

Relationship between infants' feeding pattern and mothers' physical and psychological health among the mothers covered by the health centers of Isfahan in 2013

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ABSTRACT

Background: Infants' feeding is one of the critical periods in women's health that can influence their life. The purpose of this study was to investigate the relationship between infants' feeding patterns and mothers' physical and psychological dimensions of quality of life.

Materials and Methods: In this cross-sectional study, 189 mothers were selected by convenience sampling ($n = 63$ in each group of infant feeding pattern) from Isfahan in 2013. Demographic and World Health Organization's WHOQOL-BREF Quality of Life questionnaires were completed. Data were analyzed by descriptive and inferential statistical methods through SPSS.

Results: There was no significant difference in demographic characteristics and the mean total score of quality of life between groups (breastfeeding = 85.7, formula = 83.9, and combination feeding of breast milk and formula = 82.1). Mean scores of physical dimension of quality of life were significantly different between groups (breastfeeding = 24.7, formula = 23.7, and combination feeding of breast milk and formula = 22.7). Mean scores of psychological dimension were not significantly different between groups (breastfeeding = 21.3, formula = 20.6, and combination feeding of breast milk and formula = 20.4).

Conclusions: The results of this study showed that mothers in breastfeeding group have higher score in quality of life and physical and psychological dimensions, compared to the other two groups. We can increase mothers' health and quality of life and the rate of breastfeeding with wide planning and supportive intervention by the families and society.

Key words: Infant feeding pattern, Iran, mothers, quality of life

INTRODUCTION

The word "woman" is the most beautiful word of creation and the most efficient factor in training and preservation of children's mental, psychological, and physical health in the society.^[1] A mother is the base of a family unit and her health is of great importance.^[2] Nowadays, multi-dimensions of health, or in other words, quality of life (QOL), is paid more attention in measurement of health.^[3] The definition of QOL in World Health

Organization's (WHO) includes an individual's perception of his/her position in life, and is formed through their culture and the value system in which they live, and according to their goals, expectations, communications, needs, and beliefs.^[4] QOL is a sense of well-being and is rooted from satisfaction or dissatisfaction with various life aspects, which are important to the individuals.

It includes health, occupational, socio-economic, and familial domains and plays a pivotal role in measurement of health care.^[5] Several biological, chemical, physiologic, and anatomical changes occur in women's body during pregnancy.^[6] These changes are out of their control and are considered as the first changes which make them psychologically and physically vulnerable.^[7] These changes can impair women's ability of playing their everyday role in life. In other words, pregnant women's physical, psychological, and social health, and generally, their QOL can vastly change during pregnancy.^[8] One of the most important events of women's life is their childbirth, which is accompanied by a high level of stress and anxiety. On the one hand, mother's anxiety inhibits secretion of oxytocin and leads to a reduction in breastfeeding.^[9] Women also

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experience numerous physiologic, mental, and social changes in the postpartum period and need more attention during this period.^[10] One of the most important issues in this period is breastfeeding that remains in mother's mind as a lifelong memory and experience and can be counted as an important point concerning her health.^[11] Feeding patterns in neonates' first year of life can be exclusive breastfeeding, exclusive formula feeding, and a combination of breast milk and formula.

