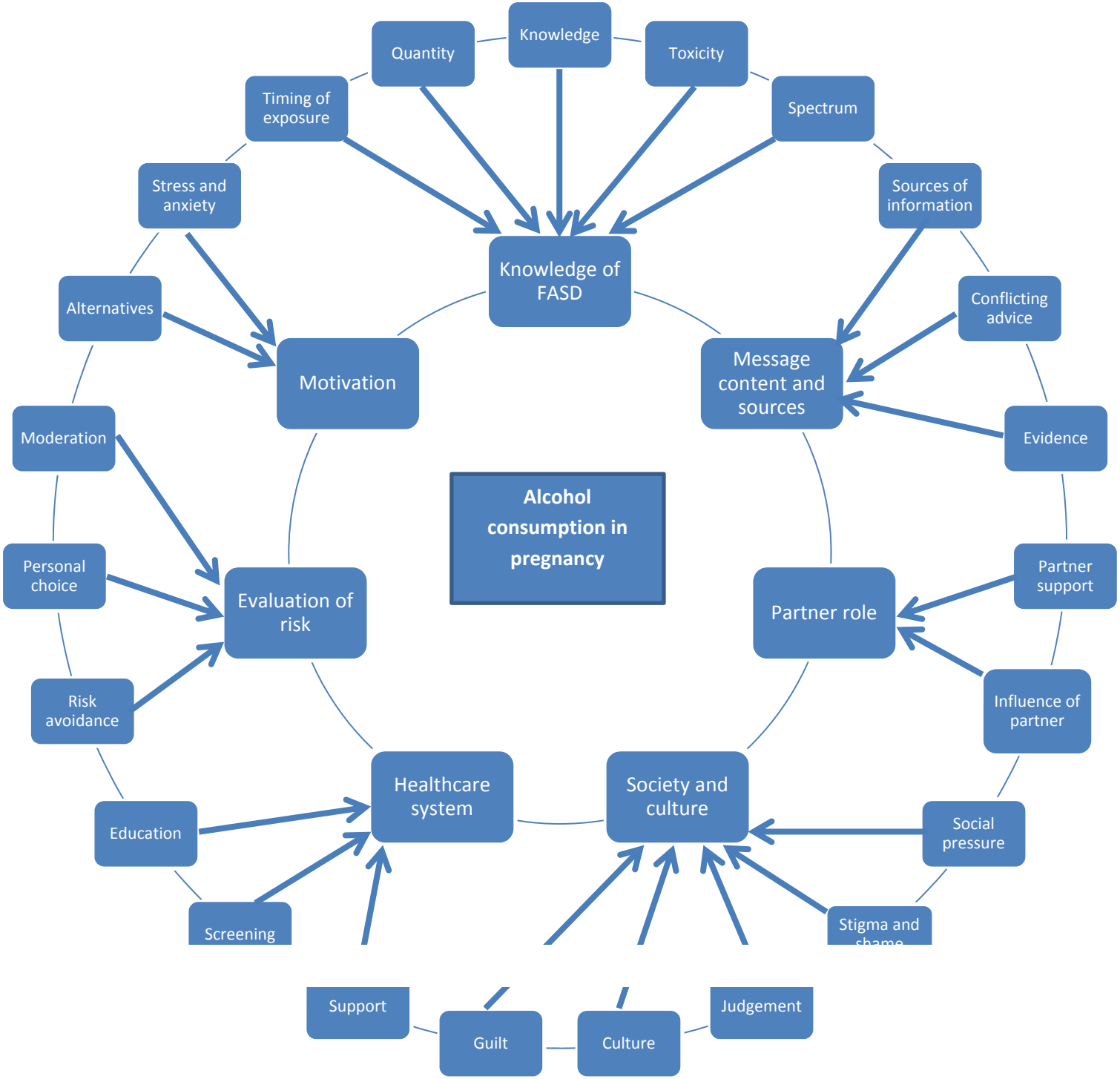

Figure 1: Thematic map

1. Perception of harm

The first major theme, perception of harm, encompasses a range of codes, including outcomes of consuming alcohol during pregnancy, as well as timing of exposure and quantity of alcohol consumed. Most health professionals had a good understanding of the physical and developmental problems associated with alcohol consumption and all of them noted FAS as the most serious consequence. Despite this, several participants could not explicitly describe the condition, and additionally very few participants had heard of FASD.

