

Effectiveness of Postpartum Homecare Program as a New Method on Mothers' Knowledge about the Health of the Mother and the Infant

Abstract

Background: Reduced maternal mortality due to pregnancy and delivery is one of the priorities of reproductive health programs of World Health Organization. Benefiting from appropriate social support, such as receiving homecare, has an important role in mothers' adaptation and health. Lack of access to comprehensive and desirable health services is the most important barrier to improvement of maternal health. In this study, the effect of postpartum homecare on mother's knowledge about maternal and child health is evaluated. **Materials and Methods:** This study was two-group field trial which was conducted in 2015 on 62 postpartum mothers who were selected randomly in Shahid Beheshti Hospital of Isfahan. Mothers and infants of the intervention (experimental) groups were first visited at the hospital and then received two visits at home. The control group received routine postpartum care. A researcher-designed questionnaire was used for data collection. Data analysis was conducted using SPSS18 and independent, paired *t*-test, and Chi-square tests. **Results:** Comparing the demographic characteristics between both groups revealed no significant difference. After the intervention mothers' knowledge about maternal ($t = 4.26$; $p < 0.001$) and child ($t = 3.19$; $p = 0.003$) health showed a significant difference between the intervention (experimental) and control groups. **Conclusions:** Performance of postpartum homecare as a new and useful method in the health system of Iran can increase mothers' knowledge about their own health and their children, enhance their ability to adapt with the postpartum period, and improve the health level of vulnerable populations.

Keywords: Child health, homecare, Iran, knowledge, maternal health, postpartum care

Introduction

Mothers are considered as the primary caregivers of the infants, and hence, all effective factors on mother's health would affect infant's and even the society's health.^[1] Therefore, one of the priorities of the reproductive health programs of the World Health Organization is to decrease the rate of mothers' mortality rate due to pregnancy and delivery.^[2] According to studies, inaccessibility to comprehensive and desirable health services is the most important obstacle to mothers' health improvement.^[3,4] World Health Organization has stated that, despite the fact that providing high-quality postpartum care could have an important role in decreasing mothers' and infants' mortality and morbidity rate, this part of care has been neglected compared to prenatal and delivery cares.^[5] Postpartum problems have a vicious cycle in a manner that depression and breastfeeding problems would lead to mother's exhaustion after delivery. So,

receiving postpartum services would affect mother's physical and social health and this, in turn, would be an effective factor on infant's health.^[6]

Providing postpartum services is one of the most critical factors in preventing adverse (undesirable) maternal and neonatal outcomes.^[7] Therefore, having appropriate social support for mothers, like the desirable performance of service providers, has an important role in mothers' adaptation and health.^[8] Society's supportive measures are among the effective factors on the health condition of the mother and the infant whose provision could be varied from providing home care to providing service at outpatient clinics.^[9] According to the definition by National Association for Homecare and Hospice, homecare is a targeted interaction, and efficient strategy at home or the place of residence to improve and maintain the health of individuals and families and its important

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characteristic is that the caregiver would visit the patient in her residential place.^[10] Postpartum homecare includes all the measures that would prevent problems, improve health, enhance the quality of maternal-neonatal relationship, and would help mothers to adjust to an anxious life and increase their ability to take care of themselves and their infants.^[11] Results of a recent study have shown that providing postpartum homecare is the best method for securing family's educational and supportive needs because during the first days of delivery, it would be problematic for families to commute from one place to another, and it is better to receive relevant care and services at home.^[12]

During recent years, the approach of the medical sector toward the early release of mothers and infants after delivery has revealed the importance and necessity of providing high-quality care by the health system, especially the midwives; the responsibility of the mothers' and infants' health has been transferred on the health care workers.^[13] Therefore, reduced duration of hospitalization and receiving medical care after delivery would make it necessary to develop follow-up programs for the postpartum period. However, studies have shown that verbal education that is provided to mothers in postpartum wards could not significantly increase the knowledge of mothers about themselves and their infants' health, by itself.^[14]

A study conducted among 23 patients with heart failure who were given nursing care for six months during four sessions at their home showed that homecare would improve the level of knowledge, diet and drug consumption, and control the symptoms of the disease; it would also increase the tolerance for the condition and behavior modification in such patients.^[15] In contrast, another study revealed that providing dental care and services at home and by telephone were more affordable and resulted in the prevention of tooth decay among children.^[16]

