

## Improving Self-care Behaviours in Pregnant Women in Zahedan: Applying Self-efficacy Theory

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### ABSTRACT

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**Objectives:** Improving self-care behaviours such as the early detection of any abnormal signs and symptoms in high-risk pregnancies, self-control of weight and control of blood pressure have essential roles in the prevention and reduction of maternal and infant mortality rates. In this study, we aimed to determine the effects of an educational intervention based on the self-efficacy theory on improving self-care behaviours among pregnant women.

**Methods:** This intervention study was conducted on 300 pregnant women that were referred to health centres in Zahedan was 2014. We used multi-stage random sampling from five different areas in the city of Zahedan, and selected participants according to inclusion and exclusion criteria. In each region, the women at two centres were randomized into two groups consisting of the intervention (n = 150) and controls (n = 150) groups. Data collection tools, including questionnaires (validity and reliability were confirmed respectively), that both groups completed before training. Two training sessions were conducted for the intervention group with practice lectures, questions and answers, focus groups and using slides and educational pamphlet. One and one-half months after the training intervention, both the intervention and control groups completed questionnaires.

**Results:** According to the results, knowledge scores changed by a mean of 3.37 compared with 0.89, attitude 1.19 compared with 0.07, behaviour 1.01 compared with 0.63 and self-efficacy 2.47 compared with 0.23 in the intervention group after training, compared to the control group. In addition, an independent sample T-test statistical test showed that the difference between the two groups was significant ( $p < 0.0001$ ).

**Conclusion:** The use of an educational intervention based on self-efficacy theory had positive effects on the knowledge of self-care behaviours among participants.

**Keywords:** health education, self-care, pregnancy

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**Introduction:** Although pregnancy is a perfectly normal stage in the life of the mother, it is considered to be uncommon, but ignorance of health care during pregnancy can have irreparable consequences for the mother and her unborn child. Although scientific advances have been made in improving the care of maternal deaths due to pregnancy complications, the most common cause of maternal mortality, particularly in developing countries, is due to lack of care during pregnancy [1, 2]. According to the World Health Organization (WHO) (2012), about 300 women die from pregnancy or childbirth-related complications around the world every day in Iran, as of 2012, with a rate of 20.3 deaths per 100.000 births [2]. One of the major goals of health education programs for pregnant women is promoting self-care, which may lead to reduced mortality and morbidity, improve quality life and reduce pregnancy-related health care costs. The most important self-care activities in the prevention of serious complications among people is that they enable individuals to manage the long-term effects of living with a health problem on a daily basis, and ensure that people follow medical recommendations and maintain a sense of purpose for what they do, retain social contacts and remain involved with their families [3]. Because one of the main health centre's missions is to promote maternal and child health, health education is also helpful. Theories play a major role in health education and health employees have options that enable them to tailor interventions to specific situations [4]. One of

the major theories in the health education program is self-efficacy theory. Self-efficacy is defined as a 'person's confidence in his ability to perform an operation successfully' [5]. Self-efficacy is a bridge between knowledge, behaviour and belief in one's ability to perform a behaviour [6]. Therefore, special attention is needed to increase self-efficacy. On the other hand, there is a lack of research on improving self-care behaviours among the community of pregnant women at Zahedan city who are a priority for health programs. Accordingly, the present study was conducted to determine the effects of an educational intervention based on self-efficacy theory on improving self-care behaviours among pregnant women in Zahedan city, Iran.

**Material and Methods:** This study was quasi-experimental, and conducted on a total of 300 pregnant women who were referred to health centres in Zahedan, Iran in 2014, and were selected by a multi-stage random sampling method. They were randomly divided into either intervention (n = 150) or control groups (n = 150). Data were collected through a questionnaire made by the researcher, the validity and reliability of which had been previously confirmed by health education and midwifery experts. Items with a content validity ratio of > 0.62 and content validity indices > 0.79 were accepted. Cronbach's alpha for reliability was found to be 0.82. The questionnaire was also reviewed and approved by 10 experts in the field of health education and obstetrics (6 were professors of obstetrics and gynaecology, 4 were health education specialists).