> "if women drink a lot of alcohol there is a condition known as Foetal Alcohol Syndrome" (obstetrician #3)

> "Could I actually delineate what the adverse effects are? Well no I can't actually describe that, I could google it and tell you all about it. I know that they are funny looking kids and I think they have got retardation problems and developmental problems but certainly couldn't describe a lot more" (GP #2)

> "I'm not sure of the specific details of what happens to these babies but they are very very unwell" (GP #3)

> "For the baby, I guess the big one would be foetal alcohol syndrome. And I guess that is probably all I know, which sounds really bad" (midwife #1)

> "I think the problem is too much alcohol, real alcoholics. That can cause brain injuries. We learnt about Foetal Alcohol Syndrome as part of midwifery training. But I think it is an issue in Aboriginal women" (midwife #3)

Many health professionals noted that varying quantities of alcohol consumption could lead to a different spectrum of difficulties; furthermore, all participants believed that small amounts of alcohol, such as an occasional glass of wine, were unlikely to cause harm.

"It's probably about the quantity and the ongoing nature rather than one drink or one binge night when you got pregnant" (GP #2)

"I think they've adopted a fairly low risk model so they've said no alcohol consumption. It used to be a small amount but relatively recently that was changed, in the absence of actually any strong evidence I must say. It was done as a risk mitigation strategy I think, because they just thought let's play it safe and we'll just say no alcohol. But in fact I don't think there's actually any evidence that a small quantity of alcohol does any harm" (obstetrician #1)

"I say to women, you know if it's someone's 21st or if it's New Year's Eve, you could have half a glass of champagne and that would be perfectly ok. I say you probably won't feel like anymore because your body's kind of naturally repelling you from it, but if you wanted to have a glass of bubbles and celebrate then that's fine" (GP #1)

"I know that the effects are mostly from heavy drinking, but there is no clear evidence for small amounts. Studies have shown that some alcohol can cause harm, but there are discrepancies on a 'safe time' because there is no guarantee that a small glass will affect the baby" (midwife #4)

Several participants felt that alcohol consumed later on in the pregnancy was less likely to cause harm than if consumed in the first trimester, although this was contradicted by other participants.

"My view is that once you've had your 20 week scan and you know that everything has developed morphologically normally as you go along in your pregnancy your risk of something going wrong gets less, so if you were right down the track and you had a

drink I think it would be less harmful than if you were maybe 8 weeks pregnant and you have a drink I think that's going to cause more trauma later on" (midwife #2)

"Some obstetricians, and some people in Europe, recommend wine, not spirits, but they say wine is fine as long as it's not in the first trimester" (midwife #4)

"I certainly don't get people all worried about one drink on a special occasion or early in pregnancy" (GP #2)

2. Knowledge and information

The theme of knowledge encompassed the largest number of codes and data extracts, and included issues around evidence, guidelines, support, information sources, and assumed knowledge. Participants were aware of the current guidelines, and believed that the current Australian guidelines recommend no alcohol as the safest option during pregnancy; however, many participants felt that there needed to be more evidence to support these guidelines.

"if you can have one glass of wine now and then, why are you denying that to a woman with no evidence" (GP #1)

"I really think that *a* drink won't hurt...These days everything is very extreme, they say no coffee, no alcohol etc. with limited evidence" (midwife #3)

It emerged that health professionals thought there was a lot of information on alcohol use in pregnancy that they could access, and that pregnant women could access as well. They believed that generally women's knowledge levels were quite high, although it was often assumed that women knew about the effects of alcohol consumption during pregnancy without asking them.

