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BASED  
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# EVIDENCE BASED MIDWIFERY

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# Intrauterine prenatal surgery: an alternative to abortion

*Key words:* Intrauterine fetal surgery, prenatal surgery, technology, alternative to abortion, evidence-based midwifery

As midwives we value the precious gift of a baby that is as healthy as it can possibly be and when we know a mother is carrying a baby that has an anomaly, we are challenged to provide the best evidence-informed care.

When the ultrasound scanner is showing the interior world of the fetus, being able to say, ‘everything looks just fine’ is one of the key moments in which we stand together with parents, anxiously waiting for the technology to show us there is nothing obvious to be concerned about. Giving parents the good news about a potentially ‘perfect’ baby based on our limited knowledge and skill in ultrasound has a real ‘feel-good factor’. However, when we see something abnormal, our heart sinks as we ponder the next steps. It is here that our knowledge is key and we need to remain hopeful for the parents, as they look to us for help. Knowing about recent advances in fetal surgery can be of immense comfort and it is this subject. I have always been an ardent supporter of making technology work for us and using it appropriately. Knowing what choices are available to parents who are told their baby has an anomaly is key to making wise decisions and we need to remember that many are deeply opposed to abortion for fetal abnormality (Wallace et al, 2018). These parents look to us and it is our duty to be well-informed about advances in technology and in particular the emerging field of fetal surgery. ‘What can be done to improve the life of my baby?’ is the question they ask when they know they are not going to choose an abortion. This is where we need to keep abreast of technological advances and present the available evidence.

Intrauterine fetal surgery is evolving rapidly due to advances in MRI scanning and aspirations for the realisation of fetal gene therapy and stem cell therapy use in fetuses. Intrauterine fetal surgery is used to treat a wide range of birth defects, such as gastrochisis, diaphragmatic hernia, heart defects, obstructive uropathy, spina bifida and teratoma. It can be carried out by opening the uterus (open surgery), by using fetoscopy with small abdominal incisions (endoscopic) or by using a guided catheter under ultrasound.

As inconceivable and unimaginable as it may seem, this new field of research and treatment is rapidly growing from concept to reality. Today, with the power of visualisation technologies such as ultrasound and MRI, fetal surgery is being recognised and internationally classified in our health database records. The history of its development from the 1960s has recently been the subject of a paper by Koehler et al (2017) where they discuss all of the above, plus the ethics and evolution of the diagnostic and surgical techniques. The use of MRI for fetal diagnostics did not become a reality until the 1980s and has only recently been researched in the UK as an emerging technology with ever-increasing popularity and prestige as a diagnostic tool. The use of MRI in fetal surgery has been of immense value in progressing this field of surgery and has brought immense hope.

A good example of major developments in fetal surgery is in the area of spina bifida. The US National Institute of Health funded a large prospective multicentre study to compare the outcomes of the surgery undertaken at around 23 weeks’ gestation and this study reported the benefits of intrauterine surgery demonstrating a decreased need for shunting, reversal of hindbrain herniation and better neurological functioning (Moldenhauer and Adzick, 2011). This study was a major milestone in the history of fetal surgery. Further significant progress is evidenced in this field with the recent systematic review and meta-analysis (Araujo Júnior et al, 2016). This review was undertaken to compare the outcomes of the different procedures for repair (open fetal surgery compared to fetoscopic) and included the initial extraction of 1080 relevant records for review which is an evidence marker to demonstrate the growing number of studies in this field. The outcome was based on a sample size of 19 relevant records and demonstrated that open fetal surgery had less ‘procedural-related complications, but there was a higher rate of hysterotomy scar complications’. It is important to note from an ethical perspective there is a risk of harm to the mother, as well as the baby, including preterm labour, placental scar issues and CS.

Sharing this knowledge with each other and with parents is important, regardless of whether the surgery is available in their country. We know many will find a way to achieve their goal, even if it means raising funds and travelling abroad. Babies are precious and mothers have demonstrated their willingness to put their life at risk to save and enhance the life and wellbeing of their unborn baby by risking intrauterine surgery. We need to have no fear in sharing this knowledge, facilitating parents to make informed decisions and, where they wish to do so, take an alternative course of action to avoid abortion. It is our duty of care.

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# Breastfeeding knowledge and attitude scale: Arabic version

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## Abstract

**Background.** It is important for researchers who borrow instruments for use in different cultures and countries to ensure that these are tested for acceptability and practicality, as well as linguistic/literal equivalence, using a robust and transparent framework. The WHO (2005) created a framework to guide researchers from different cultures in how to translate an instrument from one language to another.

**Aim.** The purpose of this paper is to describe such a process of translation and adaptation, using the WHO (2005) guidelines, when translating the English version of the breastfeeding knowledge and attitude scale into an Arabic version for use in Jordan.

**Methods.** The authors adapted the Breastfeeding Knowledge and Attitude Scale (Tarrant and Dodgson, 2007). Ethical approval and access to undergraduate students was obtained from the Jordan University of Science and Technology. A convenience sample of 40 undergraduate female students was recruited from the University between June and July 2015 to undertake the pilot study testing the clarity and easiness of the questions. The researchers followed the WHO (2005) guidelines throughout the process of translation and adaptation of the research instruments.

**Findings.** The students found the survey to be suitable and appropriate. The reliability of the Arabic version of the instrument was established in terms of acceptable Cronbach's alpha values, which is consistent with the original English version.

**Conclusion.** Conceptual and cultural differences are important factors for consideration when using borrowed instruments, regardless of their proven reliability and validity. The process of adaptation and testing of instruments, as suggested by the WHO (2005), has enhanced the transferability and rigour of the breastfeeding knowledge and attitude scale.

**Key words:** Breastfeeding knowledge attitude scale, Arabic translation, WHO translation process, evidence-based midwifery

## Background

In a developing country, such as Jordan, the teachers of midwives and nurses need to recognise the role of knowledge and attitude towards breastfeeding to facilitate and enhance the education of students in the promotion of breastfeeding for them and their families (Ahmed and El Guindy, 2011). The use of valid and reliable measures to assess undergraduate students is an important aspect of programme development and evaluation (Kavanagh et al, 2008). The breastfeeding knowledge and attitude scale (Tarrant and Dodgson, 2007) was originally designed to assess students' understanding and feelings towards breastfeeding and has been deemed a reliable tool. However, it requires translation into different languages to make it more accessible to non-English-speaking populations (Amin et al, 2011). It is important that researchers who borrow instruments for use in different cultures and conceptually different contexts, ensure that these are tested for acceptability and practicality as well as linguistic/literal equivalence, using a robust and transparent framework. The WHO (2005) devised a framework for researchers involved in such translation processes, including forward translation, expert panel, back translation, pre-testing and cognitive interviewing. This paper describes how the WHO method was used to translate the breastfeeding knowledge and attitude scales into an Arabic version (Abujilban et al, 2012).

The scale has been used in a number of studies across a range of cultures (Kavanagh et al, 2008; Tarrant and Dodgson, 2007; Dewan et al, 2002). These studies show it to be valid and provide reliable measures of undergraduate students' knowledge and attitude towards breastfeeding.

## Literature review

A systematic and comprehensive literature review was undertaken to answer the question: 'Is the Arabic version of knowledge and attitude towards breastfeeding equivalent to the English version?' CINAHL, Medline, PubMed, and the web were searched using the key words 'translation', 'adaptation', and 'trans-cultural research'. The inclusion criteria included studies published in English between 1990 and 2018. Papers were excluded if they were not focused on the main concepts of this paper. Six papers were found to clarify the framework for the translation of the instrument to another language, although they differed in steps and purposes of translation. All of these papers shared the same idea, but differed in the number of steps and objectives of the translation.

Brislin (1986) suggested that the process of translation consists of: translation; blind back-translation; examination of versions; pilot study; and examination of the pilot data. The weakness in Brislin's framework is that judgement is postponed to a late stage. Sartorius and Janca (1996) mentioned seven steps for the translation: establishment of a bilingual group of experts; examination of the original instrument's conceptual structure by the experts; translation into target language; examination of the translation by the experts; examination of the translation by an unilingual group; back-translation; examination of the back translation by the experts. The main weakness of this method is the absence of a pilot study to the equivalent translated version. Van Ommeren et al (1999) suggested using a form for every item, involving a five-step translation process comprising:

the translation and lexical back-translation; translator's opinion; blind back-translation; and pilot-tested. This method was very time-consuming. Jones et al (2001) used a five-step framework, which included: discussing the questionnaire with a bilingual expert; forward translation; blind back-translation; compare the original questionnaire and the back-translated one; pilot test the original and the translated questionnaire. The main weakness of this method is the requirement of a bilingual sample to use for the pilot study. The Functional Assessment of Chronic Illness Therapy Organization (2003) suggested the translation process to consist of: forward translation; reconciliation of forward translation; blind back-translation; independent review; finalisation of the translation; format and proofreading; pilot-testing. The weakness of this method is the need for bilingual experts in both languages. Every method of translation detailed above had negative points that prevented the authors from using it. In contrast, the WHO (2005) guidelines outline five steps for translation of the instrument, which appeared easy and applicable to use. These guidelines were adopted for the translation of the breastfeeding knowledge and attitude scale from English to Arabic to use as a convenient framework for Jordanian culture that may be able to benefit the community and healthcare providers.

#### **Aims**

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The aims of this study were to translate the knowledge and attitude toward breastfeeding into Arabic language, and to test its reliability and validity among a group of undergraduate students in Jordan.

#### **Procedure**

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The researchers followed the WHO's recommendation for the translation of an instrument from one language to another. This translation process includes forward and backward translation, which means according to WHO's recommendations, the translation will be done both from the subjects' native language to their second language and in the reverse direction respectively. The forward translation was done by a health professional, familiar with breastfeeding and midwifery/nursing terminology. However, her native tongue was the Arabic language and she used the conceptual meanings rather than literal translations. The translator strived to be clear, concise and simple, and avoid using jargon. Moreover, she considered issues of gender and age applicability. The questioning of the instrument was done by three experts in nursing and an instrument development and translation expert. These experts tried to identify and resolve any inadequacies or inaccuracies of the translation, and discrepancies between the forward translation and the original work. These experts produced a complete translated version of the questionnaire. Back-translation of the instrument was done by an independent translator. The back-translation focused on conceptual and cultural equivalence rather than linguistic equivalence. Discrepancies were discussed with the expert panel and problematic words that did not capture the meaning were discussed with all researchers

to find another word that captured the meaning by the researchers following the back translation, the instrument was pre-tested on 40 undergraduate students who were excluded from the main study. Once the pre-test had been administered to the students, they were asked to repeat the questions in their own words and explain how they chose their answer. The answers to these questions were compared to the student's actual responses to the instrument to check for consistency. The students were asked about any word they did not understand. The final Arabic tool was made from all the previous listed steps and versions.

#### **Instrument**

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The Breastfeeding Knowledge and Attitude Scale (Tarrant and Dodgson, 2007) has two scales: the first scale determines knowledge about breastfeeding through 14 questions. The responses are measured on a four-point Likert scale (strongly agree, somewhat agree, somewhat disagree, strongly disagree). The modification made to this knowledge scale was to change the scoring of knowledge statements into a scale instead of a dichotomous response (disagree, agree) to get a more accurate result. The second scale consists of 17 questions asking about attitude towards breastfeeding (Tarrant and Dodgson, 2007). Two changes were made to this scale: the first converted the five-point Likert scale to a four-point scale to avoid neutral responses; the second change removed unclear words.

#### **Results**

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##### *Validity*

The validity of an instrument is defined as the extent to which it addresses the research questions, objectives or hypothesis set by the researcher (Polit and Beck, 2006) and if the instrument adequately represents the research domain of interest (Waltz, 2005), that is, it does what it is meant to do. To assess the validity of the instrument, it was subjected to face and content validity.

##### *Face validity*

Face validity was assessed by giving the instrument to non-experts to assess its clarity and whether the questions reflected the main goal of the study. Following translation, the instrument was given to four randomly chosen bachelors' students and two pupils of sixth and ninth grades 'to ensure the clarity of the words used in the questions'. They were notified about the reason of the study then asked to read the instrument and indicate if all its questions were convenient, clear, understood, and suitable. All the participating students found the instrument relatively clear; some needed an explanation of words such as 'soya milk' and 'nicotine' while others asked to change some words they found unclear. For example, the word in questions seven and 10 of the attitude scale needed modifying to 'in public places' instead of 'public'.

##### *Content validity*

Content validity was assessed by the researchers reviewing the instrument several times to ensure that it was comprehensive

**Table 1. Breastfeeding knowledge and attitude scales**

Breastfeeding knowledge subscale	Breastfeeding attitude subscale
Q1. For a baby, breastfeeding is healthier than formula-feeding.	1. Formula-feeding gives more freedom to the mother.
Q2. The baby sucking on the mother's breast is painful.	2. Breastfeeding makes breasts less attractive.
Q3. Breastfed babies are smarter than babies who are not breastfed.	3. Breastfeeding would make my partner or me more attractive.
Q4. There is no difference between breastmilk, cow's milk and soya milk.	4. Babies enjoy breastfeeding more than formula-feeding.
Q5. Breastfeeding alone provides sufficient nutrition in the first few months of life for the baby.	5. Breastfeeding will help a mother feel closer to her baby.
Q6. Nicotine, caffeine, alcohol and medicine are passed from the mother's body to breastmilk.	6. Formula-feeding is more sanitary than breastfeeding.
Q7. Most women make enough breastmilk to adequately feed their baby.	7. Breastfeeding in public places is embarrassing.
Q8. The breastfeeding woman should avoid eating certain foods.	8. Formula-feeding and breastfeeding benefit the child equally.
Q9. Babies who are bottle-fed have more illnesses than babies who are breastfed.	9. The decision to breastfeed should be made by both parents and not just by the mother of the baby.
Q10. Breastfeeding helps prevent infections in the baby.	10. Breastfeeding is acceptable in public places.
Q11. Breastfeeding helps protect babies from allergies.	11. I want my partner or myself to breastfeed my baby.
Q12. A woman who has small breasts cannot breastfeed.	12. Only girl babies should be breastfed.
Q13. Some babies have allergies to cow's milk.	13. Babies who are breastfed get a better start in life.
Q14. Breastfeeding should be started as soon as possible after the baby is born.	14. Women of all educational levels should breastfeed their children.
	15. Women of all socio-economic class should breastfeed their children.
	16. Breastfeeding is more convenient than formula-feeding.
	17. I respect women who breastfeed.

and sufficient to answer all the research questions. The questionnaire was then given to a panel of three experts comprising two associate professors of nursing and an associate professor of nutrition. All of them had expertise in research and questionnaires. The experts were asked to rate each item of the questionnaire based on four choices of the Content Validity Index (CVI) scale: 'not relevant; somewhat relevant; quite relevant; or highly relevant' for each item. To include the item in the questionnaire it needed to be rated as relevant or highly relevant. According to Lynn (1986), when evaluating an instrument by less than five experts, only items receiving three relevant scores from three experts should be included. As most of the researchers' evaluations of the instrument items were 'highly relevant', the CVI scale was calculated as 1.0 for both knowledge and attitude.

According to the validation by the experts, two experts suggested removing questions 5, 6 and 7. Relating to the marital status of the participants and whether they have children or not, as follows (5): Marital status? (6): Do you have children? (7): Were your children breastfed? They clarified that there was no need for these questions since the participants were unmarried undergraduate students. However, these questions could be added in future studies. In Jordan, more than 99% of undergraduates do not get married until they graduate as their parents believe that undergraduate students are not able

to take the responsibility of marriage and study at the same time (Ahmad and Dardas, 2016). None of the students who participated were married at the time of the study.

