

REVIEW

SELF-EFFICACY IN RELATION TO ADHERENCE TO HEALTHY BEHAVIOURS AMONG PREGNANT WOMEN: A CONCEPT ANALYSIS

Iman Al Hashmi¹, Omar Al Omari²¹Maternal and Child Health Department, College of Nursing, Sultan Qaboos University, Muscat, Oman²Fundamentals and Administration Department, College of Nursing, Sultan Qaboos University, Muscat, Oman

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Abstract

Aim: This study aims to provide an understanding of the concept of self-efficacy in its implications in promoting adherence to healthy behaviours among pregnant women. **Design:** Concept analysis guided by Wilson 1963 framework. **Methods:** An electronic search of the literature published from 2009–2019 was conducted using the following databases: CINAHL, PubMed, ERIC, PsycINFO, and Google Scholar. After an in-depth review of the literature, the data were analysed, and the findings were synthesized. **Results:** It was found that self-efficacy is a multidimensional, dynamic, and contextual concept that is shaped according to a pregnant woman's previous experiences, the gained knowledge, presence of family empowerment, professional support, and the woman's emotional status. Self-efficacy influences a pregnant woman's cognitive process by taking quality decision-making, setting practical goals, and having a plan to overcome barriers and challenges. **Conclusion:** Self-efficacy is an essential predictor of adherence to the recommended healthy behaviours; hence, it should be part of any prenatal health promotion interventions.

Keywords: adherence, health promotion, healthy behaviours, pregnant women, self-efficacy.

Introduction

Worldwide, almost 810 women die every day from avoidable causes related to pregnancy and childbirth complications, with a rate of 211 deaths per 100,000 live births (World Health Organization [WHO], 2019a). The most common cause of maternal deaths, particularly in low and middle-income countries, is due to the lack of quality care provided during pregnancy (WHO, 2019b). Several national, regional, and international initiatives have been taken to improve the quality of care provided for pregnant women through promoting adherence to healthy behaviours (WHO, 2003; 2015). Health promotion is defined in the Ottawa Charter 1986 as “a process of enabling people to increase control over, and to improve their health (WHO, n.d.)”. Promoting maternal adherence to healthy behaviours is the key to improving pregnancy outcomes, improving quality of life, and reducing maternal mortality and morbidity during pregnancy, which therefore will reduce the burden on the healthcare budgets used to treat pregnancy-related complications (WHO, 2003).

Evidence indicated that self-efficacy is as an important predictor for behavioural changes and successful adherence to healthy behaviours (Chan et al., 2019). Self-efficacy relates to one's perception of their ability to reach a goal. Self-efficacy determines a person's ability and consistency to face the obstacles effectively and the activities s/he is most likely to undertake (Bandura, 1982). Relative to general women's health, self-efficacy has been used to address health-promoting behaviours such as physical activity (Gomez-Paloma et al., 2014), sun protection (Pearlman et al., 2021), contraceptive use (Okigbo et al., 2018), and breast self-examination (Tavafian et al., 2009). Further, minimal analyses are found in the literature regarding the use of the concept in maternal health promotion activities such as breastfeeding (Tuthill et al., 2016), childbirth (Sun et al., 2017), exercise (Melton et al., 2013), Tdap immunization (Payakachat et al., 2016), general maternal (Mirghafourvand & Bagherinia, 2018) and weight management (Lipsky et al., 2016). Although the aforementioned literature has a consensus regarding the importance of boosting self-efficacy in promoting adherence to healthy behaviours among general women (Özkan & Polat, 2011), this concept remains ill-defined and its implications in improving adherence to healthy behaviours, particularly among pregnant women is not well documented.

Corresponding author: Iman Al Hashmi, Maternal and Child Health Department, College of Nursing, Sultan Qaboos University, Al Khod 66, Muscat, Oman; email: eiman@squ.edu.om

Aim

To bridge the above-mentioned gap, the purpose of this study is to analyse the concept of self-efficacy, and draw implications for nursing practice with a focus on its roles on improving adherence to healthy behaviours among pregnant women. This concept analysis provides a better understanding of the concept, clarifying the concept ambiguity and establishes greater specificity for the meaning of the concept. Increasing awareness of the concept will potentiate utilization of concept in practice and increase development of interventions that target promotion of adherence to healthy behaviours.

