Original Article

J Babol Univ Med Sci
21; 2019. P:78-84

Effect of Attachment Behaviors Training on Maternal Competence attainment in Nulliparous Adolescent Women

F. Jahdi (MSc)[1], A. Kaheh (MSc)[*2], H. Haghani (MSc)[3]

1.Nursing Care Research Center, School of Nursing and Midwifery, Iran University of Medical Sciences, Tehran, I.R.Iran

2.School of Nursing and Midwifery, Iran University of Medical Sciences, Tehran, I.R.Iran

3.Department of Biostatistics, School of Medical Management & Information, Tehran University of Medical Sciences, Tehran, I.R.Iran

J Babol Univ Med Sci; 21; 2019; PP: 78-84

Received: Sep 5th 2018, Revised: Dec 22th 2018, Accepted: Jan 12th 2019.

ABSTRACT

BACKGROUND AND OBJECTIVE: Adolescent pregnancy is a public health issue that requires knowledge, motivation, and skills, and the lack of it leads to a deficiency in mother competence. The aim of this study was to determine the effect of attachment behaviors training on maternal role competence in nulliparous adolescent women.

METHODS: This clinical trial study, was conducted on 73 nulliparous Adolescent women at 28-32 gestational age attending the Educational centers dependent on Iran University of Medical Sciences. They were randomly divided into intervention and control groups. Three sessions of group training were held for mothers of interventional groups regarding Fetal Attachment Behaviors (Including counting the movements of the fetus and registration it, imagining the appearance of the fetus, talking with the fetus, and etc.). The control group received usual care. The Parenting Sense of Competence Scale questionnaire (score range: 17-102) was completed and assessed before the intervention and 10 days after delivery.

FINDINGS: There was no statistically significant difference between the groups before the intervention in terms of the total score of Parenting Sense of Competence. 10 days after delivery, the mean score of maternal competence was 60.86 ±9.75 and 44.44±12.99 which was significantly higher compared to the control group ($p<0.001$).

CONCLUSION: The results of this study showed that attachment behaviors training is effective in obtaining the competence of adolescent mothers.

KEY WORDS: *Training, Maternal-fetal Attachment, Competence, Adolescent*.

Please cite this article as follows:

Jahdi F, Kaheh A, Haghani H. Effect of Attachment Behaviors Training on Maternal Competence attainment in Nulliparous Adolescent Women. J Babol Univ Med Sci. 2019;21:78-84.

[*]Corresonding Author: Z. Keshavarz (MD, PhD)
Address: School of Nursing and Midwifery, Iran University of Medical Sciences, Tehran, I.R.Iran.
Tel: +98 21 43651000
E-mail: kaheh58540@gmail.com

[DOR: 20.1001.1.15614107.1398.21.1.13.8]
[DOI: 10.22088/jbums.21.1.78]

Introduction

Adolescent pregnancy is a public health issue that affects adolescent mothers and community in the wider level (1). This era is the time of obtaining the reproductive acquisition, adolescents' emotional qualities, the acquisition of personal and social identity (2). If during the period when the adolescent identity is formed, the phenomenon of parental affairs can create a conflict in the formation of the identity of the teenager and cause his duality as he still needs to be self-asserting as a woman or mother (3).

Mothers should learn their new role, namely, motherhood. Some studies report the lack of knowledge necessary for child care in adolescent mothers (4). Mercer et al., stated the main components of maternal role are attachment to the infant by identifying the role, interaction with the infant, gaining competence in the mother's behaviors and expressing pleasure in the mother-infant interactions (5). In adolescents, the earliest emotional attachment before birth was reported to adults (6), so that adolescent mothers and their newborns generally have a lower level of secure attachment (7) and in comparison with adults' mothers often have less spoken interaction with their child (8). Mother and fetal attachment behaviors play an important role in accepting maternal identity, desired outcome of pregnancy, child growth and development (9), maternal and fetal health, and positive adaptation to maternal conception (10).

Worldwide studies and some studies in Iran have indicated the positive effects of interventions such as teaching attachment techniques and counting fetal movements, the effects of listening to music, the effects of massage at GB-21 and SP-6 compression points on mental stress and increased maternal and fetal attachment in general pregnancies, especially in nulliparous women (11-17). In study of Delavari et al., there was a significant relationship between maternal and fetal attachment, depression and social support (18). Educational interventions to reduce anxiety and increase social support can increase the attachment of mother and fetus (19).