#### *Pilot study*

Prior to data collection, a pilot study was carried out by giving the questionnaire to a group of 40 students. The reasons behind doing the pilot study were to ensure clarity, applicability and acceptability of the instrument, assess the mean time required by each student to finish the questionnaire and assess validity and reliability of the instrument.

#### *Pilot study results*

Students found the questionnaire was very easy but some of them noted that it was long; it took a mean time of 10 minutes to complete. A Cronbach alpha reliability test was carried out to assess the reliability of the Arabic version scale (Polit and Beck, 2011). A Cronbach alpha coefficient, (the most widely used criterion) used to evaluate the internal consistency, was calculated as 0.54 for the breastfeeding knowledge subscale and 0.734 for the breastfeeding attitude scale. An instrument is considered internally consistent if the Cronbach's alpha exceeds 0.50; thus a Cronbach alpha coefficient of 0.65 for the instrument indicated an acceptable reliability (Polit and Beck, 2011).

## Discussion

This paper details the transparent process undertaken to translate the breastfeeding knowledge and attitude instrument from English for Arabic usage prior to conducting a much larger study in northern Jordan.

This preliminary testing provides evidence for the reliability and validity of the Arabic version of the knowledge and attitude scales. The validity provided initial support for the one-dimensional nature of each scale of the breastfeeding knowledge scale and attitude scale used. The reliability of the Arabic version of the instrument was established in terms of acceptable Cronbach's alpha values, which is consistent with the original English version. The Cronbach alpha for internal consistency/reliability of knowledge scales was 0.87. Tarrant et al report a CVI score of 0.93 and Giles et al indicated that reliability was 'good' (Kavanagh et al, 2012). Moreover, the attitude statements were adapted from Tarrant (Cronbach alpha = 0.72). Kavanagh et al (2012) also added four statements from the Iowa Infant-Feeding Attitudes Scale into the attitudes component. The reliability after adding these items increased (Cronbach alpha = 0.86). There is no guarantee that this interpretation is the single most accurate one and

it needs to be confirmed by more evidence (Tabachnick and Fidell, 2001). A larger sample size would minimise the risk of error and maximise the confidence with which the study results could be interpreted (Nunnally and Bernstein, 1994). Nevertheless, the point rating scale used in this pilot study increased the reliability and decreased the possibility of significant distortions in rating the items (Portney and Watkins, 2000).

## Conclusion

The authors recommend further studies to explore the criterion-related validity and predictive validity of the breastfeeding knowledge and attitude scale so as to enhance future applications in midwifery and nursing education and research. One of the purposes of this study was to increase the knowledge and enhance the attitude of undergraduate students in relation to breastfeeding. Such studies would be useful in evaluating changes in knowledge and, over time, with respect to the provision of education. Moreover, they would also provide opportunities to compare the differences in perceived level of knowledge and attitude to breastfeeding between Eastern and Western populations.

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# Coping, help and coherence: a non-dichotomous theory for childbirth

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## Abstract

*Aim.* To propose a new theory that may be useful when explaining childbirth from the perspective of women and their midwives.

*Approach.* The proposed theory builds on previous research and follows a previous discussion paper, which was published earlier this year. It draws on the author's extensive experience in midwifery, findings from the author's PhD research study, and an in-depth review of models of midwifery and childbearing.

*Implications.* The proposed model builds on the work of sociologist Aaron Anotovsky's theory of a Sense of Coherence and nurse-midwife Ernestine Wiedenbach's Need for Help Theory as a starting point for a more suitable explanatory framework through which to understand birth from the perspective of new mothers and their midwives. Combining these theories avoids the drawbacks of a dichotomous structure; it does not rely on dubious definitions of what is 'normal' in birth and integrates the perspectives of both woman and midwife. It reflects the high value placed by women and their midwives on coping and self-reliance. It takes account of women's desire to cope with labour and the role of midwives to offer help in this desire. It provides a sense of coherence regarding the uniqueness of each and every birth for both the woman and her midwife, set in context of one's own and others' experiences. It recognises that the woman and her body can be trusted to express any need for help, if necessary, along with the vital nature of the midwife's skills to recognise when help is needed, and what that 'help' might be. At the centre of the model, it places the supreme right of the woman to validate the help she may need.

*Key words:* Midwifery, childbirth, normal birth, conceptual framework, model, theory, evidence-based midwifery

## Background

The author (Darra, 2018) provided an in-depth critique of dichotomous models of midwifery and childbearing characterised as being false dichotomies, since they separate the woman from the midwife and perpetuate oppositional concepts of normal versus abnormal; natural versus medical; pain relief versus working with pain. The author concluded that separating normal from abnormal and natural from medical is of little use.

This previous paper focused on how women and midwives cope with labour, largely seeking to avoid interventions and analgesia, while at the same time using them.

Here, the author discusses considerations of a more nuanced view of what goes on in a birthing room. The discussion reflects the inclusive nature of the framework for quality maternal and newborn care: maternal and newborn health (Renfrew et al, 2014), this time including the woman who is giving birth and the midwife who is caring for her. The focus is on perceptions of what is normal in birth and seeks to reflect the high value placed by women and their midwives on coping and self-reliance. This paper seeks to recognise the importance of sense of coherence regarding the uniqueness of each birth, for both the woman and her midwife, set in context of one's own and others' experiences. It demonstrates a recognition that the woman and her body can be trusted to express a need for help, if necessary, along with the vital nature of the midwife's skills to recognise whether and/or when help is needed, and what that help might be. The proposed theory may be useful when considering the experiences of all women going through labour and the midwives who care for them, but it is not intended to explain experiences around elective CS. It can, however, help to inform care in labours which result in

instrumental intervention or non-elective caesarean birth.

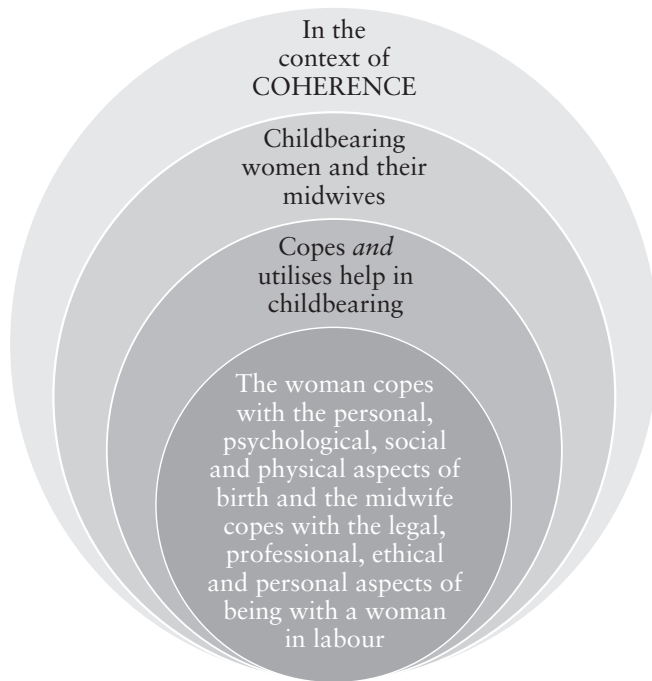
This paper touches on complex ideas but it should be noted that the discussion reflects what might be characterised as a Western-centric nature of the midwife/mother relationship. It doesn't examine competing inter-cultural and historical perspectives and while it intentionally includes the voices of women and their midwives, it does not analyse all aspects of the influence of power in all its forms on childbirth and midwifery practice. In particular it does not seek to identify exactly what help would comprise and it does not suppose that all women would recognise that help is needed. It does not contribute greatly to current debates around place of birth, since it is proposed that the theory discussed here would be applicable in any situation where a woman and midwife are working together during labour. The discussion is proposed as a potential starting point for further professional, philosophical and practical discussions in which these issues and challenges can be debated.

## A new theory

This paper proposes a new theory, which reflects how the women and midwives in the author's research identified that 'normal' birth is a complex, widely used yet not easily identifiable defining concept (Darra, 2018). The women and midwives did not appear to take great account of potential risks in the pregnancies, instead the women appeared to understand their pregnancies in the context of their own wider understanding of birth as an event which women wanted to cope with, with the help of knowledgeable midwives. The women sought to achieve this by relying on themselves and breathing during labour while also accepting (and requesting) analgesia and some birth interventions. The midwives also appeared to aim for normal births, but



Figure 1. Diagrammatic representation of coping, help and coherence: a non-dichotomous theory for childbirth



The coping, help and coherence theory demonstrates how giving birth may require a helping process, which is triggered by a woman's behaviour that is perceived and interpreted by the midwife. This takes place in relation to both parties' expectations and/or hopes.

The midwife does this by:

- Observing inconsistencies during the labour and acquiring information about how women mean any cues that are given by the woman
- Determining the cause of any discomfort or need for help
- Determining whether the need for help can be met by the woman or whether assistance is required.

Once needs for help are identified, ministrations are achieved and validation that help was given is recognised. Help may be having the midwife present to encourage the woman's ability to cope or anything else; up to and including pharmacological means or help from other professionals (this might include medical or instrumental intervention).

commonly used interventions. Therefore, it can be concluded that current dichotomous models and theories of birth and midwifery separating the normal from the abnormal and non-intervention from intervention do not fully explain the perspectives of women or their midwives.

The proposed theory (see Figure 1) demonstrates how giving birth generally requires a helping process, which is triggered by a woman's behaviour that is perceived and interpreted by the midwife. This takes place in relation to both parties' expectations and/or hopes. The midwife does this by:

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Help may be having the midwife present to encourage the woman's ability to cope or anything else; up to and including pharmacological means or help from other professionals (this might include medical or instrumental intervention).

This theory resulted from merging a model of nurse/midwifery from the 1960s and a 1970s sociological theory.

### Key components

The two key components of the new theory are drawn from nurse-midwife Ernestine Wiedenbach's Need for Help Theory and sociologist Aaron Antonovsky's concept of a Sense of Coherence.

#### *Ernestine Wiedenbach's Need for Help Theory*

Wiedenbach's theory was developed inductively through observing practice and from her own working experience

as a nurse-midwife (Wiedenbach, 1967). She stated that the goal or purpose of the midwife is to meet a woman's need for help. Her definition of need for help is: 'Any measure or action required and desired by the individual and which has potential for restoring or extending her ability to cope with the demands implicit in her situation.'

She continued: 'Whenever a need-for-help exists, its presence may usually be suspected by behaviour – physical, emotional or psychological – which is different from the normal or usual pattern. The nurse (midwife) who is perceptive will be aware of it. Perceptiveness thus is an attribute of [...] nursing (midwifery). The fact that a need is perceived, however, does not mean that it is met. First it must be identified. To do this requires skilled use of eyes, ears, hands and mind – eyes through which to perceive or look intently; ears with which to listen expectantly; hands with which to feel, touch or palpate sensitively; and a mind with which to understand and interpret the observation. Once the need is recognised and has been validated by the one whose need it is, appropriate action can be taken to meet it' (Wiedenbach, 1967: 353-4).

Wiedenbach appeared to be ahead of her time in many ways. In the 1940s she recommended that babies be cared for beside their mothers instead of being sent to a central nursery between feeds (Bennett and Coldwell Foster, 1995). She also published a very early journal paper entitled *Childbirth as mothers say they like it* in 1949. Marriner-Tomey (2002) reflected on this paper and noted that the needs-for-help that were identified by Wiedenbach in her paper were not met until the 1970s. Also, by the 1980s health authorities were developing the 'unique' idea of family-centred care, which was actually proposed by Wiedenbach over 20 years earlier.

Wiedenbach was among the first nurse-theorists who proposed that the needs and the input of the patient are

**Table 1. Wiedenbach’s Need for Help Theory and components of the new theory**

	Wiedenbach’s Need for Help Theory (1964)	Component one of the new theory
Philosophy	A personal stance of the nurse that embodies attitudes toward reality.	A personal stance of the midwife that embodies attitudes toward reality in labour and birth.
Purpose	The overall goal. The purpose of clinical nursing is ‘to facilitate efforts of individuals to overcome obstacles which interfere with abilities to respond capably to demands made by the condition, environment, situation or time’ (Wiedenbach, 1964: 15). Purpose is the embodiment of meeting needs for help.	Normal birth is desirable; intervention should be avoided, if necessary, but may be used judiciously if thought to be potentially helpful.
Art	The art of clinical nursing requires using individualised interpretations of behaviour in meeting needs for help.	Pain in labour is normal but some women may need help with it.
Practice	Meeting needs for help implies goal-directed, deliberate, patient-centred practice actions that require knowledge (factual, speculative and practice), judgement, and skills (procedural and communication).	The overall goal. The purpose of midwifery is to facilitate efforts of women to cope with labour and birth overcoming obstacles which interfere with their abilities to respond capably to demands made by the condition, environment, situation or time.

essential components of nursing (and midwifery) (Bennett and Coldwell Foster, 1995). Her prescriptive theory was strongly influenced by the behavioural paradigm, which assumes that people seek to meet their own needs (McKenna, 1997) going through several iterations throughout the 1960s and 70s (Gordon et al, 2010; Marriner-Tomey, 2002; Bennett and Coldwell Foster, 1995; Raleigh, 1989). Wiedenbach defined all the major concepts that contributed to her theory, including the idea of the ‘patient’, which she defined as ‘any individual who is receiving help of some kind, be it care, instruction or advice, from a member of the health professions or from a worker in the field of health’ (Wiedenbach, 1964: 3). She also provided definitions of the nurse and set out all other components of her theory. Key components are: ‘identification of a need-for-help’ (Wiedenbach, 1964: 60), the ‘ministration of help’ (Wiedenbach, 1964: 61) and ‘validation that a need for help was met’ (Wiedenbach, 1964: 62). In short, her theory is made up of the nurse observing that a need-for-help exists, provision of the help that is needed, potentially looking outside of her own skills to provide the required help and then validation that the help provided was indeed helpful to the patient (Bennett and Coldwell Foster, 1995).

In Wiedenbach’s theory one can see that the nurse (midwife) comes to the situation with four components: philosophy, purpose, art and practice. Using Wiedenbach’s theory this author considered that the findings of the study in which 21 ‘normal’ birth stories were analysed (Darra, 2018, 2016; Darra and Murphy, 2016) (see Table 1). Chinn and Kramer (1991) explain that ‘the helping process is triggered by patient behaviour that is perceived and interpreted and in relation to which the nurse reacts. In interpreting behaviour, the nurse compares the perception to an expectation or hope. Identification of needs for help involves: observing inconsistencies and acquiring information about how patients mean the cue given or determining the basis for an observed inconsistency; determining the cause of the discomfort or need

for help; and determining whether the need for help can be met by the patient or whether assistance is required. Once needs for help are identified, ministration and validation that help was given follow’ (Chinn and Kramer, 1991: 179).

As suggested by Wiedenbach (1964) and explained by Chinn and Kramer (1991), midwives need to observe a woman’s behaviour looking for clues, which seem inconsistent with her continuing to cope with what she is experiencing in labour (whether the labour appears to be ‘normal’ or not). S/he would need to firstly determine whether the need for help can be met by the woman (through self-help methods of coping) and then, using her/his knowledge and judgement to apply the necessary skills to help the woman. In the author’s study help was either: ‘keeping the woman going’ through self-help methods, water immersion, distraction and/or encouragement as seen in several of the stories.

