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EVIDENCE
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Pregnancy: the battle against hidden harm from chemicals, viruses, bacteria, pollutants and chips

Key words: Research, chemicals, awareness, pregnancy, evidence-based midwifery

The modern mother needs to be wearing internal and external armour to battle the hidden enemy, and the modern midwife needs to provide the right types of weaponry to prepare women for their pregnancy journey. Every day we read news reports, research papers and alerts that identify the harm to the mother and baby from ingested chemicals. Some are prescribed and we refer to them as 'medications' and others are consumed for recreational purposes and we refer to them as 'drugs'. There is a vast difference between compliance with prescribed medication for life-threatening conditions, such as cardiac anomalies, diabetes and asthma, and recreational drugs, such as marijuana, cocaine, ecstasy and ketamine.

The known enemies are alcohol and cigarettes. Another hidden harm is the potentially unknown effects of non-ionising radiation emissions from computers, mobile phones and other household items, such as microwaves, alarms, electric doors, electric blankets and televisions. But it will take data from case-controlled studies to give us the necessary evidence and that will take years.

Pregnant women need to know where to go to if they need information about the safety of using products, such as deet found in flea sprays and insecticides. Threats from the so-called 'fresh air' include viruses and bacteria and we advise women to become vaccinated.

The battle against infection is probably the most dangerous of all and has a mortality ticket for both mother and baby, as we have observed in the past two years with the number of mothers who have died from H1N1. It is understandable that the DH issued new advice for pregnant women encouraging them to take the pertussis vaccine as the number of new cases reported in 2011/2012 was approximately 5000 (DH, 2012).

What we need to learn from these events is that infection is a major threat and we need to be constantly alert. Our attention has just been focused on the harm from 'chips and crisps'. Unbelievable. I am sure some of you are asking yourselves, 'Whatever next?' However, this research warrants serious consideration. It was the result of robust research evidence demonstrating a smaller head circumference for babies whose mothers ingested the chemical acrylamide, found in starchy foods heated to very high temperatures. The research involved 20 sites with 14,000 participants across Europe. The UK arm took place in Bradford and 186 mothers participated. The data from mothers about food consumption was based on self-report using the Food Frequency Questionnaire, but one of the major scientific measures in the study was cord blood analysis to detect the levels of acrylamide (Pedersen, 2012).

The potential for harm to the infant was alarming and linked to longer-term outcomes impacting on neurological

and psychological development. The UK cohort of infants had significantly higher levels of the drug in their cord bloods and dietary patterns indicated higher consumption of chips and crisps. So we advise pregnant women to cut down on these foods. This new evidence is likely to be adopted by us, because it fits well with the key behavioural change messages around prevention of obesity in pregnancy.

Now I want to touch on an even more sensitive subject: 'breastfeeding' and harm from dioxins emanating from man-made products such as PVC and bleached chlorinated paper and microwave plastics. These polychlorinated dibenzodioxins (PCDDs) or plastics, commonly referred to as dioxins, are transferred in breastmilk and accumulate over time and are known carcinogenics. The US Department of Health and Human Services Public Health Service Agency for Toxic Substances and Disease Registry (ATSDR, 2006) states animal studies have indicated that PVC is likely to increase the risk of cancer in infants and young children.

Some twenty years ago, Greenpeace campaigned about this harmful toxin being transferred in breastmilk and formula food. Dioxins accumulate in the body over time and can effect brain development. In 1998, the WHO reported that dioxin concentrations in breastmilk had reduced by 50% (WHO, 1998). The current mantra remains: 'Breast is best and the benefits outweigh the risks.' But it is important to note, there is no evidence to state there are no risks associated with breastfeeding. Weighing up the balance between harm and good is complex and midwives need to refer mothers to the website Otis for advice about fear of birth defects (otispregnancy.org/files/deet.pdf). The battle against harm of one kind or another will always be with us and we need to be constantly vigilant.

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Exploring women's experiences of smoking during pregnancy and the postpartum

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Abstract

Aim. To explore the experiences of women who stop smoking during pregnancy and may relapse postpartum.

Design. A phenomenological approach was used to gain an insight into the lived experiences of this group of women. Semi-structured interviews were undertaken with women who stopped smoking during pregnancy, once before the birth and on two further occasions postpartum.

Findings. The findings presented demonstrate the multifactorial issues affecting women when stopping and maintaining abstinence from smoking during the pregnancy continuum. Two notable factors emerging from the data were that the women who did not relapse to smoking viewed the transition to motherhood as the start of a new life for themselves, whereas those relapsing yearned for a return to their previous identities. The issue of the smell of cigarettes was also an interesting factor as this proved to be either a protective factor for not smoking or conversely a temptation to resume the habit for some women.

Implications. Support for women in stopping and maintaining abstinence needs to start earlier in pregnancy and continue beyond the initial postpartum period. Further research is required to gain greater understanding of the phenomenon of relapse to smoking postpartum, thus enabling midwives to provide effective support at this pivotal time in women's lives.

Key words: Smoking, pregnancy, stopping, relapsing, abstinence, support, identity, evidence-based midwifery

Introduction

Health concerns for the unborn child motivate many women to stop smoking during pregnancy. However, the longer-term health benefits for women themselves are not given the same attention. The British Medical Association (BMA, 2004) argues that the risk of cancer, heart disease, respiratory illness, osteoporosis and early menopause are increased in women who smoke. Approximately 30% of women successfully stop smoking during pregnancy, however, up to 90% relapse and are regularly smoking again with 12 months of giving birth (NICE, 2010). There is well documented evidence to show these high rates of relapse postpartum, with approximately 25% of women resuming smoking by the time the baby is a month old and 50% by four months, rising to 60% to 70% at six months (Lopez et al, 2008; Nichter et al, 2008; Mullen, 2004; Fingerhut et al, 1990). Therefore, it is clear that smoking cessation should be encouraged in the antenatal period to promote abstinence. Numerous interventions have been developed to aid the prevention of relapse; nevertheless none, to date, have proven to be wholly successful. Gaffney and Henry (2007) consider that both the transition to motherhood and quitting smoking are life-changing events and, as such, require greater investigation to support women in not relapsing after the birth of the baby.

Literature review

Studies have been undertaken to address the problem of relapse to smoking in the postpartum period in women who stopped during pregnancy (Reitzel, 2010; Thyrian, 2006). However, very few have examined the personal experiences of women during this time (Nichter et al, 2008; Bottorff et

al, 2000; Edwards and Sims-Jones, 1998). The majority of interventions have been centred around the antenatal period, focusing on the health of the fetus and less on the health and wellbeing of the mother. Therefore, for interventions to have more long-term success, it is crucial to gain a greater understanding of the reasons why women who have quit during pregnancy return to smoking postpartum.

Recent reports estimated the costs of smoking to the NHS to exceed £60m for maternal outcomes and up to £23.5m for infants (Godfrey et al, 2010). The focus on reducing the incidences of women smoking during pregnancy was introduced with the publication in 1998 of *Smoking kills*, a government White Paper (DH, 1998a). The aim was for the NHS to reduce the number of women smoking in pregnancy to 15% by 2010. However, the focus was placed upon stopping during pregnancy and little attention was given to maintaining smoking abstinence in the postpartum period, whereas a more recent study undertaken by NICE (2010) produced public health guidance on stopping smoking in pregnancy. The guidance included stopping smoking following childbirth for women who may not have stopped during pregnancy or had relapsed postpartum. This has been an important step in raising awareness of the continued support necessary in preventing postpartum relapse.

Indicators for success suggested that supporting women to stop smoking involved multi-professional collaboration, as has been proven in other areas of health care arising from government initiatives (DH, 1998b; DH, 1999; DH, 2003b). Gaps in the recommendations were also documented, including lack of discussion with regards to types of intervention best suited to support different needs and hard-

to-reach groups. It was noted that NICE (2010) guidance also lacked evidence of service user involvement, such as the views of women had not been sought in discussing what they thought would help support them to stop smoking during pregnancy and postpartum.

Gadomski et al (2011) purport that addressing the problem of postpartum relapse is not enough and that interventions should combine both antenatal and postpartum issues.

In earlier studies, McBride et al (1992) established that relapse often occurred within six weeks and the incidence was up to three times more likely in families where the partner smoked and concluded that predictions of relapse could be broken down and defined within the smoking status of spouse, social support, decrease in self-efficacy and the types of coping strategies utilised.

Later studies suggested similar predictors in ascertaining reasons why women are at risk of relapse postpartum and included socioeconomic status as an additional risk factor (Khan et al, 2002), whereas Roske et al (2006) contend that relapse can be predicted in women who view stopping smoking as a suspended state for the duration of pregnancy only and have not considered long-term abstinence.

In a later study, Nichter et al (2008) explored smoking and harm reduction efforts of women in the postpartum period and discovered similarities to the findings of Bottorff et al (2000) and Edwards and Sims-Jones (1998). The main findings indicated that for many women in high-risk situations, such as environments dominated by smokers, the incidence of relapse was greater. However, the women were conscious of 'harm reduction' and on the whole smoked less than before pregnancy. Edwards and Sims-Jones (1998) concluded that women reported that the decision to breastfeed encouraged them to abstain during this period as they did not want the baby to be subjected to the harmful effects of smoking. In contrast, Nichter et al (2008) reported that, for some women, the benefit of breastfeeding was perceived as greater than the risk of smoking and as a result resumed smoking while breastfeeding.

For others the decision to wean the baby often coincides with a return to smoking (Giglia et al, 2006). Studies examining this relationship found that a relapse to regular smoking during the first six months postpartum correlated with weaning. Debate is generated when discussing whether stopping breastfeeding and relapse to smoking is associated. Amir and Donath (2002) suggest that the psychosocial factors associated with smoking and breastfeeding may have more impact on relapse than the assumption that the cause may be physiological, though Nichter et al (2008) found no discernible difference between women who breastfed and those who chose not to, in relation to smoking status.

Strategies for preventing postpartum relapse have been introduced ranging from motivational interviewing (Jiménez-Muro et al, 2012; Thyrian et al, 2006) through to social support by peers (Hennrikus et al, 2010) which have been met with varying degrees of success. This would support the work of McBride et al (1999) in suggesting that a single intervention will not fit the diverse needs and life circumstances of postpartum women. It is clear from the

literature that very few studies have explored the experiences of women in respect of postpartum relapse.

Method

A qualitative approach was chosen to undertake this study with the aim of capturing the stories of women experiencing the challenges of stopping smoking during pregnancy and relapsing during the transition to motherhood. Denzin and Lincoln (2005) state that qualitative researchers are concerned with observing in participants' own settings to enable a sense of meaning to evolve from the concerning phenomenon. Phenomenology was chosen as opposed to other qualitative approaches such as ethnography as it was not intended to gain meaning from particular groups or cultures, but of the individual experience regardless of class or culture (Dykes, 2011). It was considered that the findings from this research would enrich and possess greater depth of meaning by incorporating the socio-ecological (environmental) theory from the perspective of women's lives (McLeroy et al, 1988; Breslow, 1996). Therefore, phenomenology was used in conjunction with a social-ecological stance as this viewpoint encompasses the social and environmental factors, such as institutional or public policies that come into play at this time in a woman's life.

The ethical approval process

Before undertaking the study, approval was sought from the research ethics committee, along with the local trust research and development department. When planning this study, the researcher had to carefully consider the different social classes and ethnicity of the potential participants when composing the information sheets and associated documentation that would be read. It was, therefore, of significance to ensure that any written information could be read and understood by the majority of the women involved without causing distress or offence. It was also made explicit within the information given to women that they were free to withdraw from the study at any time, in accordance with ethical protocol.

Accessing participants

The participants were initially accessed through two NHS trust sites of a large teaching hospital in the East Midlands. To ensure that appropriate women would be selected for participation in the main study, a questionnaire was offered to women during the antenatal scan appointment at 20 weeks' gestation.

The purpose of this was two-fold: firstly, to gain demographic information about the population of women under scrutiny, and, secondly, to recruit volunteers willing to participate in the interviews. Women who completed the questionnaire and volunteered to be interviewed were contacted by telephone, email or letter, and interviews were arranged at a time and place acceptable to the participant. A total of 27 women were interviewed, including ten under the age of 20 and seven who had not been born in the UK. The remaining ten were aged between 20 and 38 years.

Data collection

All but one of the interviews took place within the participants' homes; one took place at an alternative venue for the convenience of the participant. A semi-structured schedule guided the interviews, which took place on three occasions, with the first around the 28th week of pregnancy, the second six to eight weeks postpartum and the final interview conducted between three and six months postpartum. Following informed consent, the interviews were recorded by means of a digital recorder and lasted for approximately one hour on the first occasion and 45 minutes on the subsequent interviews. All data were kept confidential and accessed only by the researchers.

Data analysis

The themes that emerged during the qualitative data analysis were managed by computer assisted qualitative data analysis software (CAQDAS). The latest software package was used (NVivo-9) which has been developed and refined from the earlier NUD*IST package. Narrative analysis was the method utilised as it enabled the complex and diverse phenomena of women to be explored holistically (Daiute and Lightfoot, 2004) as the purpose of this study was to explore the smoking experiences of women during pregnancy and the transition to motherhood.

From the emerging data, themes were identified and have been presented within the findings using verbatim quotes from the interviews and annotated notes from the observational field-notes taken at the time of the interview. The themes, sub-themes and categories emerging from the data were consolidated into three core categories. The findings arising from the analysis illustrated and supported appropriate conclusions to be drawn from the study.

Findings

Smoking history

Women were encouraged to talk about the history of their smoking during the first interview to help gain an understanding of the challenges they experienced on being a smoker and becoming pregnant. The findings resulted from women disclosing their feelings regarding their introduction to smoking and consequent smoking pathway.

The initiation of smoking

School friends appeared to be the main influence in encouraging the initiation of smoking with the earliest starting at eight years of age. This began experimentally, sometimes stealing cigarettes from parents. The following quote illustrates the notion of both the influence and availability of cigarettes.

I dare you! – the influence of peer pressure

“Erm, it's hard to remember when I first started properly, I think I first tried one when I was about 12 with my cousin (of the same age). We dared each other to try one. He took one out of my uncle's pack and we sneaked off to the park to try it. We felt sick and dizzy at first and I didn't like it... but soon forgot when the chance came to try again. I didn't

want to look stupid in front of my friends... so had another one, and it just went on from there” (Angie, aged 16).

Although the reality of smoking was not pleasant the compulsion to 'fit in' with peers encouraged continuation: *“Yes, although I wouldn't necessarily say that it was peer 'pressure' nobody forced me to do it, it was more of 'everyone's doing it, let's have a go'. And I am sure that my first cigarette wasn't pleasant, so I don't know what an earth decided me and made me carry on doing it. But I think, yer, not necessarily pressure, but definitely peers, we all had a go at it, go down the park, get a packet” (Jacqui, 31).*

Drifting towards addiction via habit

Others became habitual smokers through sharing a common interest in smoking with boyfriends and partners:

“I was with a guy that smoked and were living together and when he had a cigarette we stood together in the kitchen and I thought 'well, what do I do now' so it was like... I'll have one and then it went to two and then when I was on a night out it was just constant. So it built up over time” (Claire, 20).