Methods

Design

Wilson 1963 approach was utilized for concept analysis of self-efficacy. The main reason for utilizing this approach was that it is a systematic method for evaluating conceptual inquiry and it is also the most common one. Concept analysis of this approach includes the following steps: 1) defining the concept; 2) acknowledging its significance; 3) exploring concept attributes; 4) identifying surrogate terms; 5) describing related concepts; 6) identifying the antecedents; 7) explaining concept consequences; 8) discussing a model case of the concept and additional cases following its implication; and 9) explaining its implications in improving adherence to healthy behaviours among pregnant women (Wilson, 1963).

Eligibility criteria

The articles were included if published in a peer-reviewed journal between 2009 and 2019 (latest evidence); written in English; included pregnant women subjects in the; and captured the concept of self-efficacy among pregnant women. Studies were excluded from review if they were duplicates, published before 2009, were non-English sources, included human male subjects, or captured self-efficacy among other human groups than pregnant women.

Search strategy

All the steps of the concept analysis were based on the self-efficacy in its implications in improving adherence to healthy behaviours among pregnant women. An extensive search of the literature was conducted to reduce possible researcher bias. Therefore, literature retrieval was carried out using five electronic databases (namely, CINAHL, PubMed, ERIC, PsycINFO, and Google Scholar). The literature search was done from November to December 2019.

Abstracts were screened initially by the two researchers independently using the inclusion criteria. The search terms used included “self-efficacy, pregnant women, adherence, healthy behaviours”. For the studies that met the inclusion criteria and the studies where insufficient information is available in the abstract to assess the relevance, the full text was downloaded. In the second round of screening, the retrieved studies were reviewed by the two researchers using the same inclusion criteria.

Study selection inc. PRISMA flow diagram

The initial search yielded 663 papers from five databases. Then, 21 duplicated articles were removed and 642 remained for abstract and full-text review. Finally, after applying the exclusion criteria for the articles and reviewing the articles titles and abstracts for relevance and availability, 41 articles with relevant content were advanced to the analysis stage (Figure 1).

Evaluation of quality of articles

Assessment of article quality was performed for each study by considering the following domains: 1) published in peer-reviewed journal; 2) clear definition of study objectives; 3) appropriateness of study design; 4) sample size power; 5) reliability of the measurements used; 6) appropriateness of statistical analyses; and 7) whether the study controlled for confounding factors; and 8) controlled for co-intervention. Each domain was assigned one point, where a total score 5 or more indicates low-to-moderate quality and a total score of less than 5 indicates a moderate-to-high quality.

Data extraction

Data were analysed as descriptive data by identifying similar themes and then categorizing them in one of the following groups: 1) concept definition; 2) concept significance; 3) concept attributes; 4) concept surrogate terms; 5) related concepts; 6) concept antecedents; 7) concept consequences; and 8) concept implications in improving adherence to healthy behaviours among pregnant women.

Results

Defining self-efficacy

The concept of efficacy precedes the concept of self-efficacy. *Merriam-Webster's online dictionary* (Dictionary, Webster, 2012) defines efficacy as the power which produces an impact. *Efficacy* is defined in *Oxford dictionary* (Dictionary, Oxford. English, 1989) as “the ability to produce a desired or intended result”. However, *self-efficacy*, as a distinct term, is not defined in the *Oxford dictionary*. Bandura was among the pioneers to define and identify