*Aaron Antonovsky’s theory of salutogenesis and Sense of Coherence*

Apart from considering Wiedenbach’s theory of the nurse identifying a ‘need for help’, the author gave thought to how the midwife can give the right help to each woman at the right time, which led to consideration of Antonovsky’s theory of salutogenesis (Antonovsky, 1987, 1979), as well as UK midwifery professor Soo Downe’s (2004) and Italian midwife-researcher Verena Schmid’s (2011) work on salutogenesis. Salutogenesis refers to both the woman and her midwife understanding the concept of risk factors but also utilising the concept of salutary factors, which are those factors that promote good health and coping.

The women and midwives in the author’s study were apparently able to take into account risk factors but put these into the context of their aim to achieve normal birth. This was evident as a number of the women referred to antenatal factors that may have involved increased maternal or fetal risks and which might have affected their ability to achieve a normal birth.

Anwen was under dual care with her midwife and an obstetric consultant because of her low serum ferritin levels in pregnancy, which is linked with anaemia.

"I had to go to [Name of the town where the hospital is situated] because I was consultant-care-led due to my ferritin" (Anwen).

"Everything had been fine antenatally apart from as you know the low ferritin, so she was, you know, for a normal delivery in the low-risk room" (Denise, midwife).

Jo had previously been diagnosed with a bicornuate uterus:

Author: "So, you know you said you were under the care of the consultant? So was there reason for that then?"

Jo: "Yeah, when I was having my first daughter, they discovered, cos we were on, we were having tests to find out why I wasn't conceiving properly and we waited seven years to have my first daughter. So they did a scan with dye of my uterus inside and they found out that I had a bicornuate uterus so they kept an eye on me, when they found out then I was pregnant. They wanted to keep an eye just in case the empty side would interfere with the baby on the other side. Because of that they put me under consultant care again, but I only went into hospital twice to see the consultant. Twelve weeks and I think it was 35 weeks."

Author: "And it all progressed normally?"

Jo: "Yeah, it was all normal and fine."

And Alison (midwife): "Jo had gas and air I think that was the only pain relief she had... and... well, she progressed really well. Jo had a bicornuate uterus and I listened in cos she was on the normal care pathway, oh no... she was on the obstetric pathway, but I just listened in because she was so normal."

Bethan had polyhydramnios and had previously experienced a precipitate (very rapid) birth.

"So and cos I'd got polyhydramnios as well, excess fluid, they said, you know any niggles you think, you know to come in straightaway" (Bethan).

(Bethan's midwife Nicky is extremely likely to have known about her medical history but she didn't even mention it.)

Penny had a low lying placenta:

Penny: "But ah, it was a lovely room and the midwife was fab... but, because my placenta was low, and they weren't... I'm not sure what it was, exactly."

Penny's mother: "They couldn't find it on the scan they said, cos it was so low."

Penny: "Yeah."

Penny's mother: "There was problems from the very beginning... you know."

Penny: "They couldn't find out exactly how far it was from the exit, then... so they were a little bit worried, so they felt that I needed to be monitored, so they took me down to a normal labour room, and I went down and they put me on the monitor then..."

Tina (midwife): "She did have a low lying placenta antenatally I think, it just wasn't flagged up, it was just, and that was probably why she had a bit of a bleed... at the early labour..."

Isabelle had experienced a forceps delivery and a shoulder dystocia when giving birth to her first two children:

"Emma was about 27 hours and ended up in a forceps

delivery and I lost a lot of blood... I had an epidural with her and it just slowed everything up and then in the end I couldn't feel anything so I was pushing against nothing and then it ended up in forceps delivery... she was born, we were living in [place] at the time, so she was born in [place]. Thomas was to all intents and purposes a normal delivery but he was 10lb 4oz so he was quite big... and his shoulders got stuck so I had a midwife kind of diving on me at the last minute and because of that I think y'know birthweight and there was a little bit of a problem at the end... but he was only just under four hours so it was a different experience to Emma. I know he was big but again it was fairly normal..." (Isabelle).

Carolyn (midwife): "She'd had a shoulder dystocia, quite a nasty one, but this baby was no problem."

None of the women had referred to these issues when checking their inclusion criteria and to arrange the interviews. During the phone calls to invite them to take part in the study, they were asked if they had any identified risks prior to the birth and they all stated that they did not. Keen to recruit women to this study, the initial contacts were not too searching and the author did not want to be looking for reasons to not interview them; they were therefore included in the study.

There was no information from the community midwives who recruited the women for the study about these potentially serious risk factors prior to the interviews and the author only learnt about them when they were mentioned by the women during the interviews. This clearly brings into question the consideration of the definition of normal birth being 'low risk at the start of labour' (WHO, 1997). This apparent indifference towards risk factors by both the women and their community midwives was unexpected when one considers the current ubiquitous perception of risk and fear in childbirth (Lavender et al, 2012; Nilsson et al, 2012; Dahlen, 2010; Gamble et al, 2007; Boyd, 2006; Eriksson et al, 2006a, 2006b; Kitzinger, 2006; Thompson, 2006; Walsh, 2002; Wolf, 2001). It appears that the community midwives did not think that the risks involved would affect the definition of normal birth. They and the women also did not seem to consider these factors to be risks at the time of recruitment to the study.

It was considered whether this might have been different if they had been asked about them prior to the birth, at a time when the risk might have been more keenly felt by them. When they were contacted, they had just had what they felt was a normal birth, so the risks that had been identified before the birth had turned out to be unproblematic; this might account for the apparent underestimation of these risk factors, on the part of the women and perhaps the midwives. However, it might equally have been the situation that both the midwives and the women were seeking to emphasise salutary factors instead of risk factors, as suggested by Schmid (2011), Downe (2008) and Antonovsky (1979).

Downe (2004: 19) identified the key salutary factor in childbirth to be a 'sense of coherence' in which the experience of birth may be positively affected by it being 'meaningful', 'manageable', and 'comprehensible'. The

**Table 2. How an understanding of a sense of coherence in childbirth fits within Antonovsky’s theory**

	Antonovsky’s Sense of Coherence Theory (1979, 1987)	Component two of the new theory
Meaningfulness	The deep feeling that life makes sense emotionally; that life’s demands are worthy of commitment. It is essentially seeing coping as desirable.	The deep feeling that the experiences of childbirth makes sense emotionally; that its demands are worthy of commitment. It is essentially seeing coping in childbirth as desirable.
Manageability	The extent to which people feel they have the resources to meet the demands, or feeling that they know where to get help.	The extent to which women feel they have the resources to meet the demands of childbirth, or feeling that they know where to get help.
Comprehensibility	The extent to which a person finds structures of their world to be understandable, meaningful, orderly and consistent instead of chaotic, random and unpredictable.	The extent to which a woman finds what goes on during childbirth to be understandable, meaningful, orderly and consistent instead of chaotic, random and unpredictable.

women in this study also expressed their understanding of birth in a way that expressed such a ‘sense of coherence’. The women exhibited commonality in their stories, which was similar across the range of ages and backgrounds. The stories pointed to virtual emotional connections with other women. The women seemed to care particularly about the advice they were offering to others (as well as what they wanted to avoid telling them) with Isabelle referring to pregnant women as being in a ‘club’:

*“I think you can’t really and you don’t know what to expect. My sister-in-law is pregnant now for the first time and I know there’s things that I’m not telling her... y’know there’s things that you don’t say and I guess that’s why they call it a club and things like that... you know you don’t want to scare people”* (Isabelle).

This led me to conclude that they were demonstrating ‘empathy across different social locations’ as suggested by Riessman (2002: 696) when she referred to how storytelling bridges policy discourse and fosters development of constituencies through the language of women’s life worlds.

The women’s stories are also reminiscent of the work of Robbie Davis-Floyd (1992) who set out to study American rituals in birth by interviewing over 100 pregnant women, mothers and healthcare professionals. She described the rites of passage around birth as ‘transformation in the peer domain’. She described how the women talked about being part of an ‘underground network’ and a ‘secret sisterhood’. Davis-Floyd characterised the transformation as a unique bond within which first-time mothers seek ways to help them cope. They are initiated into what Davis-Floyd called the common culture of pregnancy in which knowledge is passed on in story, symbol, and example.

An explanation of how an understanding of a sense of coherence in childbirth fits within Antonovsky’s theory is set out in Table 2.

The stories told by the women and their midwives in the author’s study reflect aspects of Wiedenbach’s Need for Help Theory and Antonovsky’s Sense of Coherence as seen in the following three aspects of the stories related to the author:

- 1) COPING – The women and the midwives seemed to express the deep feeling that the demands inherent in birth are worthy of commitment and that coping with them is desirable.
  - The woman copes with the personal, psychological, social and physical aspects of birth
  - The midwife copes with the legal, professional, ethical and personal aspects of being with a woman in labour.
- 2) HELP – A belief that they each have the resources to meet the demands of labour and birth but feel they know where to get help. In a birth attended by a midwife, the woman seeks and can expect to receive that help from the midwife.
  - Help’ may be simply having the midwife present to encourage the woman’s ability to cope or it may be anything else, up to and including a request for help that may only be obtained by pharmacological means or from other professionals.
  - Any need for midwifery, obstetric or other medical help must be recognised by the midwife and be validated by the one whose need it is. Then it is the role of the midwife to take appropriate action to meet the need.
- 3) COHERENCE – An expectation that what happens in labour and birth will be understandable, meaningful, orderly and consistent instead of chaotic, random and unpredictable.
  - The woman does this by considering her birth story in the context of her own previous stories and/or other people’s stories that she is aware of
  - The midwife does this by trusting and relying on her legal, professional, ethical and personal understanding of birth and of the demands of midwifery practice.

### Conclusion

This paper has explained how the stories recounted in the author’s study provided insights into current perceptions of ‘normal’ birth and critiqued how midwifery knowledge and practice has for many years been analysed through and subject to dichotomous ways of thinking. This study has proposed that an integration of Antonovsky’s Sense of

Coherence (Schmid, 2011; Downe, 2004; Antonovsky, 1987, 1979) and Wiedenbach's Need for Help Theory (1967, 1964) is a more suitable explanatory framework through which to understand the stories told by new mothers and their midwives in the author's study, and potentially, more widely.

Combining these two theories avoids the drawbacks of a dichotomous structure; it does not rely on dubious definitions of what is 'normal' in birth and integrates the perspectives of both the woman and her midwife. It reflects the findings regarding the high value placed by both the woman and her midwife on 'coping' and self-reliance. It takes account of women's desire to cope with labour through not panicking and the midwives' role to offer help in this desire. It provides a sense of coherence regarding the uniqueness of each and every birth for both the woman and her midwife, set in the context of one's own and others' experiences. It recognises that the woman and her body can be trusted to express a need for

help, if necessary, along with the vital nature of the midwife's skills to recognise when help is needed, and what that 'help' might be. Finally it places at the centre of the model the right of the woman to validate the help she needs.

The theory proposed within this paper may provide a new and useful explanatory route through which to understand the experiences of some new mothers and their midwives in Western cultures where medical models are currently the dominant paradigm and continue powerfully to inform many societal values, views and norms for care in childbirth. It may be used by researchers to seek explanations for their findings in relation to labour, birth and midwifery practice research. It may also inform debates in other areas of practice that are explained by appeals to dichotomous models and it may influence educators and service providers to develop people and services that seek not to separate considerations of people's experiences from those of their carers.

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# An exploration of the methodology used in a study to examine the effectiveness of education and training in providing nutritional advice to pregnant women: systematic review protocol

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## Abstract

**Background.** Nutritional knowledge and education play a significant role in influencing dietary and eating behaviours of pregnant women and have been shown to have a positive impact on maternal health outcomes. Several studies have focused on the midwives' role in providing healthy nutritional education, however, there are no published systematic reviews assessing the effectiveness of nutrition education programmes for midwives that promote healthy eating in pregnant women.

**Aim.** To undertake a systematic review to examine the effectiveness of healthy eating education programmes for improving midwives' level of knowledge and confidence in promoting healthy eating in pregnant women.

**Review methods.** This systematic review protocol will utilise the Joanna Briggs Institute (JBI) systematic review methodology (JBI, 2014). A three-stage comprehensive search of seven electronic databases, as well as grey literature, will be conducted. Two independent reviewers will assess each paper prior to inclusion using the standardised critical appraisal instruments for evidence of effectiveness developed by JBI. This review will consider studies that include all levels/grades of midwives/birth attendants including student midwives, and evaluate any diet and nutritional education programmes, or training, using pre-defined educational and maternal outcomes. This review will primarily consider randomised controlled trials (RCTs), however, in the absence of identified RCTs, other quantitative research designs will be examined. Quantitative data will be extracted from papers included in the review using a modified data extraction tool from JBI-SUMARI by two independent reviewers. The outcomes will be reported on both continuous and dichotomous scales, where possible findings will be pooled for reporting, using JBI-SUMARI with the meta-analysis approach.

**Implication.** The findings of this systematic review will be utilised to guide a larger research project on developing a healthy eating education programme for midwives.

**Key words:** Healthy eating, education programme, pregnancy, midwives, systematic review protocol, evidence-based midwifery

## Background

Nutritional knowledge and education play a significant role in influencing dietary and eating behaviours of pregnant women and have shown a positive impact on maternal outcomes (Hui et al, 2012; Jones et al, 2010). National guidelines highlight the importance of antenatal education for advising and supporting pregnant women about diet and nutrition (NICE, 2010). Despite this increased awareness, and the development of guidelines, lack of nutritional knowledge regarding the importance and benefits of food sources, such as iodine, continue to be reported among pregnant women (Martin et al, 2014). Little is known about how midwives aim to influence maternal motivation for healthy behaviours before, during and after pregnancy (RCOG, 2010). Brown et al (2013) conducted a semi-structured observational study focused on identifying the strengths and limitations of routine antenatal instruction for diet, physical activity and weight management provided by midwives, and how antenatal education can be beneficial to improve diet and promote

activity for weight management. The study recommended that midwives require training, resources and skills to be able to communicate effectively and to enable them to give advice and support pregnant women in making healthy lifestyle choices.

It is evident that midwives play an important role in promoting healthy eating in pregnant women. A qualitative study undertaken in France explored pregnant women's eating habits and nutrition-related information-seeking behaviour, using focus groups (Bianchi et al, 2016). This study concluded that pregnant women considered midwives as the most reliable source of information on nutrition-related issues, even though their professional role does not specifically focus on nutrition (Bianchi et al, 2016). An Australian online study exploring the use and availability of general nutrition information, pregnancy-specific nutrition guidelines and main sources of information, reported that nutrition education advice and support is limited in maternity care (Lee et al, 2016). The literature suggests that there is an omission in the midwives' role in the provision of providing nutritional health

education based on guidelines (Lee et al, 2016). Furthermore, their level of confidence and communication skills to advise and support pregnant women on the importance of nutritional health appears to be limited (Szwajcer et al, 2009). Therefore, the published literature acknowledges that midwives have a significant role to play in providing healthy eating education to women during pregnancy, but that they may lack sufficient knowledge and skills to undertake this role proficiently.

Two studies that focused specifically on the importance of midwives' knowledge and confidence to support pregnant women regarding nutrition-related issues (Arrish et al, 2016a; Wennberg et al, 2015) recommended that health services should empower and educate midwives to address a deficit in nutritional health education for pregnant women (Arrish et al, 2016b). According to the International Confederation of Midwives' *Essential competencies for basic midwifery practice*, revised in 2013, midwives should have the nutritional knowledge and assessment skills required to support the pregnant woman and her developing baby. Wennberg et al (2015) also recommended that health authorities should offer 'healthy eating during pregnancy' education for midwives, as these researchers found there was a need for more antenatal education and dietary counselling. An Australian study, undertaken by Arrish et al (2016a), recommended that continuous nutritional education programmes through professional organisations, such as the Australian College of Midwives, can support midwives to increase their knowledge and skills.