Those that formed early partnerships with boyfriends who smoked, drifted into the habit, as smoking was something they shared together and with mutual friends – it became the accepted norm to smoke:

“I was 16 and I was at school and my boyfriend at the time, who turned out to be my first husband, smoked and all my friends smoked, we tried it and that was it. It wasn't regular at first and then, all of a sudden, it became 15 to 20 a day habit, by the end” (Moir, 35).

None of these women had seriously attempted to quit smoking prior to becoming pregnant and were all regular, established smokers up to this point. The actual number of cigarettes smoked varied as illustrated in the next section.

The smell and taste

Associations with the smell of cigarettes and thoughts of the taste appeared to be a major contributory factor for some women in remaining abstinent during pregnancy:

“Well, it was only a couple of days before I found out and I realised that was why they tasted bad... So I don't really smell it until he comes in and it is on his clothes and I ask him to just take his jacket off and wash his hands. It's the smell” (Lucy, 24).

The abhorrence of the thought of smelling like a smoker was also a great incentive and, as such, was mentioned by several of the women interviewed:

“And it was just the thought that if I hadn't smoked for a while and somebody walked past who had had a cigarette and I could smell them and that kept me going as well. I thought I don't want to smell like that” (Moir, 35).

The smell of smoke appeared to be a strong influence in the thoughts of women, as did considerations for the health of the unborn baby as discussed in the following sub-theme.

Health of baby

The health of the woman was not taken into great consideration during the pregnancy, whereas the health of

the baby was paramount and the most significant reason for stopping smoking during pregnancy.

The following quote highlights the subconscious links with the potential harm to the health of the baby by continuing to smoke. However, it caused considerable internal turmoil for the woman:

"I think in all it was a transitional period and for the few days that I did smoke it made me feel guilty and also it was just a transition between who I was then, a young smoker and free, to being someone who was responsible for a child. So once I stopped I felt that that was my first responsibility for that child" (Jada, 24).

For Jada, the health of her unborn baby triggered deeper concerns for the future responsibilities motherhood brings. For some of the women, all these thoughts and decisions were internal and had not been raised with health professionals. The following sub-theme explores the professional advice and support available and Paula further illustrates this theme with her thoughts on becoming pregnant:

"At the time I felt a little bit confused with the pregnancy and that... but I did know that it was the right choice. So it felt good in the fact that I felt strong, that my willpower made me throw it (cigarettes and smoking) away and I had decided that I would never touch it again and I didn't even feel the temptation of going and buying more which I was really, really surprised. And if someone passed by that was smoking, I would think 'oh, I don't need it!' Even some of my colleagues at work smoke and I never even had the thought of 'oh, I will go with you for a quick one, even though I am pregnant, just one.' I never had that" (Paula, 26).

The comments from this group of women demonstrate the strength of will to overcome this unexpected obstacle of pregnancy enabling them to successfully stop smoking at this time. At the time of the six week postpartum interview, eight women had relapsed to smoking, four women aged 20 or over (two of these were not English) and four women under the age of 20. When the final interview took place, a further four women had resumed smoking.

Thoughts of smoking in the postpartum

One participant expressed feelings of strong will in her decision to not consider smoking as part of her life again. Claire embraced the lifestyle changes that becoming a mother encompasses, including that of not returning to smoking:

"Maybe, you don't think about it, if it is not around you, but the main reason is that I decided I didn't want to smoke anymore" (Claire, 20).

Changes to lifestyle were a conscious and considered issue debated by women, for some, a natural progression in life as illustrated within the following sub-theme.

Life changes on becoming a mother

Thoughts around smoking have also been considered within the context of lifestyle changes and accepting that this is part of becoming a mother, as expressed in the following excerpt from one of the interviews:

"No. To be completely honest I have not even thought about it (smoking). It went without saying that I would

stop when I was pregnant anyway and, obviously, people have said about going out for a drink to wet the baby's head and things like that. But, you know, I don't want to... your life changes and you just don't want to go out partying and things like that" (Jacqui, 31).

Again, in the quotation below, reference has been made to a total change of life following childbirth:

"Maybe, I just don't feel the need to smoke... that is left behind in my old life" (Paula, 26).

Paula had not only coped with the challenges of pregnancy and giving up smoking, but had also moved to England from her native Portugal in search of a new way of life. She had embraced the changes and was very positive in how her life was changing.

The lifestyle changes in having a baby, for some, was a strong enough incentive to not smoke again. Nevertheless these changes also affect other areas of women's lives and had an impact on their resistance to relapse.

The return of the smell

The smell of cigarettes that aided smoking cessation in the antenatal period appeared to extend into the postnatal period, again providing incentive to remain abstinent, along with detaching themselves from the smoking environment:

"Yes, obviously not the taste as I haven't had one but the smell, I still cannot bear the smell... When I was still pregnant and (my partner) John smoked, he smoked in the kitchen with this door closed and the back door open, but now that she (the baby) is here, he is not allowed to smoke in the house, so he is outside. I'm really hoping not to smoke again because I really don't like the smell. Even if people aren't smoking around you, you can tell they are a smoker. I can't believe I used to smell like that and I didn't know. On their hair and on their clothes, so I am really hoping not to smoke again" (Lucy, 24).

The smell of cigarettes has been associated with continued feelings of nausea and that in itself provides adequate incentive not to smoke:

"When I used to smoke and had my niece and nephew round, I never used to smoke when they were here, never had a fag then. People are more aware of these things now and because I used to smoke, they don't just think I am being difficult. The smell of it, and things like that, still make me feel sick, so that is a good thing" (Jacqui, 31).

The smell may have been enjoyable for some, but the cost was now prohibitive as shown in the quote from Jacqui:

"And now, when I smell my friends, sometimes you get the odd whiff and think 'mmm, that smells sort of nice' and then you just think sometimes, er, no, that is just disgusting. And someone was telling me how much they (cigarettes) cost the other day" (Jacqui, 31).

On the 'flip-side', the smell of cigarette smoke was a trigger for one woman and it was an almost automatic reaction to have a cigarette in response to the smell:

"It was just automatic, really. Well, actually, to be honest with you, I think it was when I went out to get him a dummy actually and when I went outside I could smell smoke so I just went and got one and smoked it" (Tania, 28).

Social influence, or do old habits die hard?

For some women not smoking after the birth signified a new chapter in their lives. In contrast, for some women, smoking was an important step in regaining images of their former life. Relationships formed a large part of this retrieval as the following quote illustrates:

"It was with (my partner) Pete and it was like a little celebration, like, oh look what we've done, (happy voice) and that and that was the first step really because having a baby blows every aspect of your life. You are not at work, not... it just blows the whole thing wide open and that was the first thing really of piecing together who me and Pete were 'cos we smoked together, smoking was a part of our relationship that we enjoyed, so it was kinda like fitting that first piece back on the road to recovery... It wasn't the smoking, it was the freedom of choice, and now that I have that freedom of choice, I don't actually smoke that much, but it is the fact that I can if I want to" (Jada, 24).

Jada had also alluded to the freedom of choice, to not be restricted by overarching influences and responsibilities. However for Jada, although the knowledge and guilt were subliminal, the overriding factor was that she felt the need for some reconciliation from the past as to who she really was. These feelings are expressed in the following quote from her:

"The only reasons for me to start smoking again was that I wanted my identity back and that identity I enjoyed, and that made me not Rosie's mum that made me Jada and no-one expects you to smoke as a mum" (Jada, 24).

However, for some women the guilt re-emerges and, although they have resumed smoking after the birth of the baby, they feel the need to justify their decision. Tania uses smoking as her form of relaxation, as she does not go out as often now:

"It's just something I do, I look forward to having a fag, it's my time. I don't go out boozing anymore, so I smoke and I can do that here... I know it is not good for us, but I don't want to give it up yet" (Tania, 28).

Nicole finds life a struggle and has many issues to contend with in her life; smoking is her way of coping. At the time of the interview, she felt that she could not contemplate giving up again in the near future:

"I just want a normal life, just me and Callum, everybody to just leave me alone to get on with it. Smoking? One day I'll stop again, I hope, but not now, there is too much going off, too much hassle, I can do without that" (Nicole, 16).

Discussion

The overarching aim of this study was to explore the experiences of women and smoking during pregnancy and the postpartum period in order to gain greater understanding as to why some women relapse and others abstain. The social, environmental and interpersonal relationships in which women experience the smoking phenomenon affecting their lives at such a pivotal point in the pregnancy continuum may affect their smoking behaviour. The relevance for taking this stance stems from the sample of participants; many had associated risk factors in addition to smoking, for example,

the younger population often were coping with stressful situations, something that has been referred to in earlier literature (Boden et al, 2007; Reitzel et al, 2007).

For the majority of the women interviewed, the pregnancy was welcomed as a time to reconsider their smoking habits and this gave them the opportunity to stop. Edwards and Sims-Jones (1998) would agree with this statement and go further in claiming that for some women stopping smoking was a long-term prospect, whereas, for others, this was only a temporary pause in their smoking habits for the duration of the pregnancy. This aspect also resonated with the experiences of some of the women in this study, although not always openly acknowledged. The women's views on smoking could, in part, be due to the wider commitment of reducing the number of smokers by banning smoking in public places and, therefore, exposing smoking as a negative habit to uphold. A few of the women commented that giving up smoking excluded them from some social activities, as smoking was restricted to certain areas that was usually avoided by non-smokers. As a result, the women felt they missed out on social 'gossip'. Greaves (1996: 36) agrees with this notion and asserts that women use smoking to 'equalise, bond, distance, diffuse or end relationships with others including partners, children and workmates'.

This is also seen in the relationships women have with partners – smoking is something they can share and have a feeling of closeness and intimacy.

Taste, and particularly smell, played a substantial part in maintaining abstinence from smoking in both the antenatal and postnatal period. For a number of women in the study, the smell of cigarettes provoked waves of nausea so overpowering they could not even contemplate smoking. Pletsch and Kratz (2004) reported that the taste and smell of cigarettes also gave them an aversion to smoking in pregnancy. Some of the women in this study also reported that they continued to find that the smell of cigarettes prevented them relapsing up to the time of the final interview conducted between three and six months postpartum. In particular, both Tracey (aged 23) and Lucy (aged 24) found the smell of cigarettes abhorrent and considered this to be a major deterrent in preventing relapse. For others, like Moira (aged 35), the smell of cigarette smoke brought back pleasant memories of a previous life before becoming a mother, but did not necessarily precipitate a relapse.

Although Stotts et al (2000) argue that some women decide to stop smoking only for the duration of pregnancy, the return to smoking was not always a conscious decision for the women within this study. Consequently, it was of value to explore the situations and thoughts of women around the time of relapse to help build a picture of the circumstances that precipitated such actions.

To have a greater understanding of the position for women at this time, it was of value to gain an insight into how they perceived the transition to motherhood. This was in respect of their perceived self-efficacy (Bandura, 1997; Gaffney and Henry, 2007) and their coping mechanisms with regard to smoking; the more confident and capable a woman considered herself to be at this time, the less likely

she was to relapse to smoking. However, consideration must be given to whether the women were confident and capable before pregnancy, or whether becoming a mother instilled greater confidence and capability in them. For this to be successful, the socio-environmental factors need to be in place, taking into consideration the internal and external support mechanisms existing in each unique situation.

Inadequate support, as witnessed in the life of Nicole (aged 16), one of the younger women interviewed in the study, contributed to negative feelings. The experience of women such as Nicole and others in similar situations is that they do not have the support mechanisms in place to bolster their self-esteem and belief in their own capabilities in not relapsing to smoking following the birth.

As perceived self-efficacy can have both positive and negative effects upon a woman's decision to smoke or not to smoke in the postpartum, so too can the search for self-identity. For some, the quest for self-identity was a positive journey.

The most significant factor emerging from this study is the idea that stopping smoking began a new chapter in the lives of these women. They considered that the old life they had left behind was now closed and that the previous hedonistic life of parties, drinking and smoking was a phase to look back on as a stage they enjoyed, but would not miss. They were content to be consumed by their new role as mother and had no desire to return to this lifestyle. However, for others this was not the case and they felt insecure in their new role and unsure of whom they actually were now, as illustrated in the excerpts from Jada (aged 24). Jada expressed some concern as to who she really was now, and considered that smoking enabled her to regain some control over her life. These thoughts are consistent with work by Bottorff et al (2000) in discussing the impact of being a new mother advocating that the loss of identity can be a problem when striving to regain normality in life. Greaves (1996) contends that a return to smoking at this stage can renew a woman's confidence and maintain a sense of identity but, at the same time, create mixed tensions of guilt and contradiction. Not only do women struggle with their own identity but they also struggle with their relationship with their partners.

The return of identity, as a couple, was an issue raised by women in the study, in particular Petra (aged 25, Polish) and Helen (aged 27), who both commented that they felt isolated from their partner since the birth of the baby, and to share time smoking together reunited the relationship and gave them a sense of belonging. Bottorff et al (2005) strongly agree with this notion, confirming that smoking together reinforces a couple's relationship with regard to familiarity and a unique closeness not shared with others. One woman, Tracey (aged 23), in discussing relationships and identity, suggested that her relationship was stronger through sharing the smoking cessation process together. They had both given up during the pregnancy and this formed a close bond between them. Tracey commented that if her partner had relapsed then there was a high probability that she would have found it difficult to abstain. Equally, where only one partner smokes, dissonance may develop in the relationship

regarding the acceptability of smoking after childbirth.

The identity of women not born in England depended largely on their integration into the English way of life and smoking issues drew a mixed response. Women participating in this study had varying reasons for migrating to England; women moving to England of their own volition appeared confident when discussing their identity that contributed to the adaptation of a new way of life. The more confident women had settled well, lived in comfortable accommodation and had a good command of the English language, while others struggled with such a huge change and returned to smoking postpartum to regain their previous identity and security with their partners, as they had no other family or friends with them in England.

For some of the younger women, the return to smoking was not so much a reaffirmation of their previous identity, but a continuation of the same. Smoking still played a major part in their lives, as for many they were still shaping their original identity and forming friendships. Smoking was part of their social identity and could not be easily discarded when picking up the threads of lives. Greaves (1996) demonstrated that identity was a major issue for women when trying to find a reason for the meaning of smoking in their personal situation. The younger women tended not to analyse what smoking actually meant to them but considered it was something they could rely on in times of emotional disturbance. The majority of younger women and a number of non-English women, did consider, albeit unconsciously, that cigarettes were the only constant in their lives.

A recurrent theme that was woven through the narratives of the women in this study was not so much the reasons for relapsing, but the reasons for staying a non-smoker. This is a significant finding in the exploration of why women do relapse to smoking in the postpartum period. In the consideration of stopping smoking and having a new baby the women, in particular Moira (aged 35), Jacqui (aged 31) and Paula (aged 26) had all decided that smoking belonged in the past, to a person with another identity. They were looking forward to a future that no longer held smoking as an integral part of who they were.

In contrast, for some who relapsed, for example, Jada (aged 24), it was a fear of losing identity that encouraged a return to smoking. Jada felt that she did not know who she was anymore, and having a cigarette gave her comfort and security that she was still the same person as before. She did not feel ready for a new life and smoking was embedded in the old life.

Conclusions

In observing the viewpoints, it is apparent that the idea of beginning a new life is indeed a major commitment to not smoking and in eradicating the whole concept that smoking encapsulates. The notion of beginning a new life when stopping smoking and becoming a mother, has not been found in previous literature to date and should be considered for greater exploration as it could have a significant contribution in developing future interventions to promote smoking cessation and preventing postpartum relapse.