"I guess pre-pregnancy, if you're having a drink and you're only having the recommended amount, like one to two glasses of red wine a week for anti-oxidants, then that's not necessarily going to be a bad behaviour or an issue it's only when you get to the pregnancy, planning a baby and having a baby, if you didn't know that alcohol could cause problems then you wouldn't stop and so you would maybe see a complication in that baby, but most people are aware, it's pretty common knowledge that you shouldn't drink while you're pregnant." (midwife #2)

"I think women know they *shouldn't* drink. I don't know if that stops them actually drinking though." (midwife #3)

"If there were obvious signs, or I knew they had alcohol abuse issues I might discuss it with them but I haven't had anyone like that. If anyone I saw wanted to know about drinking in pregnancy I would definitely talk about it with them." (midwife #4)

Several health professionals commented that education needed to happen before pregnancy preferably in high school and pre-conception.

"Once they are pregnant it is too late to change their behaviour. We need to be educating women at school about not drinking when they get pregnant, otherwise they just grow up doing whatever they have learnt from their mum and the media, but if we teach it in the sex ed curriculum they will have that knowledge before they even think about actually getting pregnant." (midwife #4)

"We try to encourage all our patients to be seen pre-conceptually so two or three months before they want to get pregnant" (GP #3)

3. Society and culture

A common observation from the health professionals was that society and the media played an important role in the way alcohol use in pregnancy was perceived. Several health professionals stated that they believed Australia has a big culture of drinking, and they could understand that many women might feel social pressure to drink even when pregnant.

> "I do think that there is such a culture towards drinking and a lot of women would feel pressured to drink…It doesn't really make sense to me why someone would go and get really intoxicated once off or even frequently during the pregnancy, but I can understand the social situations that lead to that for sure" (midwife #2)

> "You look at the young women, a lot of them don't drink every day but when they do drink they are very heavy drinkers and I think if we're going to be serious about treating women with alcohol issues we've got to do it before they get pregnant" (GP #3)

> "There is a peer pressure not to drink in public. But maybe lots of women drink privately instead, and then they might drink to excess. I think it's affected by socio-economic status." (midwife #3)

Two of the GPs reported that they dealt with a lot of international women, particularly Muslim women, and that for this cultural group alcohol consumption was not an issue. Several health professionals also commented on the increase in alcohol consumption among young people in recent years, and the impact this culture of binge-drinking may have on intended pregnancies in the future. Almost all of the health professionals asserted that they had not seen much about the issue of alcohol use in pregnancy in the media, and only one midwife mentioned that she had seen the new government labels on alcohol containers.

"From the media that I read, I wouldn't say there was necessarily a big focus that I've seen…I haven't seen any labels. It's not like I haven't seen a bottle or two but no I haven't noticed any new labels" (GP #2)

"I don't know but I have seen on the back of cigarette packets the pictures of the small, growth restricted babies, saying "if you smoke, smoking will harm your baby" but I haven't seen anything on alcohol." (midwife #2)

"Every now and then they could do a big push, but I guess maybe more for us, like the health professionals, we probably should be talking about this stuff." (midwife #1)

4. Practice and procedures

Another major theme that emerged was that existing practices and procedures played a key role in the way that pregnant women were provided with information about alcohol use in pregnancy. Codes included structure of the healthcare system, time constraints, screening and compliance.

