



## Review article

## Midwives and nutrition education during pregnancy: A literature review

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## ARTICLE INFO

## Article history:

Received 12 October 2011

Received in revised form 31 January 2013

Accepted 12 February 2013

## Keywords:

Midwives  
Nutrition  
Education  
Pregnancy  
Pregnant women  
Review

## ABSTRACT

**Objectives:** This review explored the extent to which the role of midwives in nutrition education during pregnancy has been reported in the literature and areas requiring further research were identified.**Review method:** A review of the literature was undertaken. Articles included in the review were published in English, in scholarly journals, and provided information about the knowledge, education, and attitudes of midwives towards nutrition during pregnancy.**Results and discussion:** Few studies were identified. The included studies were exploratory and descriptive. Studies had reported that midwives lacked a basic knowledge of nutrition requirements during pregnancy. This might be attributed to inadequate nutrition education provided in both undergraduate and postgraduate midwifery programmes. The nutrition education components of midwifery courses were not identified within the studies reviewed.**Conclusion:** Limited international or Australian research is available that reports on the role of midwives in nutrition education during pregnancy and the nutrition content of midwifery curricula. This represents an important omission in midwives capacity to support the health of pregnant women and their babies. More research is required to explore the educational needs of midwives to enhance nutritional care for pregnant women.

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## 1. Introduction

Healthy children are the foundation of a healthy population. For children to enjoy this good health, healthy practices and care should start during (or before) pregnancy.<sup>1</sup> Good nutrition during pregnancy is one of the most significant components affecting both the health of the mother and the health and development of the foetus.<sup>2</sup> Poor quality diet during pregnancy have been found to be associated with maternal excess weight gain, pre-eclampsia, preterm birth or even miscarriage.<sup>3</sup> In addition, excess weight gain and imbalanced diet, particularly among obese women during pregnancy have been identified as risk factors for abnormal glucose tolerance.<sup>4</sup>

Poor infant outcomes have also been linked with poor maternal nutrition. These include inadequate development, low birth weight and an increased risk of developing chronic diseases later in life.<sup>5</sup> Adult diseases proposed to have a foetal origin<sup>6,7</sup> and linked with nutrition during pregnancy, include cardiovascular diseases,<sup>8</sup> diabetes<sup>9</sup> and issues associated with bone mass formation.<sup>10</sup> These

claimed links between chronic illnesses and foetal and maternal influences have been subject to active debate but have been confirmed by more recent reviews and studies.<sup>11–15</sup>

Pregnant women show an increased awareness of nutrition status during their pregnancy. This has been attributed to their perception of the importance of nutrition as a change they can make in their everyday lives to protect the health of their babies.<sup>16</sup> In a study conducted in Australia, pregnant women were interested in receiving nutrition information during their pregnancy, especially information about healthy eating, weight management, vegetarian diet, breastfeeding, morning sickness and heart burn.<sup>5</sup> The pregnancy period represents a life experience for a woman that can impact on her current health and that of her foetus and can also generate nutrition awareness that may affect her nutritional behaviour in the longer term.<sup>17</sup>

Women's increased awareness of nutrition during the pregnancy period may not be capitalised on by health care providers. Research suggests that pregnant women might not be receiving nutrition advice from their health care professionals during pregnancy.<sup>18</sup> In a study conducted with 190 pregnant women in antenatal clinics within two hospitals in NSW, Australian pregnant women reported a lack of knowledge of long-chain omega-3 polyunsaturated fatty acids and they reported that their health-care professionals did not provide them with adequate information

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on the importance of eating foods high in long-chain omega-3 polyunsaturated fatty acids during pregnancy.<sup>19</sup> In the same study, books and magazines were reported to be the women's main source of information.<sup>19</sup> In part this may reflect shortcomings that have been found in the materials made available to pregnant women in Australia.<sup>18,20</sup> Studies also have reported pregnant women's ignorance of the availability of education materials (even when provided to them) if health professionals did not act to emphasise the nutrition messages within such materials.<sup>21</sup>

It has been established that nutrition education during pregnancy is associated with positive pregnancy outcomes.<sup>22–24</sup> Pregnant women report midwives as their trusted source of information and advice, as they perceive them to have the necessary expertise.<sup>16,21</sup> This view of midwives influencing maternal and infant health outcomes through advice and care is reflective of the concepts of primary health care.<sup>25</sup> In this way, midwives should be considered to have an impact on the health of the community.<sup>26</sup>

The role of midwives in nutrition education during pregnancy is being increasingly recognised. In 2008, the National Institute of Health and Clinical Excellence (NICE) in the United Kingdom issued recommendations for health professionals (including midwives) to provide women during pregnancy and pre-conception with nutrition support and advice.<sup>27</sup> In Australia, the only available guidelines are the Healthy Eating Guidelines for Pregnant Women from the Department of Health and Ageing, which are general guidelines and do not inform health professionals such as midwives (who are not trained in nutrition) on how to approach pregnant women in regard to nutrition advice.<sup>28</sup>

