

Contents lists available at [ScienceDirect](#)

Midwifery

journal homepage: www.elsevier.com/locate/midw

“Now, with a bit more knowledge, I understand why I’m asking those questions.” midwives’ perspectives on their role in the Greater Manchester health and social care partnership’s programme to reduce alcohol exposed pregnancies

Ruth Morrello*, Penny A. Cook, Margaret Coffey

School of Health and Society, University of Salford, M6 6PU, United Kingdom

ARTICLE INFO

Article history:

Received 5 July 2021

Revised 9 February 2022

Accepted 2 April 2022

Keywords:

Alcohol

Pregnancy

Screening

Midwife

Brief intervention

Foetal alcohol spectrum disorder (FASD)

ABSTRACT

Objective: To understand midwives’ perspectives regarding the effect of a programme of activities aimed at reducing alcohol exposed pregnancies at two NHS Trusts in Greater Manchester. The programme included new protocols for screening, a referral pathway for specialist support and alcohol training for midwives.

Design and participants: Semi-structured interviews were conducted with 6 midwives working in antenatal care at the two Trusts over the telephone and via video conferencing. A review of the literature provided insight into contemporary midwifery practice. The Theory of Planned Behaviour was used to inform the interview schedule design. Data analysis used a Framework Approach and drew on *a priori* themes from the literature review.

Findings: Participating midwives described objective screening practice using a validated tool on multiple antenatal occasions and were confident to discuss alcohol. Participants were cognisant of local and national policies and guidelines. Discussing alcohol was viewed as important and part of the midwife’s role, beliefs which supported participants’ intention to practice in line with new protocols. Maternal under-reporting and denial of alcohol consumption was a key barrier to providing effective care.

Key conclusions and implications for practice: The professional practice of participants was more in keeping with the Chief Medical Officer’s recommendations than that reported in recent research from the UK and other high-income countries. However, from this small study it is not possible to attribute this directly to the local Reducing Alcohol Exposed Pregnancies programme. Training to prepare midwives to elicit more accurately details of maternal alcohol consumption may improve the efficacy of the programme.

© 2022 The Authors. Published by Elsevier Ltd.

This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>)

Introduction

Alcohol consumption in pregnancy can have profound and life-long detrimental effects on the unborn child (Jonsson, 2019). Alcohol easily crosses the placenta and can affect the development of the foetal central nervous system at any stage of pregnancy (Jonsson, 2019). Effects of exposure include cognitive impairment (Aragon et al., 2008; Flak et al., 2014), behavioural difficulties (Tsang et al., 2016) and mental health problems (O’Connor et al., 2002; Barr et al., 2006). Likelihood of adverse birth outcomes such

as stillbirth (O’Leary and Bower, 2012), preterm labour and small for gestational age infants (Patra et al., 2011; Nykjaer et al., 2014) is also increased. Foetal Alcohol Spectrum Disorders (FASD) is an umbrella term that describes the range of outcomes that can ensue from prenatal alcohol exposure (British Medical Association BMA 2016). Direct costs of FASD include increased use of healthcare and mental health services, speech and language interventions and special educational needs provision (Popova et al., 2016), in addition to the considerable emotional burden on families. The British Medical Association BMA 2016 estimates the annual cost of FASD in the UK to be over £2 billion.

Calculating FASD prevalence is problematic as diagnosis is often late or can be completely missed (Mukherjee, 2014). International research estimates that the World Health Organisation’s

* Corresponding author.

E-mail address: r.morrello@edu.salford.ac.uk (R. Morrello).

(WHO) European region has the highest global prevalence of FASD, at 19.8 per 1000 population (Lange et al., 2017), and the UK has the fourth highest rate of alcohol exposed pregnancies in the world at 41.3% (Popova et al., 2017). International modelling study has put the UK prevalence of FASD at 3.24% (Popova et al., 2017), while the UK's first (small scale) study to directly measure the prevalence suggested 1.8–3.6% children were affected (McCarthy et al., 2021). Alcohol exposure in pregnancy is therefore an important public health concern (Schölin et al., 2021a).

The association between heavy drinking and FASDs is clear (Flak et al., 2014) but the evidence relating to low levels of alcohol use is more ambiguous (Mukherjee et al., 2017). The difficulties of investigating this include inconsistency of definitions of light drinking and the effect of genetics on FASD (Charness, Riley and Sowell 2016). There is currently inadequate evidence to determine a safe threshold for prenatal alcohol consumption (British Medical Association BMA 2016).

Frequent policy changes and international discrepancies have detracted from a clear public health message, causing confusion for healthcare professionals and pregnant women alike (Crawford-Williams et al., 2015a). In 2016 the Chief Medical Officer (CMO) in the UK issued guidance advising that women who are pregnant or trying to conceive should not drink alcohol at all (Department of Health DoH, 2016), bringing the UK into line with many other countries. Nonetheless, internationally, in countries where abstinence guidelines exist, research indicates that a significant number of women continue to consume alcohol (McCormack et al., 2017; Mårdby et al., 2017). Research from Australia and the Netherlands investigating maternal perspectives found advice from health care professionals to be 'sporadic' (Meurk et al., 2014) and 'conflicting' (Anderson et al., 2014; Crawford-Williams et al., 2015b), and the effect of alcohol on the fetus was seldom explained (Jones et al., 2011; van der Wulp et al., 2013). Health care professionals are viewed as a valued source of information, and pregnant women generally follow lifestyle advice provided by midwives (Anderson et al., 2014; Meurk et al., 2014). Clear and consistent advice from midwives could therefore improve adherence to the CMO's abstinence recommendation.

The WHO recommends screening for alcohol use in pregnancy using a validated tool and following up disclosures of drinking with a brief intervention (BI) (WHO, 2014). BIs are brief motivational conversations to support behaviour change in individuals at low to moderate risk of substance misuse (Babor et al., 2007). Limited evidence is available supporting the efficacy of BIs amongst pregnant women (Erng et al., 2020).

A systemised search of the literature on midwives' practice relating to alcohol was conducted. Seventeen papers were identified, including seven from the UK that related to five unique studies (Doi et al., 2014; Winstone and Verity, 2015; Howlett et al., 2019; Schölin et al., 2019a, 2019b, 2021b; Smith et al., 2021). Barriers expressed by midwives to discussing alcohol include lack of knowledge and confidence (Wangberg, 2015; Watkins et al., 2015; Winstone and Verity, 2015), time constraints (Doi et al., 2014; Chiodo et al., 2019; Oni et al., 2020; Schölin et al., 2021b), concern about damaging the client relationship (Doi et al., 2014; Schölin et al., 2019a; Oni et al., 2020, 2021b) and under-reporting of drinking by women (van der Wulp et al., 2013; Schölin et al., 2019a; Lemola et al., 2020, 2021b). A large quantitative study found many midwives in the UK to be unaware of the CMO's abstinence recommendation (Smith et al., 2021). Multiple challenges exist to ensuring consistent dissemination of evidence-based advice.