Factors such as age, mother's confidence, education level, depression, number of pregnancies, perceived social support, anxiety, marital status, mother personality characteristics, labor experience, newborn's health status and social support, and family members and health workers have an impact on maternal competence (20). Deutsch and colleagues reported that women who were able to imagine a mother during pregnancy and had more maternal information before and after childbirth had better matching and maternal competencies (21). Lack of knowledge and education during pregnancy not only does not prepare to accept the role of the mother but can endanger the mother's and the infant's physical and mental condition (22). Focusing on prenatal education in adolescents may be helpful in increasing their awareness during pregnancy, childbirth and childbirth (22). Considering that a similar study in this field has not been found so far, this study was conducted to determine the effect of teaching attachment behaviors on maternal competence in nulliparous pregnant women.

Methods

This randomized clinical trial study was conducted after obtaining permission from the Ethics Committee of Iran University of Medical Sciences with code 1395.9311373023 and registered in a clinical trial system with IRCT20171026037022N03 code on 73 pregnant women referring to prenatal care clinics of selected university centers of Iran Medical Sciences. The follow up of people continued until ten days after childbirth.

Pregnant women aged 15-19 years, gestational age 28-32 weeks, single pregnancy, without abnormalities confirmed by ultrasound, having reading and writing skills, no physical and mental illness or history of mental illness and drug use in this regard, lack of drug addiction and smoking cessation were enrolled. In case of absence more than one training session, the occurrence of adverse events affecting maternal spirits, the death of the fetus or newborn, and the hospitalization of the newborn in the intensive care unit, participants were excluded from the study. Sample size based on the study of Nagi et al. with the standard deviation of maternal competence in the test and control group 4.5, 95% confidence level, 80% power test and assuming that the effect of teaching attachment behaviors on the maternal role of nulliparous adolescent mothers was at least d= 3, so that the effect of this training is statistically significant, it was calculated in each group 35, which according to 10% reduction, the number of final samples was determined 40 in each group (23).

The researcher by referring to the centers, firstly examined the available criteria for all pregnant women in the qualitative criteria, and, if qualified, informed

[DOR: 20.1001.1.15614107.1398.21.1.13.8]
[DOI: 10.22088/jbums.21.1.78]

written consent was obtained and the parental competence questionnaire was completed by the participants. Participants were randomly assigned by dual block method, so that they were first written on both cards in the form of numbers 1 and 2, then a qualified person was asked to choose a card from the two cards (test group number 1 And control group number 2) were divided into two groups of test and control.

Educational content includes the formation of maternal attachment behaviors to the fetus, the benefits and the time when attachment begins, and the practical implementation of the desired attachment behaviors (touching the fetus on the abdomen and guessing the position of its members, counting the fetal movement and recording it, relaxing the fetus by abdominal touch, imaginative appearance of the embryo in a positive way, talking to the fetus, naming the fetus with the nickname, looking at the abdomen, and paying attention to the movement of the fetus, imagination in hugging and breastfeeding ...).

Based on Cranelly's attachment tool (9), during three training sessions, in two groups of 13 and one group of 14 subjects 28-32 weeks pregnant for 90 minutes (45 minutes explaining the goals and content of the training with speech and slide, 30-minute question and answer and discussion, and ultimately the final 15 minutes, summary) held by the researcher in health centers. At the end of the training sessions, a booklet was given to the intervention group.

The contents of the training manual include: Anatomy and physiology changes during pregnancy, signs and symptoms of danger, nutrition, embryo development, how to shape the attachment behaviors of the mother to the fetus, the benefits and time to start attachment, familiarity with the process of delivery, post-natal care and lactation. Social-demographic characteristics questionnaire and parental competence questionnaire completed before intervention and ten days after delivery. This instrument, designed by Gibaud & Wallstone to measure parental authority in 1978, has 17 items that measure 2 sub-competence scales in the role of PSOC-E (PSOC-S) and parental satisfaction (PSOC-S). This instrument evaluates eight items of eligibility and nine items of satisfaction with the parent's role. Every item classified by the 6-point Likert scale from totally opposite (score 1) to the totally agree (score 6). The total score range is 17 to 102. The range of scores below the qualification criteria is 8 to 48, and further scores represent more qualifications in maternal roles (23). Validity of the questionnaire was determined by content validity method. The questionnaire was then translated into English by the ten faculty members of the Faculty of Nursing and Midwifery of Iran. After reviewing and considering the necessary amendments, the final instrument was used and reliability was confirmed by Kordi et al with Cronbach's alpha coefficient of 0.75 (24).