The questionnaire contained 24 questions, of which 4 items were related to demographic details (age, the number of previous pregnancies, occupation and education level), 7 to knowledge, 6 to attitude, 6 to behaviour and 5 to self-efficacy. To calculate participants' knowledge, each item was scored as 2 for correct answers, 1 for no comment and 0 for wrong answers. IN the attitude items section, scoring ranged from 2 for 'agree', 1 'no comment' and 'totally disagree' was 0. Self-efficacy items were scored according to the 5-point Likert scale, with scores for each item ranging from 'very much' 5, to 'very' 4, 'medial' 3, 'few' 2 and 'never' 1. In the section relating to behaviour items, scoring ranged from 2 for 'always' to 1 for 'sometimes' and 0 for never.

For the data collection, the researchers explained to subjects the objectives of the study. The participants were also assured of the confidentiality of the collected data. Participants' consent for participating in the study was also obtained. The educational intervention was designed according to the results obtained and analysed from the stage before intervention. For the intervention group, the educational intervention was led by the primary investigators, which included lectures, questions and answers, focus groups, PowerPoint presentations and educational pamphlets.

The intervention program was held in two sessions, each of which took about 50–60 min. Educational materials were provided in accordance with the mothers' health booklet, mostly to increase knowledge of pregnant women about the pregnancy period and dangerous post-partum symptoms, high-risk

pregnancy, the importance of pregnancy-related health care, engaging in physical activity and maintaining a healthy diet, including through the consumption of fruits and vegetables. In this study, we used the self-efficacy theory as a basis for the intervention to improve mothers' behaviour in their self-care during pregnancy.

The most important part of the intervention was to increase knowledge of, and self-efficacy in, performing self-care behaviours. These constructs, in turn, could help pregnant mothers to strengthen their ability to engage in these behaviours and impart positive beliefs towards self-care behaviours. In order to promote of self-efficacy in improve mothers behaviour, the educational intervention was held by the main investigators, which included lectures, focus groups, PowerPoint presentations, to learn skills such as physical activities, weight control, hypertension control, and sporting practices. One and one-half months after the training intervention, the effects of the intervention on self-care behaviours were measured, and compared with those in the control group. Data from before and 1.5 months after the educational intervention were coded and analysed.

After collection, the data were entered into SPSS software (Version 16). Descriptive statistics were used to explore the frequency distribution of qualitative data and to provide central and dispersion parameters for quantitative data. A Chi-square test was used to compare categorical data, and a t-test was used to compare the mean values of continuous variables for the two groups. Pearson's correlation coefficient was used to

find out the association between the continuous variables. Finally, a stepwise regression model was used to clarify the predictors of behaviour change. The significance level was set at  $p < 0.05$ .

The study was approved by the Human Research Ethics Committee of the Zahedan University of Medical Sciences. The control group received all of the training materials used with the intervention group after completion of the intervention.

**Results:** This study included a total of 300 pregnant women who had been referred to health centres in Zahedan during 2014. They were divided into two groups: (i) intervention/training group and (ii) control group. The mean age of the participants in the intervention group was 24.49 years (SD 5.25), and in the control group was 24.77 years (SD 5.23), with no evidence of heterogeneity (Table 1).

There were no significant differences between the two groups in terms of educational levels, occupational status and number of previous pregnancies ( $p > 0.05$ ). About two-thirds of the participants in both of the study groups had a diploma. Furthermore, the majority of patients in intervention group 50% and control group 48.7%, were first pregnancy. In intervention group 83.3%, and in control group 85.3% of participants were housewives.

Table 2 presents the changes in mean scores of the knowledge, attitude, practice and self-efficacy in both of the groups after the intervention. All the parameters for the constructs of the two groups were approximately the same at baseline.