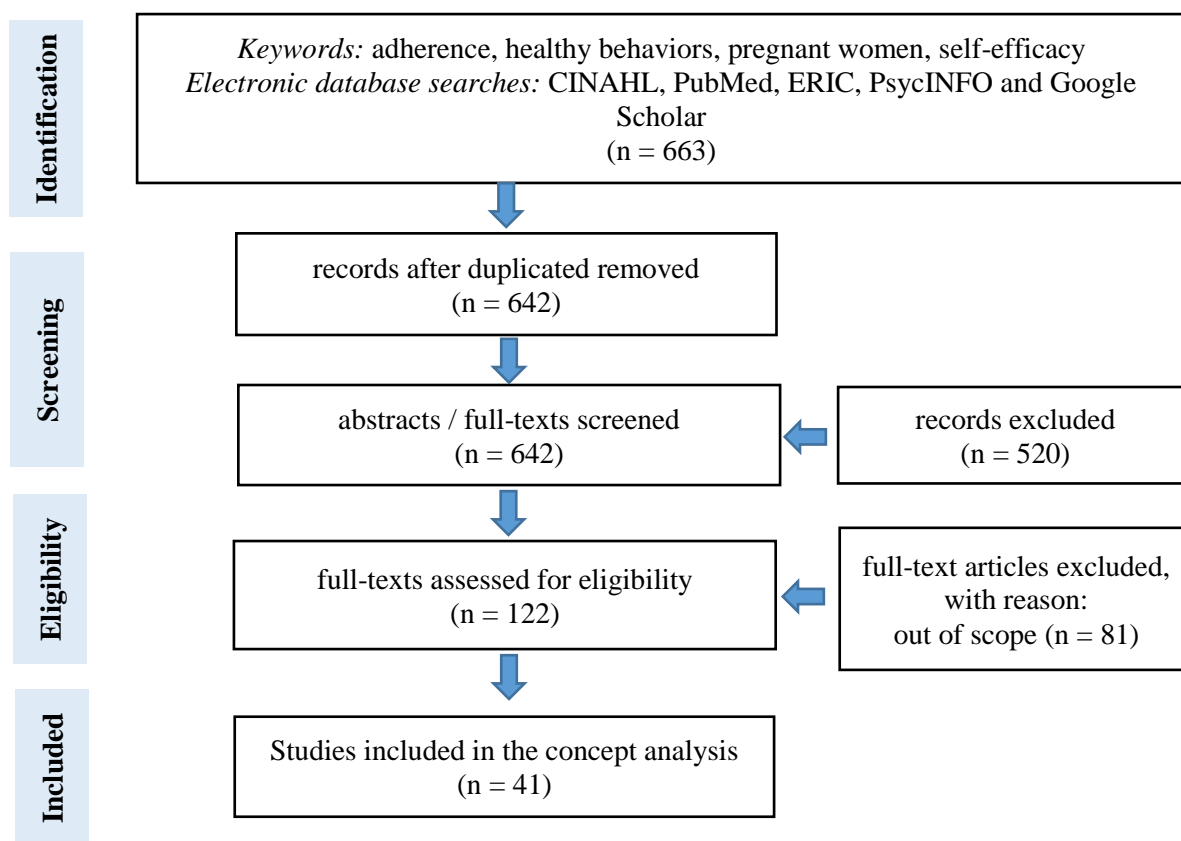


Figure 1 Study procedure

self-efficacy as a core concept concerning health behaviour. In his Social Cognitive Theory, Bandura defines self-efficacy as “the beliefs one holds in one’s capabilities to organize and execute the courses of actions required to produce given attainments” (Bandura, 1982). In Bandura’s work (Bandura, 1977), self-efficacy was described in terms of efficacy and outcome expectations. Efficacy expectations pertain to the belief that one can achieve specific behaviour, while outcome expectations pertain to the potential consequences that certain behaviour is likely to produce (Bandura, 1982). Rosenstock et al. (1988), defined self-efficacy as “the individual’s belief in his ability to effectively perform the recommended behaviour”. Relative to adherence to healthy behaviours among pregnant women, *self-efficacy* refers to the judgment of the pregnant woman about her capability as well as her confidence, to change the unwanted behaviour, after understanding its ultimate benefits, setting practical goals and having a plan to overcome barriers and challenges. Subsequently, this helps generate the intention and the likelihood to adhere to the desired healthy behaviour.

Significance of self-efficacy among pregnant women

According to Bandura, the sense of self-efficacy has

a significant impact on how people think, feel, behave, and motivate themselves to accomplish certain behaviour (Maibach & Murphy, 1995). In terms of thinking, a high sense of self-efficacy enhanced pregnant woman’s cognitive process and performance in a variety of situations, such as setting personal goals and quality decision-making to initiate breastfeeding (McKinley et al., 2019; Sun et al., 2017), to receive Tdap vaccination (Payakachat et al., 2016), to decrease smoking exposure (Chi et al., 2015), and to use insecticidal net (Balami et al., 2018). The higher the level of perceived self-efficacy the pregnant woman has, the higher the goal challenges the woman will set for herself and, therefore, the greater the level of commitment to achieve the goal. Successful goal achievement, in turn, increases the perceived level of self-efficacy and motivates the pregnant woman to pursue more complicated goals (Balami et al., 2018; McKinley et al., 2019). In contrast, repetitive goal failures decrease pregnant woman perceived self-efficacy and consequently lead to the avoidance of certain behaviours in which she felt challenged (McKinley et al., 2019).