"I guess like I said its one of those things that just slips under the net a bit. You tend not to bother with it, because there is so much other stuff. And no one asks about it either. Everyone asks what can I eat while I'm pregnant or can I exercise, can I still have sex, can I drive my car, all that sort of stuff, but no one, I guess yeah we assume they already know so why would they bother asking." (midwife #1)

"I suppose in their dreams they would want the obstetrician personally to tackle each particular issue, like smoking, breastfeeding, alcohol and all these different single issue matters, but the truth of the matter is that we are not in a position to do that, the way the Medicare fees are structured. There's not an expectation that you would do that… if people wanted us to do that, the fee we could charge would allow for a much

more prolonged consultation but the Medicare rebate for a first antenatal visit is very low" (obstetrician #1)

"If you do alcohol then you have to do tobacco you got to do everything else and you've got to bang on about their weight because most of them are overweight. So then where do you stop?" (obstetrician #2)

It was common for health professionals to ask pregnant women only once about their alcohol use at the start of their pregnancy, and not to investigate the average quantity and frequency of consumption. It was felt that alcohol use was only brought up if the women requested to talk about it, or it was known that there was an alcohol issue.

"I don't ask my patients about their alcohol use. No, I actually just saw one this morning, and I don't. I question them all if they are taking medication, if they're smoking, and then I might say something like 'you know, you shouldn't drink any alcohol' and if they're smoking I'll tell them to stop smoking or cut it down. So no, I don't actually say 'how much are you drinking?' or if you are. I work in a pretty middle class area so like nobody drinks, they don't smoke." (GP #1)

"When they book into a hospital we do a triage visit, so we ask their entire medical history, about previous pregnancies, when are you due, and who will you see, and we usually ask them then about their drug use. But that's probably the only time. It's just covered in medical history. Not unless there is a known issue, but that's very rare. It's not 'do you have an addiction to alcohol or do you just have a couple of drinks every night?' That's not a question that gets asked … If nothing comes up at that very first visit, it doesn't get asked again" (midwife #1)

301 "I don't know about checking throughout the pregnancy, I mean some things are done
302 at 20 weeks and then again at 40 weeks and they probably haven't even asked about
303 whether they're having alcohol, it's just assumed that it was covered at the start so it
304 shouldn't be an issue now" (midwife #2)

305 All health professionals explained that if the women in their care had a known alcohol issue,
306 they would know how to deal with that issue appropriately. All of the health professionals
307 interviewed maintained that they had never seen a baby born with FAS, and most of them
308 believed that the women they saw did not drink. In particular, shared care GPs believed that
309 their patients were very motivated and that none of the women in their clinics continued to
310 drink once they learnt of their pregnancy.

311 "I've been in general practice over 30 years, I don't think I've had one child with
312 foetal alcohol syndrome or foetal alcohol spectrum in my clinical practice" (GP #2)

313 "I see more of neo-natal abstinence syndrome and withdrawal from medications than
314 alcohol" (midwife #2)

315 "Luckily my patients are very compliant with the no alcohol advice … I see really
316 concerned and cooperative antenatal patients so it [alcohol consumption] is just not an
317 issue" (GP #2)

318 "I must admit I'm very lucky, I don't have any patients in either practice that drink
319 alcohol at all, I believe" (GP #3)

320 5. *Life impacts*

321 Finally, a commonly occurring issue was that if women were drinking during pregnancy there
322 may be underlying mental health issues, drug use, and other co-morbidities that needed
323 addressing.

> "Is alcohol the only thing that she's doing that is detrimental to her health?" (midwife #2)

> "There are all the problems it can cause the mother, and the baby, and potentially the family, because alcohol is a shocker. It affects the whole family, and the second family and everyone as well. And if there are any people who have those sorts of issues we can get them to see drug and alcohol counsellors before." (GP #3)

Five of the health professionals interviewed also stated that they believed tobacco to be a bigger issue for pregnant women than alcohol use, and that they had seen a lot more information about smoking.