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Intention and attitudes towards breastfeeding among undergraduate female students at a public Jordanian university

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Abstract

Objective. To explore the intention and the attitudes towards breastfeeding of the undergraduate female students in public university in Irbid, located in the northern part of Jordan.

Method. An exploratory, cross-sectional design was used incorporating The Infant Feeding Intention (IFI) scale and the Iowa Infant Feeding Attitude Scale (IIFAS). Ethical approval was obtained from the Scientific Research Board of the Jordan University of Science and Technology prior to the start of the study.

Results. Participants in this study were 496 female undergraduates. A total of 66% were from medical schools and 61% were junior students (in their first or second year). Most reported a commitment to breastfeeding (M=7.94, SD=3.92). Overall, the majority of the students gave appropriate responses towards all the attitude statements (M=57.16, SD=6.1). The majority showed positive attitudes by disagreeing with the common breastfeeding misconceptions. There were no significant differences found between participants' demographics and their intention plan and attitudes towards breastfeeding.

Implications. Overall, the results suggest that a culture where breastfeeding is encouraged, accepted and widely practised would produce more positive breastfeeding attitudes and, in turn, could lead to an increase in breastfeeding initiation.

Key words: Intention, attitude, breastfeeding, undergraduate students, Jordan, evidence-based midwifery

Introduction

Breastfeeding is the natural and most healthy way to feed infants. There is strong evidence to support the individual and the public health gains. However, regardless of it being a public health target, women cannot be forced into the behaviour and the decision to breastfeed is ultimately a mother's 'choice'. Breastmilk is the ideal food for newborns and infants, and provides them with essential nutrients needed for healthy development. It is also safe, readily available and affordable, helps to protect infants from many childhood illnesses, and ensures they get adequate nourishment (WHO et al, 2008). On the other hand, inadequate nutrition directly or indirectly increases the risk of illness. The WHO actively promotes breastfeeding as the best source of nutrition for infants and young children. WHO and UNICEF's global recommendations for optimal infant-feeding recommend mothers worldwide exclusively breastfeed infants for at least six months, with continued breastfeeding, along with appropriate complementary foods, up to two years of age, or more, to achieve optimal growth, development and health (WHO and UNICEF, 2003).

Background

There is extensive evidence suggesting that exclusively breastfeeding infants has several short- and long-term health benefits for mothers and their babies. These advantages include a lower risk of gastrointestinal infection for the baby (Kramer et al, 2000), more rapid maternal postpartum weight loss (Dewey et al, 2001), and delayed resumption of menses (Cohen et al, 1994; Dewey et al, 2001). Despite much evidence on the health and social advantages of breastfeeding, and the strong advocacy of breastfeeding in primary care, many women breastfeed for a very short time, and the majority choose to bottle feed their babies. Poor

breastfeeding and complementary feeding practices are also prevalent. Globally, less than 40% of infants are exclusively breastfed for the first six months of life, the majority receive some other food or fluid in the early months (WHO, 2009). Complementary foods are often introduced too early or late and are nutritionally inadequate.

In Jordan, the 2007 *Jordan population and family health survey* reported 40% of mothers exclusively breastfed their babies during the first five months, and about 11% were never breastfed (Department of Statistics (Jordan), Macro International, 2008). Among Jordanian pregnant mothers, results show that early initiation of breastfeeding is 39%, and the rates of exclusive breastfeeding at six months is 22% (Department of Statistics (Jordan), Macro International, 2008). Furthermore, the proportion of children receiving breastfeeding with complementary food at six to nine months was 66% (Department of Statistics (Jordan), Macro International, 2008). A study using a randomly selected sample of mothers who attended antenatal care clinics in the largest regions in Jordan (Amman, Irbid and Al Karak), found that the percentage of children who received breastmilk at any time was 92%, 63% were breastfed exclusively, 29.6% were receiving mixed feeding and 7.7% were bottle-fed. Previous research (Mubaideen and Al-Saraireh, 2006) reported the percentage of children who breastfed at six, 12, 18, and 24 months to be 72.3%, 52%, 26%, and 11% respectively.

Factors influencing breastfeeding have been investigated worldwide. Associations of several socio-demographic factors (Li and Grummer-Strawn, 2002; Hauck, 2004; Foo et al, 2005; Baxter, 2006; Kuo et al, 2008), maternal attitudes and perceptions (Scott et al, 2001; Scott, 2006; Dungy et al, 2008) with intended breastfeeding duration, were identified as factors explaining the initiation and duration of breastfeeding in previous studies. Breastfeeding intention is also a significant

predictor of infant feeding-method (Mitra et al, 2004; Tarrant et al, 2010). Studies of non-pregnant high school students suggest that attitudes towards infant feeding begin to form well before pregnancy (Weimann et al, 1998; Pascoe et al, 2002). In Jordan, as in many Middle East countries, little is known about the factors and barriers associated with breastfeeding initiation and duration. Research by Khassawneh et al (2006) identified working status and caesarean section as the main factors affecting Jordanian breastfeeding behaviour.

For the successful development of an effective breastfeeding promotion programme, it is important to examine factors that influence women's breastfeeding decisions. Research suggests that attitudes towards breastfeeding are strong predictors of choice of infant-feeding than usually cited socio-demographic factors (Shaker et al, 2004ab). Timing of the decision to breastfeed is also important. Studies have shown that a majority of expectant mothers make infant-feeding decisions before, or very early on, in pregnancy (Dennis, 2002b). Other research has indicated that women who make a decision before pregnancy are more likely to choose breastfeeding than those who make a decision during or after pregnancy (Scott et al, 2006). Understanding of young women's attitudes towards breastfeeding and intentions should be an early step in the design and implementation of breastfeeding interventions.

In Jordan, there is little information found about intention and attitudes towards breastfeeding among adolescents and young women, particularly non pregnant women. Research by Oweis, Tayem and Froelicher (2009) reported that half of mothers (49.5%) started breastfeeding at birth and 77% of these were exclusively breastfeeding their baby. However, 43% of mothers gave supplementation other than milk. Furthermore, the decision to breastfeed was made by 60.5% before pregnancy. More recent research findings reported that intention to breastfeed among Jordanian pregnant mothers was 76%, and mothers with positive attitudes towards breastfeeding were more likely to intend to breastfeed (Al-Akour et al, 2010).

Hence, this study was designed to explore the intention and the attitudes towards breastfeeding of the undergraduate female students in a public university in Irbid, located in the northern part of Jordan. It should be noted that this study was part of a larger study designed to examine young women's attitudes towards breastfeeding through the lens of objectification theory. University students in Jordan compose a large proportion of the female Jordanian population. Female students are the future mothers and future professionals who will promote the knowledge and attitude regarding the importance of breastfeeding in their respective communities.

Methods and materials

Design

An exploratory, cross-sectional design was used, because the study seeks to examine a topic that has never been studied in Jordan, particularly among undergraduate students.

Participants

The participants for this study were all female undergraduate students from one public university in the northern part of Jordan. A purposive sample of female undergraduate students,

attending medical and non-medical school (n=600) were approached to take part in this study. Of the 600 students contacted, 496 completed the survey, resulting in a response rate of 82.6%. The mean age was 19.78 years (SD=2.21), ranging from 17 to 38, with 85% of the participants below the age of 22 years. Most participants were Jordanian (83.8%), and 93% were single. A total of 66% were from medical schools and 61% were junior students in their first or second year. The majority (91%) reported that they already knew about the benefits of breastfeeding, and 90% supported a university curriculum that deliberately promoted breastfeeding among young women (90%).

Data collection

The project was advertised on posters placed in the cafeteria and the library. The posters contained the study title, process, aims and the benefits. Female and undergraduate students from medical or non-medical faculties who were willing to participate in the study were recruited.

Procedure of data collection

A small team of three trained nursing students and the primary researcher were responsible for identifying students who met the eligible criteria for participation. A total of 600 eligible students were approached. A self-administered questionnaire was used to collect data, including demographic information, the IFI scale (Nommsen-Rivers and Dewey 2008), and Iowa Infant Feeding Attitude Scale (IIFAS) (de la Mora et al, 1999). Each participant was given a questionnaire with a covering letter explaining the purpose of the study, information collection technique, and implied consent form. Participants were instructed to place the completed questionnaire in a sealed envelope and to post it into a box near the exit. Students, who chose not to participate, were asked to deposit their blank questionnaire in a sealed envelope in the same box, so that no one would know who had completed the questionnaire.

Ethical considerations

Ethical approval was obtained from the scientific research board of the Jordan University of Science and Technology prior to the start of the study. Informed consent was obtained from each participating student after the investigator had explained the nature, purpose, potential risks, and procedures of the study. Consent was implied and participants completed the questionnaire only if they chose to. Anonymity and the confidentiality of the data provided were strictly maintained. Participants were assured that their participation was voluntary, and they had the right to withdraw or refuse to give information at any time in the study without any penalties.

Measures and demographic information

Participants were asked a variety of demographic questions including age, nationality, level of study, marital status, and area of study. In order to assess their exposure to the topic of breastfeeding, they were asked if they had ever heard about the benefits of breastfeeding. Students were also asked if they thought that integrating breastfeeding as a topic into the university curriculum could help to promote it.

The Infant Feeding Intention (IFI) scale

The IFI scale (Nommsen-Rivers and Dewey, 2008) provides a simple and quantitative measure of maternal feeding intentions. The scale consists of five items, using a Likert scale that ranges from zero (very much agree) to four (very much disagree). Items one and two measure intention to formula feed and items three, four and five measure intention to breastfeed. Total score was calculated by finding mean of items one and two and adding it to the sum of items three, four and five. Thus, total score ranges from zero (very strong intention to not breastfeed at all) to 16 (very strong intention to breastfeed exclusively throughout the first six months). The IFI was shown to be valid and demonstrated solid internal consistency. A Cronbach's coefficient alpha value of 0.90 was calculated.

The Iowa Infant Feeding Attitude Scale (IIFAS)

This measure was developed by de la Mora et al (1999) as a measure of attitudes towards infant feeding. The scale consists of 17 items that assess attitudes toward breast- and formula-feeding. Using a Likert scale that ranges from one (strongly disagree) to five (strongly agree), participants respond to items regarding a variety of issues related to infant-feeding, such as convenience, health benefits, and father's involvement. Higher scores indicate more positive attitudes to breastfeeding. The scale was found to provide a reliable and valid assessment of maternal attitudes towards breastfeeding and artificial feeding and the scores were found to be predictive of feeding intention.

Instrument translation

Translation of the instruments from the English version into the Arabic version was conducted to ensure that content, semantic, and technical equivalence were retained. Back translation of the instruments was conducted to ensure the original (English) and the second language (Arabic) version of the instruments measured the same words and concepts.

Data analysis

The SPSS/PC 17.0 software package was used for statistical analysis. Descriptive statistics including frequency and percentages, and means and standards deviations were computed for each individual item, and for the socio-demographic data. Independent t-test was also used to examine mean differences between participants' socio-demographic variables and the IIFAS and IFI scale.

Results

Sample

Participants in this study were 496 female undergraduates from a large university in the northern part of Jordan.

Intention to breastfeed

Table 1 describes students' personal intentions to breastfeed. Most reported a commitment to breastfeeding (M=7.94, SD=3.92). Overall, 73% would try breastfeeding, 71% planned to exclusively breastfeed to one month of age, and 66% to three months. However, only 50% of all students planned to exclusively breastfeed for at least six months, and 26% remained undecided. There was no significant

difference between students' previous exposure to the benefits of breastfeeding and their intentions to breastfeed in future ($t=1.18$, $df=494$, $p=.23$). There were also no significant differences found between participants' demographics and their intention plan.

Attitude to breastfeeding

The majority of the students gave appropriate responses to all the attitude statements (M=57.16, SD=6.1). The majority of the students showed positive attitudes by disagreeing with the common breastfeeding misconceptions. A total of 90% of the students agreed or strongly agreed that breastmilk is the ideal food for babies, 88% agreed or strongly agreed that breastfeeding is healthier than formula-feeding, and 89% of participants agreed or strongly agreed that breastfeeding increases mother-infant bonding.

Although, more than half of all participants (52%) strongly agreed with the statement that 'breastfed babies are more likely to be overfed than formula-fed babies', 36% were not sure about this statement.

The majority (80%) disagreed or strongly disagreed that breastmilk was lacking in iron, and 66.3% believed that mothers who occasionally drink alcohol should not breastfeed their babies. It was noteworthy that 63% believed mothers who formula feed 'miss out on one of the great joys of motherhood'. A further 71% didn't feel that the benefits of breastfeeding lasted only as long as the baby is breastfed.

The majority of women (75%) agreed that breastmilk is more easily digested and cheaper than formula feeding and that formula is not as healthy for an infant as breastmilk (68%). Furthermore, 58% of participants agreed or strongly agreed that breastfeeding is more convenient than formula and 46% strongly disagreed that the father will feel left out if a mother breastfeeds her baby.

A cultural issue was noted when the majority (72%) agreed that women should not breastfeed in public places, and 62% disagreed that formula-feeding is more convenient than breastfeeding. More than half (53%) strongly agreed that formula-feeding is the better choice for a mother who plans to go back to work. Further examination of the mean revealed no significant differences between participants' demographic variables and their attitudes to breastfeeding. However, students who reported having heard about the benefits of breastfeeding were more likely to express positive attitudes toward breastfeeding ($t=2.89$, $df=494$, $p=.004$).

Discussion

The results of this study indicated that all participants had favourable responses to the intention of breastfeeding statements, which, in turn, encourage these young women to promote breastfeeding for the sake of their infants in the future. These results somehow reflect the current situation of breastfeeding in Jordan. However, the results are inconsistent with Johnston-Robledo et al (2007) who found that 74% of their participating students reported having thought about the way they would feed a baby, 51% were planning to combine feed, and only 29% planned to breastfeed exclusively. In their results (Johnston-Robledo et al, 2007), the average duration of

Table 1. Intention to breastfeed

Items	Very much agree	Somewhat agree	Unsure	Somewhat disagree	Very much disagree
I am planning to at least give breastfeeding a try	254 (51.2%)	112 (22.6%)	59 (11.9%)	36 (7.3%)	35 (7.1%)
When my baby is one month old, I will be breastfeeding without using any formula or other milk	227 (45.8%)	126 (25.4%)	82 (16.5%)	28 (5.6%)	33 (6.7%)
When my baby is three months old, I will be breastfeeding without using any formula or other milk	164 (33.1%)	135 (27.2%)	120 (24.2%)	47 (9.5%)	30 (6%)
When my baby is six months old, I will be breastfeeding without using any formula or other milk	108 (21.8%)	139 (28%)	130 (26.2%)	76 (15.3%)	43 (8.7%)
I am planning to only formula feed my baby (I will not breastfeed at all)	34 (6.9%)	43 (8.7%)	60 (12.1%)	80 (16.1%)	279 (56.3%)

intention to exclusively breastfeed was 8.4 months. Therefore, our results were encouraging, as the percentage with breastfeeding intention among the students was higher than that reported by pregnant mothers, which might suggest that there will be a growing trend of breastfeeding in Jordan in the future. This may also be an effect of breastfeeding promotion through media, inclusion of breastfeeding benefits in school curriculum or higher education in young Jordanian women.

