

The Effectiveness of Antenatal Nursing Intervention on Initiation, Exclusivity, and Continuity of Breastfeeding

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ABSTRACT

The aim of this study was to determine the effectiveness of an educational breastfeeding intervention on initiation, continuation, and exclusivity of breastfeeding. In this experimental study 130 pregnant women who attended a primary health care center in Erbil city/Iraqi Kurdistan, between March 2018 and July 2018 were enrolled. They randomly allocated to either an experimental (n=65) or control (n=65) group. The participants assigned to the experimental group received two antenatal breastfeeding educational sessions. Outcome measurements (initiation, exclusivity, and continuation of breastfeeding) were assessed by a researcher, who was blind to groups' allocation.

The percentage of subjects in the experimental group who began breastfeeding within one hour after delivery was significantly higher in the experimental group (75.0% vs. 39.4%, in the control groups, P=.004). Two months after delivery, proportion of women who practiced exclusive breastfeeding were (67.7% in experimental group compared to 40.0% in the control groups, P=.082), and for continuity

of breastfeeding the majority of the subjects in the control (86.7%) and the experimental group (93.5%) were still breastfeeders (P=.425). An educational nursing intervention during the third trimester of pregnancy is an effective technique for increasing breastfeeding initiation, while it is less effective for breastfeeding exclusivity and continuation.

Keywords: breastfeeding; initiation; continuation; exclusivity; antenatal; nursing intervention

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INTRODUCTION

Breast milk feeding has always been an important nutritional practice for newborns, with comprehensive proof of short- and long-term health advantages for babies and mothers¹. Globally, only 44% of infants breastfed within the first hour after birth and 40% of all infants under 6 months exclusively breastfed. Also, at two years of age, 45% of children are still breastfeeding².

The prevalence of breastfeeding initiation and exclusivity is low in both developing and developed countries despite promoted interventions on breastfeeding during early infancy.³

A systematic review that was conducted to determine whether prenatal clinic- or hospital-based breastfeeding education increases breastfeeding initiation, duration, or exclusivity confirmed that antenatal intervention positively affected in terms of all three variable.⁴

Although, there is a lack of recent data on infant and young child feeding practices in Iraq, a presented report by International Baby Food Action Network (IBFAN) claimed low rates of early initiation of breastfeeding (43%), exclusive breastfeeding under 6 months (20%), breastfeeding at 2 years (23%) and high rates of bottle feeding (64%) in Iraq.⁵

The studies conducted in the Kurdistan region often are low quality and descriptive, exhibiting several design flaws; thus, they hold little value to international readers. This is the first study that has attempted to do an educational intervention in breastfeeding outcomes. Thus, in the present study, an educational breastfeeding program was examined for its effects on breastfeeding initiation, exclusivity, and continuation among a sample of Kurdish woman population. The presented hypothesis was that the women who participate in the educational course would begin breastfeeding earlier than those in the control group

and they would continue exclusive breastfeeding during the first 2 months after delivery.

METHODS

Study Design and Sampling

A randomized controlled trial was used in this study between October 2017 and July 2018. A total of 130 pregnant women at the third trimester of pregnancy who visited the antenatal care unit in a primary health care center (PHCC) in Erbil city/Iraqi Kurdistan were included in this study. The researcher screened 300 women for the eligible criteria. 130 of those women who met the eligibility criteria were recruited and assigned to either an experimental group (n=65) or a control group (n=65). The sample size was estimated made based on comparable study reports and available time for study. The randomization procedure was done by the research using a simple random assignment generated by Microsoft Excel 2013 (Microsoft Corp). Basic demographic information was controlled for the homogeneity.

Eligibility Criteria: The participants were Kurdish speakers, pregnant women who enrolled in the maternal care unit of the PHCC, exhibited a normal pregnancy without complications, expected to have a single birth, give birth vaginally a full-term normal newborn, and gave their consent to participate in the study. In addition, subjects who have an inverted nipple, intended to exclusively formula feeding, delivered an infant who was admitted to the neonatal intensive care unit (NICU), had a cesarean section, or not attended in both two educational sessions were excluded from the study (Figure 1).

