

## THE EFFECT OF TRAINING ATTACHMENT BEHAVIORS ON PERCEIVED STRESS, PARENTAL EXPECTATIONS IN PRIMIPAROUS WOMEN

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### ABSTRACT

**Background and Goal:** early mother-child bonding plays an important role in the child's psychological development and various factors affect the promotion of this relationship. The present study aimed at investigating the effect of attachment behaviors 'on perceived stress, parental expectations in primiparous women.

**Material and Methods:**

In this randomized clinical trial study, 90 primiparous pregnant women referring to health centers of Zahedan city in 2015 to receive prenatal care, who had the inclusion criteria, were selected by convenience sampling and randomly assigned to two experimental (n = 45) and control (n = 45) groups. Data collection tools included a questionnaire on demographic information and the perceived stress scale(PSS) questionnaire, parental expectations questionnaire. The experimental group members individually underwent attachment behaviors' training in four sessions, two sessions per week, for 90 minutes and the control group only received prenatal care. All statistical analyses were performed using the using SPSS version 20 and Chi-square and independent t-test at the significant level of  $p < .05$ .

**Findings:** The results of the present study regarding attachment behaviors' training effect on perceived stress indicated that the intervention group perceived stress score mean has decreased and also, the results of the present study regarding the attachment behaviors training effect on parental expectations indicated that the intervention group parental expectation score mean has increased ( $p < .05$ ).

**Conclusion:**

According to the results, it seems that training attachment behaviors during pregnancy can reduce of perceived stress and increase parental expectations primiparous mothers' care as an easy, low-cost and effective way. It is recommended to teach these behaviors to health workers, especially nurses and midwives so as to take a major step toward improving parents- child relations in order to reduce mothers' perceived stress and thus, ensure their children's mental health.

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### Introduction

Globally, the common attribute of all the pregnant mothers during pregnancy, irrespective of the cultural, ethnic and various experiences unique to themselves is that they tend to make connections with their unborn child [1]. Maternal-fetal attachment is a term which refers to the amount the mothers engage in caring behaviors and interacting with their fetus [2] and it is focused on by some of the researchers as a factor influencing the mother and fetus health [3, 4, 5].

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Despite generating a pleasant feeling, pregnancy is most often enumerated as a physically and mentally stressful period [6]. There are various methods that can be applied to overcome such problems such as supportive planning, training programs and taking interventions to adjust and cope with pregnancy period stresses [7]. One such intervention assisting the mother to learn about stress coping methods is the different methods of enhancing maternal-fetal attachment [8]. Such type of attachment is formed based on the maternal mental images of the fetus [9]. Among the methods of enhancing attachment is teaching for attachment behaviors which cause the mother's feeling to be instigated and perform actions bringing about a situation where the maternal-fetal interaction is increased. Also, maternal attachment behaviors in respect to the fetus play a significant role in accepting the parental identity, future mother-fetus relationships and child growth and development. Studies have shown that mother's attachment to the fetus is an important part of the maternal identity and the integral part of creating a positive adaptation to pregnancy [10, 11]. Emotional bonding process begins to form gradually and simultaneously with the maternal-fetal attachment development and it creates a motive for acquiring a postnatal competency and satisfaction in playing a maternal role [12].

The women with strong competency and satisfaction of their maternal role tend to have safe attachment styles and they exhibit sensitive and responsible educational behaviors which facilitates the growth and development infant. [13]. Lifer believes that the women who demonstrate a greater affection towards an unborn child tend to show a greater amount of trust and confidence in assuming the maternal role and, quite contrarily, the women who showed lesser amount of attachment tended to experience bigger and more problems in performing their expected maternal roles [14]. Attachment behaviors training can elevate self-efficacy and the mother's perception of the maternal role in such a manner that the results of the study conducted by Azmudeh et al (2014) indicated that training can increase the post-intervention self-efficacy and the maternal competency feeling levels [13].