> "I know alcohol is an issue, but arguably, tobacco is a bigger issue in pregnancy" (obstetrician #1)

> "At uni we get taught a lot more about smoking and obesity and we tend not to know so much about alcohol. There's a lot more about smoking, a lot more pamphlets and paperwork, and tick the box if they are smoking. There's a lot more information about that. There's not much about substance use." (midwife #1)

> "There is a lot of information about smoking, I've seen posters and that, but even when I was personally pregnant I didn't see any posters or anything about alcohol" (midwife #4)

Discussion

This study presents an in-depth exploration of health professionals' knowledge and practice on the topic of alcohol use in pregnancy. The findings revealed adequate knowledge that alcohol can cause physical and mental difficulties that are lifelong; however, knowledge of the term FASD and the broad spectrum of difficulties associated with alcohol consumption

during pregnancy was limited. Although health professionals were willing to discuss alcohol with pregnant women, many did not make this a routine part of practice. Past research indicates that barriers exist which make it difficult for health professionals to discuss alcohol use with their pregnant patients[10, 14]. Some of these barriers include: the perception that the majority of women do not drink alcohol during pregnancy; the perception that women know not to drink; the perception that alcohol is not a priority in the antenatal booking consultation; that the burden of consultation is too much to include alcohol; and the perception that discussing alcohol might cause anxiety, frighten or anger the woman[14]. Several of these barriers were confirmed by the findings of the current research. In 2012 the Australian government developed Clinical Practice Guidelines for antenatal care which provides recommendations and advice on how to communicate with pregnant women about various issues including alcohol[18]. If health professionals are not comfortable discussing alcohol use with pregnant women, it may be that these guidelines are not being effectively distributed and promoted. Further, if health professionals feel that they are not adequately trained to manage a woman who has been consuming alcohol, this is an issue that needs to be addressed and additional training may need to be implemented for health professionals in this area.

Health professionals' knowledge of the effects of alcohol consumption during pregnancy was adequate, although few had actually heard of the term Foetal Alcohol Spectrum Disorders. Participants commented on the lack of evidence around small amounts of alcohol consumption, and this may be another reason that the health professionals are not encouraging the recommended NHMRC guidelines. Despite a lack of strong evidence, some research suggests that a relatively low threshold of alcohol consumption can lead to foetal harm[13], and as every individual woman is different, no safe level of alcohol use during pregnancy has been determined for everyone. Therefore it is important that health professionals are providing sensible advice about the likelihood of risk; carefully explaining

why the current guidelines exist and encouraging women to follow them. As health professionals in this study reported that they were unwilling to recommend abstinence for pregnant women based on a lack of evidence, it may be that they are not fully informed of the reasoning behind the guidelines, or do not realise that risks are different for different women. Further, participants in this study were aware of the current guidelines but were not routinely informing pregnant women of them. This may be because the health professionals assumed that the pregnant women were already aware of the guidelines, which previous research has found to be inconclusive [19].

Similarly, several health professionals stated that they believed the women in their care were motivated and did not continue to drink after learning that they were pregnant. However, this was based on personal beliefs and judgements, with routine assessment of drinking practices often not being undertaken by health professionals with every woman. While making judgements about the types of women who might drink, health professionals are not actually asking women and/or following up with them. This has been confirmed in a study of pregnant women, which found that most women were asked about their alcohol use only once throughout their pregnancy [20]. This was particularly the case for private practice (obstetricians and private GPs). Recent research has suggested that women who are older, more educated, and of higher socioeconomic status are more likely to be consuming alcohol during pregnancy, and it is these women who may be more likely to attend private clinics [9, 20]. It is therefore important in order to effectively reduce the incidence of FASD that continual assessment for alcohol use occurs at each and every antenatal appointment, and that both quantity and frequency of alcohol consumption are discussed.

The fact that alcohol is often overlooked in antenatal appointments came across as a problem of the healthcare system overall. Midwives in particular noted that especially during booking appointments there was too much information to cover, and that some things had to be missed

out. Similarly, obstetricians felt that the Medicare rebates for an appointment did not allow for overly long consultations and again certain aspects of care during pregnancy were overlooked. This issue may highlight the need to look at the current antenatal appointment system and determine whether any changes could be made to ensure that all aspects of healthcare are covered and that women are provided with all the necessary information. A potential solution to this problem of overloading information is the use of online health resources such as Maternity Assist in the UK [21].