The results also revealed that there was a difference in the mean between students' intention to breastfeed and their exposure to the benefits of breastfeeding. This may be due to the fact that all participants in this study were of a high educational level, and there is a fact demonstrated that the maternal education was strongly associated with starting breastfeeding. However, this fact was not supported by one Jordanian study (Khassawneh et al, 2006), which found that less educated mothers were more likely to breastfeed than women of higher education level. It seems that other factors might contribute to the actual practice, rather than the educational influences. Jordanian culture, which is mainly Islamic, is very supportive of breastfeeding. For the Muslim woman, Islam is more than a religion; it is a way of life pervading all aspects of her being. The most critical determinant of Islamic culture is the understanding of and adherence to the *Qur'an* and the *Sunnah* (Saleh and Kerr, 1996). In the Islamic culture, the *Qur'an* provides followers of Islam with special instructions regarding the duration of suckling, weaning and rearing of infants. The *Qur'an* promotes breastfeeding: 'Mothers shall give suck to their children for two full years for those who desire to complete the term' (*Qur'an*, 2:233). This emphasises that breastfeeding is good and normal for the mother and baby and beneficial to all of humanity (Agnew et al, 1997).

Furthermore, our results revealed that the majority of the sample disagreed with the common breastfeeding misconceptions that discourage many women from breastfeeding. The responses of our participants clearly indicated good knowledge about the benefits of breastfeeding. Among Jordanian mothers, there are 33% who choose formula feeding because they think their breastmilk is insufficient to feed their infants (Khassawneh et al, 2006). Furthermore, there are many mothers in Jordan who believe that formula feeding has more components and nutritious ingredients.

In contrast to the results of our study, using IIFAS, Darby-Carlberg (2010) found that 38% of undergraduate students (males and females) believe that breastmilk is lacking in iron, and 36% believe that formula is as healthy for infants as breastmilk. Another study (Li et al, 2007) found that there is a large increase in the number of adults who believe that formula is equivalent to breastmilk.

But evidence confirms that many benefits of breastmilk will have a longer duration. The American Academy of Pediatrics (2005) and the Academy of Breastfeeding Medicine (2008) showed that breastmilk contains more than enough iron to meet the needs of the healthy infant for at least the first six months. Other research (Raj et al, 2008) shows that infants exclusively breastfed for six months did not develop iron deficiency, regardless of whether the mother was anaemic or not. Recent research (Riordan and Wambach, 2010) shows that the iron in breastmilk is able to meet the iron needs of a healthy infant.

It is interesting to note that 89.8% of the sample felt that breastfeeding increases mother-infant bonding, and the majority (88.7%) believe that breastfed babies are likely to be healthier than formula-fed babies. Recent research shows that breastfeeding mothers are more likely than formula-feeding

mothers to bond with their infants, and also demonstrate stronger brain responses when they hear their baby cry (Kim et al, 2011). All of the above responses support the positive attitudes held by this cohort.

Despite the overall disagreement with the most common misconceptions about breastfeeding, 53% of participants agreed that formula-feeding is the better choice if a mother plans to go back to work. Maternal employment has been one of the greatest barriers to breastfeeding. In Jordan, women's participation in the labour force was 24.41% in 2005, and thus attributed to the low rate, or discontinuation of breastfeeding, among working mothers. Khassawneh et al (2006) found that mothers' working status was among associated factors that influenced those not practising full breastfeeding.

Overall, 46.6% of participants in this study did not feel that breastfeeding made the father feel left out. However, 33.7% were not sure about this statement. It should be noted that these responses were given by young women who do not breastfeed. Many studies found that mothers always have negative perceptions of father's attitudes about breastfeeding (Arora et al, 2000; Earle, 2000; Fletcher et al, 2008).

The results of this study show that 66.3% of students believe that women who occasionally drink alcohol should not breastfeed. This reflects a gap in students' knowledge, and supports occasional alcohol intake as a reason for a woman to formula feed. This could be a debatable issue within our study participants; it is neither a part of their knowledge, nor their attitudes of breastfeeding, but it is a religious belief rooted in Islamic law. Muslims believe that dietary restrictions promote health; so healthy eating is part of one's religious obligation, in accordance with Islamic law, alcohol or any other intoxicating food or drink is forbidden (Ott et al, 2003). However, it is important for young women to know the correct information about alcohol intake. Occasional alcohol intake is not a reason to discontinue or not start breastfeeding; research found that an occasional drink does not have to alter a mother's breastfeeding pattern (Mohrbacher and Stock, 2003; Gotsch and Torqus, 2008). This needs to be understood by young Jordanian women for when they promote breastfeeding among women from different religious background.

Although our sample had generally positive attitudes about breastfeeding, a significant proportion of students (72%)

believed women should not breastfeed in public. This result is consistent with other studies which found that embarrassment was perceived as a major barrier to breastfeeding, and breastfeeding in public was not considered acceptable by many students (Forrester et al, 1997).

O'Keefe et al (1998) found that university students considered bottle-feeding more convenient and less embarrassing than breastfeeding; they believed that breastfeeding is a private affair and should not be done in public (O'Keefe et al, 1998). A qualitative study (Spurles and Babineau, 2011) revealed that although the university students desired to breastfeed their babies in future, 31 of 47 participants expressed negative attitudes toward exposure of the breast, and breastfeeding in public places.

Conclusion

This study suggests that undergraduates are thoroughly prepared to promote and support breastfeeding in their future practice. Their professional intentions, positive attitudes, and high previous exposure to breastfeeding benefits support this conclusion. However, this cohort still needs to be convinced of the potential health benefits of breastfeeding, and that breastfeeding does not have to be embarrassing or associated with physical problems. Overall, the results obtained in the study suggest that a culture where breastfeeding is encouraged, accepted and widely practiced could produce more positive breastfeeding attitudes and, in turn, could lead to an increase in breastfeeding initiation.

Implications

Results from this study may help health policy makers and health professionals, particularly midwives and nurses, understand women's attitudes towards breastfeeding. The findings could also be helpful in designing and implementing an effective health promotion programme, targeting young women to promote breastfeeding attitudes, knowledge, and practices in earlier stage, and even before getting married.

Limitations

The study was limited to one cohort of females and the data is not generalisable to the rest of the population. The sample did not explore men's attitudes.

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The experiences of women from three diverse population groups of immediate skin-to-skin contact with their newborn baby: selected outcomes relating to establishing breastfeeding

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Abstract

Background. The physiological basis for the benefits of skin-to-skin contact (SSC) has been established for some time, although often the restrictive context of midwifery practice has been shown to force midwives to prioritise productivity and efficiency, which requires separation of mother and baby. This study evidences some women's experience of this phenomenon.

Objectives. The study aim was to explore women's experiences of immediate SSC with their baby, from the perception of women from three diverse ethnic groups: Bangladeshi, Pakistani and English.

Methods. A mixed-methods, participative study was undertaken with a purposive sample of 20 women drawn from three cultural groups: Bangladeshi, English and Pakistani. The women were recruited from the maternity unit of a single NHS trust in the last three months of pregnancy. Data were collected using digitally-recorded diaries, video-recording, photographs and semi-structured interviews. Research ethics approval was secured from the University of Salford and the local NHS committee. Analysis was undertaken using grounded theory techniques and novel use of concept-mapping to derive final outcomes.

Results. SSC was reported to be a positive experience during which instinctive behaviours of both mother and baby were discovered by families. Eye-to-eye contact and the effect of touch were highlighted as key aspects of the experience. It was recognised by both participants and the researcher that the recommended minimum period of SSC was too short. The UNICEF guideline was amended as a result of the findings of this and other studies (Ali and Lowry, 1981; Bystrova et al, 2009; Velandia et al, 2010), which indicated that the period of time that should be allowed for instinctive responses was more than UNICEF's required 30 minutes.

Conclusion. The need to implement UNICEF and NICE recommendations for SSC in maternity units was reinforced by mothers from all three backgrounds. Commonly-held views on cultural barriers to SSC and breastfeeding were rejected. A more sensitive, individualised approach to choices in these areas is required by midwives and others.

Key words: Skin-to-skin contact, cross-cultural research, participatory research, mothers, breastfeeding, mixed data collection approaches, evidence-based midwifery

Background

A comprehensive overview of the literature was conducted prior to undertaking the study (Brettell and Grant, 2004). A systematic approach was used to search the databases CINAHL, BNI, Cochrane library, MEDLINE/PubMed, MedNar, Google Scholar. Grey literature, and lactation and midwifery journals were included. The search accounted for historical papers supporting current birth practices, SSC, effect of antenatal information on uptake of SSC, evidence underpinning the UNICEF standard (step four), impact of birth environment on skin contact, and women's experience of skin contact from the perspectives of English, Pakistani and Bangladeshi women. The process resulted in a large number of potentially relevant papers. Further appraisal of the full text of papers resulted in 39 papers being included in the literature review. Only a small selection can be included here.

The WHO/UNICEF Baby Friendly Hospital (BFH) initiative was launched to support the development of a maternity infrastructure that enabled implementation of the Ten Steps to Successful Breastfeeding (WHO/UNICEF, 1989). Step 4 included early mother-infant SSC, known to

increase breastfeeding rates (Cattaneo and Buzzetti, 2001; Kramer et al, 2001), and thereby improve the long-term health of mother and baby (Horta et al, 2007).

SSC is the placing of the naked baby against its mother's naked skin immediately or within 30 minutes of delivery, both wrapped in warm blankets, in a warm, quiet, dimly lit environment. It should not be interrupted until after the infant's first feed (UNICEF, 2009). The criteria for assessment in force at the time of the study stated that mothers should report that they were able to hold their babies in SSC for at least 30 minutes, though this was already in question as babies take up to 50 minutes to orientate to the breast (Klaus et al, 1972; Righard and Alade, 1990).

However, pressure on midwives' time, coupled with traditional care practices, sustains the practice of separating mothers and babies shortly after birth. Dykes (2006: 72) alludes to this as 'the production line', a culture that focuses upon 'racing against the clock'. Midwives are expected to move women from labour ward to postnatal ward as quickly as possible to free up birth facilities (Dykes, 2006; Price, 2006). Failure to promote SSC may have long-lasting

impact on mothers and babies, but changing such ritualised, embedded practice poses major challenges (Price, 2006).

It is commonly believed, without evidence, that birth fluids are abhorrent to mothers, and, in particular, repugnant to Asian women (Eyers, 1992; Billings, 1995; Sheridan, 1999; Chesney, 2004). Implementation of SSC is denied because of increased workloads and the delay to completion of midwives' duties (Sheridan, 1999), or concern for babies becoming cold or hypoglycaemic, or being dropped by their mothers (Christensson et al, 1992). In contrast, SSC has been shown to stabilise babies' heart and respiratory rates, to colonise babies against infection, to stabilise their temperature more effectively than an incubator, to increase oxygen saturation levels, and to reduce the risk of hypoglycaemia (Christensson et al, 1992; WHO and NCT, 1997; Charpak, 2006).

The aim of the study was to explore the experience of immediate SSC within three groups of women (Bangladeshi, Pakistani and English). The purpose was to provide evidence to enable midwives to understand practice decisions. This paper provides a report of participant's experiences of establishing breastfeeding through SSC. In order to allow thorough discussion of the main findings, issues about bonding and the family, and cultural issues in women's reactions to bodily fluids, will be reported separately.

Study design

A mixed-methods design was used in order to allow women to choose their preferred means of expressing their views and explaining their experiences. The women were drawn from three cultural groups. Data were collected using digitally-recorded diaries, video-recording, women's photographs of the baby during SSC as a focus for discussion, and semi-structured interviews. A participative approach was adopted to explore individual women's experiences and perceptions of SSC with their newborn baby. This was important as a means to overcome the power differential between researcher and participants (Cornwall and Jewkes, 1995). The intention was that the experiences of the women would unfold during natural conversation, offering meaningful perspectives on the topic under investigation.

Sample

A purposive sample of 20 women was recruited from the maternity services of a large hospital in the north-west of England representing the three main cultural groups using the services (ten English, five Bangladeshi, and five Pakistani). All had chosen to undertake immediate SSC for one complete hour.

Inclusion criteria

- SSC to be started immediately or within 30 minutes of birth, and the baby to be dried before being placed unclothed next to its mother's skin
- Both mother and baby to be wrapped in warm blankets
- SSC to be maintained in an unhurried environment for one hour or longer
- The environment to be calm, dimly lit, warm and quiet.

Exclusion criteria

- SSC discontinued early for medical intervention or by choice
- Not included in the selected ethnic groups.

The women were recruited during the last three months of their pregnancy. The midwife, a breastfeeding peer supporter, or a member of the ethnic health team, discussed the contents of an information leaflet with potential participants and, if the woman was interested in participating, a proforma was placed on her medical records. The proforma highlighted that the woman had shown interest in participating. If the woman subsequently engaged in uninterrupted SSC at birth (for one hour), she was then approached postnatally by an independent professional to obtain consent. The postnatal midwife provided the woman with the appropriate recording equipment and made an appointment for the researcher to visit ten days following birth.

Most participants were multi-gravid (n=15, 75%), enabling them to compare experiences of birth with and without SSC. They were from varied social backgrounds and ranged from 20 to 40 years of age. The sample was representative of different birth methods: home, hospital, vaginal births, instrumental births and caesarean sections. This was crucial to the study as it enabled the women to share their experiences of SSC with their newborn baby following different types of birth and from different environmental settings: home, hospital and obstetric theatre. There was no substantial deviation in practice as SSC was standard practice.

Data collection

The original plan was for women to be given a digital recorder to record a diary, and arrangements made for interview at a closure visit on the tenth postnatal day. Those who opted for this recorded comments any time up to the tenth day. However, participants were able to choose their preferred means of contribution to the study. Four participants chose to video-record the hour of SSC with equipment provided in the last trimester.

It became clear at an early stage that members of the ethnic health team were not approaching the women as agreed to gain their consent to participate in the study. Once it was known that recruitment from minority ethnic groups was being restricted, this reliance on the ethnic health team was discontinued, and the recruitment strategy was amended to ensure that all potential participants were approached. Recruitment continued until an adequate sample had been recruited from these groups.

When Pakistani and Bangladeshi women asserted that it would be difficult to record either audio or video data at home, semi-structured interviews were substituted as preferred by some women. All of the Pakistani and Bangladeshi participants preferred to be interviewed while they were still in hospital (on the first or second postnatal day), and a member of the ethnic health team provided synchronous translation when required.

Observational data during review of video footage and in interviews was included in contextual field notes. Video

recorders were used by the partner or fixed on tripod stands to record the period of immediate SSC of four participants. This generated a large amount of visual data.

Ethical issues

A risk-analysis approach was adopted (Long, 2007). Anonymity was ensured. Women were assured that pseudonyms would be used in all publications, presentations and in the final thesis. The women included in photographic or video recordings were engaged in editing the final footage and gave permission regarding what could and could not be used. Written consent for this was secured. A further risk was that of perceived coercion. This issue is particularly salient when consulting with women from different cultures for whom English may not be their first language. Engaging peer supporters from local communities to disseminate information about the study and to ensure that participants were fully aware of their rights minimised the risks. Interviewing mothers about experiences around the time of birth could have provoked an outpouring of suppressed emotion. Access to counselling was organised, but no such need was realised. Research ethics approval was secured from the University of Salford and the local NHS Committee.