A programme to reduce alcohol exposed pregnancies (AEP) has been piloted in the Greater Manchester city region of the UK. This has included a digital social media campaign (Reynolds et al., 2021), specialist support and peer support for 'increased risk'

groups; an intervention to prevent unplanned alcohol exposed pregnancies (based on the CHOICES model: Floyd et al., 2007); and a study to determine the prevalence of FASD. It also included a midwifery intervention that is the subject of this study. The intervention was based on the WHO (2014) guidelines and aimed at women who were already pregnant. It has been implemented at two NHS foundation Trusts in the city region since June 2018. The aim of this study was to understand midwives' perspectives regarding the effect of the programme on their clinical practice and to investigate barriers and facilitators to compliance with the new protocols.

Methods

The midwifery component of the Reducing AEP programme comprised: training for midwives working in antenatal care about the effects of AEP and the principles of brief intervention (BI); changes to the antenatal screening schedule; a pathway for responding to disclosures of drinking including BI delivery; and the development of specialist teams to provide enhanced support for women in high-risk cohorts. Training was either a full day FASD and preventing AEP course with an external provider or a one-hour inhouse update on FASD and preventing AEP (a condensed version of the full day course delivered by Trust staff). The Trusts were not able to release all staff for a full day of training and priority was given to specialist midwives. The new screening schedule required screening to be carried out using a validated tool on two occasions in early pregnancy and once in the third trimester. 'TWEAK' (Russell and Skinner, 1988), or 'AUDIT-C' (Bush et al., 1998) were used in accordance with pre-existing wider practice at the two Trusts allowing an interface between the new maternity pathway and existing medical pathways. Previously, policy required midwives to screen once in early pregnancy, but data on midwives' compliance with this, and compliance with tool use, are not available. The new specialist teams have small caseloads to allow longer appointment times and use a continuity model of care (NHS England, 2017).

This study was part of a wider evaluation of the programme that made use of routinely collected data on numbers: screening positive for any alcohol consumption; at risk of AEP using Audit C or TWEAK; reducing Audit C score at second contact; fitted with LARC by a midwife prior to discharge. These data showed that 11% of pregnancies are flagged as 'at risk' during the period of the intervention. Due to a lack of funding for a large-scale evaluation, the intervention was not subjected to formal evaluation methods, for example using an experimental or quasi-experimental approach. It was also not possible to get an assessment of pre-intervention AEP, since prior to the intervention, mothers were not routinely asked these questions.

This paper explores changes to midwifery practice following implementation of the Reducing AEP programme. Multiple theories have been developed to understand the factors that underpin behaviour change (Davis et al., 2015). The Theory of Planned Behaviour (TPB) (Ajzen, 2002) was used to guide the study, as it has been found to be an appropriate tool for investigating and predicting the behaviour of clinicians (Godin et al., 2008). Consistency has been demonstrated between the TPB and other behaviour change theories (Cane et al., 2012), and it has been used in previous research into midwives' clinical practice relating to alcohol advice (Watkins et al., 2015; Gilinsky, 2009). A qualitative, approach using semi-structured interviews was employed. The questions were developed from the TPB, for example, 'are there any difficulties delivering brief interventions?' and 'would you say you feel confident discussing alcohol?' were based on the construct 'Perceived Behavioural Control' (Fig. 1).

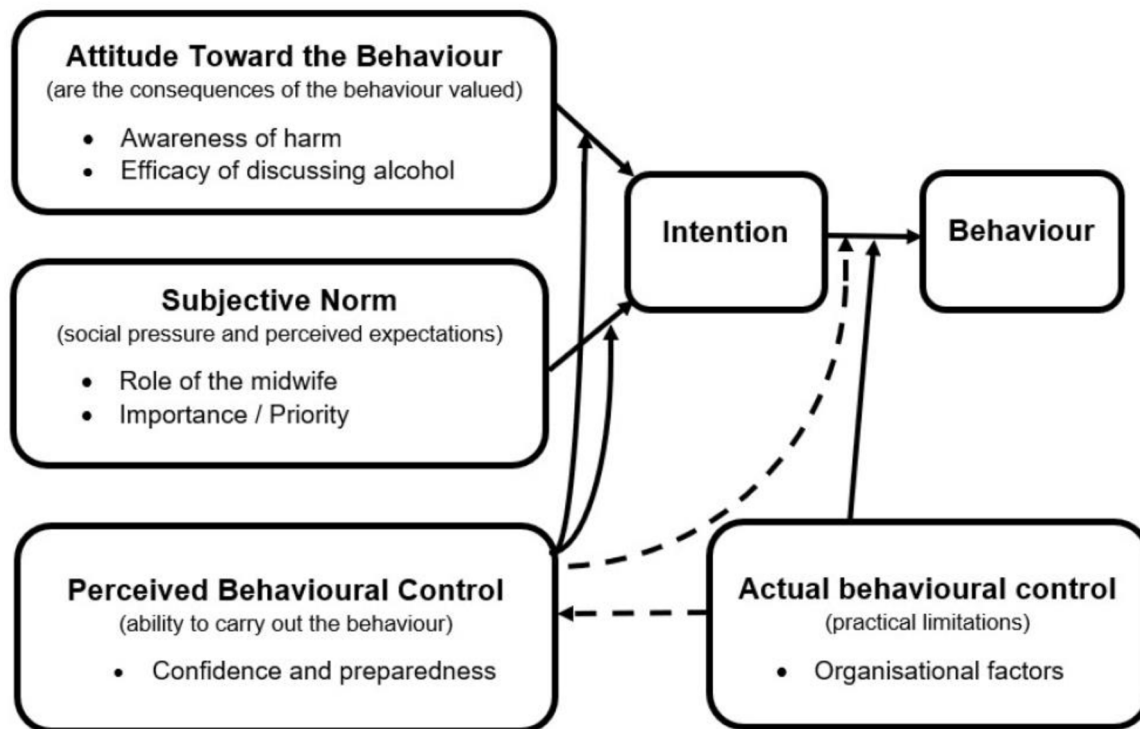


Fig. 1. Theory of planned behaviour (Ajzen, 2002) adapted for investigating the professional behaviour of midwives in this study.

The study utilised purposive sampling of midwives whose role included giving antenatal care. Purposive sampling allows in-depth study of information-rich cases (Emmel, 2013). The text for a recruitment email was sent to managers at two NHS Trusts for onward distribution to midwives. The initial aim was to conduct 8–10 interviews, based on previous similar studies which reported achieving data saturation with this number of participants (Jones et al., 2011; Van der Wulp et al., 2013). This target was not met due to recruitment difficulties caused by Covid-19. There was no response to the initial email inviting midwives to take part. Managers were asked to resend the email and highlight the research in staff meetings. No funding was available to provide incentives to participation. The AEP leads at both Trusts were also contacted for assistance. Seven midwives subsequently responded expressing interest in participating, one of whom later withdrew without giving a reason. A participant information sheet was provided, and informed consent was obtained.

Data saturation is a subjective concept, and few studies outline how it has been assessed (Malterud et al., 2016). Most importantly the sample size must be sufficient for key perceptions on a topic to be expressed (Mason, 2010). Six interviews were conducted; the final one did not generate any new themes. It is possible that saturation was achieved, although it would have been preferable to conduct more interviews to confirm this.

Participants were equally distributed between the two Trusts. They had worked as midwives between 15 months and 28 years. Three participants were part of the specialist midwife teams, which were established as part of the programme. The remaining three midwives had roles delivering routine antenatal care, two of whom were community midwives and one worked in antenatal clinic. All of the midwives had been trained within the previous 2 years (Table 1).