Nursing Intervention and Procedure

An educational program was developed after reviewing the literature and standards of breastfeeding education. A breastfeeding booklet was designed in the local language by the researcher and was used for the facilitation of education. Interview and observational techniques were employed for the data gathering. The researcher reviewed the daily appointment schedule of pregnant women in the antenatal care unit in the PHCC and then determined eligible participants based on the selection criteria. The eligible mothers were interviewed and then verbal consent was obtained from all patients in both the experimental and control groups. Then they were randomly assigned to either the experimental group or the control group. The clients in the experimental group were given a summary of the study and its main objectives, while the patients in the control group were masked to the education implementation. It should be noted that the PHCC does not present formal antenatal educational services on breastfeeding to patients. The control group only received routine antenatal care. While participants in the experimental group in addition to the usual antenatal care received two breastfeeding education sessions for two-day intervals that each session lasting 60-90 minutes and a breastfeeding booklet (Figure 2). When a participant in both groups was in labor, a researcher, who was blind to groups' allocation went to the delivery rooms and postpartum units in Erbil Maternity Hospital to observe the breastfeeding initiation. Two months after delivery all mothers in both groups were again interviewed at the vaccination unit of the same PHCC for an evaluation of breastfeeding continuity and exclusivity by the same researcher.

Ethical Considerations

The protocol for the study was approved by the scientific and ethical committee of the College of Nursing/ Hawler Medical University. In addition, formal permission were granted by the hospital and health care center. Verbal consent was obtained from all study participants because they prefer not to sign a written consent, especially illiterate women. The study was done according to the principles of the Helsinki Declaration.

Statistical Analysis

The categorical and numerical characteristics of the mothers were presented via frequency (percentage) and mean (Standard Deviation). The homogeneity of the baseline information between the experimental and control groups was examined via a Pearson Chi-Square test or independent t-test. The difference in initiation, exclusivity, and continuity between the study groups was determined by Pearson Chi-square tests and an independent t-test. The null hypothesis was rejected with a P-value of less than 0.05. The Statistical Package for Social Sciences (SPSS version 25.00; IBM Corp; USA) was used for statistical calculations.

RESULTS

The study showed that the control and experimental groups within the study were comparable in age (26.80 vs. 26.38 years, $P=.724$), age at marriage (20.26 vs. 20.94 years, $P=.360$), years of education (7.58 vs. 8.25 years, $P=.472$), gestational age (33.94 vs. 33.97 weeks, $P=.948$), occupation (unemployed) 92.3% vs. 86.2%, $P=.258$), lactation history (45.6% vs. 42.6%, $P=.749$), Gravida, Para, and abortion

($P>.05$), the only major difference being the type of family (nuclear family 73.8% vs. extended family 56.9%, $P=.043$) (Table 1).

The percentage of subjects in the experimental group who began breastfeeding within one hour after delivery was significantly higher than the control group (75.0% vs. 39.4%, $P=.004$). While most of the subjects in the control group (60.6%) began breastfeeding one hour after delivery in comparison to the experimental group (25.0%), Two months post-delivery, the majority of subjects in both the control and experimental group were still breastfeeding (86.7%) and (93.5%) respectively; however, there was no statistically significant difference between them in breastfeeding continuity up to 2 months postpartum ($P=.425$). Furthermore, most of the women in the experimental group were exclusively breastfeeding (67.7% compared to 40.0% in the control group), while most of the control group were partially breastfeeding (46.7% compared to 25.8% in the experimental group). There was no significant difference in rates of exclusive breastfeeding ($P=.082$) (Table 2).

DISCUSSION

However many studies in different regions and countries were carried out to evaluate the effectiveness of the prenatal educational program on breastfeeding outcomes (initiation, exclusivity, and continuity). Most of the studies have examined only one or two of these parameters. But, the current study is one of the few types of research that have assessed these three variables.

With regards to the breastfeeding initiation, the result of this study agrees with an observational research was conducted in Spain to determine the impact of maternal education on early initiation of breastfeeding and its continuation during the first two months of the infant's life on primiparous women. Maternal education had a positive impact on breastfeeding initiation and maintenance⁴.

The results of our study are consistent with a study from Iran that compared the effect of breastfeeding promotion interventions on exclusive breastfeeding among two intervention groups (peer support group and health care provider's education group) and one control group. There were no significant differences in the duration of exclusive breastfeeding at 4 and 8 weeks among the 3 groups⁷. But Ansari (2014) concluded that breastfeeding education could increase the duration of exclusive breast milk feeding that was in contrast with the present study. Ansari utilized an integration method of peer education and professional education as intervention techniques⁸. It seems interventions that combine health professionals with peer education may appear to be effective in enhancing the exclusivity of breastfeeding.