Cranley has investigated the maternal-fetal attachment behaviors from various aspects and classifies them into five subgroups including interaction with the fetus, fetus and self-distinction, attributing special characteristics to the fetus, self-sacrifice and assuming parental role and expresses behaviors such as talking to the fetus abdominal palpation to feel the fetus movements and so forth as being part of such behaviors. The prevalence and the intensity of maternal-fetal attachment behaviors differs in different individuals and a wide spectrum of such behaviors are observable during pregnancy which can be manifested variously for every mother. For some the fetus bonding feeling happens rather quickly. As soon as getting aware of their pregnancy, these mothers feel they are connected to the fetus and they have a feeling towards the fetus even before being assured of their pregnancy. Some others mention such a relationship after they feel the fetus movements or after a sonography imaging is undertaken, some mothers have no special feeling towards their fetuses and such a feeling might be created in them only after birth when embracing their infants [15]. Researches performed by Bellini et al indicated that pregnancy period training can exert a positive effect on the maternal-fetal attachment [16] and, on the one hand, world health organization, mentions training as the necessary component of the prenatal cares [17] and, on the other hand, corresponding to article thirty four of the midwifery job description guidelines, enacted by Iran's ministry of health, treatment and medical education, making the pregnant women ready to assume their maternal role has been proposed as one of the most important responsibilities of the midwives but the most important pregnancy period services delivered in our country are still limited to mothers' physical cares and the pregnant woman's psychological needs are less attended to. According to the importance of the attachment behaviors training in elevating the maternal-fetal attachment and the role such an elevation plays in enhancing the mothers' mental health during pregnancy and increasing the maternal feeling of taking responsibility, the present study attempts to survey and test the perceived attachment behaviors training effect and maternal competency because it is possible that training for such simple attachment behaviors as an appropriate easy intervention method, non-expensive, noninvasive and non-medicinal, that can be blended in the prenatal visiting programs performed by health centers and clinics to meanwhile contributing to the health preservation especially mother's mental health can be finally applied to maintain children's future physical and mental health. Thus, Given the conflicting results of studies on the impact of attachment behavior and communicating with fetus on mother-child attachment, this study aimed at investigating the effect of attachment behaviors' training on perceived stress and parental expectations in the primiparous women referring to health centers in the city of Zahedan

### Material&Methods

In this randomized clinical trial study,, 90 primiparous women who referred to Zahedan's health centers in 2015 to receive prenatal services participated. These qualified women were assigned to two intervention (m=45) and control (m=45) groups based on a simple randomized sampling method. Inclusion criteria included age of 18-35 years, having a minimum ability of reading and writing ,singleton pregnancy, lack of obstetric complication such as bleeding, pregnancy blood pressure, diabetes and no history of preterm delivery, planned pergnancy, normal ultrasound tests and fetal screening during pregnancy, pregnancy age of 22-28 weeks. Exclusion criteria included underlying diseases such as diabetes ,high blood pressure, occurrence of recent stressful events for participants such as serious illness of the mother or spouse, death of a first degree relative, previous existence of diagnosed mental illnesses such as schizophrenia ,depression and hospitalization, referring to psychiatrist, history of infertility, drug addiction and lack of accurate and complete intervention(recording attachment behaviors less than three or four days a week after intervention by participants during the 12-16 weeks of the end

pregnancy), the incidence of obstetric complications such as premature delivery and pregnancy complications. and not being willing to cooperate with the project the participants were put away from the research. The study sample volume was determined through considering the confidence level of about 95% and the test power of 90% by making use of mean comparison formula in both of the communities and based on the results of the study conducted by Tusi et al with 45 individuals in each of the groups reaching to a total number of 90 individuals.

Data collection tools included a questionnaire consisted of three parts the first part of which was related to demographic information including inquiries about the mother's age, infant's sex, delivery type, pregnancy age based on the first day of the last menstrual cycle or sonography, husband's education, mother and spouse's employment statuses and accommodation status.