Data were analyzed using SPSS version 25 software. Independent T tests, Fisher's exact test, Chi-square test for the consistency of the groups, and independent t-test was used for comparing the mean of parental competence among the groups. $P<0.05$ was considered significant.

Results

Of the 80 eligible pregnant women, a total of 73 people tended to participate in this project, randomly, 37 in the test group (two participants were not willing to continue to cooperate in completing the questionnaires and one person was excluded due to the lack of participation in more than one session of the training classes) and 36 participants in the control group (two persons were excluded from the study due to lack of willingness to continue cooperation in completing the questionnaires and two patients due to hospitalization in the intensive care unit were excluded).

There was no significant difference between the two groups in terms of socio-demographic characteristics and the mean age of participants was 18.18±1.1. About half of the women had diploma education. The majority of women (88.9%) were housewives. Most pregnancies were requested (75.7%). Few women (11.1%) reported having very little support from others (Table 1). The mean of total maternal competency score before intervention in intervention group was (48.02±9.34) and in control group was (44.18±14.38), and there was no significant difference between groups ($p=0.179$). The mean score of maternal eligibility ten days after delivery in the intervention group was (60.86±9.75) and in the control group was (44.44±12.99) and compared with the control group, there was a significant increase ($p<0.001$) (Table 2). There was no statistically significant difference between the groups before the intervention in terms of the average score of maternal competence. Ten days after delivery, the mean scores of maternal competence in the intervention group compared to the control group showed a significant increase ($p<0.001$).

[DOR: 20.1001.1.15614107.1398.21.1.13.8]
[DOI: 10.22088/jbums.21.1.78]

Table 1. Individual and social characteristics of participants in intervention and control groups (73 persons)

Variables	Group	Experimental (n=37) N(%)	Control (n=36) N(%)	P-value
Age of mother	Under 18 years	7(18.9)	7(19.5)	t =0.022
	18 years	11(29.7)	12(33.3)	df =71
	19 years	19(51.4)	17(47.2)	p =0.983*
Mothers job	House wife	32(86.5)	32(88.9)	⁎⁎p>0.999
	Employed	5(13.5)	4(11.1)	
Educational level of mothers	Elementary	4(10.8)	7(19.4)	⁎⁎p=0.275
	School	5(13.5)	8(22.2)	
	High school	7(18.9)	9(25)	
	Diploma	16(43.2)	11(30.6)	
	university	5(13.5)	1(2.8)\	
Economic status	good	8(21.6)	10(27.7)	**p=0.755
	intermediate	24(64.9)	22(61.1)	
	bad	4(10.8)	2(5.6)	
	Very bad	1(2.7)	2(5.6)	
Tend to pregnancy	wanted	28(75.8)	24(66.7)	x^2=0.723
	unwanted	9(24.3)	12(33.3)	df =1
				***p=0.395

*** Independent t test ** Exact Fisher test. ***Chi square**

Table 2. Comparison of the mean score of competency of the maternal role of the participants in the two groups

Variable / Group	Intervention Mean±SD	Control Mean±SD	P-value	
Eligibility				
Before intervention	25.05±5.96	23.91±7.69	0.482	E.S=1.2 C.I:(0.7,1.7)
Ten days after childbirth	31.29±4.73	24.22±6.85	<0.001	
Satisfaction				
Before intervention	22.97±5.29	20.27±7.5	0.076	E.S=1.45 C.I: (0.93,1.96)
Ten days after childbirth	29.56±5.59	20.21±7.21	<0.001	
Total score				
Before intervention	48.02±9.34	44.18±14.38	0.179	E.S=1.43 C.I: (0.91, 1.94)
Ten days after childbirth	60.68±9.75	44.44± 12.99	<0.001	

Discussion

The findings of this study indicated that teaching attachment behaviors to nulliparous adolescent pregnant women has an impact on maternal competence, which is consistent with the results of other studies. The results of a study based on Bandura's self-efficacy theory showed that training resulted in a significant increase in maternal competency after 8 weeks of intervention in nulliparous women (20). The cognitive-social theory of Bandura refers to the self-esteem of individuals based on their ability to perform the behavior they are asked to address (25). In this regard, Mercer has expressed self-confidence as a maternal emotional component and believes that achieving maternal role is a cognitive-social learning process that starts from pregnancy and continues until 4 months postpartum (26). In another study, education has increased the competency of maternal roles (24). The results of the Jamshidbigi et al study also showed that maternal education increases the competency of maternal role 6 and 12 weeks postpartum (27). Chislett et al., in a study that examined the impact of the Canadian-based curriculum on education, found that 6 to 8 sessions of parenting education significantly increased the competence of parents immediately and two months after the intervention (28). The results of Ozkan et al study showed that the education and support of mothers in the early stages of pregnancy can lead to mothers' self-esteem along with maternal identity (29). However, the results of the study by Gao et al. indicated