Data analysis

Data analysis was a continuous, iterative process, with emerging issues included in subsequent interviews and review of subsequent recordings. The interviews were transcribed verbatim and translated into English when necessary, and independent interpreters cross-checked the original and translated transcripts. Employing techniques adapted from grounded theory (Glaser, 1992), the researchers read transcripts independently, reflected on key aspects of data, and performed individual coding. Then, concept maps (Long and Johnson, 2001) were used to assist in clarifying emerging ideas and identifying patterns. Once issues from other data were added, a final overall analysis led in turn to the construction of final outcomes.

Although only four participants recorded video data, the amount of material was substantial (each recording more than one hour's duration), and its logging and analysis was complex. Video footage was reviewed independently by the authors before comparing notes and agreeing on key findings and their fit with other data. Guided by the work of Derry (2007), the analysis proceeded by first reviewing the full recording several times to become familiarised with its content, attuning to nuances and statements previously missed. Then, rather than counting instances of pre-determined behaviour, the analysts focused on listing the overall messages prioritised by the women (and their partners) before returning to the footage to gather evidence and additional detail of these messages. In this, the process mirrored the constant comparison technique applied to textual data. Detailed notes from discussions with women about photographs and video-recordings provided depth and context for the data, including non-verbal expression and expressed experiences of the birth and birthing environment.

Findings and discussion

Instinctive behaviours

Like all mammals, human mothers and babies exhibit set patterns of behaviour if left together in a quiet environment for a sufficient period of time (Righard and Alade, 1990). Tactile and soothing verbal responses were clearly demonstrated in the video footage from this study. In all four videos the women began stroking their babies immediately with gentle finger tip touch strokes to the head and face, followed by gentle, full hand-to-body massage. The women used a soft, low voice as they welcomed their babies verbally.

During the immediate period after birth, the infant's catecholamine level (stress hormones) is high (Lagercrantz and Slotkin, 1986), its pupils are dilated, and its reflexes are brisk. The newborn baby is in a state of alertness and is wide awake. The heightened sense of smell leads the newborn baby to crawl to the mother's breast and to find the nipple. Kroegar and Smith (2004) suggest that the mother also experiences heightened sensitivity during this time, looking for her newborn baby and being influenced to breastfeed. The first few seconds after birth between mother and infant are fascinating; it is a time of mutual urgency. The mother has a need to know that all is well with her baby and that it is safe.

It appeared from the data that the women in this study also felt that timing was a notable detail. Mothers verbalised the need to hold their baby immediately after birth. For example, Johura said: "*I don't know why, but just straightaway we connected; I felt so proud to hold her straightaway*" (Johura; Bangladeshi; hospital birth). In discussion about the experience of SCC, participants used terms that indicated reference to intimacy, closeness and nurture.

The women's words suggested that immediate SSC with their babies empowered them to provide immediate love: "*If you don't bond with your baby straight away you feel very guilty that you don't love this little thing like you should do. I think with SSC you really can't help but bond instantaneously*" (Sue; English; hospital birth).

Instinctive breastfeeding

In a small study conducted by Finigan and Davies (2004), women consistently reported that they felt that breastfeeding was a natural and desirable part of SSC. The researchers concluded that this may be a way to increase the breastfeeding initiation rates in compliance with Department of Health targets (DH, 2002). Safina and many other mothers in this study suggested that SSC implicitly encouraged breastfeeding. For Safina, the choice was challenging as in her own culture it was usual for the mother-in-law to welcome the infant with a formula milk feed first (Schott and Henley, 2003):

"I even decided to put her on my breast. That was hard for me to do as bottle feeding is seen to be easier in my community" (Safina; Pakistani; hospital birth).

The mothers in this study reported the patterns of pre-programmed behaviours described in earlier studies

(Klaus and Klaus, 1999; Righard and Alade, 1990). This behaviour had been captured in the video footage. However, Pakistani and Bangladeshi women did not agree to video their experience. They said that they were 'too shy' and that their families would be offended and dishonoured if they were involved, as birth was a private time. This finding is particularly significant as it means that while the voices of Pakistani and Bangladeshi women have been captured and are distinct, the visual experience has not. Parity did not appear to have any effect on women's decision in this regard or on the way that they reported this experience. The midwives remained in the background, protecting the environment and casting a watchful eye over participants without intervening unnecessarily. They were aware that the aim was to capture the essence of the women's experience of SSC, so their impact on the data was minimised.

In the video footage, all four babies responded to their mother's voice, and their energy was channelled to seeing and hearing. An active and alert period followed, in which the babies displayed frequent movements and looked around. They made small, guttural noises. Episodes of movement occurred about every one to two minutes and the babies moved their arms and legs, bodies and faces. These movements may serve an adaptive purpose, promoting natural interaction between parent and baby. The babies become more communicative, entering a crying state. At this point the babies' arms and legs began to move more vigorously. The babies used crawling, stepping movements, and orientated towards the breast. It has been suggested that this instinctive behaviour appears to involve many senses, for example, those of smell, taste and vision (Righard and Alade, 1990; Klaus and Klaus, 1999).

The babies began to lift and move their heads as they started their journey towards their mothers' breasts. They were noted to mouth the nipple, open their mouths widely, latch and begin to suckle with a deep rhythmical action. While suckling, all four babies periodically looked at their mothers and a form of communication was established as the mothers looked back. There was direct eye-to-eye contact as each mother and baby got to know each other:

"It (SSC) is a multi-sensory experience, with different bits that really don't work without the other bits that make the whole" (Val; English; home birth).

During one participant's video recording (Sue; English; hospital birth), her baby began to suckle immediately; his positioning and attachment were observed to be ideal without any intervention from either his mother or the midwife:

"I watched him naturally crawl to my breast to root round to feed. It's absolutely marvellous; he took to breastfeeding like a duck to water" (Sue; English; hospital birth).

Other participants also reported the instinctive early feeding behaviour of their infants:

"She went straight for the breast, straight for the milk" (Halima; Bangladeshi; hospital birth).

"Having tried to point you in the direction of the breast you probably did it for yourself in the end, which I was very

surprised by, particularly after having pethidine" (Janice; English; hospital birth).

The mothers also displayed instinctive or primeval behaviour when left alone in SSC with their babies. They described strong feelings. They had a passionate desire to bring their babies to their breasts and to assist them to nuzzle. This instinctive behaviour is noted in the video footage as all four mothers were noted to cup their breasts and to point the nipple in the direction of their babies' mouths periodically until the babies latched and began to suckle:

"I just lifted him straight up, heard him crying and thought 'I've got to get him up my chest', which was a natural instinct; it wasn't like they (midwives) told me to do it. I just had to pick him up. It was just natural – natural instincts to bring him up my chest to keep him warm and safe" (Sarah; English; hospital birth).

"It felt like the baby knew 'this is my mother' and was happy, and it's like that even now when I give my milk" (Sakina; Bangladeshi; hospital birth).

Women also expressed confidence in their ability to initiate breastfeeding in a natural way:

"My baby fed completely unprompted by me, and that gave me a level of confidence in his ability to feed and to move. It gave me confidence in my ability to nurture him" (Viv; English; home birth).

This confidence in instinctive behaviour gave the mothers a feeling of control and completeness that they had not experienced in birthing without SSC. They knew how to respond to their infant's needs:

"I had confidence. He seemed to crawl up my belly. It was absolutely unbelievable to watch him. This little chap knew exactly what he wanted, and he was going to get it" (Sue; English; hospital birth).

Touch and its effect on breastfeeding

The tactile sensitivity of the human breast increases significantly at parturition (Robinson and Short, 1977), and the stimulus enables adequate ejection of milk for the infant. Infants use their hands to massage their mother's breasts during SSC, which consequently stimulates an outpouring of oxytocin. Uvnäs-Moberg (1998) noted that mothers who initiate SSC with their babies in the immediate period following birth breastfeed for longer:

"I established breastfeeding with him with no problems whatsoever. He did it all by himself, no problems like last time, he didn't struggle with my flat nipples" (Anne; English; planned home birth transferred to hospital for forceps delivery).

"Through SSC and the initial cuddling, she was rooting around and looking for a feed. It was absolutely amazing" (Amrun; Pakistani; hospital birth).

All of the women in this study pointed out that it was natural for them to breastfeed, though this went against the original choices that many of the women had made prior to SSC. The women's words convey a sense of confidence and control so they were able to breastfeed without interference.

Eye to eye contact – ‘look at me’

‘Gaze’ is of central importance in social behaviour. In the first hours following birth, a baby can follow a moving object with its eyes (Argyle, 1993). In the context of immediate SSC at birth the baby is in close proximity to its mother, oxytocin dilates the mother’s pupils, and the dark pupil against the large white of the maternal eye may become a focal point that attracts the newborn baby’s attention.

The women in this study were clearly emotional and moved by their babies’ immediate eye-to-eye contact. They suggested that the baby was looking at them, getting to know them, and that they were looking at and getting to know their babies. Both parents will often show an unusual sense of excitement when they began to make contact with their newborn baby in this way:

“It gave me time to look at her and for her to look at me. To get acquainted, like. I wondered if she was looking at me and thinking the same things. You know – getting to know me” (Bilal; Pakistani; hospital birth by CS).

“He was lying on my chest looking from my face to my husband’s. It was the most miraculous experience ever” (Viv; English; home birth).

In Finigan’s earlier study (2004) some women attached meaning to immediate eye-to-eye contact:

“As he was placed upon me, he was quiet and then he opened his eyes and he began to look at me. I remember that’s when I began to cry because it was, like, he was looking at me and saying ‘here I am, mum. You’re my mum’ and it makes me emotional thinking about that” (Jayne; English; hospital birth).

The words of the women show that early communication was a two-way process in which babies and their mothers were interactive:

“I feel so good to see him looking at me” (Aisha; Bangladeshi; hospital birth).

Klaus et al (1972) concluded their study of maternal attachment by suggesting that there was strong evidence of species-specific behaviour at first contact. They suggested that if babies were sedated they would, in effect, be limp and unresponsive, and would keep their eyes closed, preventing communication between mother and infant from happening.

The period of SSC was too short

In stark contrast, when SSC was not possible, women described their experience of the effects of separation and their perception of the impact on breastfeeding. For these mothers it seemed that SSC and breastfeeding were closely interwoven, and that when the weave was broken breastfeeding became a challenge:

“Six weeks old and he won’t breastfeed. He keeps on trying but just can’t get the hang of it. It’s like not doing it immediately has affected him. He really doesn’t know what to do” (Kashir; Pakistani; hospital birth – traumatic birth, bottle-fed in early days).

Janice contrasted her first experience of limited and somewhat rushed SSC with her current experience and explained what she thought SSC was about initially:

“I can recall, that she (first baby) actually fed, and we thought that’s that (SSC) over with – let’s get her weighed, cleaned and things. With this baby we had a long time in SSC. It was more prolonged and much more treasured” (Janice; English; hospital birth).

Women are often encouraged to put their babies down and to get them in routines, while their instincts call out to just hold their babies close. Kashir (Pakistani; hospital birth) had a CS birth, and SSC was interrupted before her baby had taken his first feed. Subsequently, he never latched on. Kashir obviously blamed the midwives involved in her care for her baby’s failure to breastfeed. She argued forcefully that maternity policies should be clear on one specific issue: *“Put together and keep together. It needs to be clear. Maintain it (SSC). Don’t separate mum and baby until the baby has fed.”*

Limitations

Limitations occur in all studies. In this study they included the need for third party translation during interviews with Asian women. This may have added a layer of extra interpretation to data analysis. The ability of third parties to exclude some groups from participation was underestimated. This occurred due to the imposition of cultural expectations in the recruitment process by peer group members. This problem was overcome once it came to light, but a further lesson was learned about the difficulties of cross-cultural research.

Implications

Educational needs of midwives on SSC

Reflective learning diaries during labour ward experiences may enable student midwives to become more aware of the value of SSC. The employment of video-recording of SSC could be considered, particularly in combination with maternal commentary, to inform training.

Women’s experiences

Central policy must be reviewed to reduce the pressure on midwives to prioritise throughput over quality of birthing experience. Given the importance of SSC in preparing women to be confident mothers, developing family relationships and supporting instinctive breastfeeding, it is important that core midwifery practices allow for SSC. For example, midwives can transfer mother and baby in SSC to the postnatal ward if the labour ward is busy.

National policy

The reported inadequacy of minimum time periods for SSC has already been acted upon in one hospital in the north-west of England and by UNICEF following early discussion of findings. UNICEF guidance has altered so that, from April 2011, to achieve step four there is a requirement to continue SSC for a minimum of one hour (rather than 30 minutes) or for as long as the mother wishes.

Other cultural groups

The findings presented here are, of course, individual to

each participant, but collectively they tell a story with implications for midwifery practice that are far wider and have both national and international relevance.

Conclusion

Midwives need to respect cultural diversity while remaining equally sensitive to the uniqueness of each woman and her needs. Individualised care when SSC is encouraged

can promote the instinctive element of breastfeeding. Implementation of UNICEF standards would reduce the workload for midwives by promoting early, instinctive feeding, engendering more confident and responsive parenting, and reducing the need to intervene for hypoglycaemic babies who fail to feed. The relevance of findings of this study to women in other cultures and health systems warrants further investigation.

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Jordanian women's perceptions of intrapartum vaginal examination

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Abstract

Background. Vaginal examination (VE) is a common procedure and its effectiveness has been questioned. In some countries, such as those in the Middle East, this procedure is more arbitrary than others and may cause distress to women.

Objectives. To assess Jordanian women's perceptions of VE during the intrapartum period, their perceptions of support and information received and its possible impact on women's future reproductive decisions.

Methods. A cross-sectional survey design was used to collect data from 331 women who attended at the comprehensive health centres in Irbid during the study period. The survey population were primiparous Jordanian women who had all given birth vaginally. The survey was carried out during the postnatal period.

Results. Approximately 46.5% (n=154) of women surveyed reported negative perceptions of VE, and 59.5% (n=197) perceived support and information given from health care providers about VE to be minimal. The mean frequency of VE was five times (SD=2.4) ranging from one to 15 times. The main impact of the VE on the women's future reproductive decisions was fear of having another pregnancy. There was a significant relationship ($p<0.05$) between women's perceptions of the VE and their age ($p=0.001$), level of education ($p=0.001$), employment ($p=0.012$), expectations of the VE ($p=0.037$), information received from healthcare providers ($p=0.015$), and women who had five or more times ($p=0.0001$).

Implications. The study has implications for midwifery educators, clinical midwives and future research. Curriculum planners need to ensure that midwifery training care is based on an appropriate model of care that incorporates both the biological and the psychological components of care. This needs to include ensuring that practitioners provide women with the necessary information and choices to make an informed decision.

Conclusions. Negative perceptions around VE suggest that this technique may be used in an inappropriate or insensitive way, with little information or regard for the woman's feelings. Further research is needed to assess the longer term impact of VE upon women's sexual and emotional health.

Key words: Jordanian women, VE, intrapartum, perceptions, information, evidence-based midwifery

Introduction

A vaginal examination (VE) assesses the condition of the internal genitalia and is commonly used in gynaecological, obstetric and sexual health care for diagnosis or treatment purposes. Vaginal assessment in labour is considered by some midwives and doctors as necessary to monitor the progress of labour. Although done frequently in childbirth, the RCM has suggested that there is little evidence supporting specific frequency and timing of VE, suggesting that arbitrarily predetermined VE should be avoided (RCM, 2008).