A review of the literature identified themes for exploration in the interviews. The TPB was used to relate these themes to the factors influencing participant's clinical practice (see Fig. 1). The

interview guide was piloted with a midwife from outside the intervention area, and no significant edits were made.

Due to lockdown restrictions in place for Covid-19, interviews were carried out remotely, via Microsoft Teams conferencing software or by telephone. Midwives were interviewed either at home or in an office to ensure privacy. Interviews lasted on average 35 min, ranging between 20 and 45 min. Interviews were carried out by RM, a registered midwife and were recorded, transcribed verbatim and anonymised. Participants were emailed a copy of their interview transcript for validation; no corrections were received.

Data analysis used a framework approach (Ritchie and Spencer, 1994), which provides a structure to organise qualitative data (Hackett and Strickland, 2018). Framework analysis supports utilisation of themes identified a priori from the literature and emergent themes from the new data (Ritchie and Spencer, 1994). A framework of themes and participants was created. Transcripts were indexed with thematic codes by RM. Data pertaining to more than one theme was entered into multiple cells, facilitating identification of associated themes. Two transcripts and a copy of the framework were sent to PC to confirm the suitability of theme identification.

Ethical approval was sought and obtained from the University of Salford academic ethics panel on 01/05/2020 (Ref: HST1920–292) and the research received approval from the two participating NHS Trusts. Participants were advised that their comments would be anonymised and used in the write up of the research including any reports or articles submitted for publication. Due to the small size of the study and the sensitivity of some of the issues discussed, the quotes are not identified by role or Trust to protect participant anonymity.

Findings

Themes were grouped into four broad subject areas with associated sub-themes (Fig. 2). These were:

Table 1
Characteristics and training experience of participants.

Midwifery Role	Years qualified	Length of training	Number of training sessions attended	Time since last trained
Antenatal Clinic (previously community)	28 years	Full day	1	< 1 year
Community	2 years	1 h	2	< 1 year
Community	3 years	1 h	1 (Update cancelled)	1 – 2 years
Specialist Midwife	15 months	1 h	2	< 1 year
Specialist Midwife	5 years	Full day	1	1 – 2 years
Specialist Midwife	19 years	1 h	2	< 1 year

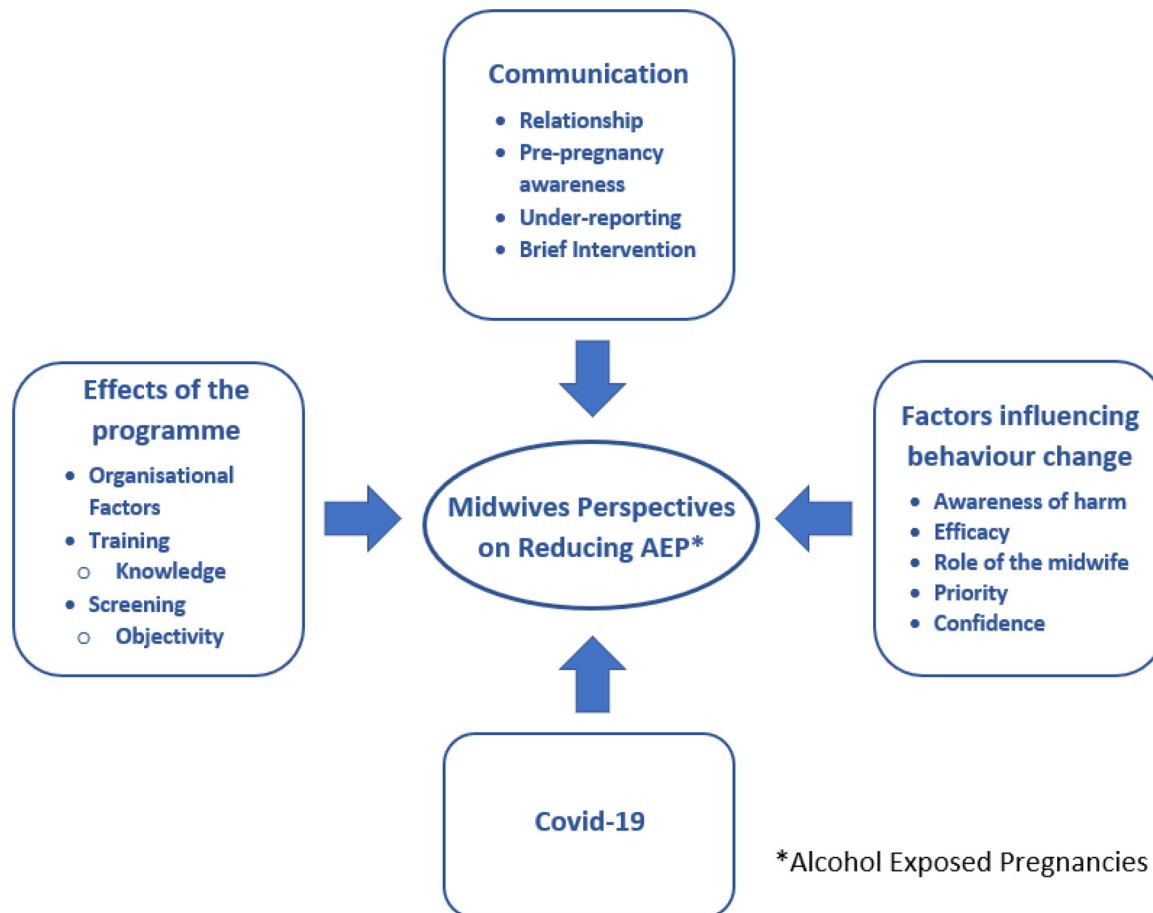


Fig. 2. Themes and Subthemes. *AEP: Alcohol Exposed Pregnancies.

- 1 Effects of the Reducing AEP programme.
- 2 Communication.
- 3 Covid-19.
- 4 Factors influencing behaviour change in clinical practice.

Effects of the Reducing AEP programme

Organisational factors

Respondents were conversant with new local AEP policies and reported being compliant with them. They were familiar with the referral pathway and were aware of the threshold for referral to specialist support. Participants indicated that changes to paperwork and software systems provided prompts for screening and were drivers of compliance with policy. This linked with 'Actual behavioural control' in the TPB (Fig. 1), suggesting that midwives did not face practical limitations in their organisation.

Training

An aspiration of the intervention was that all midwives giving antenatal care would undergo AEP training. All interviewees had participated in AEP training, although some described this as an in-house 'update' rather than formal training. Three participants had undertaken training more than once and two had attended a full day training course. Although it was the intention that specialist midwives would be prioritised for participation in the full day training, the sample interviewed did not reflect this (see Table 1).

Training appeared to have strengthened the midwives' clinical practice. Participants described having a better understanding of the rationale for screening and demonstrated an increased commitment to the reducing AEP work as a result. They reported being more likely to discuss alcohol on additional occasions to those set out in the Trust screening schedule since undergoing training.

MIDWIFE 4: "one thing I have done since going on that training is, I'm asking more questions about alcohol use in pregnancy, al-

cohol consumption in pregnancy throughout, you know at different points.”

MIDWIFE 6: “now with a bit more knowledge, I understand why I’m asking those questions.”