Breastfeeding is a key issue in general health that has been known as a preferable method of feeding in neonates' first year of life. Research shows that breastfeeding increases life expectancy among women.^[12] WHO and American Pediatric Medicine Academy suggest exclusive breastfeeding as the best method to feed the neonates during their first 6 months of life, and then until 12 months of age. The goals of WHO for the year 2020 is to have 60% of neonates at 3 months of age and 25% of them at the age of 6 months exclusively breastfed, while the present statistics show 33% in the third month and 14% in the sixth month to be on breast milk.^[13] Although the rate of breastfeeding has increased, the level of exclusive breastfeeding up to the end of the sixth month of age is low and changeable. This rate is 19% in Qatar^[14] and 39.7% in Brazil.^[15] In Iran, it is 56.4% in Mashhad,^[16] 79.1% in Khoramabad,^[17] and 86.3% in Isfahan.^[18] Breast milk has psychosocial, cognitive, immunity, and nutritional benefits. Numerous studies have reported on the psychological, immunological, biomedical, economic, and nutritional benefits of breast milk in relation with maternal health.^[12] With regard to health issues and mothers' QOL, breastfeeding leads to loss of extra body weight in the postpartum period, increases uterine contraction to control uterus bleeding, modifies uterine return resulting from oxytocin secretion, lowers the risk of breast cancer and osteoporosis, and lowers the possibility of a further pregnancy. It also inhibits progression of endometriosis in breastfeeding women's uterus.^[19] Frequent touch of the neonate with the mother's body during breastfeeding brings about feeling of peace in mother and the satisfaction that results from this touch leads to mother's better psychological and emotional status. Breastfeeding results in stimulation of secretion of hormones such as oxytocin in mothers. This hormone has a positive effect on mother's mood in addition to stimulating milk production, and these mothers feel more secure and refreshed and are involved in depression to a lesser extent.^[20] On the other hand, breastfeeding is not a positive experience for some women and they may find it difficult, unpleasant, and disturbing. They may be physically and mentally tired of frequent breastfeeding of the neonate.^[21] Harris *et al.* stated that breastfeeding does not fit some women's postpartum image and they feel their self-confidence is disturbed; they are unable to lead

their life and so do not enjoy breastfeeding.^[22] Chen *et al.* showed that the mothers who breastfed for equal to or more than 6 months had a higher QOL score as well as a higher physical function and perception of general and mental health, compared to those who never breastfed.^[21] Zurbaran *et al.* showed that there was a significant association only in the social dimension of QOL in two groups of exclusive breastfeeding and the group of combined method, while there was no significant difference in other dimensions of QOL.^[23] Mothers are the basic element in a family unit and play a major role in training the children. Breastfeeding is a factor which may affect their health. Mothers have always been recommended to breastfeed, but their QOL in relation to the method of their infants' feeding has never been investigated in Iran. The present study aimed to investigate the relationship between infants' feeding patterns and physical and psychological dimensions of QOL among mothers.

MATERIALS AND METHODS

This is a cross-sectional correlational study conducted on 189 women with health documents who were selected through convenient sampling ($n = 63$ in each group of feeding pattern) from selected health care centers of Isfahan in 2013. Eight health care centers that had more maternal care records for infants less than 1 year old were selected. Sampling lasted for five straight months to select the adequate number of subjects. Inclusion criteria were age between 18 and 40 years, having a healthy infant of 3–12 months from a term, normal, and single-tone pregnancy, no history of long hospitalization, absence of mental and physical chronic problems, no addiction to drugs, no involvement in a heavy occupation, and having a stress score of less than 200. The subjects were divided into three groups of 63 subjects each with the feeding pattern of exclusive breastfeeding, exclusive formula, and combination feeding of breast milk and formula, respectively. After giving necessary explanations and obtaining a written consent from the qualified subjects, firstly, Holmes–Rahe life events questionnaire was completed and the subjects were enrolled into the study if they had gotten a stress score of less than 200. Then, personal characteristics and WHOQOL-BREF were filled through face-to-face interviews conducted by the researcher. The WHOQOL-BREF questionnaire includes 26 items on physical, psychological, social, life environment, and general domains, which are scored on a five-point Likert's scale. Higher scores show subjects' better condition. Its validity was established by WHO in 1996.

Its validity was checked by face and content validity. Its reliability was established by Cronbach's alpha ≥ 0.7 .^[24] The collected data were analyzed by Kruskal–Wallis, analysis

of variance (ANOVA), and Chi-square tests in SPSS, and $P < 0.05$ was considered significant.

RESULTS

Demographic characteristics of the subjects have been presented in Tables 1 and 2 (mothers' age, infants' age, number of pregnancies, number of deliveries, number of live children, number of miscarriages, infants' sex, type of delivery, occupation, education, and economic status). Mean total score of QOL and physical and psychological dimensions' scores have been presented in Table 3. Mean general scores of QOL in exclusive breastfeeding, exclusive formula, and combination groups were 85.7, 83.9, and 82.1, respectively, with a total score of 85.8.

Mean scores of QOL showed no significant difference in the three groups ($P = 0.25$). Mean QOL scores in physical health dimension in breastfeeding, formula, and combination groups were 24.7, 23.7, and 22.7, respectively. There was a significant difference in mean QOL scores in physical health dimension in the three groups ($P = 0.03$).