Some 20 years ago, the WHO determined the frequency of VEs to be once every four hours in the first stage of labour; if the labour passes smoothly the number should be limited to one. VE also can be performed if there are specific indications, for example when there is decrease in the intensity and frequency of contraction (WHO, 1996). According to NICE guidance 'do not do' recommendations, which state that a VE every two hours should not be offered routinely (NICE, 2012). Although, VE is an essential clinical assessment tool that can assist with monitoring the progress of labour, it can increase the risk of infection (Dixon et al, 2010).

There are many previous reports of variable perceptions of women about VE (Fiddes et al, 2003; Olde et al, 2006; Lewin et al, 2005b; Szymoniak et al, 2009; Yanikkerem et al, 2009; Stewart, 2010). Evidence has shown that

some women considered VE to be a distressing, confusing; painful and embarrassing experience (Szymoniak et al, 2009; Yanikkerem et al, 2009; Stewart, 2010). This has led to RCM recommendations that VE practice should minimise distress by improving knowledge of women and obtaining informed consent (RCM, 2008).

There is limited research in Jordan and other Arab countries regarding women's perceptions of VE. The aim of this paper is to present data from research exploring Jordanian women's perceptions of VEs experienced during the intrapartum period, including the support and information received from healthcare providers, and its possible impact on their future fertility.

Literature review

A basic literature search was undertaken to pool international research on women's perceptions of vaginal experience using MEDLINE (2000-present), CCINAHL (2000-present) and Science Direct (2000-present). The computer-based search was supplemented by a manual search of the references listed. The key words used for search strategy were 'VE', and/or 'internal examination', These were combined with 'perceptions', 'feelings', 'information', 'support', 'intrapartum' and subsequently combined with 'Jordan' and 'Middle East'. The selected language for literature search was English. The search strategy identified a total of 297 papers, of which 44

abstracts were reviewed independently by the authors and 21 were excluded for the following reasons: abstract, not related to the research topic, conference papers. A total of 23 were identified. The search for Middle Eastern women's experience of VE was undertaken using academic complete search, Science Direct, MEDLINE, and CINAHL. Only four papers were retrieved.

The available international evidence showed that most of the women who have undergone VE have perceived it as a distressing, painful, stressful, embarrassing, and uncomfortable procedure. Larsen et al (1997) explored the perceptions of 13 women and reported that they were nervous before having a VE, but they accepted it to be a necessary procedure to identify gynaecological disease. Furthermore, they revealed that their expectations of the procedure were worse than the actual experience. A prospective comparative study of 167 women conducted by Moettus et al (1999) reported that the mean embarrassment score was lower for women who had female examiners rather than male examiners, while the mean pain scores was the same for the two examiners groups. In a similar study, Ying Lai and Levy (2002) interviewed eight women using the phenomenological approach. Women reported that they felt embarrassed during the examination because of genitalia exposure and a loss of dignity by being examined in the lithotomy position. In Denmark, Said and Wielandt (2002) conducted a descriptive study to describe the attitude of Arabic-speaking women to VEs (n=100), with a specific focus on the impact of the gender of the examining doctor. About one third of the women refused a VE by a male doctor. This was due to their religion, with a few refusing for personal reasons. Lewin et al (2005b) investigated the perceptions of 104 British women and their experiences of VEs. They reported that contentment with the privacy, dignity, sensitivity, support and frequency of VEs in labour increased the satisfaction about the procedure. Over half of the women (53%) were more than satisfied with the conduct of their VEs in labour; 44% were satisfied and the remaining 3% were less than satisfied.

Another descriptive cross-sectional study was undertaken by Yanikkerem et al (2009) exploring women's preference for the doctors' gender and revealed that 45.5% of women reported that they would prefer a female doctor.

A descriptive study carried out by Szymoniak et al (2009) in two Polish obstetrics and gynaecology hospital clinics to assess patients' (n=100) opinions about gynecological examination found that about 70% of the respondents identified the gynecological examination as embarrassing and stressful. A Turkish study conducted by Yanikkerem et al (2009) using a questionnaire, administered face to face, to investigate women's feelings during VE reported more than half (54.8%) of 433 women felt anxious or worried about their health situation during the pelvic examination, and 41.8% of women said that they were embarrassed about having to be undressed.

There is little evidence in Arab countries of women's perceptions of VE. Two studies were identified; the first described the Jordanian women's perceptions of internal

examination during childbirth by using a prospective, self-selected cohort of 200 primiparous women. The results showed that more than half perceived a VE as an 'embarrassing and uncomfortable procedure' and they felt 'helpless and powerless' during examination (Hatamleh, 2006). The second study from UAE evaluated women's preferences in selecting their obstetrician and gynaecologist using a structured 26-item questionnaire on 508 women who attended Al Ain Hospital. Most participants (86.4%) stated a preference for female physicians, 12% had no preference and eight participants (1.6%) preferred male physicians. Reasons for selecting a female provider were privacy during examination (89.1%), religious beliefs (74.3%) or embarrassment during reproductive counselling (68.8%), and cultural traditions (45.3%) (Rizk et al, 2005).

Materials and methods

A cross-sectional study was designed to collect data on VE including frequency of examination, length of performing VE, gender of examiner, Jordanian women's expectations, if they received information from healthcare providers, and whether women signed a consent form. Data on women's perceptions of VE, support and information from healthcare providers were collected using a convenience sample of primiparous women in the postpartum period. The study took place in six governmental comprehensive health centres in Irbid, northern Jordan. Irbid is the second largest city in Jordan with a population of about 1.25 million.

Data collection

The sample size was calculated for the number of variables in the study, 15 subjects were calculated for each variable, it was estimated that a sample of 240 would be sufficient for statistical confidence. A convenience sample of Jordanian women in the postnatal period who gave birth vaginally and for whom there were no known complications was selected. The survey population included primiparous Jordanian women who had all given birth vaginally, had healthy babies, and who visited the health centres 40 to 60 days after giving birth.

Data were collected in six comprehensive health centres in the northern part of Jordan which had agreed to participate. Over a period of three months, from September to November 2011, data were collected by one of the research team who was available to answer the participants should there have been any queries. A total of 341 primiparous women visiting the health centres during 40 days to 60 days after giving birth during the study period were approached. Of those approached, 331 women consented to take part in the study, giving a response rate of 97%. The ten women who did not participate in this study did not have the time to join the study.

Instrument

A valid and reliable, self-administered questionnaire designed by Lewin et al (2005b) was sourced from the literature and adapted following permission from the

Table 1. A summary of the statistics of participants' socio-demographic and background variables

Variables	n(331)	Percentage (%)
Educational level		
School	101	30.5
College and above	230	69.5
Employment		
Yes	77	23.3
No	254	76.7
Expectation to have a VE		
Yes	146	44.1
No	185	55.9
Received information from medical staff		
Yes	31	9.4
No	300	90.6
Examiner gender		
		<18 years
Male doctor	38	
Female doctor	92	18-21
Midwife	77	
Doctor and midwife	124	
Period of performing a VE		
Short	288	87
Long	43	13
Signed consent form		
Yes	8	2.4
No	239	72.2
Don't know	84	25.4

author. The first part of the instrument is about feelings and perceptions of VE, it consists of 22 items on five-point Likert scale that ranged from one (strongly agree) to five (strongly disagree). Each participant received a total score on the questionnaire ranging from 22 to 110. The cut-off point for each item was 3.1, identified from the total mean score (68.43) divided by 22 items; a mean score of more than 3.1 indicated negative perceptions of VE. Total scores of over 68 for all items indicated negative feelings towards VE. The second part is about perceived support and information from healthcare providers and consisted of nine items on five-point Likert scale that ranged from one (strongly agree) to five (strongly disagree). Each participant received a total score on the questionnaire ranging from nine to 45. The cut-off point for each item was 3.1 identified from the total mean score (28.3) divided by nine items; a mean score of more than 3.1 indicated that women perceived support and information received from health staff as low. Total scores of over 28 for all items indicated low perceived support from health staff. The third

part of the instrument was about the possible impacts of VE on the women's future reproductive decisions, mainly planning for another pregnancy, sexual relationship, and breastfeeding their babies on a five-point Likert scale, ranging from five (to a very large extent) to one (to a very small extent). The fourth part is about demographic data including age, educational level and employment status.

Validity and reliability

To ensure the validity of the adapted instrument for use with Jordanian women, it was subjected to content and validity checks. The validity of the questionnaire is defined as the extent to which it addresses the research questions, objectives or hypothesis set by the researcher. The questionnaire was subjected to index content validity through being reviewed by a panel of four experts, who were selected from nationally known clinicians and researchers. The panel included one midwife, one statistician, and two maternity researchers. They were asked to rate each item based on relevance, clarity, and simplicity on a four-point content scale. General evaluation of the content of the questionnaire, and the readability of the questionnaire were assessed using a four-point Likert-type scale ranging from one (strongly agree) to four (strongly disagree). Participants strongly agreed with all items. The Alpha coefficient reliability for the 22 items concerning feelings and perceptions of VE was 0.91, for the nine items concerning perceived support and information from healthcare providers was 0.84, for the three items concerning the impacts of VE on the women's future reproductive decisions was 0.76. Then the instrument was pre-tested on 30 women and descriptive analysis, including frequency, mean, and standard deviation, indicated that the question items and the analysis procedure would be appropriate for addressing the study aims.

Ethical approval

Approval to conduct the study was given by the International Review Board (IRB) at Jordan University of Science and Technology and the human subjects committee at the Ministry of Health (MOH). Women who accepted the invitation and met the inclusion criteria were asked to complete a questionnaire. The nature and purpose of the study were explained; the questionnaire was given to them to complete at the health centre.

Data analysis

A total of 330 women completed the questionnaire and all data were analysed using the SPSS version 17 Statistical Package for Social Sciences (SPSS Inc, Chicago, US). Data were subjected to descriptive analysis including frequency, percentage mean and standard deviation. Nonparametric statistics such as Crosstabs chi-square were used to examine the relationship between demographic variables and women's perception of VEs, and perceived support from health staff. A p-value of <0.05 was considered to be significant.

Results

All 331 women were married and aged between 17 and 39 years with a mean age of 25.1 years (SD=4.17). The majority (n=230, 69.5%) had a college education and above, and about one third (n=101, 30.5%) had attended school education for less than 12 years. The majority were housewives (n=254, 76.7%), with just under a quarter of the sample (n=77, 23.3%) working outside the home. The majority of women reported that they had not received information about VE from medical staff and did not sign a consent form (90.6%) or did not know about it (97.6%), and more than half of the women (55.9%) said they did not expect to have a VE. In the intrapartum period, VEs ranged from once to 15 times with a mean of 5 (SD=2.4). More than half (n=169, 51.1%) were examined by a female doctor or midwife and the majority reported that the period of performing VE was short (see Table 1).

Women's perceptions of VE

The total score for women's perception of VE ranged from 22 to 110 and total mean score for all items was 68.43 (SD= 12.04). The highest mean score reflects negative perceptions of VE, while the lowest mean score reflects positive perceptions. Nearly half (n= 154, 46.5%) had negative perceptions of VE and the highest mean scores were given to the statements 'VE caused me great embarrassment' (M=4.08, SD=0.77), 'Coping with VE caused me great anxiety' (M=3.93, SD=0.74), and 'VE caused me discomfort' (M=3.85, SD=0.76). The lowest mean score were given to the statements 'VEs were done with dignity' (M=2.09, SD=0.64), 'I felt sexually abused' (M=2.13, SD=0.99), 'VE affects my self-respect' (M=2.13, SD=.1.10), and 'VEs were always performed with great respect and sensitivity' (M=3.36, SD=0.92).

Crosstabs chi-square were used to assess if there was a significant association at p level = 0.05 between women's perceptions of VE and some socio-demographic variables. Table 2 shows there were associations between women's perceptions of the procedure and age, education, employment, signing a consent form, examiner gender, women's expectations, information received, the period and the frequency of VE.

Women who were younger than 25 years, who had school education (12 years or less), who were not employed had negative perceptions of VE. It showed also that there were significant associations between women's perceptions of VE and women who did not sign consent form, women who examined by both midwife and doctor, and women who did not expect to have a VE, and did not receive information from healthcare providers about VE, women who had long period of VE, and had five or more VEs.

Perceived support and information from healthcare providers

The total score of women's perception of the support and information that they received from healthcare providers about VE ranged from nine to 45 and total mean score for all items was 28.38 (SD=4.93). The highest mean score reflects

low support from healthcare providers, while the lowest mean score reflects high support from healthcare providers. Results showed that about two thirds (59.5%) of participants perceived that support and information received from healthcare providers was low and the highest mean scores were given to the statements 'The staff did not give me any explanation about the steps of VE' (M=3.78, SD=0.86), and 'I wish the staff had explained more about VEs before they performed it' (M=3.68, SD=0.83) and 'The doctor prepared me for VE' (M=3.52, SD=1.04). The lowest mean scores, which reflect perceived high support and information from healthcare providers were given to the statements 'Privacy was always maintained during VEs' (M=2.34, SD=0.84), 'During each VE, I was always told what was happening' (M=2.66, SD=0.94), and 'The information gained from VE was reassuring' (M=2.72, SD=0.92).

Crosstabs chi-square showed that both participants' age and employment had statistically significant associations with perceived support, younger age (≤ 25 years) (p=0.000) and women who were not employed (p=0.001) perceived support and information received from healthcare providers as low. Results show there is statistically significant associations between perceived support and examiner gender (p=0.001), expectation to have VE (p=0.003), information received from healthcare providers (p=0.000), and period of VE (p=0.011).

Results also showed significant associations between perceived low support and information from healthcare providers and women who had been examined by more than one examiner (doctor and midwife), women who did not expect to have a VE, who did not receive information about the procedure, and who were exposed to a long VE period. There was no associations between signing the consent form (p=0.075) and number of VEs (p=0.064) and perceived support from healthcare providers.

Possible impacts of VE on women's future reproductive decisions

The majority of women expressed fears about having another pregnancy (n=256, 77%), with few women reporting that their intimate relationship was affected (n=42, 13%), and a small number (n=21, 6%) reported that having a VE made them not interested in breastfeeding.

The highest mean score of the possible impact of VE on women's future reproductive decisions was 'Afraid to have another pregnancy' (M=4.01, SD=0.94) while the lowest mean score were given to the statements 'Not interested in intimate relationship' (M=2.34, SD=1.04) and 'Not interested in breastfeeding my baby' (M=2.06, SD=0.94).

Discussion

Women's perceptions of VE

Nearly half of the participants had negative perceptions of VE as they reported that VE was embarrassing, distressing, painful, unpleasant, uncomfortable, and a very difficult procedure. They felt tired, helpless and powerless, and expressed feelings of anxiety and discomfort. Women in this sample were primiparous and had no previous experience.

More than half of the participants did not expect to have a VE before childbirth. The majority of participants did not receive information from medical staff about VEs and did not sign a consent form. These findings were echoed by Ying Lai and Levy (2002) who explored women's reasons for feelings of embarrassment during VEs related to exposing intimate areas of their bodies in the lithotomy position.