In terms of feeling, a low sense of self-efficacy among pregnant women is linked with developing stress, anxiety, helplessness, and depression (Carlsson et al.,

2015; Gao et al., 2015; Tuthill et al., 2014). Furthermore, self-efficacy is linked to self-esteem. Pregnant women with low self-efficacy demonstrate low self-esteem, and they become more pessimistic about their achievements, personal growth, and development (Iravani et al., 2015). In terms of behaviours, self-efficacy has a strong influence on pregnant women's choice of certain behaviours (Balami et al., 2018; McKinley et al., 2019; Payakachat et al., 2016; Sun et al., 2017). Self-efficacy determines woman's motivation level, which reflects how much effort the woman will exert in an endeavour and how long she will persevere in the face of obstacles (Balami et al., 2018; Huang et al., 2013).

Attributes of self-efficacy

Concept attributes are defined as the consistently recurring characteristics of the concept of interest that helps to clarify it further and distinguish it from other concepts (Wilson, 1963). The findings of the literature review revealed that the defining characteristics of pregnant women who have high levels of self-efficacy are those who possess: a) a strong personal belief to master certain activities or skills (McKinley et al., 2019); b) a high sense of perceived capability or confidence to perform the required behaviour for goal achievement (Melton et al., 2013; Zheng et al., 2018); c) a high sense of perceived social norms towards the desired behaviour (Nguyen et al., 2017); d) a high

sense of visualizing success for goal achievement (De Jager et al., 2014); e) sustained efforts or endurance (Al-Hashmi et al., 2018); and f) strong coping skills to deal with various stressors or environmental stimuli (Linden et al., 2016; Sun et al., 2017). Accordingly, the primary underlying attributes of self-efficacy involve confidence, skills or perceived capability within acceptable social norms, endurance, and persistence.

Dotd et al. (2013) demonstrated adherence to healthy behaviours (e.g., breastfeeding) through mastering self-efficacy while they coped with other obstacles or stresses. Other researchers depicted that active participation in the treatment regimen improved health outcomes (Brockway et al., 2018). In fact, research states that the competence level of the individual allows one to integrate skills, knowledge, and values for carrying out a task (Howarth & Swain, 2019; Numminen et al., 2016). Similarly, perception is also viewed as an attribute which enables carrying out a particular task and adhering to a particular intervention to improve health outcomes (McDonald, 2011). Observational learning, feedback, as well as emotional control, are also viewed as self-efficacy attributes (Sims & Skarbek, 2019). Table 1 below summarizes the attributes for the self-efficacy of the pregnant women concerning the promotion of adherence to healthy behaviours.

Table 1 Self-efficacy attributes depicted

Attributes	Description
Pregnant woman related attributes	<p>Belief is depicted towards mastering self-care.</p> <p>Confidence is depicted towards self-care.</p> <p>Sense of visualizing success towards self-care.</p> <p>Sense of perceived social norms.</p> <p>A positive attitude is depicted towards self-care.</p> <p>Active participation is demonstrated for self-care.</p> <p>Persistency is demonstrated for self-care.</p> <p>Coping with challenges and barriers.</p>

Surrogate terms of self-efficacy

Surrogate terms are words that are used alternatively to express the concept of interest (Bandura, 1986). *Perceived self-efficacy* is one of the terms that has been used interchangeably in the literature to represent self-efficacy (Maibach & Murphy, 1995). *Perceive* is a word that means to achieve an understanding of something or to become conscious through the senses (Zulkosky, 2009). Self-efficacy is described as the individual's belief in the abilities to perform a particular behaviour in order to accomplish a certain outcome (Robinson et al., 2017). However, the term *perceive* is incorporated in the definition of self-efficacy, and it does not change the self-efficacy meaning (Zulkosky, 2009).