A systematic search compared the effectiveness of individual and group antenatal professional education on breastfeeding exclusivity and duration. They found that only eight out of nineteen trials, supported the effectiveness of the antenatal education on exclusivity and duration of breastfeeding⁹. While an analysis of two Cochrane articles on which interventions affect breastfeeding outcomes does not show any important clinical consequences¹⁰.

These controversies regarding the effectiveness of the educational breastfeeding program can be interpreted that many of the existing studies were carried out with small

sample sizes and diverse interventions. They also depict various designs of studies in various settings. Additionally, the provider and type of interventions are varied. Therefore, reliability can be challenged. It is also essential to remember that some samples have been primiparous while others have been multiparous or mixed parity. The breastfeeding education implemented in the existing researches included a single method or a mixture of methods and was administered alone or with support. Besides, these differing results may be due to cultural differences.¹¹

The greatest rates of early initiation, exclusivity, and continuity occurred when a combination of counseling and education was provided, and health systems, home and family, and community environments were simultaneously involved.¹²

A recent meta-analysis identified smoking, mode of delivery, parity, separation of dyad, mother educational level, and mother breastfeeding education as associated factors with initiation and continuation of breastfeeding¹³.

Education and support are the most effective technique that impacted on breastfeeding rate, exclusive breastfeeding, and breastfeeding duration¹⁴.

Interventions should be provided in a combination of environments through the simultaneous involvement of health systems, home and family, and community environment to promote the greatest effect on breastfeeding initiation, exclusivity, and continued rates¹².

A multi-level approach is required for efficient intervention strategies. A socio-ecological view emphasizes that individual knowledge, behavior, and attitudes are formed by communications between the individual woman, her friends and family, and her wider historical, social, political, economic, institutional, and community contexts, and consequently effective breastfeeding interventions must represent all of these elements¹⁵.

CONCLUSIONS

An educational nursing intervention during pregnancy was found to be effective in increasing the initiation of BF. While it had minor efficacy on continuity and exclusivity, but the higher rates of breastfeeding continuation and exclusivity were still observed after the intervention.

CONFLICTS OF INTEREST

The authors declare no conflict of interest.

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AUTHORS' CONTRIBUTIONS

Safiya Sabri Piro: Concept, design, review, assessment, data collection, and analysis of results.

Hamdia Mirkhan Ahmed: Concept, design, supervision, and analysis of results.