Training increased participants’ knowledge of the harmful effect of alcohol and of the AEP guidelines.

Knowledge

Participants referred to FASD and demonstrated some understanding of the long-term consequences of alcohol exposure. They mentioned some adverse neonatal outcomes including neurological damage and facial anomalies and were aware that harm could be caused by alcohol exposure at any gestation. This appeared to have contributed to their increased confidence to discuss alcohol with women. The two participants who had attended a full day of AEP training spoke in greater detail about the harmful effect of alcohol, which was suggestive of enhanced understanding.

All the participants were aware that local policy and national guidelines recommend that no alcohol should be consumed at any stage of pregnancy, and they reported this to be their usual advice. Some of the midwives observed that the existing research had not identified a safe threshold for alcohol consumption, but this was not seen as a basis for questioning the evidence regarding light drinking. Participants indicated commitment to the abstinence message.

MIDWIFE 6: “But you know it’s serious evidence and we don’t want babies being born and having poorer outcomes because midwives didn’t have those conversations.”

One discrepancy was noted when a midwife described advising limiting alcohol consumption to 2 units (a UK unit of alcohol is 8 g of pure alcohol), when directly asked by a woman about having a drink on a special occasion. This was incongruous with all other findings including this midwife’s own usual practice, which was to promote prenatal abstinence.

Screening

Participants reported screening all women on more than one occasion antenatally, as per the new protocol. As a small qualitative study, the current research cannot determine rates of screening tool use, but it was noteworthy that all participants stated that they used a validated tool. The midwives supported the policy of making multiple enquiries as they believed this would increase the likelihood of disclosure. The introduction of alcohol screening at first antenatal contact was perceived to reduce harm as women now receive information earlier.

MIDWIFE 1: “I think the more you ask something and kind of chip away, I think the more women will engage. It’s been proven with domestic violence as well. Women don’t always open up, and it can take a lot of contacts for them to do that.”

MIDWIFE 2: “first contact is the earliest time in pregnancy that we speak to women, and the earlier we can provide that information the better.”

Some interviewees were critical of the screening tool feeling that it was more suited to assessing alcohol use in the non-pregnant population. Accordingly, the scoring process was viewed as less relevant. The objectivity of the tools was identified as an advantage, but calculating a score was described as ‘fiddly’ and time consuming. Despite these criticisms, participants reported screening in-line with protocol. They commented that using a tool demonstrated to the women that screening is universal and part of their job, which was an enabling factor.

MIDWIFE 2: “We are looking at AUDIT-C which is used more generically throughout medical care to assess levels of dependant drinking patterns, but we know in maternity even an AUDIT-C score of 1 is not a good thing.”

MIDWIFE 4: “it’s clearly the question as it’s written down, and not something I’m asking in my own words, so I think they are less likely to have a problem with it.”

Objectivity

Screening without prejudice was an example of good practice. Participants were clear that all women should be screened, several of them specifically commented that although alcohol consumption is less prevalent amongst Muslim women, assumptions should be avoided. This objectivity did not preclude tailoring information giving to meet individual needs, which is endorsed by the [Nursing and Midwifery Council NMC, 2019](#).

MIDWIFE 3: “I still ask the questions, even when it’s the case that they don’t drink alcohol for religious reasons, and they’ve said that at first contact, I would still ask those questions.”

Communication

The issues of ‘client relationship,’ ‘under-reporting,’ ‘drinking prior to pregnancy awareness’ and ‘brief interventions’ were closely interwoven and have been combined into the single theme ‘communication.’

Relationship

The midwives recognised that alcohol could be a sensitive subject for some women, but none had personally experienced difficulties giving advice. Continuity of care was viewed as beneficial to building relationships and broaching difficult topics, but several participants commented that rapidly developing rapport with women and tackling sensitive issues was part of being a midwife. All interviewees felt that they had the skills to do this.

MIDWIFE 5: “In my line of work I come across awkward situations all the time, so I just have to find a way to put it.”

Drinking prior to pregnancy awareness

Discussing drinking that had occurred prior to pregnancy awareness was challenging because of the potential to cause maternal anxiety. Several participants commented that there were high rates of unplanned pregnancy locally, which coupled with an extensive drinking culture in the UK, inevitably led to alcohol exposure in early pregnancy. They sought to give reassurance while advising against further consumption. The difficulty of giving sufficient information to motivate abstinence without causing further anxiety was noted.

MIDWIFE 2: “usually when they see the midwife at the first contact, ... they’ll say: ‘yes I’ve had a drink because I didn’t realise I was pregnant, it wasn’t planned.’”

MIDWIFE 5: “you don’t want to put that guilt trip on them, but you don’t want to lessen the facts of what they’re doing.”

It was assumed that women who voiced concerns would refrain from further alcohol intake and the booking screening score was deemed more relevant to care planning than the score calculated at first antenatal contact. Nonetheless, midwives acknowledged that an abrupt change of habits could be difficult and the partner’s drinking behaviour was identified as an important part of the social context of drinking that could either support or undermine the woman’s efforts to abstain.

MIDWIFE 4: *“the people that comment ... that are worried about something they've already done, in my experience usually they have not drunk since they've found out they are pregnant. ... and then they won't do that throughout pregnancy 'cos obviously they are already really worried about it.”*

MIDWIFE 1: *“And then all of a sudden a woman's pregnant, especially with the unplanned pregnancies which are massive aren't they in England, and all of a sudden the woman's been told to stop drinking and the man can just carry on.”*

An example of good practice was a respondent who described using the pre-pregnancy screening questions as a basis for further probing about antenatal drinking.

Under-reporting

Midwives identified under-reporting and denial of alcohol consumption by women as a barrier to providing appropriate advice about alcohol. Under-reporting was not perceived as an indication of problem drinking, but as a normal behaviour when communicating with health professionals because of the stigma associated with alcohol.

MIDWIFE 1: *“I wouldn't say they are always honest, but I don't think anybody is. When your GP asks you how much alcohol you drink, I think a lot of people downplay it a little bit.”*

Several participants appeared to have a polarised view of drinking behaviour, believing that a small proportion of women engaged in problem drinking antenatally, but the majority abstained. This may have contributed to participants accepting at face value denials of drinking.

MIDWIFE 6: *“I don't get women who drink in pregnancy. Like I say, I've only had one woman who disclosed that she was drinking, and she was drinking a lot.”*

Brief intervention

The new local policy required that any prenatal alcohol use should trigger a brief intervention (BI), regardless of whether referral for specialist support was indicated. The specialist midwives were confident and experienced in delivering BI, but the three midwives working in community and clinic roles, were hesitant due to inexperience, despite being confident to broach the topic of alcohol. The midwives who were not part of the enhanced service reported that they were willing to provide BI and could describe what should be included, but they had rarely, or never delivered a BI because women in their care did not drink. Acceptance of inaccurate reporting of consumption is likely to have resulted in missed occasions for BI delivery. This was a small sample and further research is needed to determine whether midwives require more preparation for BI delivery.