Results of a study showed that providing postpartum home care would have a positive effect on mothers' level of receipt and satisfaction with emotional, communicational, and educational services.^[17] This method also has a positive effect on mothers' performance in taking care of their infants.^[18] Home delivery is considered illegal in Iranian health system, and limited home care has been started in recent years. In this regard, few national studies have been found on this subject. Unfortunately, despite its importance, sufficient studies have not been conducted about the effect of postpartum care on mothers' knowledge about her and her children's health. Certainly, implementation of a new method of care such as postpartum home care in a country needs performing experimental research and should be supported by research.

One of the roles of midwives is to develop and update mothers' health knowledge. If the midwife could become a part of women's community and recognize the women's character, family, the perception of life and nature of

their surroundings, then he/she would be able to be more responsible toward them. Instead of waiting for the women to (visit the health care center) receive medical services, this program would present healthcare to caregivers in the small community of families. However, this society-based care could be provided at home and at some social medical centers too, therefore, if society-based care would be programmed appropriately, they could increase the access to health services and improve the grounds for increasing the power of choosing for a majority of women.^[19] One of the strategies to achieve the country's overall policy for increasing birth rate, is the improvement of postpartum maternal health and accelerating the recovery of the mothers to be prepared for next pregnancies,^[20] but many mothers would not visit the care centers during the postpartum period because of their very young children.^[5] The implementation of postpartum care at home is a way to increase the coverage of postpartum care. However, the execution of any new method in the health system requires support by clinical trials (experimentations). This study is the first step, but the implementation of this method still needs further studies. So, the aim of the present study was to evaluate the effect of postpartum home care as a modern method on the knowledge of mothers about themselves and their infants' health.

Materials and Methods

The present study was a two-group, four-stage, randomized controlled clinical (simple sampling, random allocation) study which was conducted for the first time among 62 mothers at the postpartum ward of Shahid Beheshti Hospital of Isfahan, Iran from May to August 2015. This study was registered at the Iranian Registry of Clinical Trials (IRCT) under the code IRCT2016121431416N1. To calculate the sample size following assumptions were made: Z_1 (95% confidence interval) = 1.96, Z_2 (80% test power) = 0.84, S = estimation of the standard deviation score for each variable and $d = 0.70S$. The calculated sample size was 64; 32 mothers in the control group and 32 mothers in the intervention group. The inclusion criteria were accessibility to the residence of the participants, providing written consent form, having a natural delivery with no complications, having a healthy norm neonate who does not require any special care, mothers' appropriate condition, appropriate families and houses for home care, and the presence of one of the family members during home visits. The exclusion criterion was the need for hospitalization of mothers and neonates. During the study, only one case was excluded due to the need for hospitalization of the infant.

Samples were selected through simple sampling method and then randomly assigned into two groups, so the selection bias in the sample selection has been resolved. To evaluate and compare mothers' knowledge about their own and their infants' health, a researcher-made questionnaire was used

which was designed using the postpartum questionnaire of Nutrition Service Branch and the 26-item World Health Organization Quality of Life-BREF. This questionnaire was Likert and multiple-choice type, which contained 15 questions about mothers' demographic characteristics, 16 questions on knowledge about mother's health, and five questions on knowledge about infant's health.

The questionnaire was completed at each of the home visits at the 1st to 3rd day, 10th to 15th day and 42nd to 60th day for both the intervention (experimental) and control groups. Each visit lasted about one hour and was conducted by at least two or three midwives with a master's degree. The content of postpartum visits included filing, reviewing the medical file and getting to know the mother's condition, taking the mother's and the infant's history according to the aims of the study, physical examination of the mother and the infant and evaluating mother's recovery to healthy condition during the postpartum period, prescribing nutritional supplements, providing education and consultation about postnatal care for the mother and the infant and consultation about healthy fertility, evaluating the mother's level of knowledge, evaluation of the place of residence, and providing necessary educations about the health of the mother and the infant based on their unique needs, for the mother and other family members. The method for performing postpartum exercises and breastfeeding were educated through simulation. To ensure mothers' learning, feedback of each training session was taken after the completion of the training process and during the next visits of mothers.