Findings of this study are in keeping with those of Hatamleh (2006) who found that more than half (68%) of the 200 women who took part perceived VE as 'embarrassing and uncomfortable procedure', during which women felt 'helpless and powerless', and more than quarter found VE a stressful, and unacceptable procedure and half did not expect to have a VE. These findings are also in keeping with those of Szymoniak et al (2009) who found that women perceived VE as embarrassing and stressful, and those of Yanikkerem et al (2009) who reported that women felt embarrassed about having to be undressed and felt anxious and worried during VE about their health situation. Women reported that they considered they had too many VEs, which ranged from one to 15 times with a mean of five (SD=2.4). This is consistent with Hatamleh (2006) and Shaban et al (2011) who found the majority of Jordanian women had frequent VEs during labour. These findings provide evidence that VE is used routinely for most Jordanian women during labour, which contradicts WHO recommendation (once every four hours in the first stage of labour and if the labour passes smoothly, the number should be limited to one). However, it is inconsistent with the international studies such as Lewin et al (2005b) who found women were not examined frequently.

Perceived support and information from healthcare providers about VE

Evidence showed that support is an important element for the women to feel in control during VE and labour and this increased their sense of security, communicating their needs to their caregivers freely, and increased the emotional support and encouragement, which in turn decreased the stress and anxiety during a VE (Lewin et al, 2005a;

Szymoniak et al, 2009). Findings showed two thirds of participants perceived that they received minimal support from healthcare providers during a VE. These findings are inconsistent with Khresheh and Barclay (2010) who found that women who had received support during labour were more likely to report a good birth experience. However, the ability to provide one-to-one support to women during labour in Jordanian public hospitals is remote, in the light of severe shortage of midwives and increased numbers of births (MOH, 2010).

The majority of the participants did not receive information from healthcare providers about VE and did not sign a consent form for a VE. These findings are contrary to the RCM recommendation that 'VE practice should be sensitive and minimise distress and pain by improving knowledge of women and obtaining informed consent' (RCM, 2008). It is worth noting that childbirth care in Jordan is based on a medical model, and the obstetricians are usually the care providers. This is evident by the routine use of ultrasound during pregnancy, active management and induction of labour, continuous electronic fetal monitoring, frequent VEs, episiotomy and the increasing rate of CS (Hatamleh, 2006; Shaban et al, 2011). Obstetricians are the primary decision-makers (Abushaikha and Oweis, 2005), and midwives usually assist obstetricians performing procedures such as VE and episiotomies and assume responsibility for low-risk women. Midwifery is not recognised as a separate profession in Jordan, so midwifery managers have been downgraded and nurses are responsible for management of midwives (Shaban et al, 2012).

Our results also showed significant association between negative perceptions of VE and women of a younger age (less than 25 years old). These findings are in keeping with other studies (Fiddes et al, 2003; Yanikkerem et al, 2009). Women having their first VE perceive embarrassment, shame, and discomfort more than women who have undergone repeated examinations. There were significant associations between women's educational level and employment status and their perception of VE.

Women who had less education and were not employed had more negative feelings than those women who had college level education and above and employed. These findings support the work of Yanikkerem et al (2009), who reported that women with elementary school education or less and unemployed were more likely to had negative feelings during VE like feeling of shame.

Possible impact of VE on future reproductive decisions

The major impact was fear of future pregnancy. In the intrapartum period, VEs ranged from once to 15 times with a mean of five (SD=2.4). Crosstabs chi-square showed a significant association at p level = 0.05 between women's perceptions of VE and women who had a VE five or more times. This fear could be because women had negative perceptions of VE as they were not supported or informed about it. Pang et al (2008) found that a quarter of the women who had a negative first childbirth experience

Table 2. Associations between women's perceptions of VE and socio-demographic variables

Variables	X2	DF	p-value
Age	33.07	1	0.001
Education	24.37	1	0.001
Employment	6.32	1	0.012
Sign consent form	16.40	2	0.001
Examiner	23.86	3	0.001
Expect to perform VE	4.37	1	0.037
Received information	5.88	1	0.015
VE period	8.16	1	0.004
VE numbers	12.24	1	0.001

changed from preferring vaginal birth to elective caesarean section. Although surveyed women expressed their fear to have another pregnancy, that fear would not stop them getting pregnant again.

Limitations

The aims of the study were to assess the Jordanian women's perceptions of VE during intrapartum period, their perceptions of support and information received from healthcare providers and its possible impact on women's future reproductive decisions. The findings cannot be generalised because they were from a convenience sample from comprehensive health centres in the north and did not include the south and central parts of Jordan.

Another limitation is using a self-reporting questionnaire and recall bias that the respondents' answers may be affected by the respondents' memory. However, the study does provide new data that is sufficient to support a recommendation for developing official guidelines which will inform decisions on frequent VEs, providing sensitive and appropriate care during the procedure and completing the informed consent form before performing a VE.

Conclusion and implications

The study findings provide evidence that VE is used routinely for most women during labour in Jordan. The

findings of this study contradict the NICE guidance in accordance to the frequency of VE. The practice of VE in Jordan is also contrary to the evidence of best practice and contradicts WHO recommendations.

Negative perceptions around VEs suggest that this technique may be used in an inappropriate or insensitive way, with little information or regard for the woman's feelings. This would impact negatively on women's first childbirth experience, and on their future reproductive decisions.

It is important to share these findings with key stakeholders so focus can be directed towards exploring policy directives to curb the routine frequent VEs in Jordan and to assess the longer term effects of VE on women's sexual and emotional health.

The study has implications for midwifery educators, clinical midwives and further research. Curriculum planners need to ensure that midwifery training is based on an appropriate model of care that incorporates both the biological and the psychological components of care to ensure that women are provided with the necessary information to make informed decisions.

Students and practitioners need to be alert to the needs and perceptions of women, and long-term effects of a procedure that might cause a loss of autonomy and emotional trauma, and be able to provide a safe environment for women during labour and childbirth.

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Interventions to reduce domestic abuse in pregnancy: a qualitative systematic review

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Abstract

Background. Pregnant women are at an increased risk of domestic abuse, with prevalence rates of 5% to 21% during pregnancy and 13% to 21% postnatally. There is a significant threat to the health and wellbeing of the mother and baby that may lead to potential morbidity and mortality. A total of 80% of women in abusive relationships seek help at least once and, on average, seven to eight visits are made to health professionals before disclosure of abuse. Pregnant women are routinely screened for domestic abuse as part of the routine care in the UK, but we do not know what interventions work in reducing abuse in pregnancy. Recent guidelines from NICE (2008) underline the urgent need for evaluation of domestic abuse interventions.

Aim. To assess the effectiveness of interventions to reduce domestic abuse in pregnancy.

Method. The Centre for Reviews and Dissemination (CRD) *Systematic reviews: CRD's guidance for undertaking reviews in health care* (CRD, 2008) and the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines were used to structure the review. Electronic database searches were completed in Medline, EMBASE, CINAHL, Cochrane, ASSIA and PsycINFO from inception until April 2012 and data were extracted that met inclusion/exclusion criteria. All studies were critically appraised by three independent reviewers and the Cochrane 'Risk of Bias' methodology was used for assessment.

Results. Five studies met the inclusion criteria. Counselling was found to be significant in reducing domestic abuse in two of the four studies, which used the Dutton's 1992 empowerment model as the basis for their counselling intervention.

Implications. The strength of evidence for the effectiveness of counselling is promising. Interventions based on mentoring appear to be beneficial. Further research is recommended.

Key words: Domestic abuse, pregnancy, intervention, prevention, midwives, systematic review, evidence-based midwifery

Introduction

Evidence has identified pregnancy as a time of increased risk for domestic abuse (DA) (McWilliams and McKiernan, 1993; Shadigan and Bauer, 2004) either as a trigger or an escalator (Garcia-Moreno et al, 2006). Research by Campbell et al (2000) reports that DA was estimated to occur in 5% to 21% of pre-birth cases and in 13% to 21% of post-birth cases. Of those pregnant women who died in the UK between 2006 and 2008, 13% self-reported experiencing domestic abuse (Lewis, 2011).

Despite such prevalence, it is difficult to define DA because of the lack of agreement around the basic features of domestic violence (Dobash and Dobash, 1992). Therefore, the definition for this review is: 'Threatening behaviour, violence or abuse (psychological, physical, verbal, sexual, financial or emotional) inflicted on one person by another where they are, or have been, intimate partners or family members, irrespective of gender or sexual orientation' (DHSSPS, 2005: 10).

Abuse poses a significant threat psychologically (O'Campo et al, 2006) and physically (Coker et al, 2000) to both women and the unborn child (El Kady et al, 2005). Negative health outcomes of DA for women include physical injuries, increased rates of chronic disease and poor mental health (Campbell et al, 2000; Gottlieb, 2008). Specific outcomes, such as increased susceptibility to infections and failure to gain weight, are prevalent. Risks to the fetus include preterm birth, low birthweight and neonatal death (Coker et al, 2004; Sarkar, 2008).

For the purpose of this review, it is important to define an

intervention for DA. The WHO defines an intervention as: 'An activity or set of activities aimed at modifying a process, course of action or sequence of events in order to change one or several of their consequences such as performance or expected outcomes' (WHO, 2001: 53).

Rationale

Research within public health has led to important DA policy initiatives at global, national and local levels (WHO, 2010; DH, 2010; DHSSPS, 2005). Each policy recommends health professionals support and respond to DA, as 80% of women in violent relationships may seek help at least once (DH, 2000) and typically make seven to eight visits before disclosure (Harris et al, 2002). As a result, sensitive routine questioning about existing abuse during the antenatal period has been introduced and offers an opportunity for women to get help (Devries et al, 2010).

Routine enquiry has been used to screen for DA since the 1990s. Renker and Tonkin (2006) reported that 97% of the women were not embarrassed or offended by routine enquiry. However, O'Campo et al (2008) found abused women refrain from spontaneous disclosure of DA due to concerns about what might occur afterwards, such as social service involvement, or their partner finding out. Steen et al (2009; 2010) are currently piloting a preventative intervention through antenatal education aimed at reducing the possibility of DA in the antenatal period.

Considerable research has already been undertaken in the area of DA, however NICE (2008) guidelines on antenatal care state:

‘Although there are effective screening tools and screening for domestic violence has been shown to be acceptable to women, there is insufficient evidence on the effectiveness of interventions in improving health outcomes for women who have been identified. Therefore, evaluation of interventions for domestic violence is urgently needed’ (NICE, 2008: 118).

Bailey (2010) reported that many healthcare providers do not screen for DA as they are unsure of procedures following disclosure, and O’Reilly et al (2010) have called for further research to provide evidence of the effectiveness of screening and resultant interventions. Clearly, the reaction of healthcare professionals when women disclose their experience can affect their ability to re-establish their life (DH, 2010).

Previous reviews, such as Ramsay et al (2009) have appraised advocacy interventions for DA. But none have focused on interventions for prevention of DA in pregnancy (a protocol has been listed in Cochrane; Jahanfar, 2011). Reviews have either focused on particular study designs or specific interventions. For example, Ramsay et al’s (2005) systematic review included evaluation studies that provided quantitative data only, and O’Reilly et al (2010) focused on screening and interventions for DA in pregnancy. This paper will provide a review of the effectiveness of interventions aiming to reduce DA in pregnant women (reported in the literature before April 2012) and add new knowledge to previous reviews such as Wathen et al (2003).

Method

A systematic review is a reliable way to evaluate evidence on the efficacy and safety of healthcare interventions (Liberati et al, 2009). However, the structure, process and outcomes need to be clearly communicated (Lagan et al, 2006). The CRD *Systematic reviews: CRD’s guidance for undertaking reviews in health care* (CRD, 2008) was strictly followed. The PRISMA guidelines (Liberati et al, 2009) were used to improve the reporting of the review, and the *Cochrane handbook for systematic reviews of interventions* (Higgins and Green, 2011) was used as a guide for the risk of bias assessment.

Identifying research evidence

The search strategy focused on identification of all interventions that were tested with women who disclosed DA during pregnancy. An initial scoping search was carried out to identify key words and MeSH headings relevant to DA and pregnancy using the Participants, Interventions, and Comparators elements of PICO. Outcome was not used in case it failed to show relevant studies that did not emphasise the outcome inclusion criteria adequately. These were then used to search Medline (1948-present), EMBASE (1980-present), CINAHL, and the Cochrane Central Library, ASSIA and PsycINFO (1806-present). Key words and search terms included: ‘domestic abuse’, ‘intimate partner violence’, ‘pregnancy’, ‘intervention’, ‘advocacy’, ‘prevention’, ‘power’. Hand searching of relevant journals, grey literature such as conference abstracts identified by the database were also examined.

Study selection

All papers were screened using the title to remove those clearly irrelevant. The remaining papers were reviewed by title and abstract to identify only those that met the inclusion criteria.

As translation services were unavailable, articles had to be in English. The following inclusion criteria were applied to identify the interventions tested with pregnant women who have or were experiencing DA:

- Type of participants: Healthy pregnant women ≥ 16 years old and subject to domestic abuse by a partner within 12 months of current pregnancy
- Types of interventions: Interventions that have been tested for DA in pregnant women
- Setting: Any healthcare setting that abused pregnant women may attend
- Design: Randomised controlled trials (RCTs), before and after studies, case controlled studies
- Types of outcome: A reduction in DA post intervention.

This reduced the papers from 937 to 47 papers. The full text of the remaining studies was independently reviewed by three researchers to ensure they met the inclusion/exclusion criteria. Five were deemed eligible.

Data extraction and synthesis

Three researchers extracted data from the selected studies independently. Where there were differences in the data extracted, the three researchers reached consensus through discussion. The data were extracted from each study using a template based on PRISMA guidelines:

- Participants: Inclusion criteria, age, sample size, type of DA, background, ethnicity, assessment tools for baseline measurements
- Interventions: Type, duration, intensity, timing, provider
- Comparison: With other interventions, no interventions/usual care
- Outcomes: Reduction in DA.

Given the differing types of studies discussed in this review, the results have been reported using a narrative synthesis approach. The narrative synthesis will focus on the CRD (2008) guidelines. A meta-analysis was discussed, but due to the differing outcome measurement tools used in the papers, for example Parker et al (1999) used the Index of Spouse Abuse (ISA) and the Severity of Violence against Women Scales (SVAW), whereas Tiwari et al (2005) used a modified version of the Conflict Tactic Scale (CTS), the meta-analysis was not deemed suitable for this review.

Quality assessment

The method to assess quality of RCTs was based on the classification of ‘risk of bias’, as recommended in the Cochrane handbook (Higgins and Green, 2011). Each domain was categorised ‘yes’ for low risk of bias, ‘no’ for high risk and ‘unclear’ if there was an unclear or unknown risk due to insufficient information or lack of relevance (Higgins and Green, 2009). For those studies that are not RCTs, bias has been analysed and discussed as required.

Integrity of interventions

Assessing the integrity of interventions helps to identify if all aspects of the intervention were carried out as planned and can determine whether it succeeded or failed and why. The integrity of the included studies was assessed using Dane and Schneider’s five aspects of fidelity, which have been used extensively for measuring

treatment integrity (Power et al, 2005; Carroll et al, 2007). The intervention intensity is an index used to assess the 'exposure' component of intervention integrity – frequency, duration, and concentration of the intervention. Interventions should be assessed so decisions can be made about the optimal intensity that is feasible and effective. To assign an intensity rating to the different intervention and control groups for the included studies, a classification system was created with five levels of intensity, level one representing low intensity, level five representing high. A similar classification was used in a review by Lumley et al (2009).