MIDWIFE 4: *“I think I would give it a try. I'm not sure that I would feel 100% confident that I would say the right things, but I think I would. I understand the basics of brief interventions.”*

Covid-19

It was evident that Covid-19 had complicated service delivery. The most cited problem was a reduction in face-to-face contact with the women, particularly in early pregnancy. Participants commented that it was harder to broach sensitive subjects over the telephone. Staffing shortages during the pandemic impacted on AEP services, due to specialist midwives being redeployed to fill gaps. Restrictions on partners attending appointments reduced opportunities for involving them in discussions and encouraging

them to support women's attempts to abstain, although one midwife observed that an advantage to women attending alone, was that they might respond more honestly to screening questions. Midwives believed that the pandemic exacerbated the problems they were trying to address, as alcohol consumption in the community was likely to have increased.

MIDWIFE 1: *“you can't always get the women to engage with you over the phone. They've never met you before and you are asking lots of questions.... Lots of personal questions.”*

MIDWIFE 5: *“People then will be hiding away and probably turning to drink because of the stress, so this is a time that's critical to pick these women up.”*

Factors supporting behaviour change in clinical practice

The Reducing AEP programme sought to change midwifery practice in relation to alcohol advice. The programme was not designed using the TPB, however using the theory to explore the effect of the programme helped identify the mechanisms by which the programme has driven behaviour change. TPB views 'intention' as the key determinant of behaviour (Ajzen, 2002). The interplay of three factors contribute to intention: attitudes, subjective norms and perceived behavioural control.

Participants' comments suggested that the training element of the programme had fostered positive attitudes towards the new protocols by increasing awareness of the harmful effect of alcohol and highlighting the importance of the Reducing AEP programme of work. Participants explicitly stated that discussing alcohol was part of their remit and had a clear understanding of local protocols, indicating that alcohol screening and advice was supported by workplace norms. Several participants stated that they felt well prepared to discuss alcohol following participation in training. Midwives' 'behavioural control' to follow the new protocols was supported by organisational changes, i.e. the provision of a clear referral pathway and the instigation of a specialist team, which were identified as enabling factors.

MIDWIFE 2: *“we've got really clear pathways for additional support now, I think midwives feel a lot more confident, because if they have that conversation and the woman said “yes, I do want some extra help”, they know exactly where they can go for that.”*

Discussion

In this small-scale study with midwives who had been working in the context of an AEP intervention, reported clinical practice differed from that identified in the previous literature. Participants demonstrated increased awareness of national guidelines and conducted screening more objectively, than practice described by previous studies from across the UK (Winstone and Verity, 2015; Schölin et al., 2021b; Smith et al., 2021) and internationally (Crawford-Williams et al., 2015c; Jones et al., 2011). The midwives interviewed were competent and confident in applying new protocols and pathways. They perceived advising against alcohol consumption to be important and evidence-based and this was reflected in their clinical practice. This was a small qualitative study, and therefore we cannot confidently attribute the screening tool use and adherence to the specified referral criteria to the intervention, however, it was striking that the midwives were consistent in their response. Previously, studies in the UK and other high-income countries, have found that although most midwives screen for alcohol consumption antenatally, use of validated screening tools was low (e.g. in a UK-wide study: Schölin et al. 2019b) and the threshold for referring women for specialist support was inconsistent (in Norway: Wanberg, 2015; and a UK-wide study:

Howlett et al., 2019). The objectivity of tools facilitates appropriate and consistent use of interventions (British Medical Association BMA 2016).

Participants endorsed the policy of making repeat enquiries with all women, in contrast with previous UK-wide research findings, which indicated that many midwives did not discuss alcohol on occasions other than the booking appointment (Schölin et al., 2019a; Smith et al., 2021). There is evidence that a significant minority of women resume drinking in later pregnancy having previously abstained (Murphy et al., 2014; O’Keeffe et al., 2015). Historic guidelines focusing on avoiding alcohol in the first trimester may have contributed to a misconception amongst women that drinking in advanced pregnancy is safe (Payne et al., 2014). To correct this belief, it is necessary to screen throughout pregnancy and provide information even to those who report abstaining in early pregnancy.

The commitment shown by participating midwives to screening all women without prejudice further indicates a positive effect of the Reducing AEP programme. Previous studies from Australia (Crawford-Williams et al., 2015c; Oni et al., 2020) and Scotland (Doi et al., 2014) found that the volume of information to discuss at booking, and the limited time available undermined effective communication. As a result, it was previously reported that alcohol was often not discussed with women who were perceived, to be low risk (Jones et al., 2011; Crawford-Williams et al., 2015c; Smith et al., 2021). In contrast, all participants in the current study explicitly stated that they would screen everybody and were aware that women in low-risk groups may drink alcohol.

The sensitivity of discussing alcohol in pregnancy was identified in the literature as a barrier to screening, linked to midwives’ desire to avoid causing anxiety or guilt (Payne et al., 2014; Watkins et al., 2015). A conflict between building a relationship before broaching delicate issues and timely information giving to minimise foetal harm was described (Doi et al., 2014; Schölin et al., 2021b). Again, in this study, practice appeared to differ from previous research findings, with midwives reporting that they were confident handling sensitive topics, and early alcohol screening was viewed as beneficial. Understanding of the harmful effect of alcohol, potentially gained from the Reducing AEP training, seemed to strengthen participants’ commitment and confidence to give alcohol advice.

Screening relies on maternal self-reports of alcohol consumption. Research into women’s views on alcohol screening indicates that fear of being judged undermines accurate disclosure of antenatal drinking to health professionals (Muggli et al., 2015). Interviewees in the current study appeared to accept women’s screening responses and believed that most women in their care abstained, despite also being aware that women often do not disclose alcohol intake accurately. Evidence suggests that sustained low-level prenatal alcohol consumption is widespread in the UK (Nykjaer et al., 2014; Popova et al., 2017), but drinking behaviour may have changed since these data were collected. The CMO’s abstinence recommendation (Department of Health DoH, 2016) may have led to reduced AEP, although coronavirus infection control measures appear to have also led to increased drinking in some communities (Daly and Robinson, 2020). This is complex and will be better understood when Office for National Statistics data becomes available for the period. Nonetheless, it is unlikely that the belief expressed by participants, that they do not see women who are engaging in light drinking, is correct. Consequently, it is probable that some opportunities for providing BI are being missed. Further research is needed to investigate how maternal drinking can be captured more accurately.

The significance of pre-pregnancy drinking was underappreciated by most of the midwives in the current research. They described reassuring women who had consumed alcohol prior to

pregnancy awareness but tended to assume these women would be abstinent for the remainder of the pregnancy. Pre-pregnancy drinking is a powerful predictor of antenatal drinking (Corrales-Gutierrez et al., 2020). Disclosure of drinking prior to pregnancy recognition should therefore be seen as a risk factor and used as a prompt for information giving.

Participants stated that they would deliver a BI themselves at the time of screening, if required. This is good practice as it ensures timely information giving and means that women who do not engage with referrals have received information (Oni et al., 2020). Midwives not working in the specialist teams rarely delivered BI because most women reported abstaining from alcohol. This inexperience undermined the confidence of these midwives to deliver BIs. This was a small sample and further local research is needed to determine whether more in-depth BI training is required. Nonetheless, there is evidence that, even in the absence of further intervention, screening influences maternal alcohol consumption (Ahacic et al., 2010; Montag et al., 2015) and therefore the increased screening schedule may mitigate the effect of missed BI delivery.