Antecedents

Antecedents are the factors that take place before the occurrence of the concept (Robb, 2012). Bandura identified the major sources of information for self-efficacy: vicarious experience, enactive attainment, verbal persuasion, and physiological state (Bandura, 1982).

Vicarious experience or modelling refers to the visual experience of a pregnant woman when she sees others are successfully performing similar behaviours (Maddux, 2009). As a result, this experience encourages the pregnant woman about her ability to perform the same behaviour successfully. Pregnant women who attended skill-based childbirth

preparation classes and breastfeeding interventions showed a significant improvement in childbirth self-efficacy (Howarth & Swain, 2019) and breastfeeding self-efficacy (Reno, 2018); respectively. A pregnant woman deciding to initiate certain behaviour must first understand the benefits of the behaviour and believe that she can do it successfully (Howarth & Swain, 2019; Reno, 2018). Therefore, knowledge and preparation in the antenatal period is key to improve self-efficacy.

Enactive attainment or mastery is based on the experience the person has, and it is considered the most influential source of self-efficacy information (Hendricks, 2016). It is attained by the successful demonstration of the required behaviour on many occasions. Research on antenatal breastfeeding support that mothers who previously feed a child are more likely to continue breastfeeding compared to mothers with no breastfeeding experience (McKinley et al., 2019). Verbal persuasion is a verbal reinforcement that is given by others to encourage mother of her specific capabilities to achieve the desired behaviour (Wong, 2015). This source of information is significantly effective as the enactive attainment and vicarious experience in increasing the level of self-efficacy. Evidence indicated that positive encouragement received by pregnant women from other people like healthcare providers, family, partners, or peers increased women's self-efficacy to breastfeed her child (McKinley et al., 2019), to use insecticidal net (Balami et al., 2018), and to decrease smoking exposure (Chi et al., 2015).

The last source of self-efficacy information is the physiological state. This information includes factors that occur as a result of a stressful situation such as fatigue, fear, pain, and shortness of breath. Pregnant women who are highly stimulated during stressful events tend to have low self-efficacy to perform certain behaviours. Research examined predictors of childbirth fear indicate that it is highly correlated with childbirth self-efficacy of pregnant women (Gao et al., 2015).

Therefore, the identified self-efficacy antecedents are relevant knowledge, role modelling, personal and real experience, social and professional support, and emotional status. To gain a perception of one's self-efficacy, the pregnant woman has to understand the benefits of the doing the desired behaviour, observe someone else performing the behaviour successfully, perform the desired behaviour or skill successfully, get positive feedback after completing the task, have strong social support and professional support, and have positive mood status (Anglely et al., 2015). All these sources of information must occur

before the pregnant woman's sense of self-efficacy.

Cases

Model case. The model case is used to reflect the self-efficacy attributes (Wilson, 1963). The below case presents the example of the self-efficacy attributes model case.

Mrs Sara is a 26-year-old woman who was diagnosed with gestational diabetes (GDM) at 23 weeks of gestation and was recommended to start insulin injection. She was also recommended to follow GDM diet plan, do regular safe-physical activities, and self-monitor her blood glucose. When her insulin treatment was initiated, the antenatal nurse demonstrated for her the procedure for self-injecting insulin with the use of an insulin pen. Mrs Sara was a bit shaky about holding the pen and injecting herself appropriately, and she considered it a difficult task; therefore, she requested that the antenatal nurse repeat the procedure. Mrs Sara practiced injecting the insulin several times in the presence of the nurse, after which she felt confident that she had mastered the independent injection of insulin and believed that she could do it at home independently. Accordingly, a chart was given to Mrs Sara to strictly write down blood glucose readings, meals information, and physical activity performed, on a daily basis. The antenatal nurse educated Mrs Sara about gestational diabetes, treatment plan, risks, and the benefits associated with adhering to treatment plan. Mrs Sara discussed with the nurse the challenges associated with her following the treatment plan, after which the nurse suggested some coping strategies to overcome these challenges. Mrs Sara affirmed to the nurse that she would be successful in adhering to the treatment plan, with the aim of maintaining her blood glucose within acceptable ranges. At the end of the pregnancy, Mrs Sara's readings revealed that she was maintaining the GDM diet, doing regular physical activity, self-monitoring her blood glucose, and taking insulin injection, which was evident in her maintaining acceptable blood glucose levels.