A Japanese study suggested that midwives could utilise evidence-based guidelines for developing nutritional health education information, in particular by developing brochures (Takimoto et al, 2013). A study undertaken by Basu et al (2014) in the UK, investigated the benefits of introducing an education and training programme. The programme's learning outcomes were to assist practising midwives to undertake their public health role regarding pregnant women's nutrition, physical activity and weight management proficiently. The authors reported a significant increase in midwives' knowledge and confidence after receiving education and training. This study recommended further research to examine the impact on midwifery practice and how this training programme may affect clinical outcomes for women and their babies.

A nutritional education programme for teenage pregnant women developed by Wrieden and Symon (2003) and led by midwives, suggested teaching methods should be based on target group needs and any underlining needs of the setting. However, it is not clear which of the methods for providing health education are effective. Recommendations appear to focus on midwives exploring what education individual women require and will benefit from, and recognising the needs of the groups (Hollins Martin and Robb, 2013). Furthermore, the study findings suggested pregnant women value education if it is directly related to their health outcomes. Literature analysis shows that there is limited evidence about the effectiveness of nutritional

education programmes for midwives (Wennberg et al, 2015; Australian Nursing and Midwifery Accreditation Council, 2014) and no systematic reviews have assessed the effectiveness of nutrition education programmes for midwives in order to promote healthy eating among pregnant women. Systematic reviews are considered the highest form of evidence (National Health and Medical Research Council, 2009) if correctly conducted using a documented search strategy, study selection criteria, critical appraisal, and synthesising the findings by more than two independent reviewers (Cullum et al, 2008). In this systematic review, all previous quantitative studies on nutritional health education programs for midwives will be reviewed to assess the effectiveness of healthy eating education programmes for improving midwives' level of knowledge and confidence in promoting healthy eating in pregnant women. The findings of this systematic review will be utilised to guide a larger research project on developing a healthy eating education programme for midwives.

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## Review method

### *Aim*

The aim of this systematic review is to examine the effectiveness of healthy eating education programmes for improving midwives' level of knowledge and confidence in promoting healthy eating in pregnant women.

### *Objectives*

The objectives of this review are to assess midwives' levels of:

- Knowledge in promoting healthy eating by pregnant women, reported by studies included in this review
- Confidence in promoting healthy eating by pregnant women, reported by studies included in this review.

### *Review question*

How effective are healthy eating education programmes for improving midwives' level of knowledge and confidence in promoting healthy eating by pregnant women?

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## Inclusion criteria

### *Participants*

This review will consider studies that include midwives and student midwives (hospital or community-based midwives, obstetric nurses, birth attendants, doulas, midwives alone or with other health professionals).

### *Intervention(s)*

This review will consider studies that evaluated diet and nutritional education programmes, or training targeted at midwives and student midwives to provide healthy eating knowledge and advice for pregnant women. This review will use the WHO definition of healthy diet during pregnancy: 'healthy diet during pregnancy contains adequate energy, protein, vitamins and minerals, obtained through the consumption of a variety of foods, including green and orange vegetables, meat, fish, beans, nuts,

pasteurised dairy products and fruit' (WHO, 2017). In addition, the education and training programme should be a structured formal programme with a defined period, facilitated as a workshop or seminar by any healthcare professional, such as dietitian, nutritionist, midwife, health educator or any other accredited personnel.

### Outcomes

#### Primary outcomes

The primary outcomes of this review are to understand the levels of:

- Knowledge acquired by midwives and student midwives regarding diet and nutritional requirements in pregnancy measured by any scale or questionnaire
- Confidence acquired by midwives and student midwives regarding diet and nutritional requirements in pregnancy measured by any scale or questionnaire.

#### Secondary outcomes

The secondary outcome is the level of knowledge and confidence acquired by midwives and student midwives regarding diet and nutritional requirements for immediate or postnatal breastfeeding measured by any scale or questionnaire.

### Types of studies

This review will include any randomised controlled trials (RCTs), cluster, parallel and cross-over trials assessing the effectiveness of diet and nutritional education programmes for midwives in promoting healthy eating in pregnancy when compared to standard care or routine care, other intervention and no intervention. Secondly, in the absence of identified RCTs, other research designs such as quasi-experimental studies, cohort studies and case-controlled studies, before and after studies, and mixed-method studies (quantitative studies) will be examined.

### Exclusion criteria

This review will exclude studies that focus on the following; nutritional education programmes provided for other health professionals not including midwives; nutritional education programmes for pregnant women; nutritional education programmes specifically focused on obesity management in pregnancy or other obstetric complications during pregnancy.

### Search strategy

A three-step search strategy will be used for this review. An initial limited search of Medline and CINAHL will be undertaken followed by analysis of the text words contained in the title and abstract, and of the index terms used to describe the paper. A second search using all identified key words and index terms will be undertaken across all included databases. Thirdly, the reference list of all identified papers according to the inclusion criteria and articles will be searched for additional studies. This review is limited to English language publications and no time restrictions will be applied. The Medline and CINAHL

**Table 1. Search strategies**

#### Search strategy: Ovid Medline

1	Midwifery/
2	(traditional birth attendant? or midwi* or sage femme? or obstetric carer? or student midwi* or maieuticien* or doula
3	3 1 or 2
4	exp diet/
5	exp nutrition therapy/
6	(Nutrition or diet*).
7	4 or 5 or 6
8	Patient education as topic/
9	Patient education handout/
10	Education/
11	(pregnan* adj5 education).
12	(Education program* or education intervention* or counsel or counselled or counselling or patient education or handout or brochure or workshop* or training).
13	8 or 9 or 10 or 11 or 12
14	3 and 7 and 13

#### Search strategy: CINAHL

S1	(MH 'midwifery')
S2	'traditional birth attendant?' or midwi* or 'sage femme?' or 'obstetric carer?' or student midwi* or maieuticien* or doula?
S3	S1 OR S2
S4	(MH 'diet+')
S5	(MH 'diet therapy+')
S6	Nutrition or diet*
S7	S4 OR S5 OR S6
S8	(MH 'patient education')
S9	(MH 'education')
S10	pregnan* N5 education
S11	'education program*' or 'education intervention*' or counsel or counselled or counselling or 'patient education' or handout or brochure or workshop* or training
S12	S8 OR S9 OR S10 OR S11
S13	S3 AND S7 AND S12



search strategies will be translated for other databases using appropriate syntax and vocabulary for those databases (see Table 1).

### Electronic database searches

The databases include:

- Medline and EMBASE (via Ovid)
- Cumulative Index to Nursing and Allied Health Literature (CINAHL) (EBSCO)
- The Joanna Briggs Institute (JBI COonNECT)
- Cochrane Library (via Wiley)
- Scopus (via Elsevier)
- Web of Science (via Thomson Reuters).

### Trial registries

The following registries will be searched for ongoing and completed trials:

- ClinicalTrials.gov, US National Institutes of Health (NIH) <http://clinicaltrials.gov/>
- MetaRegister of Controlled trials – [controlled-trials.com](http://controlled-trials.com)
- WHO clinical trial – <http://apps.who.int/trialsearch/>

### Manual searching

Hand searching will include searching through the reference list of included studies and the following journals to identify ongoing studies and related conference abstracts:

- *Women's Health Issues*
- *Midwifery*
- *Journal of Midwifery and Women's Health*
- *Women and Birth*
- *Evidence Based Midwifery*
- *Australian Nursing and Midwifery Journal*.

### Searching the grey literature and in press/ongoing studies

The following grey literatures will include:

- Theses and dissertations (ProQuest)
- Pre-prints and post-prints of articles (TROVE, Open Grey)
- Conference proceedings (World Congress on Midwifery and Women's Health)
- Newsletters and bulletins (*Health Care for Women International*, *Journal of Midwifery and Women's Health*, *Women and Birth: Journal of the Australian College of Midwives*)
- Government reports (Australian and international)
- Policy statements and issues papers (Australian Policy Online)
- NICE guidelines.

### Data collection and analysis

#### *Study selection*

Following the search, all identified citations will be collated and uploaded into EndNote software Clarivate Analytics version 8X and duplicates removed, then uploaded again into Covidence (Systematic Review Software). Titles and abstracts will be screened by two independent reviewers against the inclusion criteria for the review. Abstract for

studies that met the inclusion criteria will be retrieved and their details imported into Covidence software. The full text of selected studies will be retrieved and assessed in detail against the inclusion criteria. Full-text studies that do not meet the inclusion criteria will be excluded and reasons for exclusion provided in an appendix in the final systematic review report. Included studies will undergo a process of critical appraisal. The results of the search will be reported in full in the final report and presented in a PRISMA flow diagram. Any disagreements that arise between the reviewers will be resolved through discussion, or with a third reviewer.

#### *Critical appraisal*

Selected studies will be critically appraised by two independent reviewers for methodological quality in the review using standardised critical appraisal instruments from the Joanna Briggs Institute Meta-Analysis of Statistics Assessment and Review Instrument (JBI-MASARI) for quantitative studies (JBI, 2014). Following critical appraisal, studies will be categorised according to the JBI level of evidence (JBI, 2014). The results from the critical appraisal will be reported in narrative form and in a table.

#### *Data extraction*

Quantitative data will be extracted from papers included in the review using the modified data extraction tool from JBI-SUMARI by two independent reviewers (JBI, 2014). Phase 1 data extraction will include specific details about the citation, study design and methods, setting/context, population characteristics, intervention, comparator relevant to the review question and specific objectives, then findings and discussion will be extracted. Phase 2 extraction of results will include type of outcomes related to review question and type of results as dichotomous or continuous data. If it is not possible to extract all necessary raw data to a data extraction table from an included study publication, the authors will be contacted for any missing data from the studies.

#### *Data analysis and synthesis*

The method for data analysis will depend on the data type; if possible, for continuous data, the mean difference and 95% confidence interval will be calculated as reported on the original scale for each study. If the outcomes of included studies use different scales, where possible the authors will combine these and calculate a standardised mean difference if the mean and standard deviation are available.

Dichotomous data will be presented using relative risk and odds ratio with 95% confidence interval for each study. The primary and secondary outcomes will be reported on both continuous and dichotomous scales. Where possible, findings will be pooled for reporting using JBI-SUMARI with the meta-analysis approach. To determine a summary estimate of effect; relative risks or odd ratios and weighted mean difference will be calculated. If the results reporting significant changes are available for meta-analysis, this will be carried out for the studies included in the review that are

statistically homogeneous. When meta-analysis is not possible to summarise the evidence or knowledge, the findings will be explained in narrative text format and summary tables.

#### Assessment of heterogeneity

After estimating the effect measure, the degree of similarities and dissimilarities in the outcomes of the studies will be examined through comparing the characteristics as content and methodological heterogeneity. This assessment process will determine whether meta-analysis can be undertaken. Homogeneous studies producing similar results will be

reported in a narrative format. If meta-analysis seems appropriate, assessment of the statistical heterogeneity will be carried out by inspecting forest plots and through I2 test.

#### Discussion

The purpose of undertaking this systematic review will be to examine the effectiveness of healthy eating education programmes for improving midwives' level of knowledge and confidence in promoting healthy eating by pregnant women. The findings will help in designing, facilitating and evaluating a healthy eating education programme for midwives.

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# Online educational resources for health professionals caring for pregnant women with heart disease: a scoping literature review using Arksey and O'Malley's methodological framework

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## Abstract

**Background.** Heart disease, although relatively rare in pregnancy, is the leading cause of maternal death in the UK, with just over two deaths per 100,000 maternities reported. Most of these deaths occurred in women with undiagnosed heart disease. Health professionals need to be equipped with appropriate knowledge and skills to help identify women at possible risk and to manage appropriately or to refer for specialist assessment, care and management.

**Aim.** To identify the nature, content and accessibility of educational resources available to health professionals caring for pregnant women with heart disease.

**Methods.** A scoping review was undertaken using Arksey and O'Malley's (2005) five-stage methodological framework. Key search terms used were 'pregnancy', 'education', 'training', 'heart disease', 'midwife', 'doctor' with their related terms and appropriate Boolean operators, in seven databases, along with grey literature, organisational websites and an online web-based search. The research question was: 'What is the nature, content and accessibility of education and training resources for health professionals caring for pregnant women with heart disease?'

**Findings.** A small number of papers discussed educational needs, without providing content evaluation of training or educational resources. A web-based search for educational programmes revealed two resources which fitted the inclusion criteria. Both revealed three overarching common themes in the context of health professional education in the care of pregnant women with heart disease: preconception care, cardiovascular adaptation to pregnancy and antenatal, intranatal and postnatal management.

**Conclusions and implications.** The evidence indicates limited discussion in the literature regarding training for health professionals and limited accessibility for online learning as part of continuing professional education. In view of this limitation and the small but growing cohort of pregnant women with heart disease, all professional staff caring for pregnant women should have access to ongoing education and training in order to maintain skills to manage appropriately or to make timely and appropriate referrals.

**Key words:** Heart disease, online educational resources, health professionals, evidence-based midwifery

## Background

Heart disease in pregnancy is a leading cause of maternal morbidity and mortality, impacting women and their families worldwide (Steer and Gatzoulis, 2016). Confidential enquiries such as MBRRACE-UK's *Saving lives, improving mothers' care* (Knight et al, 2017), *Saving mothers 2011-2013: sixth report on the confidential enquiries into maternal deaths in South Africa* (Moodley, 2014) and *Maternal deaths in Australia 2008-2012* (Humphrey et al, 2015) highlighted learning opportunities and stressed how early detection and appropriate multidisciplinary management could reduce maternal mortality and positively affect outcomes for women and their babies. Health professionals may have difficulty recognising the symptoms of heart disease, which can mimic 'normal' pregnancy symptoms, especially if pregnant women have no known cardiac history. So health professionals must have the knowledge and skills to be critical in their assessments and to identify those at risk (Knight et al, 2016).

Ongoing education of healthcare professionals is recognised as a critical component of high-quality care. Vause (2017) listed lack of staff awareness as a contributory factor in maternal death from heart disease.

Continuing professional development (CPD) was recommended as a system for maintaining, improving and adapting the skills, knowledge, practice and attitudes of healthcare professionals (WHO, 2013). The WHO (2013) warned that the effects of ongoing professional development had not been systematic and the relative success depended on factors like the subject matter, the purpose of development, the target population and the pedagogical methods applied.

Maternity care professionals (for example midwives, obstetricians and trainee obstetricians) participate in a variety of training and educational programmes, although multidisciplinary training tends to focus on obstetric emergencies, such as postpartum haemorrhage or shoulder dystocia. The relatively low incidence of heart disease in

pregnant women, coupled with the wide range of heart conditions, makes it difficult for health professionals to maintain knowledge and skills.

Given the increase in the number of pregnant women with known and previously undiagnosed heart disease and the findings of recent confidential enquiries (Knight et al, 2017; Knight et al, 2016), a scoping review was undertaken to ascertain accessibility, nature and content of training resources for health professionals.

## Methods

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The Joanna Briggs Institute (2015: 6) described a scoping review as a 'useful tool for evidence reconnaissance'. Arksey and O'Malley's (2005) framework has five chronological stages: identifying the research question; identifying relevant studies; selecting studies; charting the data and collating; summarising and reporting findings. The initial research question agreed upon by the review team and derived from the overall aim was: 'What is the nature, content and accessibility of education and training resources for health professionals caring for pregnant women with heart disease?'

This question was separated into component parts using the systematic framework in the mnemonic PEO (Khan et al, 2003) (Population: health professionals caring for pregnant women with heart conditions; Exposure: training and education resources; and Outcomes: improved knowledge, education and skills).