Mean QOL score in this dimension was significantly higher in breastfeeding group ($P = 0.007$), but in comparison with formula group ($P = 0.15$) and combination group, there was no significant difference in mean scores ($P = 0.2$). Mean QOL scores in psychological health domain were 21.3, 20.6, and 20.4 in breastfeeding, formula, and combination groups, respectively, and showed no significant difference ($P = 0.25$) [Table 3].

DISCUSSION

There was not significant differences in the three groups concerning demographic characteristics and the findings showed that mean total score of QOL was higher in breastfeeding group, compared to formula and combination methods. One-way ANOVA showed no significant difference in mean total score of QOL in the three groups ($P = 0.25$) [Table 3].

Nikpoor *et al.* reported subjects' total score of postpartum QOL as 77.18 and showed no significant difference between total scores of QOL and the type of delivery (mean score of 85.8 in

the present study vs. 77.18 in Nikpoor's study) ($P = 0.36$),^[25] which is consistent with our results. In the study of Chen *et al.*, mean scores of QOL were significantly higher in the mothers breastfeeding for 6 months or more compared to

Table 1: Mean characteristics of the three groups

Variable	Mean (SD)		
	Group of breastfeeding	Group of formula	Group of combination of breastfeeding and formula
Age of mothers (years)	5 (4.7) 0.29	28.4 (4)	28.9 (4.8)
Age of infants (months)	7.5 (2.9)	7.9 (2.8)	7.01 (2.9)
Gravidity	1.62 (0.7)	1.82 (1.26)	1.75 (0.9)
Parity	1.51 (0.7)	1.38 (0.6)	1.46 (0.64)
Abortion	0.11 (0.04)	0.44 (0.13)	0.3 (0.07)
Living children	1.49 (0.7)	1.35 (0.6)	1.43 (0.6)

SD: Standard deviation

Table 2: Distribution of individual characteristics in the three groups

Variable	Number (percent)		
	Group of breastfeeding	Group of formula	Group of combination of breastfeeding and formula
Type of delivery			
Normal	22 (34.9)	15 (23.8)	20 (31.7)
Cesarean	41 (65.1)	48 (76.2)	43 (68.3)
Sex			
Female	37 (58.7)	39 (61.9)	33 (52.4)
Male	26 (41.3)	24 (38.1)	30 (47.6)
Occupation			
Homemaker	58 (92.1)	56 (88.9)	50 (79.4)
Employer	5 (7.9)	7 (11)	13 (20.6)
Education			
Less than high school diploma	16 (25.4)	18 (28.6)	14 (22.3)
Diploma	22 (34.9)	15 (23.8)	21 (33.3)
College	25 (39.7)	30 (47.6)	28 (44.4)
Economic status			
Good	16 (25.4)	9 (14.3)	16 (25.4)
Moderate	44 (69.9)	49 (77.8)	41 (65.1)
Poor	3 (4.8)	5 (7.9)	6 (9.5)

Table 3: Physical and psychological health and quality of life scores of three groups

Quality of life and its domains	Mean (SD)			ANOVA test	
	Group of breastfeeding	Group of formula	Group of combination of breastfeeding and formula	F	P
Physical health	24.7 (3.6)	23.7 (4.1)	22.7 (4.1)	3.67	0.03
Psychological health	21.3 (3.2)	20.6 (3.7)	20.4 (4.1)	0.99	0.37
Total of quality of life	85.7 (10.6)	83.9 (12.2)	82.1 (13.1)	1.39	0.25

SD: Standard deviation, ANOVA: Analysis of variance

those breastfeeding for less than 6 months or those who never breastfed,^[14] which is not consistent with the present study. It seems that as in our study, most of the mothers in the formula group and combination group somehow breastfed their infants in the first and second months of infants' life (less than 3 months), and then started formula or combination method; so, it did not have a notable effect on total score of QOL. If another research is conducted with a different method and with a higher number of subjects, different results may be obtained. However, an absolute conclusion needs further studies in this context. The findings also showed that mean score of QOL in the dimension of physical health was higher in the breastfeeding group compared to combination group, and the subjects had a better physical health. One-way ANOVA showed a significant difference between mean scores of QOL in the physical dimension in the three groups ($P = 0.03$). Least significant difference (LSD) *post-hoc* test showed that mean QOL score in physical health dimension was significantly higher in the breastfeeding group compared to combination group ($P = 0.007$), but it showed no significant difference with the formula group ($P = 0.15$) or combination group ($P = 0.2$).