This case demonstrated that Mrs Sara meets all the defining self-efficacy characteristics as initially, she believed it to be difficult; however, based on the results, it is evident that her confidence in her abilities encouraged her to follow GDM treatment plan and she sustained adherence to healthy behaviours after the pregnancy.

Contrary case. This case is a demonstration of when the concept attributes did not apply referred to as "not the concept" (Wilson, 1963) (Figure 2).

Mrs Lara is a 32-year-old woman who was diagnosed with gestational diabetes (GDM) at 21 weeks of gestation. She was advised to start insulin injection

and to follow the GDM diet plan, do regular safe-physical activities, and self-monitor her blood glucose at home. When her insulin treatment was initiated, the antenatal nurse demonstrated for her the procedure for self-injecting insulin with the use of an insulin pen. Mrs Lara was filled with fear, denial, and ambiguity because she thought the insulin injection would be painful and failed to fit her busy schedule. She indicated also that the GDM diet was very strict and she couldn't give up her favourite foods. Mrs Lara doubted, also, her ability to self-inject herself at home because insulin injection administration requires professional skills. She didn't understand that following the GDM treatment plan would improve her pregnancy outcomes, although the antenatal nurse educated her about GDM. She further refused to take insulin injections and requested oral hypoglycaemic tablets instead.

Lara's case indicates that no self-efficacy stated attribute is observed. Mrs Lara showed no efforts in attempting to learn self-injection insulin and adherence to the GDM treatment plan. She didn't have confidence in her abilities, and even she doubted her ability to self-inject insulin and to follow the recommended treatment plan. She preferred oral hypoglycaemic tablets because it didn't interrupt her daily habits. Mrs Lara did not engage in any necessary activity.

Borderline case. These cases are those where many of the concept attributes are depicted, but not all. The following case exemplifies the borderline case.

Mrs Mary was a 36-year-old pregnant woman who was diagnosed with gestational diabetes (GDM) at 25 weeks of gestation. Her doctors suggested she start oral hypoglycaemic tables and follow the GDM diet plan, do regular safe-physical activities, and self-monitor her blood glucose at home. When her oral hypoglycaemic treatment was initiated, the antenatal nurse demonstrated for her the procedure for testing her blood glucose level at home. Mrs Mary thought it was a simple procedure, so she showed an interest in learning how to check her blood glucose and a willingness to do so at home. She was confident in her ability to do self-monitoring of blood glucose at home and to follow the suggested treatment plan by the physician. In fact, she followed the GDM treatment plan effectively. However, after having a few acceptable blood glucose levels, she planned to stop the treatment plan and the monitoring of her blood glucose. This is because she thought there was no need to do so anymore.

In Mrs Mary's case, the attribute that is lacking is the sustained efforts to follow the GDM treatment plan and to self-monitor her blood glucose.

Consequences of self-efficacy

Consequences are outcomes that follow after concept occurrence (Robb, 2012). The consequences of self-efficacy rely on woman's perceptions of the event, desired behaviour, and judgment of her abilities to perform the required behaviour. As a result, after the development of self-efficacy, one of the following may happen.

First, pregnant women with high levels of self-efficacy decide to perform the behaviour because they believe in their abilities to accomplish the desired goal. Thus, the pregnant women self-efficacy is enhanced by setting practical goals and imagining successful outcomes rather than thinking about negative outcomes (De Jager et al., 2014).

Second, pregnant women with low self-efficacy decide not to perform the behaviour because they think they cannot attain the goal (De Jager et al., 2014). Al-Hashmi et al. (2018) and İsbir et al. (2016), in their studies indicated that decreased level of self-efficacy among pregnant women lead to decreased adherence to the treatment plan; therefore, healthcare interventions are essential components for promoting positive prenatal-related outcomes (Howarth & Swain, 2019; Jelsma et al., 2016; Otsuka et al., 2014). Similarly, Van Der Wijden et al. (2014) stated that prenatal interventions, such as coaching and feedback from the healthcare professionals, along with the use of mHealth programs, allow women to modify their lifestyle. This modification helps in reducing risk factors and contributes to improving pregnancy outcomes. Moreover, studies have demonstrated that a lack of self-efficacy has an adverse effect on individual well-being (Carlsson et al., 2015; Dunning & Giallo, 2012).