The second part of the questionnaire was perceived stress scale (PSS) by Kohen which was applied to assess the general perceived stress within the past month [18]. In the present study the 14-item version of the scale has been used with 7 negative items indicating the inability to cope with stress and 7 positive items indicating the individual's well-adaptation to the stressful factors. The mother's replies were scored based on Likert's 5-point scale starting with "never" (scored 0) to "most of the time" (scored 4) and the lowest score was 0 and the highest score was 56. Score 7 indicates a higher perceived stress. The questionnaire's validity was confirmed through content validity and the Persian version reliability was calculated by Bastani et al (2008) based on internal consistency method the Cronbach's alpha of which was obtained 0.74 [19].

The third part was parental expectation survey. The questionnaire contained 25 items which was scored based on Likert's point-scale (from "I can't"=1 to "I definitely can't"=10). The minimum score was 25 and the maximum obtainable score was 250. All of the items were positive [20]. The questionnaire's validity was investigated in Iran by Azmudeh et al (2014), both qualitatively and quantitatively, based on content validity method. In qualitative method, the scale was made available to the experts of the field after being translated and along with its original version. The corrective suggestions were taken into consideration. Moreover, content validity ratio and content validity index were computed for this questionnaire. According to the number of the experts' panel being 10 and considering the calculated measure being larger than 0.62 in the table the content validity was confirmed and a measure larger than 0.79 was used to confirm the content validity index. The instrument's reliability was calculated based on internal consistency method and the questionnaire's reliability was confirmed after it was implemented on 20 individuals and a Cronbach's alpha coefficient of 0.87 was obtained.

Bendura's self-efficacy theory was used in designing the scale and all of the items were positive and this is corresponding to what was put forth by Bendura who states that positive items should be used in assessing self-efficacy. So, all of the items were positive. After the necessary permits were acquired from research and technology vice and deputy Health vice Zahedan University of Medical sciences, the necessary coordination was made with the related centers to perform the sampling and hold interventional sessions in the selected health centers and the qualified women were selected by signing the testimonial form through conducting pretests and posttests and holding debriefing sessions giving details of the study objectives, methods and project implementation method. Due to the study follow-up nature, 2 telephone numbers and place of residence address were acquired of the participant mothers and they were told that they should be expecting a call after a 6-8 week waiting period in which they will be asked to take part in the study and that in case of no review, the researcher would refer to the acquired address. During the course of study, the control group received only routine pregnancy cares, but after undergoing an interventional pretest, the intervention group received individual trainings within 4 (90-minute) training sessions, two sessions a week and the intervention group participant mothers received a CD teaching attachment behaviors along with a checklist for recording the attachment behaviors on a daily basis during the last 6-12 weeks of pregnancy. After reading the books and articles, the attachment behaviors instructional material was prepared assisted by the supervising and counseling professors and faculty members' cooperation and an instructional CD was also given to the participants in order to make the instructional material more effective. The obtained results were analyzed by means of a statistical package, SPSS for windows, through undertaking Chi-Square and independent tests and Kolmogorov-Smirnov tests with a p-value of <0.05 which was considered to significant difference.

## Results

90 primiparous women (45 individuals as intervention group and 45 individuals as control group) participated in the study. The intervention group individuals' average age was  $24.62 \pm 3.29$  and control group individuals' average age was  $23.55 \pm 3.41$  ( $P > 0.17$ ), the pregnancy average age in intervention group women was  $26.00 \pm 2.16$  weeks and it was  $26.53 \pm 2.33$  weeks ( $P > 0.27$ ) in control group. No significant difference was observed in two intervention and control groups in terms of education level, job, spouse's job, delivery type and living environment ( $P > 0.50$ ).