Strengths and limitations

A strength of the study is the use of the TPB in the design of the interview schedule which helped identify factors that may have supported the uptake of changes in clinical practice. Further strengths were that two researchers checked the transcripts to identify and confirm themes and member checking was carried out during data collection. The study added to the relatively limited body of literature in the UK context.

The main limitation of the study was its small size. Previous studies have found recruiting midwives to be difficult because of their busy schedules (Wangberg, 2015; Schölin et al., 2021b). This was compounded by the coronavirus pandemic, which placed unprecedented pressures on health services: to the extent that maternity services were described as ‘stretched to the limit’ (RCM, 2021). In this context, it is not surprising that recruitment was a challenge. However, the interviews completed gave useful insight into the perspectives and practice of some local staff. Despite its small size, this study represents a significant addition to the limited literature base. Of the existing five UK studies, two were quantitative (Winstone and Verity, 2015; Howlett et al., 2019); two were qualitative (21 Scottish midwives: Doi et al., 2014; 7 British and 9 Swedish midwives; Schölin et al., 2019a) and one was a large mixed methods study (Schölin et al., 2019b, 2021b; Smith et al., 2021), that included qualitative study of 11 midwives (Schölin et al., 2021b). The most recent qualitative UK study (Schölin et al., 2021b) involved a significant proportion of midwives who were less likely to have day-to-day experience than our participants (i.e. senior midwives, academics).

As data were collected at only one time point, determining a before and after effect of the programme is difficult. To mitigate this, synthesised findings of studies that recorded midwives’ knowledge, attitudes, and practice in the absence of an intervention were used to give insight into practice in the UK at the time the Reducing AEP programme commenced. While the results from the literature contrasted with ours, it is acknowledged that in the context of changing national guidelines, national midwifery practice may also have progressed in recent years, therefore differences may not be attributable to the AEP intervention alone.

Direct contact with the researcher during the interview process could have introduced social desirability bias. This may have led to reporting of higher levels of compliance with policy. The interview schedule was organised so that questions considered more likely to provoke social desirability bias were asked later when it was anticipated participants would feel more relaxed.

The study is also subject to selection bias. Participants who could shed light on the research question were purposively recruited. Midwives working in the specialist teams had an interest in the subject and gave detailed, 'data rich' responses to interview questions. The potential for this to skew the research findings was recognised and attempts were made to address this by also recruiting midwives working in non-specialist roles.

Conclusion

Participants demonstrated commitment and confidence to address antenatal alcohol consumption and provide evidence-based advice. Practice was described that suggested that a programme to reduce AEP had a beneficial effect. Respondents reported screening all women using a validated tool on multiple antenatal occasions. Participation in training appeared to have led to increased knowledge of the harmful effect of alcohol and improved awareness of local and national policy. Findings indicate that organisational adjustments supported the midwives' intention to adopt the changes in clinical practice proposed within the programme.

Under-reporting of drinking by women was identified as a barrier to recognition of opportunities for BI delivery. Consideration of how more honest maternal disclosure of alcohol intake can be facilitated is necessary to increase the efficacy of similar programmes to reduce AEP and is an area for further research. The programme could be enhanced by improving awareness of pre-pregnancy drinking as a risk factor for AEP.

Ethical approval

Obtained from the [University of Salford's](#) academic ethics panel (Ref: [HST1920-292,01/05/2020](#))

Funding sources

This research did not receive any specific grant from funding agencies in the public, commercial or not-for-profit sectors.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

CRedit authorship contribution statement

Ruth Morrello: Conceptualization, Methodology, Investigation, Formal analysis, Writing – original draft. **Penny A. Cook:** Supervision, Writing – review & editing. **Margaret Coffey:** Writing – review & editing.

Acknowledgments

We acknowledge the support of The Greater Manchester health and social care partnership's Reducing AEP programme, particularly Rachael Nielsen and Róisín Reynolds. Thanks also to Jen Michaels and Rachel Alexander-Patton, for help with participant recruitment. Thanks to all the midwives who gave their time to be interviewed despite their heavy workloads.

References

Ahacic, K., Allebeck, P., Thakker, K., 2010. Being questioned and receiving advice about alcohol and smoking in health care: associations with patients' characteristics, health behavior, and reported stage of change. *Subst. Abus. Treat. Policy* 5 (1), 30.

Ajzen, I., 2002. Perceived behavioral control, self-efficacy, locus of control, and the theory of planned behavior. *J. Appl. Soc. Psychol.* 32 (4), 665.

Anderson, A., Hure, A., Kay-Lambkin, F., Loxton, D., 2014. Women's perceptions of information about alcohol: a qualitative study. *BMC Public Health* 14 (1048), 1048. doi:10.1186/1471-2458-14-1048.

Aragon, A., Coriale, G., Fiorentino, D., Kalberg, W., Buckley, D., Phillip, G., ..., May, P., 2008. Neuropsychological characteristics of Italian children with fetal alcohol spectrum disorders. *Alcohol. Clin. Exp. Res.* 32 (11), 1909–1919.

Babor, T.F., McRee, B.G., Kassebaum, P.A., Grimaldi, P.L., Ahmed, K., Bray, J., 2007. Screening, brief intervention, and referral to treatment (SBIRT) toward a public health approach to the management of substance abuse. *Subst. Abus.* 28 (3), 7–30.

Barr, H., Bookstein, F., O'Malley, K., Connor, P., Huggins, J., Streissguth, A., 2006. Binge drinking during pregnancy as a predictor of psychiatric disorders on the structured clinical interview for DSM-IV in young adult offspring. *Am. J. Psychiatry* 163 (6), 1061–1065.

British Medical Association (BMA), 2016. Alcohol and pregnancy preventing and managing fetal alcohol spectrum disorders. *Br. Med. Assoc.* <https://www.bma.org.uk/media/2082/fetal-alcohol-spectrum-disorders-report-feb2016.pdf>. [Accessed 08/04/2022].

Bush, K., Kivlahan, D.R., McDonell, M.B., Fihn, S.D., Bradley, K.A., 1998. The AUDIT alcohol consumption questions (AUDIT-C): an effective brief screening test for problem drinking. *Arch. Intern. Med.* 158 (16), 1789–1795.

Cane, J., O'Connor, D., Michie, S., 2012. Validation of the theoretical domains framework for use in behaviour change and implementation research. *Implement. Sci.* 7 (37). doi:10.1186/1748-5908-7-37.

Charness, M., Riley, E., Sowell, E., 2016. Drinking during pregnancy and the developing brain: is any amount safe? *Trends in Cognitive Sciences* 20 (2), 80–82. doi:10.1016/j.tics.2015.09.011.

Chiodo, L., Cosmian, C., Pereira, K., Kent, N., Sokol, R., Hannigan, J., 2019. Prenatal alcohol screening during pregnancy by midwives and nurses. *Alcohol. Clin. Exp. Res.* 43 (8), 1747–1758.

Corrales-Gutierrez, I., Mendoza, R., Gomez-Baya, D., Leon-Larios, F., 2020. Understanding the relationship between predictors of alcohol consumption in pregnancy: towards effective prevention of FASD. *Int. J. Environ. Res. Public Health* 17 (4), 1388.

Crawford-Williams, F., Fielder, A., Mikocka-Walawska, A., Esterman, A., 2015a. A critical review of public health interventions aimed at reducing alcohol consumption and/or increasing knowledge among pregnant women. *Drug Alcohol Rev.* 34, 154–161. doi:10.1111/dar.12152.