Also, the pregnant woman performs the desired behaviour after receiving positive verbal encouragement. For example, someone convinces the woman that she can succeed in achieving the desired goal (Bandura, 1986). Studies on breastfeeding showed that reinforcement to breastfeed from healthcare providers resulted in positive breastfeeding attitudes (McKinley et al., 2019).

Another relevant factor is family empowerment and social support to overcome barriers, loneliness, and isolation. Literatures indicated that family empowerment and social support correlated significantly with parenting self-efficacy among pregnant women (Chou et al., 2018; Gao et al., 2014; Tuominen et al., 2016). Figure 2 presents the framework for a pictorial representation of conceptual analysis.

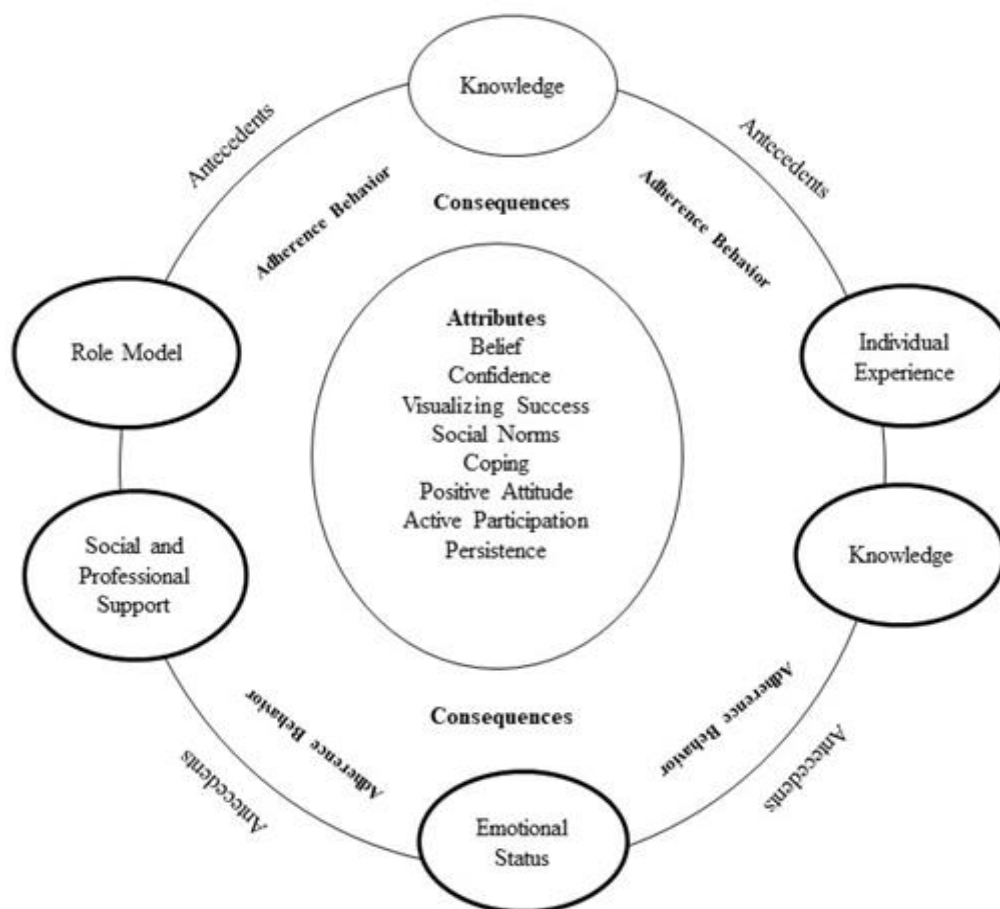


Figure 2 Conceptual analysis framework

Discussion

To date, the role of self-efficacy is not well documented in relation to its role in promoting adherence to healthy behaviours among pregnant women. However, the reviewed literature revealed that the concept of self-efficacy had received mounting recognition as a strong predictor of adherence to healthy behaviours such as dietary modification, weight loss, physical activity, and compliance with prescribed medications (Sims & Skarbek, 2019) among general adult participants. The analysis of the concept revealed that self-efficacy is a multifaceted concept that is dynamic, and it influences women's cognitive process, their commitment to reach a predefined goal, their emotional status, and their motivational level. Self-efficacy also can change based on the gained knowledge, previous experiences, presence of family empowerment, social and professional support, woman's emotional status, and the tasks associated.