**Table 1:** comparison of the frequency distribution of demographic characteristics of mothers of two experimental and control groups

Variable		Experimental	Control	P-value of chi-square test
		No. (%)	No. (%)	
Education level	Lower than diploma	4 (8.9)	12 (26.7)	.07
	Diploma	11 (24.4)	11 (24.4)	
	Higher than diploma	30 (66.7)	22 (48.9)	
Occupation	Household	38 (84.4)	36 (80)	.50
	Employed	7 (15.6)	9 (20)	
Spouse's job	Employed	18 (40)	17 (37.8)	.83
	Freelance	27 (60)	28 (62.2)	
Delivery type	Vaginal	26 (57.8)	32 (71.1)	.18
	Cesarean	19 (42.2)	13 (28.9)	
Living area	Personal	12 (26.7)	11 (24.4)	.80
	Leased	33 (73.3)	34 (57.6)	

The results of the present study regarding mothers' perceived stress indicated that the pregnant women's perceived stress in intervention group before and after being trained for attachment behaviors decreased from  $21.7 \pm 13.19$  to  $17.60 \pm 7.18$  and it was also reduced in control group from  $21.97 \pm 7.12$  to  $21.77 \pm 6.12$ . Also, the pregnant women's perceived stress scores variations mean in intervention group was  $-3.53 \pm 6.8$  and it was found  $-0.20 \pm 5.64$  in control group. Independent statistical tests indicated that pregnant women's perceived stress scores mean after being taught with attachment behaviors differed significantly in the two groups ( $P=0.004$ ). Also, scores variations mean in the two groups were significant ( $P=0.009$ ).

**Table 2:** Comparing the mean and standard deviation of the pregnant women's stress scores before and after being trained for attachment behaviors in intervention and control groups

Time / Group	Pre-intervention	Post-intervention	Variations	Pairwise t-tests
	Mean $\pm$ standard deviation	Mean $\pm$ standard deviation	Mean $\pm$ standard deviation	
Intervention	$21.13 \pm 7.19$	$17.60 \pm 7.18$	$-3.53 \pm 6.18$	t=3.83 df=44 p=0.0001
Control	$21.97 \pm 7.12$	$21.77 \pm 6.12$	$-0.20 \pm 5.64$	t=0.23 df=44 p=0.81
Independent t-test	t=3.56 df=88 p=0.57	t=2.96 df=88 p=0.004	t=2.67 df=88 p=0.009	

Based on Kolmogorov-Smirnov tests results ( $\text{sig}=0.2$ ,  $\text{statistic}=0.89$ ) and lewin ( $F=0.47$  and  $F=0.50$ ) indicated of the presuppositions related to approximate normality and consistency of the variances holding true, the necessary conditions for the use of covariance analysis test were available. The results of covariance analysis tests with controlling for pretest effect indicated that the women's perceived stress scores mean in both of the groups signifies a significant difference post-intervention ( $P=0.001$ ). This means teaching for attachment behaviors in both of the groups can give rise to a reduction in pregnant women's perceived stress scores mean. Also, the results of the present study regarding the attachment behaviors training effect on parental expectations indicated that the intervention group parental expectation score mean has increased from  $168.35 \pm 37.11$  before intervention to  $193.84 \pm 33.68$  post-intervention with a mean variation of  $25.48 \pm 26.29$ . Independent statistical tests indicated that both the women's parental expectation mean score differed significantly ( $P=0.002$ ) post attachment behaviors training. Furthermore, the variations mean scores were indicated of a significant difference in both of the groups ( $p=0.0001$ ). According to the results of Kolmogorov-Smirnov test results ( $\text{sig}=0.2$ ,  $\text{statistic}=0.089$ ) and Lewin ( $F=0.23$  and  $P=0.63$ ), indicating the approximate normality and consistency of the variances holding true, the necessary conditions for making use of covariance analysis was made available. The results of covariance analysis test with controlling for pretest effect showed that the women's parental expectation mean score in both of the groups was reflective of a significant difference post-intervention ( $P=0.0001$ ). Attachment behaviors training in intervention group succeeded in increasing the pregnant women's parental expectations mean score.