However, after the interventions the scores of all variables for the participants in the intervention group showed differences compared to those in the control group ( $p < 0.05$ ).

As can be seen in Table 3, the mean total score of pregnant women's knowledge about self-care behaviours in the intervention group of  $32.10 \pm 9.82$  (47% of the total score) increased to  $37.05 \pm 10.89$  (54% of the total score), attitude  $6.15 \pm 2.02$  (51% of the total score) increased to  $7.09 \pm 1.94$  (59% of the total score), behaviour  $5.30 \pm 1.86$  (44% of the total score) increased to  $6.69 \pm 1.86$  (56% of the total score) and self-efficacy  $11.48 \pm 2.68$  (46% of the total score) increased to  $13.99 \pm 3.45$  (56% of the total score) after training. The percentage changes for mean total scores involved increases in the categories of knowledge (7%), attitude (8%), behaviour (12%) and self-efficacy (10%).

A stepwise multiple regression analysis was employed to identify the predictors of the behaviour change. To do this, all variables were entered simultaneously in the model. The results indicated that the overall model was statistically significant

( $F = 5.992$   $p = 0.016$ ). Nevertheless, self-efficacy remained in the model as the only predictor of individuals' behaviour change (Table 4). A positive relationship was found between self-efficacy and behaviour ( $\beta = 0.150$ ,  $t = 2.448$ ,  $p = 0.016$ ) such that for every unit of increase in self-efficacy, the behaviour scores increased by 0.15. Goodness of fit for this model (adjusted R square) was 0.039, which means that 4% of the change in behaviour scores was related to the scores of self-efficacy.

**Table 1.** Baseline characteristics of study subjects

Study group/variable	Intervention(n=150)		Control (n= 150)	
	Number	Percent	Number	Percent
<b>Educational level</b>				
unlettered	8	5.3	10	6.7
the diploma	98	65.5	103	68.7
diploma and higher	44	29.3	37	24.6
<b>Pregnancy number</b>				
first pregnancy	75	50	73	48.7
second pregnancy	51	34	54	53.3
third pregnancy and higher	24	16	24	16
<b>occupation situation</b>				
housekeeper	125	83.3	128	85.3
practitioner	25	16.7	22	14.7
<b>Age(Mean SD) years</b>	24.49(SD 5.25)		24.77 (SD 5.23)	

**Table 2.** Comparison of change in mean scores of knowledge, attitude, behavior and self-efficacy after intervention between two groups

Construct	Group	Score Before intervention	Score after intervention	Difference (After-Before)	P Value
		Mean (SD)**	Mean (SD)	Mean (SD)	
<b>Knowledge</b>	Intervention	32.97 (10.04)	36.29 (10.59)	3.37 (2.47)	< 0.0001
	Control	30.93 (8.83)	31.86 (8.63)	0.89 (1.41)	
<b>Attitude</b>	Intervention	7.35 (2.24)	8.54 (2.13)	1.19 (1.37)	< 0.0001
	Control	7.01 (2.20)	7.08 (2.26)	0.07 (0.60)	
<b>Self-efficacy</b>	Intervention	11.48 (2.68)	13.99 (3.45)	2.47 (1.81)	< 0.0001
	Control	11.13 (2.30)	11.35 (2.40)	0.23 (0.77)	
<b>Behavior</b>	Intervention	5.30 (1.86)	6.69 (1.86)	1.01 (0.87)	< 0.0001
	Control	4.89 (2.09)	5.44 (1.93)	0.53 (1.29)	

\* P value obtained from independent sample T-test comparing mean of score differences between two groups after intervention.

\*\* SD= Standard Deviation.