Crawford-Williams, F., Esterman, A., Fielder, A., Mikocka-Walawska, A., 2015b. "My midwife said that having a glass of red wine was actually better for the baby": a focus group study of women and their partner's knowledge and experiences relating to alcohol consumption in pregnancy. *BMC Pregnancy Childbirth* 15, 79. doi:10.1186/s12884-015-0506-3.

Crawford-Williams, F., Steen, M., Esterman, A., Fielder, A., Mikocka-Walawska, A., 2015c. "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. *Women Birth* 28 (4), 329–335.

Daly, M., Robinson, E., 2020. Problem drinking before and during the COVID-19 crisis in US and UK adults: evidence from two population-based longitudinal studies. *medRxiv* doi:10.1101/2020.06.25.20139022.

Davis, R., Campbell, R., Hildon, Z., Hobbs, L., Michie, S., 2015. Theories of behaviour and behaviour change across the social and behavioural sciences: a scoping review. *Health Psychol. Rev.* 9 (3), 323–344.

Doi, L., Cheyne, H., Jepson, R., 2014. Alcohol brief interventions in Scottish antenatal care: a qualitative study of midwives' attitudes and practices. *BMC Pregnancy Childbirth* 14 (170), 170.

Emmel, N., 2013. Theoretical or Purposive Sampling. In: *Sampling and Choosing Cases in Qualitative Research: A Realist Approach*. SAGE Publications, London, p. 45.

Erng, M., Smirnov, A., Reid, N., 2020. Prevention of alcohol-exposed pregnancies and fetal alcohol spectrum disorder among pregnant and postpartum women: a systematic review. *Alcohol. Clin. Exp. Res.* 44 (12), 2431–2448.

Flak, A., Su, S., Bertrand, J., Denny, C., Kesmodel, U., Cogswell, M., 2014. The association of mild, moderate, and binge prenatal alcohol exposure and child neuropsychological outcomes: a meta-analysis. *Alcohol. Clin. Exp. Res.* 38 (1), 214–226.

Floyd, R.L., Sobell, M., Velasquez, M.M., Ingersoll, K., Nettlemann, M., Sobell, L., ...Project CHOICES Efficacy Study Group, 2007. Preventing alcohol-exposed pregnancies: a randomized controlled trial. *Am. J. Prev. Med.* 32 (1), 1–10.

Gilinsky, A., 2009. Alcohol-related health promotion in maternity services: factors associated with midwifery practice in NHS Tayside. *Tayside Natl. Health Serv.* <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.574.6994&rep=rep1&type=pdf>. [Accessed on 08/04/2022].

Godin, G., Bélanger-Gravel, A., Eccles, M., Grimshaw, J., 2008. Healthcare professionals' intentions and behaviours: a systematic review of studies based on social cognitive theories. *Implement. Sci.* 3 (1), 36–48.

Hackett, A., Strickland, K., 2018. Using the framework approach to analyse qualitative data: a worked example. *Nurse Res.* 26 (2), 8–13.

Howlett, H., Mackenzie, S., Strehle, E., Rankin, J., Gray, W., 2019. A survey of health care professionals' knowledge and experience of foetal alcohol spectrum disorder and alcohol use in pregnancy. *Clin. Med. Insights Reprod. Health* 13, 1–10. doi:10.1177/1179558119838872.

Jones, S., Telenta, J., Shorten, A., Johnson, K., 2011. Midwives and pregnant women talk about alcohol: what advice do we give and what do they receive? *Midwifery* 27 (4), 489–496.