The present study found also that self-efficacy is the key predictor of behaviour change, hence it should have an adequate attention in prenatal health education

interventions. In fact, self-efficacy promotes positive change and improves the functional status of the mother (Duprez et al., 2016). Optimizing women's health status is one of the fundamental prenatal nursing roles; therefore, nurses are professionally obligated to promote the health status of all women, specifically pregnant women, who might live in environments that lack caring and supportive advocates. Antenatal nurses should assess the health risk factors of each pregnant woman individually and determine the obstacles and challenges that hinder the woman's ability to get involved in health-promotion activities to plan the appropriated support required by the pregnant women.

The WHO highlighted that developing women's capacities for making healthy choices is critical for improving maternal and newborn health (WHO, 2003). In particular, the Pregnancy safer initiative by the WHO encourages the development of health promotion interventions that support the active role of women in maternal and newborn health, beyond those strategies that limit them to being passive recipients of care (WHO, 2003). Furthermore, the WHO Framework for Health System Performance

Assessment asserts that the health system approach should include strategies for collaborating with health services and individuals to improve the individual's health status. Hence, self-efficacy should be incorporated into antenatal health education interventions as a strategy to enhance adherence to healthy behaviours which subsequently is expected to improve women's pregnancy outcomes, their quality of life and will decrease the burden of pregnancy complications on the healthcare system budget.

The result of the current study is significant for maternal and child health experts as it will lay the foundation for the succeeding studies that will seek an understanding of self-efficacy among pregnant women. To our knowledge, the current study is the first to show the impact of enhancing self-efficacy to improve adherence to healthy behaviours among pregnant women. Despite the above-mentioned strengths, this study has a few limitations pertaining to the composition of the studies' participants. Pregnant women included in the reviewed literatures were from western countries, so extra research should be done to assess the applicability of the self-efficacy definition across cultures and countries.

Conclusion

Although, there is improvement in the antenatal healthcare, the incidence rate of maternal mortality is still high, particularly in the developing countries and the key to overcome current challenges is self-efficacy. Self-efficacy is an important predictor for promoting adherence to healthy behaviours among pregnant women. It affects the pregnant woman's cognitive process by taking quality decision-making, setting practical goals and having plan to overcome barriers and challenges. It also enhances pregnant women's positive emotional status and their determination towards the achievement of specific behaviours.

The understanding of the role of self-efficacy in promoting adherence to healthy behaviours among pregnant women provided new possibilities for improving the nursing knowledge, practices, research and education. The results of this paper add value by highlighting importance of integrating self-efficacy enhancing strategies in any prenatal health promotion interventions. Self-efficacy enhancing strategies include knowledge, persuasive messages, goal-setting, role modelling, family or partner support, professional advices, and mastery experience. Enhancing self-efficacy among pregnant women is expected to increase compliance with the recommended healthy behaviours, to overcome the increase in maternal and neonatal health risk, and to decrease medical cost

spent to treat pregnancy-related complications. Self-efficacy is a concept that needs to be assessed and identified by all healthcare providers involved in the care of pregnant women. Ignoring women's poor self-efficacy levels for adherence to healthy behaviours can contribute to low adherence to the recommended health behaviours and negative pregnancy outcomes goes against providers' ethical principles to do no harm, and to promote good. Prenatal nurses should also take into consideration assessing the pregnant women's social and cultural norms to achieve optimal and positive outcomes from the intervention.

In terms of nursing education, the concept of self-efficacy should be introduced to medical and nursing students in any health promotion classes. Medical and nursing professionals should also receive training through programs that increase their awareness about strategies that boost self-efficacy among pregnant women.

This concept analysis offers favourable implications for prenatal healthcare experts and more attributes can be highlighted by future research to add further valuable insights in this field.

Ethical aspects and conflict of interest

No author of this paper has a conflict of interest, including specific financial interests, relationships, and / or affiliations relevant to the subject matter or materials included in this manuscript.

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Author contributions

Iman Al Hashmi, conceived of the presented idea, reviewed literatures, and took the lead in writing the manuscript. Omar Al Omari, provided critical feedback and helped shape the manuscript.

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