**Table 3:** comparing the mean and standard deviation of the women's parental expectations before and after training for attachment behaviors in intervention and control groups

Time Group	Pre-intervention	Post-intervention	Variations	Pairwise t-tests
	Mean $\pm$ standard deviation	Mean $\pm$ standard deviation	Mean $\pm$ standard deviation	
Intervention	168.35 $\pm$ 37.11	193.84 $\pm$ 33.68	25.48 $\pm$ 26.29	t=6.50 df=44 p=0.0001
Control	168.86 $\pm$ 33.59	170.86 $\pm$ 33.45	2.00 $\pm$ 3.49	t=0.44 df=44 p=0.6
Independent t-test	t=0.06 df=88 p=0.9	t=3.24 df=88 p=0.002	t=3.91 df=88 p=0.0001	

## Discussions

The findings of the present study indicated that the mothers' perceived stress scores has decreased post-training intervention and such a change in the amount of the mothers' perceived stress seems from the pregnancy period training effect because pregnancy period training can play a significant role in reducing the mental and anxiety disorders as well as enhancing the individuals' physical and mental health [22]. Nowadays, diverse interventions are taken to reduce stress by the nursing and midwifery cadre in the form of training programs and such training course are very effective in preventing from stress. Thus, counseling and training by the nursing and midwifery cadre is one of the interventions which has been proposed as a factor in preventing stress during pregnancy and that it can be a good guide to the mothers in terms of pregnancy hygiene. The findings obtained current study are coordination with the findings obtained by Abbasi, Tusi and Rafi'ee et al [21, 22&23]. It means that in many of the aforesaid studies such training interventions have caused an increase in the mothers' attachment and mental health and a reduction in anxiety and stress. In our study, as well, the perceived stress of the mothers has decreased post-training intervention and this is a result of increasing maternal-fetal attachment. This means increasing attachment leads to the creation of sincerity and pleasant emotions and stability which is very important in the mothers' perceived stress. According to the theories set forth by John Baulby being attached to an individual enhances the individual's mental security. Also, based on Sulcheny's ideas, the stress can be decreased when the attention is taken away and shifted from focusing on daily activities and problems and thinking about the fetus and performing attachment behaviors can provide for such conditions contributing to the mother's calmness. Therefore, performing such behaviors besides shifting the individual's concentration from worrisome problems towards focusing on the fetus is recounted as a excellent care the repetition of which on a daily basis causes the cessation of unwanted thoughts and reducing the autonomic system activities [23].

Also, the results of the study demonstrated that after the attachment behaviors being taught the rate of parental expectations score was increased which is corresponding to the results obtained by Azmudeh (2014) in a study titled "training for attachment behaviors can increase the maternal self-efficacy and competence feelings post-intervention".

According to the study by Perez-Blasco et al (2013), as well, training for exclusive mind techniques resulted in significant increase in maternal self-efficacy in intervention group breastfeeding mothers in contrast to the control group which also complies with our study. (24)

The findings of the present study contradict the findings by Sulonen et al (2011). In this study which has been conducted aiming at the evaluation of an internet-based training intervention effect on self-efficacy increase, the intervention group mothers had access to a training site with instructional contents regarding infants from their week 20 of pregnancy and the control group only received routine training, the self-efficacy and parental satisfaction in both of the groups underwent an increase 6-8 weeks postnatal in respect to pre-intervention but the two groups comparisons were not suggestive of a significant difference during this period [25].

In sum, the present study is suggestive of the idea that training for attachment behaviors is effective on the mothers' perceived stress reduction and parental expectations score increase. In such a manner that the application of such a method causes a reduction in the mothers' perceived stress level and an increase in parental expectations scores and in the meantime a considerable increase in maternal-fetal attachment. It seems that training for attachment behaviors can be used as an easy, non-expensive and noninvasive method to reduce the pregnancy stresses especially in primiparous women. Moreover, the pregnant women are encouraged to perform such behaviors and experience pregnancy and delivery with lower stress and anxiety and, in the meanwhile, the maternal competency is also enhanced via the increase in maternal-fetal attachment which will finally lead to an improvement in the attachment level and maternal-fetal relationship and elevation of the children's mental and physical health level and as a consequence the next generation's mental and physical health level can be improved.

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