Thirty-two mothers were also randomly selected from the postpartum ward and assigned to the control groups and received the routine care and education of the postpartum ward about the correct method of breastfeeding and taking care of their stitches; then, the intended questionnaire was completed.

Maternity home visit that was performed for the first time had some difficulties. For example, it was challenging to convince mothers and their families to enter their homes. After gaining the trust of the mothers and their families, informed consent form was signed by the mothers. Further, the researchers coordinated their visits with the mothers and their families through phone calls before visiting their home. During visits to mothers' homes, recommendation letter and identification cards were shown to the participants and their family members, as well as letters from the research deputy of the university to gain their confidence. Participants' confidence was achieved through appropriate communication with them, and the effects of confounding variables were controlled so that they would not affect the results. On the other hand, these people were mostly healthy and lived with their family members so they were very calm, and the questions they were asked were common questions about postpartum problems; therefore,

they did not have any problems to be considered. Thus, any observer bias in the data collection process was controlled.

The validity of the researcher-made questionnaire was approved using face and content validation. Moreover, its reliability was approved through test-retest. After completion, for evaluation of internal consistency, Cronbach's α was used which was calculated to be 0.8 for all questions.

Data analysis was conducted using SPSS 18 (Inc. Chicago, IL, USA). For comparing demographic variables between the two groups, independent *t*-tests (Quantitative variables), Chi-square and Fisher's exact (nominal qualitative variables), and Mann-Whitney (rating variables) were used. Independent *t*-test was used to compare the mean score of mothers' knowledge before the intervention between the two groups and ANCOVA test was used for comparison of the mean score of mothers' knowledge after the intervention between the two groups. A *P* value of less than 0.05 was considered statistically significant.

Ethical considerations

Women were invited for enrolment in the study. They were fully informed regarding the procedures of the research project, and informed consent form was obtained from all. All provided services for protecting the health of the mothers and their children which were among the duties of the midwives were presented to the participants of the research by the researcher. If the mother or the child needed a referral to a specialist for higher level treatment, it would have been done by the researcher.

Results

The mean age of women in the intervention (experimental) and the control group were 29.45 and 29.69 years, respectively. The mean age of the husbands in the intervention group was 33.37 years and in the control group was 34.68 years. The mean duration of marriage in the intervention (experimental) and the control groups were 6.89 and 6.85 years, respectively. The mean of body mass index in the intervention and the control groups were 23.84 and 25.38, respectively. 93.50% of the participants in the intervention group and 100% in the control group were housewives. Also, 43.80% of the intervention group had a degree below high school diploma, 40.60% were high school graduates, and 15.60% had college degrees. In the control group, 64.50% had a degree below high school diploma, 25.80% were high school graduates, and 9.70% had college degrees.

Forty-one percent of the intervention (experimental) group and 47.60% of the control group had vaginal delivery; while 58.60% of the intervention (experimental) group and 52.40% of the control group had a caesarean section. Chi-square test showed that demographic characteristics had no significant difference between both groups.

Independent *t*-test showed that both groups were also homogenous regarding the age of the mothers, husbands' age, educational level, duration of the marriage, mothers' weight, mothers' height, body mass index, weight gain during pregnancy, number of children, and number of abortions [Table 1].

Independent *t*-test results showed that the difference in the mean scores of knowledge about mother's health ($p = 0.56$) and knowledge about the infant's health ($p = 0.82$) between both groups were not statistically significant before the intervention. However, after the intervention, ANCOVA showed that knowledge about mother's health ($p = 0.001$) and knowledge about infant's health ($p = 0.002$) had a significant difference between the intervention (experimental) and the control groups regarding the provided postpartum homecare [Table 2].

Discussion

Results of the present study showed that, after the intervention, knowledge about mother's health was significantly higher in the intervention (experimental) group who received postpartum homecare compared with the control group who received the routine postpartum care. Furthermore, results indicated a significant increase in the score of knowledge about infant's health in the intervention (experimental) group compared with the control group. Despite the current postpartum care in the health system, it seems that providing postpartum home care is necessary.