A search strategy was developed by four reviewers aided by the expertise of a specialist librarian. Seven databases were searched: CINAHL, Cochrane, Embase, Medline, PsycINFO, Scopus and Web of Science, while desktop internet, grey literature, organisational website and hand searches were also undertaken. Key search concepts using MeSH and free-text terms were 'pregnancy', 'education', 'training', 'heart disease', 'midwife', 'doctor'. These were identified along with their related terms and combined with appropriate Boolean operators. 'Heart disease' was expanded to include specific conditions highlighted in key documents. Initial sources for the cardiac conditions included in this review were: the RCOG's *Cardiac disease and pregnancy (good practice no 13)* (Steer, 2011), the cardiovascular conditions listed on the Northern Ireland Maternity System database and those listed in the *European Society of Cardiology guidelines on the management of cardiovascular diseases during pregnancy* (Regitz-Zagrosek et al, 2011).

A large number of papers returned were not considered relevant. There were several reasons for this. Firstly, it was difficult to distinguish between maternal and fetal heart conditions in the initial search. Fetal heart conditions are outside the remit of this study. Removing terminology relating to the fetus from the search process could potentially have removed a number of papers relating to maternal heart disease and pregnancy, therefore all were included in the initial search and those relating only to the fetus were removed at the first stage of screening. A number of authors advocated the need for education and training or made reference to training resources, however, no papers examining training for healthcare professionals caring for

pregnant women with heart conditions were identified in the databases. An internet search revealed the availability of a number of educational resources. The six initially considered the most relevant were: StratOG: the RCOG online training programme (Vause, 2017), Rheumatic Heart Disease Australia e-learning module, (Martin and Walters, 2012), the RCOG's *Cardiac disease and pregnancy (good practice no 13)* (Steer, 2011), the *European Society of Cardiology guidelines on the management of cardiovascular disease during pregnancy* (Regitz-Zagrosek et al, 2011), *heartdiseaseandpregnancy.com* (Silversides et al, 2011) and *Effect of maternal heart disease on pregnancy outcomes* (Gelson and Johnson, 2010).

Arksey and O'Malley (2005) described developing inclusion and exclusion criteria post hoc, with knowledge and insight gained from increasing familiarisation with the literature. At this point, further inclusion criteria were added to enhance the scoping practice, by engaging practitioners and service users (Levac et al, 2010; Oliver, 2001). In this study, a lead clinician provided valuable stakeholder input, part of which included the importance of educational resources which are accredited for ongoing professional learning.

Resources that offered an accredited outcome measure, for example, CPD or continuing medical education (CME) accreditation were included. These are internationally regarded as lifelong learning requirements for healthcare professionals and are often necessary for re-certification or revalidation. Four of the six resources offered either CPD, CME accreditation, or equivalent, although it was discovered that the *Effect of maternal heart disease on pregnancy outcomes* (Gelson and Johnson, 2010) had an expiry date for CME accreditation one year after publication. Although this publication was useful and informative, it did not ultimately meet the inclusion criteria. The *European Society of Cardiology guidelines on the management of cardiovascular disease during pregnancy* (Regitz-Zagrosek et al, 2011) were removed after further consideration because they were published as guidelines, not specifically as training.

## Findings

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The two resources finally identified were: the RCOG StratOG online training programme (Vause, 2017) and Rheumatic Heart Disease Australia e-learning module (Martin and Walters, 2012). These have been compiled by international experts in the field of heart disease in pregnancy.

Having chosen the two resources considered to best fit the criteria, data extraction (or 'charting' as it is often described in scoping review literature) was undertaken. Arksey and O'Malley (2005) used Ritchie and Spencer's (1994) description of 'charting', which involved synthesis and interpretation of qualitative data according to the main issues and themes. They likened their approach to a 'narrative review' and recommended applying an analytical framework. Levac et al (2010) advised a team approach to the development of a data charting form (see Table 1), determining variables for extraction designed to best answer the research question. As briefly noted in the previous stage, Arksey and O'Malley (2005) described the construction of a thematic framework

to provide a narrative account. Levac et al (2010) believed this phase should include analysis of data, reporting of results and applying meaning to results possibly with the aid of qualitative content analysis. They advised that in order to advance the acceptance of scoping study methodology, researchers should consider the meaning and implications of their study results and how these could be applied to research, policy and practice. The common themes extracted from the educational resources included in this study are discussed in the narrative synthesis below.

A number of overarching themes can be identified in the resources chosen for review (see Figure 1). Although these overlap substantially, they can be aggregated into the major concepts: preconception care; cardiovascular adaptation to pregnancy; management of antenatal, intranatal and postnatal care.

#### *Discussion of major themes*

The authors acknowledged the limitations of scoping studies. Of note, is the fact that while a lot of data can be collected, decisions about breadth and depth of analysis need to be made. For example, is it more important to summarise all the content of each of the resources chosen for review or more advantageous to focus on common themes that clinical practitioners are more likely to encounter? Given the nature of the resources reviewed, the wide range of heart conditions and acknowledgment that heart disease in pregnancy is relatively rare and at times difficult to detect and diagnose, the latter approach was taken for this review, highlighting key themes and presenting them in a narrative synthesis.

Although the reviewed resources are open to all healthcare professionals, the evidence indicates limited accessibility for multiprofessional learning. The Rheumatic Heart Disease Australia e-learning module (Martin and Walters, 2012) is available online without cost, following registration, StratOG (Vause, 2017) is accessed through online registration, after paying a fee, via the RCOG website.

#### *Preconception care*

The overarching importance of preconception care was emphasised in both resources.

Pre-pregnancy planning followed general advice on overall health regarding stopping smoking and alcohol consumption and losing or controlling weight if necessary. The importance of good dental health was highlighted, especially considering the risk of endocarditis developing from a dental infection (Vause, 2017; Martin and Walters, 2012). Pre-pregnancy counselling for adolescents with heart disease and the treatment of each woman as an individual, while assessing overall health in the context of specific conditions and clinical status were described as vital aspects of care.

The importance of accurate and appropriate personal medical history (including heart conditions and specifics about any surgery), family history (including sudden deaths) and place of birth (as women from certain areas have a higher risk of conditions such as diagnosed or undiagnosed rheumatic heart disease) was emphasised (Vause, 2017; Martin and Walters, 2012). Vause (2017) underlined the importance of

knowing pre-conceptual functional class (New York Heart Association, NYHA class) as it is an indicator of how well pregnancy will be tolerated. Martin and Walters (2012) also advocated this widely used system. Past obstetric history of a cardiac event is highly predictive of the likelihood of recurrence, although conversely, no previous history does not indicate that a cardiac event is unlikely in a future pregnancy. These points were again presented with case study examples.

As a general rule using NYHA classification, women in class I or II tolerate pregnancy well, while those in class III or IV are less likely to tolerate pregnancy and often (especially in the case of class IV) are advised against pregnancy. This again illustrates the importance of preconception risk stratification and accurate history-taking.

Whereas the NYHA functional class predictor system is used in cardiology generally and is not specifically pregnancy related, the CARPREG score (Sui and Colman, 2001) was designed for predicting a cardiac event in pregnancy and was discussed in the reviewed resources. The predictors are:

- Prior cardiac event (heart failure, transient ischaemic attack, stroke before pregnancy or arrhythmia)
- Baseline NYHA functional class >II or cyanosis
- Left heart obstruction (mitral valve area <2cm<sup>2</sup>, aortic valve area <1.5cm<sup>2</sup>, left ventricular outflow gradient >30mmHg)
- Reduced systemic ventricular systolic dysfunction (ejection fraction <40%).

A woman with no predisposing CARPREG predictors has a 5% chance of a cardiac event. One predictor increases the risk to 27% and more than one risk factor increases it to 75%.

Increasingly, women with congenital heart disease (CHD) are surviving into adulthood and embarking on parenthood. Therefore, they are usually known to health services throughout childhood, before transitioning to grown-up congenital heart services. This ongoing engagement provides opportunities for preconception counselling, which includes risk assessment (Vause, 2017).

As stated, most women with congenital heart disease are aware of their condition before pregnancy. Exercise tolerance, echocardiography (ECG), functional status assessment (NYHA assessment) and medical history, including any history of cardiac events (CARPREG score) were recommended for all women with CHD as part of pre-pregnancy planning (Regitz-Zagrosek et al, 2011). Pre-pregnancy ECG was advised to measure aortic dilatation and check for a bicuspid aortic valve (which is commonly seen with coarctation of the aorta). At times, pre-pregnancy valve replacement is recommended, for example, when severe pulmonary regurgitation causes symptoms. Martin and Walters (2012) advocated the repair or replacement of valves if disease was significant, while explaining that mechanical valves were not recommended for women of childbearing age, due to the increased thromboembolic risk exacerbated by pregnancy.

Both training and educational resources discussed review of medication prior to conception (Vause, 2017; Martin and Walters, 2012). An understanding of the normal cardiovascular adaptation to pregnancy, the actions of specific medications, possible fetotoxic or teratogenic effects and the way in which their bioavailability, metabolism and

Table 1. Data charting form

Author and year	Location	Name of resource	Population	Route of access	Main aims/objectives/purpose	Nature of resource
Martin and Walters (2012)	Australia	RHD Australia health provider education series: clinical module 14: pregnancy in RHD	Clinicians and senior health staff	<ul style="list-style-type: none"> <li>• Online following registration process</li> <li>• Mobile app with a one-page resume of implications of normal cardiovascular changes in women with RHD</li> </ul>	<ul style="list-style-type: none"> <li>• Understand impact of RHD in pregnancy</li> <li>• Identify at-risk women</li> <li>• Understand when and how to refer appropriately</li> <li>• Understand medication issues</li> <li>• Importance of pre-pregnancy counselling</li> </ul>	<ul style="list-style-type: none"> <li>• Online training resource, partly interactive (short examination), with audio</li> </ul>
Vause (2017)	UK	StratOG: the RCOG online learning resource	<ul style="list-style-type: none"> <li>• Primarily fellows, members, associate and trainees on the Trainees' Register</li> </ul>	<ul style="list-style-type: none"> <li>• Online through StratOG, the RCOG's online training resource. Available for a fee following registration</li> </ul>	<ul style="list-style-type: none"> <li>• To learn about how heart disease can cause pregnancy complications and how to assess and manage</li> </ul>	<ul style="list-style-type: none"> <li>• Online training resource, partly interactive</li> </ul>

excretion can change in pregnancy is important.

Warfarin was reported as generally considered safe after the first trimester, although the risk of first trimester warfarin-related embryopathy was discussed by Martin and Walters (2012). It is usually the anticoagulant of choice for women with artificial heart valves (Vause, 2017; Martin and Walters, 2012). Non-selective beta-blockers were also considered safe in pregnancy as important aspects of the medical management of cardiac disease in pregnancy.

Parents with congenital heart disease are more likely to have children with CHD, especially if the mother is affected.

#### *Cardiovascular adaptation to pregnancy*

It is important to understand normal cardiovascular adaptation, in order to better understand how heart disease can impact on pregnancy and how pregnancy can affect heart disease. Vause (2017) noted that the most serious cardiac conditions were those in which women could not raise their cardiac output (the volume of blood pumped in one minute) enough to meet demand. Pulmonary vascular disease, cyanotic heart disease, ischaemic heart disease, reduced ventricular function and aortic and mitral stenosis were listed among these conditions, along with a dilated aortic root, because of the risk of aortic dissection. As oxygen consumption increases in pregnancy to accommodate increasing fetal needs, the demands of a growing uterus and increasing metabolic rate, physiological adaptations occur to accommodate this. Vause (2017) stated that stroke volume and cardiac output peaked by 16 weeks of gestation and that early pregnancy, the second stage of labour and the early postpartum period are the times of greatest risk. Increase in cardiac output and blood volume of up to 50%, with a corresponding decrease in systemic vascular resistance and increased stroke volume and 50% increase in plasma volume (which can result in physiological anaemia of pregnancy) were reported by each resource. Martin and Walters (2012) reported these changes by way of a voiced-over presentation; while Vause (2017) increased visualised learning via animation of the non-pregnant and

pregnant heart. Both resources stressed the importance of clinical assessment, including auscultation, in pregnancy. For example, pre-existing stenotic murmurs may become louder, because of increased cardiac output, whereas regurgitant murmurs may become softer because of decreased systemic vascular resistance.

ECG changes were reported by the chosen resources. Vause (2017) suggested that ECG in pregnancy was more useful for diagnosing arrhythmias than structural abnormalities. Martin and Walters (2012) described changes in ECG when compared to non-pregnancy ECG which may actually be normal in pregnancy.

Echocardiographic changes also occur. Martin and Walters (2012) noted that certain findings were normal in pregnancy, for example, mild ventricular enlargement and mild aortic and mitral valve regurgitation. The importance of cardiac echo in assessing valvular function, left ventricular function, pulmonary artery systolic pressure and severity of disease was stressed and presented in slide format with audio enhancement.

While both the reviewed resources gave specific examples of low-risk and high-risk conditions, they cautioned that risk assessment and stratification was an ongoing process and that risk could change quickly. Martin and Walters (2012) concentrated on valvular disease, as their remit was rheumatic heart disease in pregnancy. They presented several case studies, with questions, to help illustrate the importance of identifying and acting on risk factors.

#### *Managing the antenatal, intranatal and postnatal periods*

Following on from the previous section on cardiovascular adaptation in pregnancy, it is clear that while substantial adaptations do not adversely affect women who do not have heart disease, for those who do, especially where cardiac output cannot be increased enough to meet demand (Vause, 2017) serious challenges may ensue, even in early pregnancy and all health professionals caring for pregnant women with heart disease need to be aware of this.

Maternal and fetal outcomes are directly related to the severity of the heart disease and the resulting physiological changes. Martin and Walters (2012) stated that the risk of adverse incidents (for example, congestive heart failure and hospitalisation) was markedly increased in women with rheumatic heart disease, as was the likelihood of preterm birth, intrauterine growth restriction and small-for-gestational-age babies.

Medication should be reviewed and known teratogenic drugs changed if possible. Authors included recommendations regarding medication in pregnancy, as already discussed in the preconception section. Management plans for women with various specific cardiac conditions were given in both resources. For example, in women with mitral stenosis, the importance of avoiding tachycardia was explained (and treated with beta-blockers if necessary was advocated), as this shortens the time for ventricular filling and causes an increase in the pressure within the right atrium possibly resulting in pulmonary oedema.

The effects of pregnancy on mitral valve stenosis were clearly documented in both resources, with management plans given, along with justification for management. Vause (2017) illustrated by way of animation, while an audio clip of a diastolic murmur resulting from mitral stenosis was also provided. The times of highest risk of developing pulmonary oedema were shown to be times of greatest increased preload, with higher heart rate and stroke volume – the first trimester, labour and the early postpartum period. Blood in the left atrium cannot easily travel across a stenotic mitral valve, leading to back pressure in the pulmonary veins, which can result in pulmonary oedema possibly causing pulmonary hypertension and right ventricular failure. Martin and Walters (2012) used an ECG to illustrate mitral regurgitation and mitral stenosis and the resultant pulmonary hypertension and

enlarged left atrium. There was minimal discussion regarding onset of labour and birth methods in both resources. The second stage of labour should be short to minimise the risk of the complications and may be expedited by instrumental birth, with CS usually undertaken for obstetric reasons only. As the third stage of labour is accompanied by autotransfusion, thereby increasing blood volume negotiating through a diseased mitral valve, Vause (2017) recommended avoidance of ergometrine, which speeds up autotransfusion and may contribute to the development of pulmonary oedema. Health professionals need to be aware of the potential for development of pulmonary oedema especially in the immediate postnatal period when major haemodynamic changes take place.