Consistent with these results, Chen *et al.* reported a significant difference in physical dimension and general health perception of QOL among the mothers who were breastfeeding for equal to or more than 6 months, compared to those who never breastfed, which means the score of physical function and general health perception was higher in those mothers, compared to those who never breastfed.^[21]

The number of physiologic deliveries was higher than cesarean sections (CS) in the breastfeeding group. All references in this context show that mothers' health and physical function is associated with their type of delivery and the mothers with a physiologic delivery have better physical health, which can be a reason for the above-obtained results. Islami *et al.* also showed that the mothers who had undergone CS were less successful in breastfeeding, compared to those with physiologic deliveries.^[26] Nikpoor *et al.* observed a significantly lower mean score of QOL in physical dimension in the CS group compared to physiologic delivery group ($P < 0.001$).^[25] In the present study that is consistent with the above-mentioned study, it was observed that the number of CS was notably, but not significantly, higher, and mean scores of QOL were lower. The results of Chen *et al.* and Nikpoor were consistent with the present study. It also seems that breastfeeding mothers may be supported better with regard to the type of nutrition and rest by their families, compared to other groups. Breastfeeding also leads to increased contractions of uterus to control uterine hemorrhage, rapid uterine return resulting from oxytocin release, and relief of mothers' minds about re-pregnancy at least in the first months after delivery, as well as fewer

hospitalizations of the neonates.^[23] Therefore, breastfeeding mothers were found to actually feel a better physical health, which can support the present study. Meanwhile, despite the observed significant difference between breastfeeding and combination groups in the present study, the difference in mean scores of physical health dimension of QOL was not significant in breastfeeding and formula groups.

Zoubaran *et al.* showed no significant difference in mean scores of physical dimension of QOL in breastfeeding and combination groups ($P > 0.05$). The results also showed that mean score of psychological health dimension of QOL was higher in breastfeeding group, compared to formula and combination groups, and the lowest score was for combination group. One-way ANOVA showed no significant difference in mean scores of psychological health dimension in the three groups ($P = 0.37$). Zoubaran *et al.* reported no significant difference in mean scores of psychological health dimension of QOL in breastfeeding and combination groups.^[23] These findings are in line with the present study. Meanwhile, Chen *et al.* reported a significant difference in mental and psychological health dimensions among the mothers who were breastfeeding for less than 1 month and those breastfeeding for equal to or more than 6 months ($P = 0.011$).^[21] There are several factors affecting women's mental and psychological health, especially in postpartum period. In the present study, although mean scores of psychological health were higher in breastfeeding group (21.3), compared to the other two groups, the difference was not significant. Research showed that breastfeeding was accompanied with a reduction in stress, depression, and negative mood, and the mothers who formula feed their infants may face regret, failure, and shame and find themselves guilty.^[27] Several subjects in the present study also indicated this issue. Therefore, the score of psychological health dimension is expected to be higher in the breastfeeding group. On the other hand, the results showed that the mothers found breastfeeding an unpleasant, difficult, and disturbing experience and thought that their self-confidence was impaired and they lost their control over their life, and consequently, did not enjoy breastfeeding.^[28] All these factors can threaten mothers' mental health. Further studies on psychological health and breastfeeding patterns are needed for a better and more evidence-based judgment.

CONCLUSION

The results obtained show that despite no significant difference in general QOL and psychological health between the groups (although there was a significant difference in the physical health dimension between breastfeeding and combination groups), breastfeeding group had a higher score in general QOL and the two dimensions of physical

and psychological dimensions of QOL, compared to other groups. Based on these results, the mothers may be encouraged about breastfeeding as it can not only improve the infants' life but also the mothers' health life. The insignificant differences, observed in most of the dimensions, may be due to the type of study and the number of the subjects. Further studies are needed to find the confounding factors in relation to mothers' breastfeeding and QOL.

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