[DOR: 20.1001.1.15614107.1398.21.1.13.8]
[DOI: 10.22088/jbums.21.1.78]

that the two 90-minute sessions of an interpersonal psychotherapy program and a telephone counseling session in the second week after childbirth had no impact on the competence of maternal role in the 6 weeks after delivery, whereas there was a significant difference in maternal competency score 3 months after delivery in the two groups (30).

These findings support Mecrer's viewpoint that both the time and experience are effective in increasing the competence of maternal role. The results of a study by Ngai et al. showed that education during pregnancy based on Rosenbaum's theory focusing on cognitive reconstruction, problem solving and self-efficacy, had no effect on maternal competency immediately and 6 weeks postpartum (23). The reason for the lack of coherence of these studies with the results of the present study is because of differences in the content, time and method of instruction. Based on the results of consistent and non-consistent studies, it can be concluded that the educational content, the tool and the time duration used in the training sessions are the variables that influence the results of the data. The strengths of this study were the existence of adolescent mothers and the comparison of control and intervention groups with the socio-economic context. As a result, their generalizability can be mentioned. Among the limitations of this study were personal characteristics and individual differences in mental states and learning power of research samples in responding to information gathering tools that the researcher tried to minimize by providing a booklet. The results of this study showed that the training of attachment behaviors is effective in gaining the competence of adolescent mothers. Given the low cost and easy implementation of educational interventions, teaching attachment behaviors should be an integral part of health services for pregnant women, and midwives should play a prominent role in encouraging pregnant women to participate in educational classes.

Acknowledgment

Hereby, we would like to thank the Vice-Chancellor for Research of Iran University of Medical Sciences for the financial support of this research and the sincere cooperation of the staff at the Lolagar, Akbar Abadi and Firoozgar hospitals in Tehran.

[DOR: 20.1001.1.15614107.1398.21.1.13.8]
[DOI: 10.22088/jbums.21.1.78]

References

1.Kalhor M, Aj N, Alipour M, Eghdam Poor F. Comparison of pregnancy and delivery outcomes in teenage mothers and primiparas referring to Kowsar Teaching Hospital in Qazvin in 2012-2013. RJMS 2015; 21(129): 27-38.

2.Danesh kajory M, Safavi SH, Syed fatemi N, Mohammadi R, Nissani Samani L. Women health in life cycle, Tehran: Noor Danesh Pub; 2009.p. 23.

3.Carvalho G, Merighi M, Jesus M. The experience of repeated fatherhood during adolescence. Midwifery. 2010; 26(4): 469-74.

4.Letourneau NL, Stewart MJ, Barnfather AK. Adolescent mothers: Support needs, resources, and support-education interventions. J Adolescent Health. 2004; 35(6): 509-25.

5.Mercer RT. The process of maternal role attainment over the first year. Nurs Res. 1985; 34(4):198-204.

6.Rowe HJ, Wynter KH, Steele A, Fisher JR, Quinlivan JA. The growth of maternal-fetal emotional attachment in pregnant adolescents: a prospective cohort study. J Pediatr Adolesc Gynecol. 2013; 26(6): 327-33.

7.Flaherty SC, Sadler LS. A review of attachment theory in the context of adolescent parenting. J Pediatr Health Care. 2011; 25(2): 114-21.

8.Castiglia PT. Adolescent mothers. J Pediatr Health Care. 1990; 4(5): 262-4. Available from: https://www.jpedhc.org/article/0891-5245(90)90111-I/fulltext

9.Jamshidimanesh M, Astaraki l, Behboodi Moghadam Z, Taghizadeh Z, Haghani H. Maternal-Fetal Attachment and its Associated Factors. Hayat. 2012; 18(5): 34-45.[In Persian]

10.Torshizi M. Different Dimensions of Maternal-Fetal Attachment Behaviors and Associated Factors in Pregnant Women Referred to Health Centers of Birjand, Iran 2012. Iran J Obstet Gynecol Infertil. 2013; 16(72): 13-21.

11.Marzouk T, Nabil H. Effect of a training program about maternal fetal attachment skills on prenatal attachment among primigravida women. IOSR J Nurs Health Sci. 2015; 4(1): 70-5.