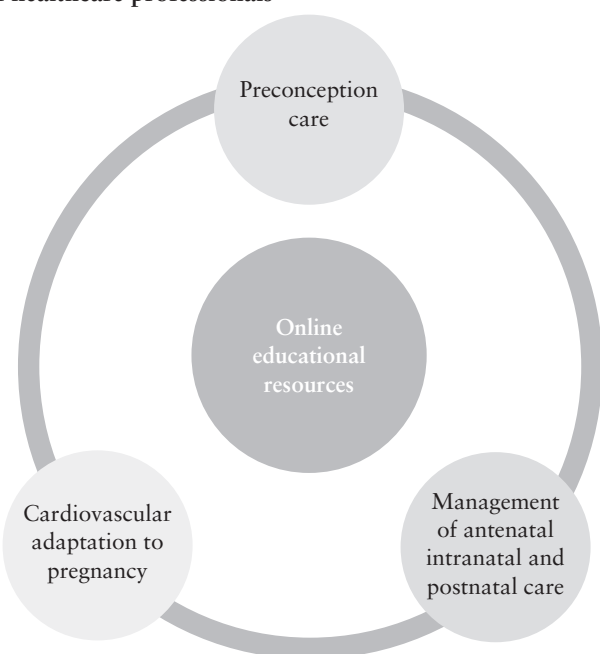
In women with aortic stenosis (which is usually congenital), hypotension should be avoided as it can cause reduced strength of ventricular contraction, causing difficulty in forcing blood flow through a stenotic aortic valve. Vause (2017) reiterated the importance of the pre-pregnancy NYHA functional class, with severe aortic stenosis increasing the risk of left ventricular failure. Lateral tilt should be employed in labour to minimise compression of the vena cava and therefore lessen the effects of reduced cardiac output. Blood loss at third stage can be managed medically, as hypotension caused by increased blood loss can increase the risk of left ventricular failure.

If an oxytocic agent is deemed necessary, an infusion of oxytocin, rather than a bolus, is the recommended management, syntometrine can be used if there is hypotension caused by haemorrhage. Reviewing the management recommendations of these two valvular conditions underlines the importance of every health professional caring for women with cardiac disease to have knowledge of specific needs and care plans as not all conditions are managed in the same way. Vause (2017) briefly summarised a number of other congenital heart conditions, along with heart failure, heart transplant, cardiomyopathy and ischaemic heart disease. This is particularly relevant due to the increase in pregnant women who have pre-existing risk factors, often exacerbated by chronic conditions such as obesity, hypertension and diabetes.

Health professionals also need to be aware of the possibility of ischaemic heart disease, especially in the presence of known risk factors and to refer and manage appropriately. Many cardiac conditions pose increased risk at the end of pregnancy and the early postpartum period – for example peripartum cardiomyopathy. Vause (2017) described possible symptoms of peripartum cardiomyopathy, such as breathlessness, tachycardia, tachypnoea, and oedema, noting that while there are known risk factors (increased maternal age, obesity and multiparity), this condition can develop with no known risk factors. This is another key learning point for practitioners.

Postpartum care has been described as the 'Cinderella' of maternity services (Barker, 2013) with the postnatal period generally considered the most neglected area of maternity care, in spite of the fact that the majority of maternal deaths occur during this time (Vause, 2017; WHO, 2013). Careful

**Figure 1. Major themes related to cardiac-related education of healthcare professionals**



haemodynamic monitoring is recommended for 24 to 72 hours, or longer, depending on the specific cardiac condition.

### Discussion

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The WHO (2013) statement that success of CPD depends on relative success of factors like the subject matter, the purpose of development, the target population and the pedagogical methods applied, has already been referenced. Clearly the subject matter is important given the increase in the number of pregnant women with heart disease and the findings of the confidential enquiries (Knight et al, 2017; Knight et al, 2016). The purpose of development is to meet the needs of health professional staff caring for this group of women and ultimately to positively impact on heart disease in pregnancy. The accessibility, nature and content of these resources was reviewed. Although both are accessible online, only the Rheumatic Heart Disease Australia e-learning module (Martin and Walters, 2012) is free of charge. As it has a very specific remit, reflected in the content, it may not be considered as a learning resource outside the geographical location and subject matter. Primarily it is aimed at medical staff. Several pedagogical methods were employed in both resources, for example, animations and diagrams for anatomical and physiological illustration, case study examples giving 'real life' scenarios which explained and reported best practice management, but also encouraged the use of knowledge already gained to apply to other case studies and therefore to relate to case studies encountered in practice. Multiple choice questions were a feature in both resources and both offered professional development accreditation. The educational packages can be accessed at any time. Some pre-course reading material is recommended by Vause (2017).

Both resources stressed the paramountcy of good preconception care and multidisciplinary planning during pregnancy, labour, birth and the postnatal period in conjunction with the woman (Vause, 2017; Martin and Walters, 2012). This approach has also been recommended by confidential enquiries and guidelines (Brennand et al, 2016). The importance of understanding normal cardiovascular adaptation in pregnancy and applying the knowledge to general and specific cardiac issues was also stressed with both resources sharing management examples for mitral and aortic valve disease.

Both resources discuss the CARPREG cardiac event predictor. Other risk predictors are also used in practice, such as the ZAHARA study (Drenthen et al, 2010) and the modified WHO classification of maternal cardiovascular risk (class I-IV), principles and application are described and discussed in the *European Society of Cardiology guidelines on the management of cardiovascular diseases during pregnancy* (Regitz-Zagrosek et al, 2011). These guidelines give helpful examples of specific conditions and their risk class ranging from WHO Class I, for example uncomplicated mild pulmonary stenosis, to WHO Class IV, for example Marfan Syndrome with dilated aortic root >45mm, where pregnancy is strongly contraindicated. More recently the Royal College of Physicians and Surgeons of Glasgow produced guidance

on good interprofessional care of reproductive aged women with heart disease. This document also recommended assessment using the WHO classification system and referral for appropriate preconception and pregnancy management based on the WHO Class (Brennand et al, 2016).

Some guidelines and care plans are available online, which complement the reviewed resources. For example, *Cardiac disease and pregnancy* (Steer, 2011), *Cardiac disease in pregnancy: regional clinical guidance and referral protocol for the management of congenital and acquired cardiac disease from preconception to the postnatal period* (Vause et al, 2012) and *Cardiac disease in pregnancy* (Ablett et al, 2016). These provide overviews of various cardiac conditions, referral and management plans, some of which are detailed and practical in application for all health professionals caring for pregnant women with heart disease.

### Implications for practice

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As discussed, the key themes that were identified were preconception care, cardiovascular adaptation to pregnancy and management of each trimester, including the postnatal period, which has recently been described as 'the fourth trimester', underlining the importance of this often-neglected period (ACOG committee on obstetric practice, 2018).

Ongoing education for health professionals is important to maintain and improve theoretical and practical knowledge and skills. While the need for continued educational development of healthcare professionals is accepted, organisations such as the Chartered Institute of Personnel Development (CIPD) (2018) agreed that 'learning' was more than attending courses (training). Instead, continuing practice development learning occurs when staff are enabled to relevantly and confidently apply their knowledge, so effective learning involves practitioners having the acceptable attitudes, knowledge, skills and behaviour that increase the probability of achieving the desired outcomes (Marinopoulos et al, 2007).

Schostak et al (2010) observed a tension between learning and how it was recorded and measured, and between learning and service delivery. They concluded that CPD combined a cycle of continuous learning and professional development with patient care and career progression. Davis and Davis (2010) discussed the role of education as a way of enabling changes in performance leading to improvements in outcomes related to practice – a process of 'knowledge translation'. The vital link between learning and the application, or translation of learning to practice is clear. According to Bruner (1960: 17), learning is a process that 'should not only take us somewhere, it should allow us to later go further more easily'.

GPs and midwives are often the first health professionals to encounter women booking for pregnancy care. Increasing numbers of midwifery units for women are deemed suitable for midwifery care. In some areas women can book directly for maternity care with midwives. Also, immigration has increased, meaning it is likely the number of pregnant women with known or unknown heart conditions, especially rheumatic heart disease, may rise (Steer, 2011). This has implications for the knowledge required by GPs and midwives and for the place of robust streamlined referral services.



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# Men looking into a 'woman's world': the views of urban men involved in antenatal services at a public hospital in Ghana

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## Abstract

**Background.** In Africa, including Ghana, pregnancy and maternal care are construed as belonging to a 'woman's world', with little or no participation from men.

**Aim.** The purpose of this study was to explore the views of urban men involved in antenatal services at a public hospital in Ghana.

**Method.** Ten men who participated in routine antenatal care (ANC) with their spouses were recruited at the antenatal clinic for this qualitative exploratory descriptive study. Participants were either approached individually by the researcher, directed by the midwives at the clinic to see the researcher, or through an announcement at the clinic requesting voluntary participation in the study. An in-depth semi-structured interview guide was implemented after receiving ethical approval from the Institutional Review Board of Noguchi Memorial Institute for Medical Research and Ghana Health Services Ethical Review Committee. All the men signed a consent form prior to the interview. Interviews were audiotaped and transcribed. Data were analysed using content analysis as described by Miles and Huberman (1994).

**Findings.** Two main themes emerged from the findings: contextual willingness, and men's perception of ANC. ANC was referred to as a 'woman's world' because activities were women-orientated. The men were enthused with the initiative of fast services for couple attendance and believed their presence at the clinic supported and ensured the wellbeing of women. However, most men could only attend the clinics if granted time out from their employers.

**Conclusion.** Creating awareness among men in Ghana will encourage more men to participate in ANC with their spouses. Policy development on male involvement is key to improving maternal health in Ghana.

**Implications.** More men need to be engaged in ANC to ensure safe motherhood. This calls for appropriate and coordinated innovations by all stakeholders of health to involve men in ANC.

**Key words:** Antenatal care, perception, interviews, male involvement, men, qualitative, societal influence, Ghana, evidence-based midwifery

## Background

Presently, male involvement in maternal health in Africa is encouraged at both the hospital and community level as a pattern of social and behavioural change towards safe motherhood. In most patriarchal societies such as Ghana, the man is the head of the family, financial provider and major decision-maker. Men therefore influence the women in accessing health, negotiating for sex (when to have sex) and deciding on the number of children to conceive. Maternal care is associated with the feminine role. Issues concerning pregnancy and childbirth are naturally the woman's responsibility with the help of older women in the family and community. Looking at the key role African men play in the family, their involvement will help in ensuring safe motherhood, yet African men are reluctant to be involved in their spouses' antenatal care (ANC) (Ganle et al, 2014; Kwambai et al, 2013; Iliyasu et al, 2010).

Studies have documented the benefits of male partner involvement in ANC (Kashitala et al, 2015; Aluisio et al, 2011). For example, a study in Malawi showed how men's participation led to collaborative decision-making and the treatment of any prevailing sexually transmitted infections (STIs) (Kululanga et al, 2011). Involvement in ANC provided Mozambique men with the opportunity to check their HIV status, and couples' relationships improved

tremendously (Audet et al, 2016). A previous study in the US noted that men involved in prenatal care engaged better in their children's health after birth (Zvara et al, 2013).

The idea of male involvement in maternal health materialised in 1994 at the International Conference on Population and Development (ICDP) held in Cairo, which emphasised the collaborative effort by men on issues such as family planning, prenatal, maternal and child health, and prevention of STIs (United Nations, 1995). The importance of male involvement in maternal services has led to some hospitals in Ghana initiating 'Daddy's clinics' to promote partner support and encourage men to be actively involved in their spouses' pregnancy. The clinic is held monthly. During this time, couples are educated on issues such as pregnancy, the importance of ANC, danger signs in pregnancy, family planning, and sex during pregnancy. Data on male involvement at the public hospital revealed an improvement in attendance from 2.9% in 2010 to 24.2% in 2013 (Tema General Hospital, 2013). The data showed an increase after the implementation of a 'Daddy's clinic' in 2011, which is also acknowledged at the facility as male involvement. However, interactions with the staff at the clinic indicated that few men actually participated in the routine check-up with their spouses. Though some men are involved in routine ANC, the number might be lower than estimated.

A study in northern Ghana revealed the difficulty in engaging men in ANC. Most of the men did not attend or encourage their wives to attend routine antenatal clinics; they only attended when there was an obstetric emergency. This was in an Islamic community (Ganle and Dery, 2015). To encourage male participation, there is the need to explore the experiences of those men who do attend and participate in routine ANC with their spouses. This study sought to understand the perspective of southern Ghanaian, urban men who participated in their spouse's routine ANC in a public hospital in Ghana in order to understand the phenomenon better and so make appropriate recommendations to enhance male attendance. This will help in the implementation of context-specific strategies to involve men in ANC. It may also lead to possible policy formulation.

#### *Literature review*

The literature search included published and unpublished papers and journal articles. The databases HINARI, PUBMED, Medline, Sage, Google Scholar were searched using key words 'male involvement', 'antenatal', 'prenatal', 'perception of men in ANC', 'influence', 'expectant fathers', 'role of men', 'qualitative', 'quantitative' and 'maternal health' to identify relevant studies for review. Relevant papers and articles drawn were reviewed to include hospital-based study, community-based study, role of men and experiences of men in antenatal or prenatal care. Articles reviewed for the study were from 2005 to 2016. Most of the studies identified were qualitatively driven to understand the phenomenon. The concept of male involvement varied depending on the research focus such as soliciting the views of men generally on ANC, the role of men participating in ANC, barriers to male involvement in ANC and impact of male involvement in the prevention of mother-to-child transmission of HIV. This study's definition of 'male involvement' is men who attend and participate in the routine ANC of their spouses.

#### *ANC in Ghana*

ANC, also known as prenatal care, is the care received by a pregnant woman from the time of conception to delivery. It is the point of entry for the pregnant woman to receive a wide range of care, such as counselling and health promotion on nutrition, STIs, family planning and even education on the need to have skilled attendance at delivery. ANC has now moved from group care and the categorisation of at-risk individuals to a more individualised and focused care. In this regard, the pregnant woman is attended (where practically possible) by the same midwife throughout the duration of the pregnancy and follows the WHO recommendation for four comprehensive antenatal visits at 16 weeks', 28 weeks', 32 weeks', and 36 weeks' gestation, respectively (Ministry of Health and Ghana Health Service, 2008).

In Ghana, hospitals are incorporating this comprehensive antenatal service, yet pregnant women attend the clinic in the traditional way. In this respect, pregnant women attend ANC once every month immediately the pregnancy is confirmed until the 28th week of gestation. The next appointment is

every two weeks until the 32nd week, then weekly until birth. When the woman comes for an antenatal appointment, care starts with group education and health promotion on topics such as general environmental and personal hygiene, dietary needs, physiological and physical changes in pregnancy and its related disorders. Weight, height, blood pressure and other related data are collected. First-time attendees have various laboratory and diagnostic investigations, such as ultrasound, routine urine examination, fasting blood sugar and haemoglobin count. The abdomens of pregnant women are examined from the 16th week onwards. Routine drugs such as haematinics and folic acid are prescribed for them to take until the next visit. However, those who are previous attendees of ANC are grouped to see their assigned midwives for continuity of care. They go through routine examination such as checking for weight, blood pressure, urine analysis and examination of the pregnant woman and fetus. The necessary vaccinations and antimalarial and routine drugs are also provided. Women who are at-risk or have problems that need the doctor's attention are referred to the doctor for care.