Results

Of the five remaining studies, four were RCTs; the other a case controlled study (Parker et al, 1999). Three studies were completed in the US (Parker et al, 1999; McFarlane et al, 2000; Kiely et al, 2010), one in Hong Kong, (Tiwari et al, 2005) and one in Australia (Taft et al, 2011). Each study implemented the intervention prenatally with three continuing into the postnatal period (Tiwari et al, 2005; Kiely et al, 2010; Taft et al, 2011).

Recruitment of participants took place in antenatal clinics, public hospitals, GP surgeries and maternal/child health services. Participants were recruited by professionals who carried out the intervention in three studies – Parker et al (1999), McFarlane et al (2000) and Tiwari et al (2005). Kiely et al (2010) combined a computer self-assisted interview with a baseline interview. The participants in Taft et al (2011) were recruited by maternal/child health nurses and GPs from 106 primary care clinics who received six hours of professional development to improve their ability to refer appropriate women. Each study participant completed the Abuse Assessment Scale (AAS).

The five studies recruited 1103 women from a variety of ethnic, educational and employment backgrounds. Only one study recruited women under the age of 18 (Taft et al, 2011). The type of DA suffered was not specified, but participants had to have experienced it within the previous 12 months.

The interventions included counselling, resource cards and mentoring. Four studies (Parker et al, 1999; McFarlane et al, 2000; Tiwari et al, 2005; Kiely et al, 2010) used a counselling intervention. McFarlane et al (2000) also compared counselling with mentoring and a resource card. One study (Taft et al, 2011) compared non-professional mentors to standard care.

The same counselling intervention was used by all and was based on the abuse prevention protocol developed from Dutton's (1992) empowerment model. This model is based on the belief that women experience violence because of lack of control in their lives, and the coercive control of the abuser. Alleviation of this behaviour empowers women to take control of life situations.

The mentoring intervention (McFarlane et al, 2000; Taft et al, 2011) involved matching a woman with a non-professional mentor who was responsible for support, advice, education, future safety and financial planning. McFarlane et al (2000), in their third group, combined the non-professional mentor with the counselling intervention that was used in the counselling group. The mentor contact was by home visiting or telephone.

The MOSAIC (MOtherS' Advocates in the Community) mother mentoring model trialled by Taft et al (2011) combined social support, (Coker et al, 2000) advocacy (Bybee and Sullivan, 2002) and Parker et al's (1999) counselling intervention. The

study aimed to reduce partner violence and improve women's mental and physical health. Taft et al (2011) recruited non-professional women with good communication skills, provided five days' training and regular follow-up meetings.

All studies described control groups as receiving standard prenatal care. No studies detailed what this constituted. Two studies also gave the comparison group a resource card (Parker et al, 1999; Tiwari et al, 2005). The resource cards included contact details of agencies that provide DA support, such as social services, law enforcement, and legal providers. It is likely that standard care may vary across interventions.

Reduction in DA was identified in all five studies and was the only outcome in Parker et al (1999) and McFarlane et al (2000). Types and levels of abuse being measured were detailed in most studies such as Tiwari et al (2005), who tested their intervention against mild and severe physical abuse as separate entities. Taft et al (2011) did not specify the type of abuse, but reported it as 'partner abuse'. Two of the studies reported a significant reduction in abuse (Parker et al, 1999; Tiwari et al, 2005) with the others reporting a lesser decrease. Increase and decrease was measured by participants experiencing DA pre-intervention versus post-intervention.

One of the four RCTs was clustered (Taft et al, 2011). In the fifth study, Parker et al (1999), the authors rejected randomising DA participants into a comparison arm, deeming it unethical.

The risk of bias criteria was applied individually to each RCT study. Three satisfied at least five criteria and one study satisfied two criteria (McFarlane et al, 2000). Parker et al (1999) used a case controlled method to compare groups from the same population with and without an intervention to evaluate its outcome. Selection bias in such studies will be dependent on how the control group was selected.

Four studies described treatment allocation as random, but only three provided sufficient information on sequence generation (Tiwari et al, 2005; Kiely et al, 2010; Taft et al, 2011). Tiwari et al (2005) used a computer-generated method, Kiely et al (2010) a risk specific permuted block randomisation and Taft et al (2011) cluster randomisation. Parker et al (1999) recruited the control arm before the intervention arm, which is considered high risk of bias.

Three studies provided sufficient information to be considered low risk for allocation concealment – Tiwari et al (2005), Kiely et al (2010) and Taft et al (2011). Tiwari et al (2005) used an allocation schedule that was computer generated, and concealed in consecutively numbered, sealed envelopes by a researcher not involved in the study. Kiely et al (2010) also used a computer-generated randomisation scheme with the researcher contacting the data-coordinating centre, which then determined the participant's assignment. The cluster randomised method that Taft et al (2011) implemented was also explained. Two studies did not report allocation concealment. In McFarlane et al (2000), women were assigned to the intervention selected by the month they attended, whereas Parker et al's (1999) case-controlled study recruited those receiving the intervention only after they had completed the comparison arm of the study.

The issue of blinding was not discussed in every study. Due to the sensitive nature of these interventions, blinding of participants can be difficult and may not have occurred. This

difficulty was highlighted by Parker et al (1999) and identified as a limitation. Blinding of the personnel was completed in two studies (Tiwari et al, 2005; Kiely et al, 2010), as the researchers were unaware of the woman's randomisation until the follow-up data were collected. Taft et al (2011) discussed their reason for non-blinding but also highlighted this as a limitation.

All outcomes identified in the aim or method of the study were reported in the results section. The authors feel there was no indication of selective reporting in any of the studies.

Interventions by McFarlane et al (2000) and Taft et al (2011) were classified level four, as they were given regular individual support from their non-professional mentors on consecutive appointments and as needed. Parker et al (1999) gave all the participants the standardised intervention with the protocol specifically designed for the intervention. They were provided with additional support, such as help to contact agencies, therefore it was classified as level three/four intensity. Kiely et al (2010) was classified level three as no additional supports were offered and Tiwari et al (2005) was classified level two intensity as the participants received one counselling session and a brochure reinforcing the information provided. All control groups or 'standard care' were classified as level one intensity.

The number of sessions implemented varied in each study. The most time intensive intervention was Taft et al (2011), which involved participants having continuous support through counselling and outreach for one year. McFarlane et al (2000) allowed participants unlimited contact until delivery and reported that the majority of sessions lasted around 30 minutes, with an average of four to five sessions per woman totalling 150 minutes. Kiely et al (2010) delivered, on average, ten sessions of 30 to 35 minutes to each woman, eight antenatal and two booster sessions postnatal. Parker et al (1999) implemented three individual counselling sessions, at the beginning of the intervention, and then twice more during pregnancy. Tiwari et al (2005) offered one session at entry, lasting 20 to 30 minutes.

The duration of follow-up varied with some following the women two years postpartum. Tiwari et al (2005) stated outcomes were assessed six weeks post-delivery, Parker et al (1999) and Taft et al (2011) 12 months postnatal and 18 months post-intervention for McFarlane et al (2000). The study by Taft et al (2011) was the only study that continued to implement the intervention during the postnatal period.

Delivery of the interventions varied from non-professionals to master/doctorate level professionals (Tiwari et al, 2005; Kiely et al, 2010). Non-professionals were recruited to deliver the mentor part of the intervention in McFarlane et al (2000) and Taft et al (2011). All professionals and non-professionals received training either by the paper's researchers or by others, with one reporting continuous support throughout their study (Taft et al, 2011).

Retention rates were addressed in each with Taft et al (2011) identifying this as a concern in their protocol (Taft et al, 2009) leading to further training for those who were recruiting to help increase retention. They retained 76% of those recruited at 12 months. Reasons for dropout included women who were lost to follow up (Parker et al, 1999; McFarlane et al, 2000).

Participant feedback on the intervention was provided in Taft et al (2011). The feedback identified areas that most information was offered on as being legal, self-care and parenting services.

At the final interview, Parker et al (1999) also enquired about which components of the intervention participants went on to use. They found that women in the intervention group used significantly more safety behaviours than the comparison group.

None of the studies identified measures to ensure the integrity of the intervention. Taft et al (2011) stated that at each contact point in their study, they checked the match of mentor to women only.

Few studies had measures in place to ensure that all participants received the same intervention with no mention of training other professionals involved in the antenatal and postnatal period.

Recruitment and delivery of the intervention occurred at the same site for most, with exception of McFarlane et al (2000) and Taft et al (2011) whose mentor contact was by home visiting or telephone. All studies conducted their one-to-one sessions in private rooms with the follow-up interview either in a private room or via telephone. Each interview was carried out by a different interviewer to reduce participant bias in the Parker et al (1999) and McFarlane et al (2000) studies. Tiwari et al (2005) completed the follow-up interview using an experienced research nurse who was not involved in either the pre-intervention assessment or the intervention. Contamination bias is possible, yet most studies did not report methods to reduce this.

Discussion

This review identified five studies that implemented an intervention to reduce DA in pregnant women. Comparing the studies was difficult due to differences in the population (such as ethnicity, number of participants), length of post-intervention follow-up and nature of the intervention (exposure).

The concept of empowerment appeared to be the cornerstone of the counselling interventions, based on Dutton's (1992) empowerment model, while the mentor programmes were tailored to the individual needs. The studies had considerable heterogeneity with the intensity of the interventions varying from one-off 30-minute sessions to one-year contact. A range of outcomes were reported, with some focusing only on physical abuse, and others focusing on DA and further behaviours, such as smoking. The length of follow-up also differed ranging from six weeks post-intervention to two years. Consequently, the review is narrative based, as meta-analysis was not possible.

Of the five studies in this review, two met the criteria for low risk of bias (Tiwari et al, 2005; Kiely et al, 2010) whereas the other three provided insufficient detail to ascertain whether they fully complied with all criteria. All studies reviewed were described as RCTs or case controlled (Parker et al, 1999), however, details of the randomisation method or allocation concealment were not always described or had insufficient detail.

Only two studies reported blinding the outcome assessors (Tiwari et al, 2005; Kiely et al, 2010). Although reduction in DA outcomes is subjective, blinding is important as this can influence results of outcome, a potential for bias that could be avoided. One study did not provide full details on the completeness of data. Drop-out rates were identified, but one study lost 24% of the recruited sample (Taft et al, 2011). Intention-to-treat analysis was discussed in Kiely et al (2010) and Taft et al (2011).

A lack of process evaluations in the studies made it difficult to adequately assess intervention integrity, including the complexity

of the interventions and details of the implementation process. Taft et al (2011) explained a comprehensive process evaluation in the protocol of the study, which was previously published. Process evaluations are essential for identifying effective key components of an intervention (Campbell et al, 2002). Reporting successful outcomes is of limited usefulness if it is not possible to identify what factors caused the positive outcomes (Steckler and Linnan, 2002). None of the studies discussed processes already in place to prevent women in the control group from receiving components of the intervention. So was it the actual intervention, or the professional delivering it that made a difference? Future studies would benefit greatly from reporting feedback on the five aspects of intervention integrity (Dane and Schneider, 1998).

The main outcome for the review was a reduction in DA in pregnant women post intervention. To date, the only studies to report significant reductions in DA post intervention are Parker et al (1999) and Tiwari et al (2005). Tiwari et al (2005) reported on mostly minor psychological and physical abuse. The other studies found a reduction in DA, which was not deemed significant (McFarlane et al, 1999; Kiely et al, 2010; Taft et al, 2011). Taft et al (2011) commented on this and recommended further study of their intervention to confirm the result gained.

Parker et al (1994) developed an abuse prevention protocol that was based on Dutton's empowerment model (1992). To keep it consistent with their framework, each intervention session included safety components, support structures and identification of abusive behaviours. McFarlane et al (2000), Tiwari et al (2005) and Kiely et al (2010) based their intervention on this abuse prevention protocol of Parker et al (1994). Tiwari et al (2005) highlighted the items they modified to ensure cultural congruence. Parker et al (1999) and McFarlane et al (2000) used the same cultural background for their sample however, one found a 'significant' reduction whereas the other did not. Many reasons could be given for this varying result such as the subjectivity of DA, length of intervention. Tiwari et

al (2005) also found a 'significant' reduction, but it is hard to know whether the modification may have had any effect on the overall outcome. More information on the exact contents of the intervention could help explain the varying outcomes.

Possible reasons for the differing outcomes have been mentioned in each paper, for example, McFarlane et al (2000) and Parker et al (1999) both felt their interventions' effectiveness could have been limited due to the focus being prenatal. Tiwari et al (2005) reported that measuring behaviour outcomes of perpetrators not included in the study might be problematic. They also recommend that translating the AAS and the CTS into Chinese needs further validation.

Parker et al (1999) reported no difference between ethnic groups on the outcome of the intervention. This is in contrast to the impact of ethnicity and culture on outcomes suggested by Bent-Goodley (2007) who recommends the use of a culturally sensitive screening tool to ensure effective implementation of an intervention (Kataoka et al, 2004). Heterogeneity is always a factor to be considered so differences in socioeconomic status, accessible services, timing of the intervention and reliable measurement of outcomes should be accounted for.

Incorporating theory into a review remains a challenge because studies do not always have an explicit theoretical basis, may use several theories, or describe a theory without integrating it (Jackson and Waters, 2005). Theory was lacking in each study detailed in this review.

Conclusion

It is clear that the identification of effective interventions to address DA generally and particularly in pregnant women is of great public health importance. Although limited conclusions can be made from the review, the evidence indicates counselling and mentoring may be effective. Further research is necessary to identify what it is within these interventions that actually works, for whom and in what circumstances.

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Information for authors

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News and resources

MEPs vote for an increase in research funding

The European Parliament is planning to increase the amount it spends on research funding. A resolution, passed on 23 October, called for a rise in funds for research and competitiveness as part of the Horizon 2020 framework. Under the proposals, the amount allocated to funding in the budget for 2014 to 2020 would increase to €80bn (£64bn) compared to the €53bn (£43bn) budgeted for 2007 to 2013. However, concerns have been raised that the EU's council of ministers may not support the proposal, and business groups have begun lobbying policy makers to ensure the funding increase is protected. As *EBM* goes to press, a summit to discuss the next multi-annual budget was due to take place.

Demand for ERC starting grants doubles

Demand for European Research Council (ERC) starting grants has increased by more than 50% over the past year. The ERC reported that it received 3329 proposals this year, compared to the 2169 that were submitted in 2011. It is the biggest increase in demand that it has seen in the past four years. Starting grants are made available to early career researchers working in Europe. The five-year grants are worth up to €2m (£1.6m). ERC president, Helga Nowotny, said the increase was 'very telling' of the current need for funding. 'With the current decrease in research funding in Europe, we risk ignoring the wealth of young top talent that Europe has instead of cultivating it,' she said.

Nottingham hosts international conference

Midwives from around the world descended on the UK in October for the Nottingham International Conference for Education and Research (NICER) in Midwifery, which was held at Nottingham University. Speakers included ICM president Frances Day-Stirk, Professor Cecily Begley of Trinity College, Dublin, and Professor Paul Lewis from Bournemouth University. The topics covered ranged from midwifery-led care and outcomes, and kindness and caring in health care to postnatal care and the MINT project.

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