- Jonsson, E., 2019. Fetal alcohol spectrum disorders (FASD): a policy perspective. *Can. J. Psychiatry* 64 (3), 161–163.
- Lange, S., Probst, C., Gmel, G., Rehm, J., Burd, L., Popova, S., 2017. Global prevalence of fetal alcohol spectrum disorder among children and youth: a systematic review and meta-analysis. *JAMA Pediatr.* 171 (10), 948–956.
- Lemola, S., Gkiouleka, A., Urfer-Maurer, N., Grob, A., Tritten Schwarz, K., Meyer-Leu, Y., 2020. Midwives' engagement in smoking- and alcohol-prevention in prenatal care before and after the introduction of practice guidelines in Switzerland: comparison of survey findings from 2008 to 2018. *BMC Pregnancy Childbirth* 20 (31). doi:10.1186/s12884-019-2706-8.
- Malterud, K., Siersma, V., Guassora, A., 2016. Sample size in qualitative interview studies. *Qual. Health Res.* 26 (13), 1753–1760.
- Mårdby, A.C., Lupattelli, A., Hensing, G., Nordeng, H., 2017. Consumption of alcohol during pregnancy—a multinational European study. *Women and Birth J. Aust. Coll. Midwives* 30 (4), e207–e213. doi:10.1016/j.wombi.2017.01.003.
- Mason, M., 2010. Sample size and saturation in PhD studies using qualitative interviews. *Forum Qual. Soc. Res.* 11 (3). doi:10.17169/fqs-11.3.1428, 3<19, 19–11.
- McCarthy, R., Mukherjee, R.A.S., Fleming, K.M., Green, J., Clayton-Smith, J., Price, A.D., Allely, C.S., Cook, P.A., 2021. Prevalence of fetal alcohol spectrum disorder in greater Manchester, UK: an active case ascertainment study. *Alcohol. Clin. Exp. Res.* 45 (11), 2271–2281. doi:10.1111/acer.14705.
- McCormack, C., Hutchinson, D., Burns, L., Wilson, J., Elliott, E., Allsop, S., ..., Mattick, R., 2017. Prenatal alcohol consumption between conception and recognition of pregnancy. *Alcohol. Clin. Exp. Res.* 41 (2), 369–378.
- Meurk, C., Broom, A., Adams, J., Hall, W., Lucke, J., 2014. Factors influencing women's decisions to drink alcohol during pregnancy: findings of a qualitative study with implications for health communication. *BMC Pregnancy Childbirth* 14 (1), 246.
- Montag, A., Brodine, S., Alcaraz, J., Clapp, J., Allison, M., Calac, D., ..., Chambers, C., 2015. Preventing alcohol-exposed pregnancy among an American Indian/Alaska native population: effect of a screening, brief intervention, and referral to treatment intervention. *Alcohol. Clin. Exp. Res.* 39 (1), 126–135.
- Muggli, E., Cook, B., O'Leary, C., Forster, D., Halliday, J., 2015. Increasing accurate self-report in surveys of pregnancy alcohol use. *Midwifery* 31 (3), e23–e28.
- Mukherjee, R., 2014. Fetal alcohol spectrum disorders: diagnosis and complexities. In: Carpenter, B., Blackburn, C., Egerton, J. (Eds.), *Fetal Alcohol Spectrum Disorders Interdisciplinary Perspectives* (2014). Routledge, London.
- Mukherjee, R., Cook, P.A., Flemming, K.M., Norgate, S.H., 2017. What can be done to lessen morbidity associated with fetal alcohol spectrum disorders? *Archives of Disease in Childhood* 102 (5), 463–467. doi:10.1136/archdischild-2016-310822.
- Murphy, D., Dunne, C., Mullally, A., Adnan, N., Fahey, T., Barry, J., 2014. A prospective cohort study of alcohol exposure in early and late pregnancy within an Urban Population in Ireland. *Int. J. Environ. Res. Public Health* 11 (2), 2049–2063.
- Department of Health (DoH). (2016) Alcohol guidelines review—report from the guidelines development group to the UK chief medical officers, 2016. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/545739/GDG_report-Jan2016.pdf [accessed: 08/04/2022]
- NHS England (2017) Implementing better births: continuity of carer. Publications Gateway Ref No. 07342. <https://www.england.nhs.uk/wp-content/uploads/2017/12/implementing-better-births.pdf> [accessed: 08/04/2022]
- Nykjaer, C., Alwan, N., Greenwood, D., Simpson, N., Hay, A., White, K., Cade, J., 2014. Maternal alcohol intake prior to and during pregnancy and risk of adverse birth outcomes: evidence from a British cohort. *J. Epidemiol. Community Health* 68 (6), 542–549.
- O'Connor, M.J., Shah, B., Whaley, S., Cronin, P., Gunderson, B., Graham, J., 2002. Psychiatric illness in a clinical sample of children with prenatal alcohol exposure. *Am. J. Drug Alcohol Abus.* 28 (4), 743–754.
- O'Keefe, L., Kearney, P., McCarthy, F., Khashan, A., Greene, R., North, R., ..., Kenny, L., 2015. Prevalence and predictors of alcohol use during pregnancy: findings from international multicentre cohort studies. *BMJ Open* 5 (7), E006323.
- O'Leary, C., Bower, C., 2012. Guidelines for pregnancy: what's an acceptable risk, and how is the evidence (finally) shaping up? *Drug Alcohol Rev.* 31 (2), 170–183.
- Oni, H., Buultjens, J., Blandthorn, J., Davis, D., Mohamed, M., Mofizul, I., 2020. Barriers and facilitators in antenatal settings to screening and referral of pregnant women who use alcohol or other drugs: a qualitative study of midwives' experience. *Midwifery* 81, 102595. doi:10.1016/j.midw.2019.102595.
- Patra, J., Bakker, R., Irving, H., Jaddoe, V., Malini, S., Rehm, J., 2011. Dose-response relationship between alcohol consumption before and during pregnancy and the risks of low birth weight, preterm birth and small-size-for-gestational age (SGA) – a systematic review and meta-analyses. *BJOG* 118 (12), 1411–1421.
- Payne, J., Watkins, R., Jones, H., Reibel, T., Mutch, R., Wilkins, A., ..., Bower, C., 2014. Midwives' knowledge, attitudes and practice about alcohol exposure and the risk of fetal alcohol spectrum disorder. *BMC Pregnancy Childbirth* 14 (377). doi:10.1186/s12884-014-0377-z, pages.
- Popova, S., Lange, S., Burd, L., Rehm, J., 2016. The economic burden of fetal alcohol spectrum disorder in Canada in 2013. *Alcohol Alcohol.* 51 (3), 367–375.
- Popova, S., Lange, S., Probst, C., Gmel, G., Rehm, J., 2017. Estimation of national, regional, and global prevalence of alcohol use during pregnancy and fetal alcohol syndrome: a systematic review and meta-analysis. *Lancet Glob. Health* 5 (3), E290–E299.
- Reynolds, R., Cook, P., McCarthy, R., 2021. A digital campaign to increase awareness of alcohol-exposed pregnancy. *Perspect. Public Health* 141 (3), 124–126.
- Ritchie, J., Spencer, L., 1994. Qualitative data analysis for applied policy research. In: Bryman, A., Burgess, R. (Eds.), *Analysing Qualitative Data* (1994). Routledge, London.
- Nursing and Midwifery Council (NMC) (2019) Standards of proficiency for midwives. <https://www.nmc.org.uk/standards/standards-for-midwives/standards-of-proficiency-for-midwives> [accessed on: 08/04/2022]
- Royal College of Midwives (2021) Midwives warn NHS underinvestment 'brutally exposed' by pandemic. Press release, 13 September 2021. <https://www.rcm.org.uk/media-releases/2021/september/midwives-warn-nhs-underinvestment-brutally-exposed-by-pandemic/> [accessed: 01/12/2021]
- Russell, M., Skinner, J.B., 1988. Early measures of maternal alcohol misuse as predictors of adverse pregnancy outcomes. *Alcohol. Clin. Exp. Res.* 12 (6), 824–830.
- Schölin, L., Hughes, K., Bellis, M., Eriksson, C., Porcellato, L., 2019a. "I think we should all be singing from the same hymn sheet" – English and Swedish midwives' views of advising pregnant women about alcohol. *Drugs Educ. Prev. Policy* 5 (26), 394–400. doi:10.1080/09687637.2018.1478949.
- Schölin, L., Watson, J., Dyson, J., Smith, L., 2019b. Alcohol Guidelines For Pregnant women: Barriers and Enablers For Midwives to Deliver Advice. Institute of Alcohol Studies, London.
- Schölin, L., Mukherjee, R., Aiton, N., Blackburn, C., Brown, S., Flemming, K., ..., Cook, P., 2021a. Fetal alcohol spectrum disorders: an overview of current evidence and activities in the UK. *Arch. Dis. Child.* 106, 636–640. doi:10.1136/archdischild-2020-320435, Epub. ahead of print: 08/02/2021.
- Schölin, L., Watson, J., Dyson, J., Smith, L.A., 2021b. Midwives' views on alcohol guidelines: a qualitative study of barriers and facilitators to implementation in UK antenatal care. *Sex. Reprod. Healthc.* 29, 100628. doi:10.1016/j.srhc.2021.100628, –100628.
- Smith, Dyson, J., Watson, J., Schölin, L., 2021. Barriers and enablers of implementation of alcohol guidelines with pregnant women: a cross-sectional survey among UK midwives. *BMC Pregnancy Childbirth* 21 (1), 134. doi:10.1186/s12884-021-03583-1, –134.
- Tsang, T., Lucas, B., Olson, H., Pinto, R., Elliott, E., 2016. Prenatal alcohol exposure, FASD, and child behavior: a meta-analysis. *Pediatrics* 137 (3).
- Van Der Wulp, N., Hoving, C., De Vries, H., 2013. A qualitative investigation of alcohol use advice during pregnancy: experiences of Dutch midwives, pregnant women and their partners. *Midwifery* 29 (11), E89–E98.
- Wangberg, S., 2015. Norwegian midwives' use of screening for and brief interventions on alcohol use in pregnancy. *Sex. Reprod. Healthc.* 6 (3), 186–190.
- Watkins, R., Payne, J., Reibel, T., Jones, H., Wilkins, A., Mutch, R., Bower, C., 2015. Development of a scale to evaluate midwives' beliefs about assessing alcohol use during pregnancy. *BMC Pregnancy Childbirth* 15 (353). doi:10.1186/s12884-015-0779-6, pages.
- Winstone, A., Verity, C., 2015. Antenatal alcohol exposure: an East Anglian study of midwives' knowledge and practice. *Br. J. Midwifery* 23 (3), 180–186.
- World Health Organization (WHO), 2014. Guidelines For the Identification and Management of Substance Use and Substance Use Disorders in Pregnancy. World Health Organization, Geneva, Switzerland.