FASD prevention has become a significant public health priority in Australia, particularly since the launch of the governments 'Australian Foetal Alcohol Spectrum Disorders Action Plan: 2013-2016' [22]; however, despite significant public health awareness, alcohol consumption during pregnancy does not seem to be viewed as a priority for health professionals. Interestingly, although it was mentioned repeatedly that alcohol was not a big issue in pregnancy and often went overlooked, several participants commented that alcohol use dominated Australian culture and that drinking among women in the general population was increasing. Therefore it seems unrealistic to expect that if women are drinking before getting pregnant that they would suddenly reduce their alcohol use for 40 weeks, unless they are provided with the necessary information to make that choice. The culture of drinking in Australia is unlikely to change, so it is very important that health professionals make a conscious effort to inform pregnant women of the harms associated with consuming alcohol during pregnancy, and do not simply assume that women already have that information. The findings of this study revealed that participants felt that women should receive education about the harms of alcohol consumption during pregnancy before becoming pregnant, either at high school or in the 2 to 3 months pre-conception. Health professionals felt that once a woman is pregnant she is less likely to change her health habits than if she is aware of the risks pre-conception.

An unexpected finding from the health professionals was that they viewed tobacco use as a much bigger issue than alcohol use in pregnancy. Not only did health professionals have a better understanding of the effects of smoking on the foetus, they also tended to screen for smoking more thoroughly and provide more information to women who smoked than those who might be drinking. It is important that alcohol is acknowledged as an equally important health issue for pregnant women, and that information is provided to all pregnant women about the effects of alcohol consumption in pregnancy. It may be that health professionals training needs more focus on alcohol consumption.

Limitations

The main limitation of this study is generally true for much qualitative research, namely, due to the sampling plan and comparatively small sample size, the findings may not be generalizable to other populations. Further, no health professionals were included that worked in low socio-economic areas, and this may have led to biased findings. Notably however, health professionals representing the three main health care providers for pregnant women in Australia were included in this study.

Implications

The findings from this study indicate that improved, more thorough, communication and information regarding alcohol use during pregnancy between health professionals and pregnant women is required. This may mean that health professionals need continued professional development and education regarding current evidence, and current guidelines about alcohol use and pregnancy. This information then needs to be adequately communicated to all pregnant women. It is essential that health professionals are questioning every pregnant woman about her alcohol consumption, and continuing to assess this throughout the pregnancy. It is also important to ensure that health professionals are educated

about the current government guidelines and informing women that there is no safe level of alcohol use during pregnancy, as advice of allowing one or two drinks for special occasions can lead to confusing and conflicting messages for women. It is important to clarify to all health professionals that despite a lack of evidence around small amounts of alcohol the purpose of the guidelines is to ensure a safe and clear message for all women. Research into the levels of alcohol consumption that cause harm has been limited and inconsistent[23]. It is suggested that further high quality research is conducted, particularly into the effects of small to moderate amounts of alcohol during pregnancy, in order to ensure that the guidelines are truly evidence based. In this way, health professionals may feel less inclined to undermine the current guidelines.

Conclusion

Despite improving knowledge about FASD over the last several decades, there has not been a significant reduction in the numbers of women who consume alcohol during pregnancy, with the incidence of FASD and FAS failing to decrease. It appears from these findings that communication and information between health professionals and pregnant women is key to ensuring that the message of abstinence during pregnancy, and the reasons behind this recommendation are effectively conveyed. An effective strategy needs to be adopted to ensure standardised education and training for all health professionals to provide accurate and up-to-date information and recommend the national guidelines. It is then important to guarantee that health professionals relay this information to every pregnant woman they see. Health professionals are ideally situated to implement FASD prevention or intervention campaigns and to increase the awareness of the harmful effects associated with alcohol consumption in pregnancy. However, the sample of health professionals in this study does not appear to be providing adequate health education on this topic.

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