Midwives are in a prime position to provide healthy eating information to pregnant women.<sup>26</sup> However, Davis et al.<sup>29</sup> identified in an Australian study evaluating an intervention programme for women with a BMI greater than 35 that health professionals including midwives, benefited from additional education to enable them to provide healthy eating information. Little is known regarding the extent to which midwives fulfil their role in nutrition education. Thus the aim of this literature review is to explore what has been investigated about the role of midwives in providing nutrition education during pregnancy.

## 2. Method

### 2.1. Search strategy

A review of the literature was undertaken to locate relevant studies in the areas of nutrition, pregnancy, education and the role of midwives.

The search started with identifying relevant journal articles. Governmental websites, such as the Australian Government Department of Health and Ageing. The Australian Nursing and Midwifery Council (ANMC) and the Australian College of Midwives (ACM), were also explored to identify any guidelines pertinent to the nutrition role of midwives during pregnancy (Fig. 1).

### 2.2. Databases searched

The databases searched included Thomson Reuters' Web of Science, SCOPUS, Medline, CINAHL, Cochrane Library, ScienceDirect, ProQuest Central and PubMed Central.

To ensure a broad body of literature, no date limits were applied. The only restrictions were that the articles were published in English, in scholarly journals and provided information about the knowledge, education, and attitudes of midwives towards nutrition during pregnancy.

Studies that dealt with the role of midwives in education regarding smoking, alcohol and clinical aspects of nutritional issues (such as anaemia) were excluded.

### 2.3. Key words: used to search for relevant literature

A wide variety of key words were used across the searched databases. The key words included: health professional, midwife, nutrition, food, maternal nutrition, antenatal, prenatal, healthy eating, pregnancy, pregnant women, education, knowledge, practise, attitude, behaviour, importance, role, effect, recommendation, guidelines and approach.

Boolean operators and truncation between different search terms were used in accordance with the specific instructions of each database, either to broaden, narrow or refine the search results.

Additional strategies to enrich the search findings were applied, including use of synonyms and alternative key words, exchanging singular and plural and using spelling variations (for example, fetal, foetal).

The bibliographies and reference lists of the relevant articles were also examined to identify further studies.

## 3. Results and discussion

### 3.1. Overview of the studies

In comparison to the number of studies investigating midwives' knowledge of smoking,<sup>30</sup> alcohol<sup>31</sup> and breastfeeding,<sup>32,33</sup> few studies explored the nutrition knowledge and practices of midwives. Of those studies that have been undertaken to explore the knowledge, attitudes, education and communications skills of midwives regarding nutrition in pregnancy<sup>21,34–40</sup> the majority were descriptive and exploratory. Summary details of the studies are presented in Table 1. Governmental documents included in this review are also listed in Table 2.

### 3.2. Midwives and nutrition education during pregnancy

Midwives were reported to lack the essential knowledge and skills to provide adequate or reliable nutrition advice,<sup>34,40</sup> which may be somewhat contrary to the expectations of the women in their care.<sup>41</sup> For example, a study by Mulliner and colleagues<sup>34</sup> in the United Kingdom used both quantitative and qualitative approaches to explore the education, knowledge and attitudes to nutrition during pregnancy in a randomly selected sample of registered midwives ( $N = 77$ ). They reported that 86% (50 of 77 participants) of registered midwives had no formal nutrition education post qualification; 46% (27 of 77 participants) scored poorly in nutrition knowledge; and more than half of those midwives (58 of 77 participants) felt unqualified to provide nutrition advice for pregnant women, especially to vegetarian women, women from ethnic or religious background or women with prior medical conditions. Although the authors acknowledged the small size of their sample, the study results clearly indicated that midwives lacked basic nutrition information and would benefit from improving their nutrition knowledge.<sup>34</sup>

Another study in the United Kingdom by Barrowclough and Ford<sup>40</sup> examined the knowledge of 35 midwives and reported that the midwives had poor knowledge in areas such as recommended weight gain, recommended increase in energy requirements, women at risk of iron-deficiency anaemia and folic acid requirements during pregnancy to prevent reoccurrence of Neural Tube Defect and when should folic acid supplements be commenced.

A relatively recent study in New Zealand similarly examined midwives' nutrition knowledge and their perceptions of the importance of nutrition during pregnancy ( $N = 370$ ).<sup>35</sup> The study reported that less than 40% ( $N = 136/370$ ) of midwives had formal nutrition education, of whom 75% ( $N = 106/136$ ) had received nutrition information as a component of their midwifery

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