It appears that providing postpartum homecare would improve access to the services, reduce waiting lines and families' costs, and would provide a better opportunity for the family members to be educated and accompany the newly delivered mother.^[21] If executing this type of care would become a routine, the personnel of the health centers should be dedicated to this work so that this method would impose no additional costs on the individuals or the society.

Moreover, providing homecare would make it possible for the caregivers to present sufficient and comprehensive education, not just for the mother, but for all the family members if caregivers become familiar with their living environment and conditions and their specific needs. Through homecare, problems could be recognized at early stages and proper measures could be conducted for resolving them, so that future damages and consequently extra costs for the family would be prevented and eventually the mother and her family would be satisfied. A study showed that women who received regular midwifery services at home mentioned better quality and method of care compared with women who visited hospitals for receiving midwifery care. On an average, women expressed the quality of hospital care from sufficient to good and the quality of homecare from good to excellent (on Likert scale) and women who received home care had more satisfaction with the received care.^[22] Factors such as easy access, continuity of the services, presence, and efficiency could be effective on different aspects of quality and clients' satisfaction.^[23] As no research has been conducted on this topic in Iran (except for the current study) to discuss the similarities and differences, international studies on this subject have been implemented.

Results of a study similar to the present one indicated that postpartum homecare would increase mother's level of knowledge and mentality, and although the costs of homecare could seem more than the costs of health centers' services at first, in general, it could be a cost-effective measure.^[24] Also, one study showed that homecare would improve the quality of postpartum and neonatal care and decrease the rate of neonatal mortality; this would encourage the development and extension of creative programs for starting homecare from the first day at home.^[25] Therefore, programming to provide postpartum homecare seems necessary and effective. The general

Table 1: Comparing the demographic variables between the intervention and the control groups

| Variable | Intervention Mean (SD) | Control Mean (SD) | <i>p</i> |
|----------------------|------------------------|-------------------|----------|
| Age of women | 29.45 (5.99) | 29.69 (4.94) | 0.87 |
| Age of men | 33.37 (6.38) | 34.68 (5.52) | 0.39 |
| Duration of marriage | 6.89 (4.82) | 6.85 (3.56) | 0.98 |
| Number of children | 1.71 (0.90) | 1.90 (0.79) | 0.37 |
| Number of abortions | 0.06 (0.25) | 0.13 (0.34) | 0.39 |
| Maternal height | 160.41 (6.69) | 159.44 (8.02) | 0.69 |
| Maternal weight | 62.52 (11.23) | 61.18 (9.83) | 0.67 |
| Pregnancy Weight | 76.20 (11.71) | 74.66 (10.93) | 0.61 |
| BMI* | 23.84 (3.62) | 25.38 (4.35) | 0.28 |

*Body mass index

Table 2: Comparing the mean (SD) of the scores of knowledge about mother's and infant's health in the groups before and after the intervention

| Variable | Intervention group | Control group | ANCOVA | <i>p</i> |
|--|--------------------|---------------|---------|----------|
| Before the intervention | | | | |
| The score of knowledge about mother's health | 41.45 (11.22) | 39.78 (11.48) | - | 0.56 |
| The score of knowledge about infant's health | 78.58 (1.27) | 80.00 (20.66) | - | 0.82 |
| After the intervention | | | | |
| The score of knowledge about mother's health | 55.19 (10.43) | 42.15 (13.49) | F=16.24 | 0.001 |
| The score of knowledge about infant's health | 93.03 (10.63) | 78.06 (23.86) | F=10.36 | 0.002 |

belief in Iranian health system is that providing this type of postpartum service for mothers is difficult, whereas the present study proved that, through appropriate planning, this method could be conducted across the city of Isfahan, Iran. So, providing postpartum homecare could increase the knowledge of mothers about themselves and their infants' health and consequently improve their empowerment and level of health in two of the most vulnerable groups of the society. This subject has rarely been studied in Iran, and only one previous study was conducted on this matter; therefore, to execute this care method, more studies are required.

It was challenging to enter the homes of the participants, so the information of the control group was achieved at two phases through phone calls, which might have affected the quality of the data; which was a limitation of this study.

Conclusion

Postpartum care at home, as a new and useful method in the health system of Iran, could increase women's awareness of themselves and their children's health, enhance their ability to adapt with the postpartum period and improve the health level of vulnerable populations.

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Conflicts of interest

Nothing to declare.

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