**Table 3.** Mean and SD of Obtained Scores for Knowledge, Attitude, self-efficacy and behavior in intervention group

Score / Variable	Total score	Score obtained by Subjects Mean±SD		Average total score (percentage)		Difference percentage increase
		before	after	before	after	
<b>Knowledge</b>	68	32.10±9.82	37.05±10.89	47	54	7
<b>Attitude</b>	12	6.15±2.02	7.09±1.94	51	59	8
<b>Self-efficacy</b>	25	11.48±2.68	13.99±3.45	46	56	10
<b>Behavior</b>	12	5.30±1.86	6.69±1.86	44	56	12

**Table 4.** Predicting Self-care behavior in study subjects

Significant	t	Standardized coefficients	Unstandardized coefficient		Model
		Beta	Standard Error	B	
< 0.0001	6.679	0.197	0.187	1.251	Constant
0.016	2.448		0.061	0.150	Self-efficacy

**Discussion and Conclusion:** In this study, an educational intervention based on the self-efficacy theory significantly increased the awareness, attitude, behavior and self-efficacy of the participants in the intervention group compared to those before the educational program.

The present study, showed a significant difference, in the awareness score of the women after receiving educational program, which is in line to a study in Island [7], New York [8], American [9] which were showed that training increased the pregnant women's awareness. Additionally, the other part of Iran, aiming to assess the effects of training in creating self-care behaviors are in

agreement with the results of the present study [7-20], indicating the importance of training and its impact on self-care behaviors. Against, in similarly studies, training in period's pregnancy no had very effect [19, 20]. To beliefs research's have knowledge alone not sufficient for accomplish preventive behaviors, rather, thinking cap and attitude about a disease, is important agent in preventive action [15]. The mean scores of attitude before and after intervention showed a considerable difference. Similarly, studies in Iran [12, 13, 15, 17, 19, 21], showed positive effects of educational intervention. All these studies showed increase in scores of perceived susceptibility after intervention, but

Toghyani study with present study does not coincide and education no effect in attitude individuals that mention its cause insufficient training content in emotional domain . In other study education, no was lead to change of adverse attitude individual's ratio to childbirth [10]. But One of the reasons being significant attitude variable can be this due educational content designing and group training sessions are conducted with an emphasis on mental attitudes and beliefs.

The score of behavior increased significantly after intervention in the current study. The increased scores of constructs perhaps had an impact on pregnant women's behavior. The results of similarly studies also indicated that training increased behavior [4, 15, 23-27]. In this study the used of self-efficacy theory.

Efficacy of the connector link between knowledge and behavior and acts as a bridge between thinking and behavior [28]. According to Bandura, self-efficacy, the belief that a person of skill and his ability to reach specific purpose and can be an important component in changing behavior [29]. In Khorsandi and et al study too, self-efficacy as a key element in the choice of mode of delivery and natural childbirth was confirmed [30]. Also, in Hausenblas and et al study, educational intervention had was lead to increase self-efficacy among pregnant mothers in field sport [31]. A previous study in Iran demonstrated that construct of self-efficacy has the highest power of predicting behavior intention [32].

It seems, can be strong efficacy as a predictor of human performance and personal well-being in different ways, such as the ability to deal with the obstacles increase.

In this study, a significant positive correlation between change scores awareness and self-efficacy with change scores behavior of the subjects in the intervention group, suggest a positive effect of training programs designed on the basis of theories and models of health education that leads to improved self-care behaviors of pregnant women have.

The strong points of this study were:

Used of self-efficacy theory in promote the empowerment of pregnant mothers and improve their performance in self-care behaviors during pregnancy. Study limitations included the short interval between intervention (1.5 month), and measuring the effect of training. Significant changes in knowledge, attitude, behavior and self-efficacy of the subjects in this study showed that through effective educational interventions improve intermediate and intermediate variables such as knowledge, attitudes, self-efficacy, health beliefs lead to changes and improvements in one or more aspects of self-care behaviors include lifestyle changes, self-efficacy of the risks and complications of pregnancy and after delivery. The self- efficacy and increased attention to the important predictors of health behaviors adoption by pregnant women is appropriate. Therefore, educational programs and training courses to empower women to change their lifestyle and health-seeking behavior in the promotion of special importance.

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