12.Chang HC, Yu CH, Chen SY, Chen CH. The effects of music listening on psychosocial stress and maternal-fetal attachment during pregnancy. Complement Ther Med. 2015; 23(4): 509-15.

13.Sajjadi Anari S, Zahraka K, Mohsenzadeh F, Karamnia M, Shokoohi Yekta M, Alavinezhad S. Efficacy of maternal fetal attachment techniques on enhancing mother's attachment to the fetus. Dev Psychol. 2016; 12(47): 281-8.[In Persian]

14.Abasi E, Tafazoli M, Esmaeili H. The effect of foetal movement counting on primipara maternal fetal attachment. J Mazand Univ Med Sci. 2010; 20(77): 53-60.[In Persian]

15.Salehi K, Salehi Z, Shaali M. The effect of education of fetal movement counting on maternal-fetal attachment in the pregnant women: a randomized controlled clinical trial. Int J Pediatr. 2017; 5(4): 4699-4706.

16.Moradi Z, Akbarzadeh M, Moradi P, Toosi M, Hadianfard MJ. The effect of acupressure at GB-21 and SP-6 acupoints on anxiety level and maternal-fetal attachment in primiparous women: a randomized controlled clinical trial. Nurs Midwifery Stud. 2014; 3(3): e19948.

17.Rafiee B, Akbarzade M, Asadi N, Zare N. Comparison of attachment and relaxation training effects on anxiety in third trimester and postpartum depression among primipara women. Hayat. 2013; 19(1): 76-88. [In Persian]

18.Delavari M, Mirghafourvand M, Mohammad-Alizadeh-Charandabi S. The relationship of maternal-fetal attachment and depression with social support in pregnant women referring to health centers of Tabriz-Iran. J Matern Fetal Neonatal Med. 2018; 31(18): 2450-6.

19.Hopkins J, Miller JL, Butler K, Gibson L, Hedrick L, Boyle DA. The relation between social support, anxiety and distress symptoms and maternal fetal attachment. J Reprod Infant Psychol. 2018; 36(4): 381-92.

20.Azmoud Jerdovi E, Jaafarnejad F, Mazlom SR. Effect of self-efficacy-based training on maternal sense of competency of primiparous women in the infants care. Evidence Based Care J. 2014; 4(12): 7-14.[In Persian]

21.Deutsch FM, Ruble DN, Fleming A, Brooks-Gunn J, Stangor C. Information-seeking and maternal self-definition during the transition to motherhood. J Pers Soc Psychol. 1988;55(3):420-31.

[DOR: 20.1001.1.15614107.1398.21.1.13.8]
[DOI: 10.22088/jbums.21.1.78]

22.Skelton KE. Implementation and assessment of a teen focused prenatal education seminar. [MSc Thesis]. Montana: Montana State University; 2014.
23.Ngai FW, Chan SW. Stress, maternal role competence, and satisfaction among Chinese women in the perinatal period. Res Nurs Health. 2012; 35(1): 30-9.
24. Kordi M, Fasanghari M, Asgharipour N, Esmaily H. The effect of maternal role training program on role attainment and maternal role satisfaction in nulliparous women with unplanned pregnancy. J Educ Health Promot. 2017; 61(6): 113-5.
25.Bandura A. Self-efficacy: The Exercise of Control. NY: W.H. Freeman; 1997.
26.Mercer RT. Becoming a mother versusmaternal role attainment. J Nurs Scholarsh. 2004; 36(3): 226-32.
27.Jamshidbiki S. The effect of education on maternal role attainment and stress in the postpartum period among primiparous women[MSc Thesis]. Tehran University of Medical Sciences: Nursing and Midwifery School, 2014.
28.Chislett G, Kennett DJ. The Effects of the Nobody's perfect program on parenting pesourcefulness and competency. J Child Fam Stud. 2007; 16(4): 473-82.
29.Ozkan H, Polat S. Maternal identity development education on maternity role attainment and my baby perception of primiparas. Asian Nurs Res (Korean Soc Nurs Sci). 2011; 5(2): 108-17.
30.Gao Ling-ling, Chan SW, Sun K. Effects of an interpersonal-psychotherapy-oriented childbirth education programme for Chinese first-time childbearing women at 3-month follow up: randomised controlled trial. Int J Nurs Stud. 2012; 49(3): 274-81.

[DOR: 20.1001.1.15614107.1398.21.1.13.8]
[DOI: 10.22088/jbums.21.1.78]