#### *Experiences of men involved in ANC*

Studies of the experiences of men involved in ANC in Asia and Western countries revealed that men did not feel they were part of activities at the ANC clinic; interactions were basically with the women while the men looked on. The men felt unwelcome, left out, and invisible because ANC focused on the woman (Widarsson et al, 2012; Williams et al, 2011; Deave and Johnson, 2008; Fågerskiöld, 2008). It is therefore not surprising for Swedish men to strongly emphasise that women must be self-sufficient and more reliant taking up their responsibilities independently since maternal care is women-orientated (Ny et al, 2007).

Various papers in Africa have outlined why men do not participate in ANC (Audet et al, 2016; Vermeulen et al, 2016; Ganle and Dery, 2015; Abass et al, 2012; Story et al, 2012; Olayemi et al, 2009; Nwokocha, 2007; Shahjahan and Kabir, 2007). For example, in Nigeria and Tanzania, men perceived pregnancy as normal with no need for special attention (Vermeulen et al, 2016; Nwokocha, 2007). It was deemed as something that women must go through with honour by performing or fulfilling their role with no complaints. Any attempt to change social roles lead to some form of stigmatisation in western Kenya (Olayemi et al, 2009). Likewise, the defined roles of northern Ghanaian men and Mozambique men impacted negatively on attendance for ANC. It deterred them from taking a bold initiative to attend with their wives. Men who showed any emotional care to their wives were tagged as 'weak' and 'not man enough' to take up the reigns of his home. In addition, women in Mozambique felt uncomfortable exposing their husbands to such ridicule and therefore preferred going alone. However, the few men who took the initiative did so because they felt it was their right and a way of controlling their wives' actions. With the women in Ghana, all effort to talk their husbands into accompanying them to ANC was futile (Audet et al, 2016; Ganle and Dery, 2015).

In Kathmandu, Nepal, the work schedule of men and difficulty getting permission to have time off work also discouraged men from attending ANC (Mullany, 2006). Farming activities prevented men in northern Ghana from participating in ANC; they felt this work was more relevant and part of their duty rather than attending ANC (Ganle and Dery, 2015). Men in Namibia and rural Tanzania were rather concerned with the length of time they would need to spend at the facility since they had other activities that need their attention, such as their work. However, the women of Tanzania were denied services if they attended ANC without their partners (Vermeulen et al, 2016; Jooste and Amukugo, 2013).

Formal education is associated with male involvement in ANC in America, Europe and Asia (Schytt and Bergstrom, 2013; Fenwick et al, 2012; Sansiriphun et al, 2010; Carter and Speizer, 2005). Findings of these studies indicated that educated men were more involved than uneducated men. A study in northern Nigeria also agreed with this assertion (Iliyasu et al, 2010).

The type of marriage has been seen to determine men's readiness to accompany their wives to ANC (Abass et al, 2012; Iliyasu et al, 2010; Mullany et al, 2007). Iliyasu et al (2010) noted that men in monogamous marriages were more likely to be part of their wives' maternity care than men engaged in polygamy. Indeed, Abass et al (2012) revealed that a polygamous relationship prevented ANC attendance in an Islamic community. This was to ensure fair treatment to all wives as the Koran teaches that an act of unfairness is unholy.

In Malawi, a study by Kululunga et al (2012) indicated that male involvement was categorised into involvement in a healthcare facility, and outside the facility. The authors explained that facility involvement is the process where the health provider formally invites the man's participation, while with involvement outside the facility, couples take the initiative or men get involved through peer influence. The midwives and nurses in this study initiated male involvement, while in Lebanon most men were involved in ANC because it was their wives' desire (Alameddine, 2008).

Today, male involvement in ANC is of concern in most developing countries aiming to make pregnancy safer, reduce maternal mortality (Ogu et al, 2016) and increase skilled birth attendance (Chattopadhyay, 2012). Yet few men are involved (Vermeulen et al, 2016; Kashitala et al, 2015; Iliyasu et al, 2010; Onyango et al, 2010). This study seeks to understand the views of urban men who were involved in their spouses' routine ANC in an urban setting in Ghana.

## Methods and procedures

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### *Research methodology*

Having reviewed the literature surrounding men's involvement in ANC, the approach adopted by most of the authors was qualitative, using in-depth interviews. This informed the decision of the author to employ a qualitative method with the use of an interview guide. The qualitative method is flexible to afford close-up interactions with the men to gain their impressions, expressions, views, and concerns regarding their experiences of ANC (Creswell,

2005; McCaslin and Wilson Scott, 2003). Specifically, an exploratory descriptive design led to an understanding of the perspective and the world of men who participated in the routine ANC of their spouses (Mayan, 2009). All the gestures of the participants were also documented to aid in the interpretation of data.

### *Ethical considerations*

Ethical clearance was obtained from the Institutional Review Board at Noguchi Memorial Institute for Medical Research and the Ghana Health Service Ethical Review Committee. Permission was sought and obtained from the director of the public hospital. Each participant gave signed consent after reading an information sheet explaining the scope of the research. Participants were encouraged to provide feedback on the information they read to ensure they understood. Further explanations were then provided where necessary for clarification. Participants signed the consent form on the agreed day for the interview.

### *Research setting*

The study was conducted in a public hospital within an urban setting in the Greater Accra region of Ghana. This region is part of southern Ghana. It has diverse people with varied ethnic orientation. Though the indigenes are Ga-Dangmes, Akans predominate. The indigenes are patrilineal orientated. The religious composition is also diverse. Prominent among the religions are Christians, Muslims and Traditionalist. The hospital is a referral point and provides services to Tema and its environs. The bed capacity at the time of data collection was 295, with 367 nurses, 16 specialists, 16 medical officers and 39 house officers. The hospital is made up of various departments, such as medical, surgical, eye, ear, physiotherapy, laboratory, x-ray, pharmacy, maternity, and maternal and child health department (MCH). Services are provided at the hospital by different categories of registered nurses, which includes midwives and nurse-midwives (Tema General Hospital, 2013). For the purpose of this study, the unit of concern was antenatal. The antenatal clinic is part of the MCH unit with other services provided (family planning and postnatal services).

### *Participants*

Ten men were involved in the study. The men were 18 years and above, participating in routine ANC, and could speak English and Akan. Eighteen years was the limit set because it is the legal age for marriage in Ghana. The participants were interviewed in either Akan or English because these were the languages predominantly used in the metropolis. The author's fluency in both languages and expressions aided the interpretation of the narrations. Loss of information was minimised by the author being the sole person to conduct and subsequently transcribe the interviews. All participants interested in the study were included. Men excluded were those who accompanied their spouses yet waited outside the clinic while their wives went through for care.

### *Data collection and analysis*

Actual data collection started after pre-testing the semi-structured interview guide on two men in a different public hospital with similar characteristics to the study site. The aim was to identify practical problems that may arise in terms of language, data collection procedures and with the data collection instrument. This provided a means of ensuring that questions on the interview guide elicited appropriate responses. It helped in estimating the time for each interview. Data from the pre-test was not added to the actual study.

Participants for the study were accessed at the antenatal clinic using a purposive sampling technique. With permission from the head nurse at the antenatal clinic, recruitment began through an announcement at the clinic and the researcher approaching potential participants individually. Participants were also recruited from the hospital with the help of the registered midwives at the clinic. The midwives were first briefed on the scope of the research and then asked to direct all the men who participated in routine ANC for their wives to the researcher. This was because of the difficulty in getting potential participants who accompanied and participated in their spouses' routine ANC. Participants were approached after services were provided to ensure they did not feel that services would alter if they decided not to participate in the study. A time and place of convenience were then scheduled for an interview with each participant. All interviews took place outside the hospital facility to ensure that participants could speak freely without being overheard. Participants were informed that they could withdraw from the study if they wished. The interviews were conducted face-to-face to elicit information from 10 men. Each participant was interviewed for about 50 minutes. Data saturation determined the sample size of 10. This is when the researchers sensed closure because no new information was elicited by the 10th participant (Polit and Hungler, 1999). Also, O'Reilly and Parker (2013) define saturation as when the data collected reveals that categories have been accounted for with all relationships explained.

The interviews were audiotaped. Some of the requests made by the interviewer were: 'Share with me your experiences on ANC so far, those that were helpful and those that were not helpful'; 'Explain how you felt about the activities at the ANC – what were the thoughts and perceptions that went through your mind as you followed your partner through the care and procedures?'

Data analysis began after all the audio-recordings were transcribed. The first author translated all transcripts from Akan to English. To limit the incidence of incomplete data, the researcher listened to each interview while reading the corresponding transcript simultaneously to compare and insert any missing notes identified. Each transcript was first read as a whole, then read line by line to determine the codes that captured the action being described by the men. Statements made were compared with other similar statements made across all the interviews. In the category formation, commonalities in each of the transcripts were put together by copying the codes into a separately labelled word file on a computer along with the appropriate quotes. This

was achieved by looking for relations between the categories. The researcher carefully read and re-read the transcripts to identify common themes. The themes identified were given names, differentiating them from each other (Miles and Huberman, 1994).

To ensure trustworthiness of findings, rigour was ensured through close attention to the following issues: credibility, transferability, dependability, and confirmability (Lincoln and Guba, 1985). For credible and accurate data, findings were taken back to participants after transcription for clarification and also to agree or disagree with the researcher's interpretations. Participants accepted the outcome. The interview guide was pre-tested to enhance the validity of data collection procedures. The men were allowed to express their feelings and thoughts with no interferences. To adhere to the principle of confidentiality and anonymity, pseudonyms were used instead of the real names of participants to prevent identifying quotes. Transcribed interviews were kept in a labelled electronic folder, which was encrypted with a password. This was available only to the author and supervisors. The folder was kept on a pen drive for back-up purposes. All other information written down from participants such as emotions, expressions, and comments were kept under lock and key with the pen drive. Evidence of transferability was provided through the description of the research processes and procedures used in the data collection. A detailed description of the setting was provided. Dependability and confirmability were through an inquiry audit, a research journal being kept in which to note all the decisions made during the research process to provide a clear audit trail. Appropriate quotes that describe the themes gave assurance of confirmability. Transcripts and findings were shared with supervisors who have research expertise and discussions held regarding the analysis, findings, and recommendations at various stages of the research. This was to review and verify the path followed from raw textual data to results. The researcher also ensured reflexivity by stating her preconceptions about the study. These include the fact that the researcher is a nurse as well as a mother who knows the challenges at the antenatal unit. Her husband never accompanied her to any antenatal clinics. However, through reflexivity, these preconceptions were in abeyance and never influenced the research process.

### **Findings**

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#### *The participants*

The participants' ages ranged from 27 to 47 years. They had different educational backgrounds, from high school to first degree. They were all employed and engaged in a monogamous relationship. Six men were shift workers and three had normal working hours (8am to 5pm); the 10th man did not work a specific time schedule. In terms of religious background, eight were Christians and two were Muslims. Out of the total number of participants, five were Akans, three were Ewes, one was Guan and another was Ga-Dangme. Six were first-time fathers, three had one child and another had four children. One man had previously

participated in the ANC of his first child.

Two main themes emerged from the analysis: contextual willingness to participate in ANC and men's perception of ANC participation. Each of the themes and corresponding subthemes have been described with their supporting quotes represented by pseudonyms.

#### *Contextual willingness*

Contextual willingness were the circumstances that enabled men to participate in ANC. The men's narrations portrayed their feelings, experiences, situations, and factors related to people who had a significant impact on them. Men were either self-motivated, motivated by significant others and the situations they had observed or experienced. Concerning self-motivation, it was an inner feeling which needed to be satisfied. The men did not need any encouragement to engage in ANC. The ability to comply with one's intuition pushed them to take the initiative and participate in their wives' ANC experience and some men felt obliged to accompany their wives to ANC:

*"I felt the need to accompany her to antenatal because I want to be with her at all times and ensure that she is doing well"* (Kese).

*"I felt like following her to the ANC because she is my wife... wherever she goes I have to accompany her. I am excited about the pregnancy. It is our first and I wanted to be there for her"* (Kwame).

Others were either motivated by their colleagues, their mothers, friends who were married or their physicians. Interactions with these significant people in their lives led them to participate:

*"My doctor talked me into it when I got to know that my wife is pregnant... it's been a little difficult for my wife to conceive. She said it will help"* (Kojjo).

*"A senior colleague at work told me to go with her (my wife). I told him my wife was pregnant and he advised that it will be good if I went with her to ANC. I took his advice"* (Kwame).

Kofi believed his generation is more attentive to their wives' needs than previous generations. This positive behaviour seemed to be worth imitating:

*"For my generation, 80% of my friends are very concerned. In every statement of theirs, you hear 'my wife' so I realise that I cannot be far from it. They always make time to attend to their wives' needs and most especially accompany them for antenatal. I followed..."*

Irrespective of these views, a few of the men also felt that once they were married whatever problem the woman encountered, it impacted on the man. This notion is based on an Akan adage that depicts the supremacy of the man, which states that when a woman encounters an issue, it is the man who sees it or takes responsibility and resolves it. For this reason, the men felt they were duty bound to accompany their wives to ANC. Kyle pointed out that:

*"When the women encounter any problem, it dwells on the man so it will be better if the man attends ANC."*

In reference to circumstances and situations they have experienced, one participant told of unnecessary worry and

anxiety when in actual fact the woman was not in any form of danger. He was of the notion that once he participated in his spouse's ANC, he would understand how the pregnancy would progress and what to do if there were minor ailments:

*"In getting myself out of trouble, I have to get her out of trouble, so I accompanied her to understand how the pregnancy progresses and its related issues and necessary care... I have heard of incidents where women went to deliver and died. I have also witnessed a situation where someone close to me (my sister) nearly died... I was curious, so I accompanied my wife..."* (Kurt).

Though the men generally did not directly align their participation to any cultural influence, there were some connotations that informed their decisions to participate.

For Kwabi and Kelly, they decided to participate in ANC because their wives reported home late on their first antenatal appointment. The men were curious and also wanted to confirm the reasons their wives put across, which was high attendance level:

*"The first time she went alone and arrived home late. I asked her and she said the women were many and it was not fast. I thought she was lying so I decided to follow her on the next visit and find things out myself"* (Kelly).

*"I went there because the first day she arrived home very late. I was quite surprised because she left for ANC very early in the morning around 5:30 am"* (Kwabi).

#### *Men's perception of ANC*

The data highlighted men's encounters during participation in ANC. The subthemes that emerged were: ANC as a woman's world, men's support for their wives, fast services for couples and the work schedule of men.

#### *ANC as a woman's world*

All the men associated ANC as a woman's world. Some specifically inferred pregnancy to be a normal condition for women which should be dutifully performed without complaints. For these men, pregnancy does not denote sickness neither should the woman shed her domestic responsibilities:

*"Pregnancy is not a sickness... I mean all women must go through it"* (Kojjo).

*"In fact, I must confess. When she asks me to prepare her something to eat. I will say, come and do it yourself, I am tired! I thought is a normal thing so when she calls me at dawn complaining of stomach pains, I will say you are too worrisome, I am tired, let me sleep. I thought she was making so much fuss about nothing"* (Ken).

Kyle and Kese, on the other hand, felt that the pregnant woman should be cared for at all times since they may not be well or feel comfortable:

*"I don't think it is normal, you know sometimes the woman will not feel well. There are things my wife cannot do so I make sure I help her out. I make sure she is okay before I even leave the house. Though this is our second pregnancy, each one can have its own issues determining how the woman adapts. They need the encouragement."*

Kese also thought that:

*"Pregnant women should be given all the attention they*

need. They are always tired and uncomfortable.”

The men further lamented that they have always seen women attending ANC without their men:

“From the start, I knew antenatal excludes men, so when my wife requested that I accompany her, I just ignored her” (Kwame).

Kojo explained that:

“Before I went for antenatal, I knew it was for women and I may not see any man there.”

Words and phrases the men used to describe their first impression at the ANC were “women’s world”, “pool of expectant mothers”, “uncomfortable”, “shy”, “dotted men present”. Kofi had this to say:

“You see, it’s a woman’s world, the place was too open as if we are in a common pool with a lot of expectant mothers who stared at me, being the only man who came with my wife that day. I was uncomfortable... but have to be there, otherwise my wife will drag me if she should.”

Kwame described his first experience as:

“I felt shy and uncomfortable because there were virtually no men. I saw only three men. All the rest were women and they stared at me but I ignored them and stayed focus on my wife.”

The men felt left out at ANC as interactions were between the midwives and the pregnant women. The men were dissatisfied with the role they played. They only helped their wives onto the couch for the examination. Apart from that, they sat, listened and looked on, waiting to be involved but nothing happened:

“Why did I come? That was the first question that came to my mind. The interaction was between my wife and the midwife. I just listened. When it was time for examination I helped her on the couch... So why should I go there again, I kept asking myself. I was not asked any question, will it encourage me to go the next time? Definitely, it will not... I expect the midwife to interact with me” (Kojo).

There were instances when some of the men complained that they would not like to be there again especially when their wives are pregnant for the second time:

“Actually, I didn’t do much, I just sat down. The midwife commended me for accompanying my wife, then after assessing my wife I was informed orally that mother and baby were doing well... I would not want to go there again if the same things would be repeated example, how she should lay on the bed. It is like going back to class one because I have been taught already” (Kurt).

#### Men’s support for their wives

The men believed that their presence at ANC was a means of support. They encouraged their wives especially during times when they were so tired. They gladly helped out at home and ensured that their wives did the right thing:

“I helped her with most of the things like the washing of clothing, I sometimes help her in cooking and other little things at home. My reason was to prevent the pregnancy from bringing an untold effect on her. I ensure that she does everything as was told, example, when to take her medicine and perform the laboratory test and also scan. The woman

can forget and the man can help by reminding” (Kelly).

“I share in her suffering and sympathise with her when she is uncomfortable... also, I am actually the nearest doctor per se who would have to see to it that she does what is right. Example, not getting out of bed immediately she wakes up for her safety and eating the healthy foods” (Kurt).

“I make sure she rests and sees to her comfort at all times. I help with taking care of our first child so she does not get tired” (Kyle).

Kojo, who thought pregnancy was normal and that women should be up to the task, was concerned about the emotions of his wife and tried to be understanding:

“It gives them (women) pride... I will say emotional satisfaction because I am there for her (wife)... there are times things get on the edge, and the man will start saying things that he is not supposed to say and because it involves a lot of emotions and whatever affects the woman affects the child too. If the woman is happy, you see the baby kicking (delighted and laughs) that connection is there... Never get the woman angry. I always make her (wife) happy and comfortable.”

#### Fast services for couples

The narration described the manner in which the midwives provided services for the pregnant woman in the presence of their husbands. The men were quick to say that services were quite “fast”. They were excited by this because even if they were late, the husband’s presence earned the woman a ticket to be attended to first before the women who came without their husbands.

“We did not waste much time there... what I realised is that when you go with your wife, you are given preferences. The woman is given the needed attention whether you came late or not. They just take care of those who came with their husbands first then the women who came alone” (Ken).

Kofi’s narration also provided a good example of how couples are treated when men accompany their wives:

“To me, I will say it was cool because to some of the midwives men hardly come there so when they see the husbands there they tend to treat us more, counsel us more, as to how best to assist our spouses to go through this pregnancy more appropriately... They treat us more in the sense that men are allowed to jump the queue because most of us need to go to work from there.”

Kelly and Kwabi, whose wives reported home late when they went on their own, were happy with the service when they attended:

“I was very happy, we did not spend much time at the ANC. Fast, fast... what excited me was how happy it made my wife.”

“When I attended with my wife we came home earlier than when she went alone... my wife always insists I take her. She was happy to return home earlier than usual.”

The men also took cues from the utterances and body language of the other expectant mothers. This created good feelings among the men:

“We met a lot of pregnant women there... so when we finished and we were coming out of the consulting room,

*I heard the pregnant women saying they will also bring their husbands on their next visit... staring glaringly at me" (Kwame).*

Another man recalled comments from a pregnant woman at ANC in the form of praise and admiration for him attending ANC with his wife:

*"They (the pregnant women) were very impressed with men coming to the ANC... This man is good, God bless this man, my husband is in the house and refused to accompany me. Look at somebody, he is coming with the wife. When am I going to get such a husband?" (Kent).*

However, a few men felt that expectant women might think men were too attached to their wives and they felt intimidated:

*"Most often, I'm the only man at the clinic. They will say in the local dialect 'am kotobenkum' (meaning a wife follower, usually a derogatory term)... Are you the only one who loves his wife? As for this man, he always comes to the antenatal with the wife. Is he trying to say that he is the best husband or what... others think, you people just come in and go we've been here for hours?" (Kurt).*

#### *Work schedule of men*

Men had challenges in seeking permission from their employers to attend ANC with their spouses due to the time required, and their wives were unhappy if they could not attend all of the ANC:

*"Not all men will be available to attend ANC with their wives as others may be granted permission from their employers while others will not be granted permission... There was a time I had to accompany my wife to the ANC but I couldn't honour it. She was very angry with me" (Kelly).*

*"Well I could not attend frequently because of my work schedule, the shift I run, but I went with my wife whenever I had the chance" (Kent).*

*"If am busy, I cannot follow her. I will not even participate if am busy but if am not, well I can accompany her to the place. Assuming I have a board meeting or I have visitors to attend to may be early in the morning, with that I can't leave my work and follow her to the place" (Kwabi).*

From the narrations, men enjoyed the initiative of fast services for couples and were grateful when the ANC was short. Men acknowledged that ANC was a woman's world. The willingness to attend ANC provided an opportunity for men to be equipped in supporting their wives and enhanced the wellbeing of the woman. However, the work schedule of men may gravely impact on active participation in ANC.

#### **Discussion**

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The aim of the study was to explore and understand the views of men involved in their spouses routine ANC. The participants in this study were all engaged in monogamy and had some form of formal education. Each of these factors may have made it easier for them to accompany their wives to ANC without any rivalry. This is in line with some studies that found, monogamous marriages (Iliyasu et al, 2010) and education (Schytt and Bergström, 2013; Fenwick et al, 2012; Iliyasu et al, 2010; Sansiriphun et al, 2010; Carter

and Speizer, 2005) determines the readiness for men to be involved in ANC. However, the practice of polygamy in a rural Islamic community prevents some men from being involved with their wives' ANC. As noted, the Islamic religion preaches that a man should treat all wives equally and not be biased. The men refrained from attending ANC because they were not sure of being able to do the same for all their wives (Abass et al, 2012). The majority of the men in this present study were Christians and Akans. Urbanisation may have changed the perspectives of individuals in the community. This is because the men did not directly associate themselves with any religious or cultural beliefs, but their utterances showed some influence. An example is an Akan adage, which states that when a woman has a problem, the man sees to it. This shows the supremacy of men depicting gendered beliefs on roles in society. It implies that the ideologies of the community lived in can influence his/her ability to enact the desired behaviour. On the other hand, the Akan word 'kotobenkum' (wife follower), meaning a man easily influenced by a woman to partake in activities that are not manly, might lead to a feeling of stigmatisation, though this was not specifically mentioned by the men in this study. Nevertheless, some studies have linked stigmatisation to male involvement in ANC (Audet et al, 2016; Ganle and Dery, 2015) where the men were mocked and referred to as weak when they participated in ANC.

Men provided support for their wives in various forms. They helped in domestic activities, provided the needs of the woman and ensured that the pregnant women abided by information given during ANC. This enhanced the wellbeing of the women. Similarly, studies have documented that men participating in ANC led to the wellbeing of the women (Kashitala et al, 2015; Chattopadhyay, 2012; Aluisio et al, 2011). This indicates that male involvement is beneficial to women. Men also became more educated about pregnancy, but the findings from a previous research by Olayemi et al (2009) revealed that any change in the man's role linked to ANC led to some form of stigmatisation.

Men willingly engaged in ANC because they were intrinsically and extrinsically motivated. This finding does not conform to studies in Mozambique, northern Ghana, western Kenya and Ibadan in Nigeria where cultural or societal beliefs and stigma prevented men from being part of ANC (Audet et al, 2016; Ganle and Dery, 2015; Onyango et al, 2010; Olayemi et al, 2009). Intrinsic motivation is the inner plea men felt to accompany their wives. With extrinsic motivation, the men made the decision with some external help from their friends, colleagues from their workplace, the health personnel (doctors) and based on some situations they experienced or observed. This indicates that life lessons are learnt from advice, experiences and observations: what people learn then informs their choices. This finding corroborates the findings of a study in Malawi and Lebanon where men took part in ANC when invited by the midwives (Kululanga et al, 2012) and their wives (Alameddine, 2008).

In this study, the men were of the opinion that pregnancy is a normal condition for women to go through. Therefore, they expected their spouses to be independent and up to the



task with no nagging. These notions of men indicate that pregnancy and birth is the responsibility of the woman. These findings support the findings where men perceived pregnancy as normal (Vermeulen et al, 2016; Nwokocha, 2007) with no need for any special care. However, a few of the men in this present study also felt that each pregnancy is different and, as such, women should be treated with care and encouraged, taking into consideration the various changes the pregnant woman goes through. The feminine atmosphere and women-orientated activities during ANC affirmed men's perceived belief of ANC as a woman's world even before attending appointments. During ANC, men stated they felt like intruders, observers and most especially as passive attendees because the activities involved were women-orientated. Some men confessed that it would be difficult for them to participate again in the next pregnancy of their wives. The educational needs of men must, therefore, be explored so that they feel part of ANC. These findings support the findings of several studies in Asia, and Western countries (Chattopadhyay, 2012; Widarsson et al, 2012; Williams et al, 2011; Deave and Johnson, 2008; Fägerskiöld, 2008) that found most men felt unwelcome, left out and invisible when they accompanied their wives to ANC appointments.

The men were excited about the fast service for couples that shortened the duration for women who attended ANC with their partners, irrespective of their arrival time. Women were glad to access this service. Fast services enabled the couple to attend to other pressing needs after ANC. The other pregnant women's utterances, stares and glances encouraged the men. They felt the women appreciated their effort in participating. Nonetheless, women who attended ANC alone then became disadvantaged.

Men in Namibia were concerned how the long waiting time at the facility may affect their other needs (Jooste and Amukugo, 2013), and in this study, the men faced challenging difficulties when combining their responsibilities at work and attending ANC with their wives due to the work schedule and duration of ANC. The men were of the view that permission will not always be granted by supervisors or employers. Similarly, men had problems with their work schedule and at the same time attending ANC with their wives (Ganle and Dery, 2015; Mullany, 2006). Therefore, for male involvement in ANC to be encouraged, employers

need to assist by granting the necessary permission.

The study has some limitations and the findings are of local value and cannot be generalised. However, lessons can be learnt to inform decisions concerning male involvement in ANC in a metropolis with diverse people.

### Implications for practice

For active male involvement, men should be identified by service providers as stakeholders of maternal health for them to feel more valued and a part of the service. Avenues that may engage men appropriately include:

- Developing and promoting standardised guidelines for male involvement implementation
- Make ANC attendance more easily accepted among men in Ghana by promoting their involvement in the maternal health of their wives by education and counselling through social media platforms, religious groups (for example churches) and during sporting events
- Involving health stakeholders to identify context-specific strategies to encourage more men to attend ANC appointments or clinics
- Employing a holistic approach in championing male involvement by involving midwives, chief nurses, nurse educators/tutors, regulators, religious leaders, opinion leaders, traditional heads, labour unions and other related organisations
- Exploring the perspective of women on male involvement to understand their concerns and the informational needs of men involved in ANC will help engage men better. The concept of male involvement should be piloted in some selected hospitals to understand the varied contexts to inform policy direction.

### Conclusion

Engaging men in ANC needs a multifactorial approach, targeting the hospital facility and the community. Also, the creation of support groups to lead the campaign on demystifying beliefs relating to gendered roles about male involvement in ANC in Ghana would encourage male participation to enhance maternal health. Policy direction by the Ministry of Health would be useful to enhance male involvement in ANC. It is also important to explore appropriate avenues to incorporate men into ANC by creating husband-friendly clinics.

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## Information for authors

*Evidence Based Midwifery* is published quarterly and aims to promote the dissemination, implementation and evaluation of midwifery evidence at local, national and international levels. Papers on qualitative research, quantitative research, philosophical research, action research, systematic reviews and meta-analyses of qualitative or quantitative data are welcome. Papers of no longer than 5000 words in length, including references, should be sent to: [rob@midwives.co.uk](mailto:rob@midwives.co.uk) in MS Word, and receipt will be acknowledged. Suitable papers are subject to double-blind peer review of academic rigour, quality and relevance. Subject area and/or methodology experts provide structured critical reviews that are forwarded to authors with editorial comments. Expert opinion on matters such as statistical accuracy, professional relevance or legal ramifications may also be sought. Major changes are agreed with authors, but editors reserve the right to make modifications in accordance with house style and demands for space and layout. Authors should refer to further guidance (RCM, 2007; Sinclair and Ratnaik, 2007). Authorship must be attributed fully and fairly, along with funding sources, commercial affiliations and due acknowledgements. Papers that are not original or that have been submitted elsewhere cannot be considered. Authors transfer copyright of their paper to the RCM, effective on acceptance for publication and covering exclusive and unlimited rights to reproduce and distribute it in any form. Papers should be preceded by a structured abstract and key words. Figures and tables must be cited in the text, and authors must obtain approval for and credit reproduction or modification of others' material. Artwork on paper is submitted at the owner's risk and the publisher accepts no liability for loss or damage while in possession of the material. All work referred to in the manuscript should be fully cited using the Harvard system of referencing. All sources must be published or publicly accessible.

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## News and resources

### RCM conference sessions and topics

A range of topics have been confirmed for the RCM Annual Conference 2018. Among the areas that will be covered are putting policy into practice, leadership, improving outcomes for vulnerable women, multidisciplinary team-working, tackling inequality and mental health, among others. There will also be presentations from the RCM chief executive and the RCM president. Registration is open for the conference and exhibition, which takes place on 4 and 5 October at the Manchester Central Convention Complex. The conference is free to attend for all RCM members. For more information, visit [rcmconference.org.uk](http://rcmconference.org.uk)

### Entry-level scholarships set to open

The Wellbeing of Women Entry-level Scholarships for Midwives are due to open in July. The awards are supported by the RCM and the Burdett Trust for Nursing. They are intended for training in midwifery, maternity services, basic science and clinical or translational research, including explanatory and feasibility studies. This can be in the area of pregnancy, birth and the postpartum period, or general wellbeing surrounding women's health issues. Scholarships are a maximum of £20,000 and the research must be undertaken in the UK or Ireland. Application forms and guidance will be made available on the charity website. For information, visit [wellbeingofwomen.org.uk](http://wellbeingofwomen.org.uk)

### Imperial launches £100m campaign

Imperial College London has launched a £100m fundraising campaign to transform health and wellbeing. The ambitious drive will support the development of a new, innovative and interconnected School of Public Health at the college's White City Campus, which will pioneer new approaches to healthcare challenges. Through the Transforming Health and Wellbeing campaign, the college aims to raise £100m in philanthropic support. The aim is to create world-class facilities for research, education, community outreach and clinical trials, and support staff and students through chairs, fellowships and scholarships. For more information, visit [imperial.ac.uk](http://imperial.ac.uk)

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