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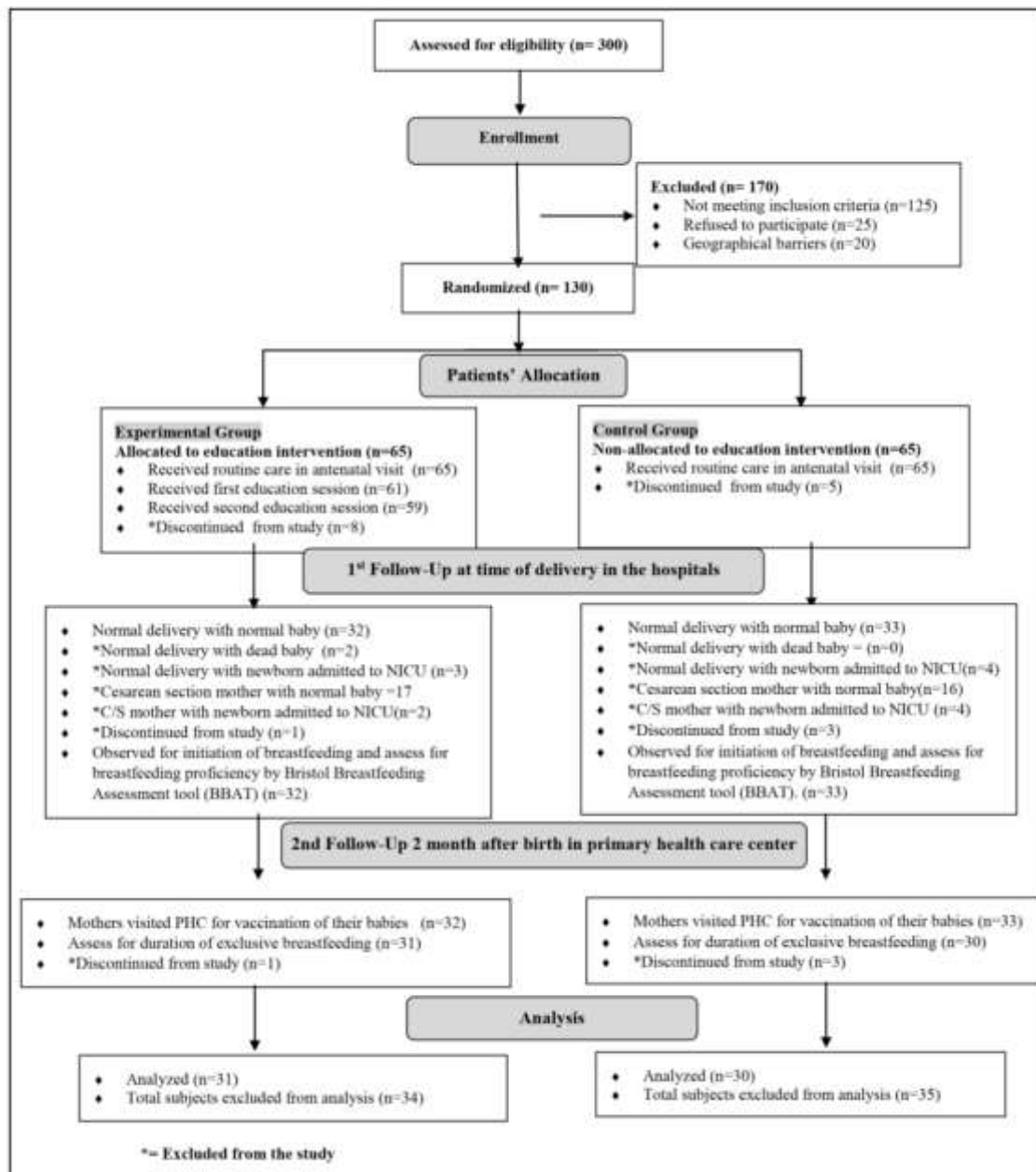


Figure 1: Enrollment, Allocation, Follow-Up patients in the study

Control Group
1-Antenatal routine care: Routine antenatal checking of maternal and fetal health by either nurse or obstetricians. General health advices as required. Health educational classes. General encouragement to breastfeed after delivery at vaccination unit. Educational pamphlet developed sometimes by students of college of nursing. 2- General encouragement to breastfeed at postpartum unit in hospital by nurse and students of college of nursing.
Experimental Group
1- Antenatal routine care (Mentioned above) 2- Two breastfeeding education sessions (each session lasted for 60-90 minutes) included: Benefits of exclusive breastfeeding for infant and mother exclusive breastfeeding Benefits of skin-to-skin contact Common position of breastfeeding Baby attachment to the breast Signs of effective sucking Methods of milk expression Successful breastfeeding tips Common problems of breastfeeding and how to overcome 3- A ten to fifteen minutes question and answer session 4- A breast feeding booklet in Kurdish language distributed 5- Showing videos as supplementary educational materials 6- Optional phone counseling if some participants in needed. 7- General encouragement to breastfeed at postpartum unit in hospital by nurse and students of college of nursing.

Figure 2: Components of the antenatal routine care and breastfeeding education program

Table 1: Comparison of baseline information between the experimental and control groups

Subjects' Characteristics (N=130)	Control (n=65)	Experimental (n=65)	P-Value (Two-Sided)
Age (Years)	26.80 (6.60)	26.38 (6.80)	.724**
Age at marriage (Years)	20.26 (4.07)	20.94 (4.32)	.360**
Education (Years)	7.58 (5.38)	8.25 (5.08)	.472**
Gestational Age (weeks)	33.94 (2.62)	33.97 (2.78)	.948**
Occupation			
Employed	5 (7.7)	9 (13.8)	.258*
Unemployed	60 (92.3)	56 (86.2)	
Family Type			
Nuclear	48 (73.8)	37 (56.9)	.043*
Extended	17 (26.2)	28 (43.1)	
GPA			
Gravida			
Primigravida	31 (47.7)	35 (53.8)	.483*
Multigravida	34 (52.3)	30 (46.2)	
Para			
Primiparous	36 (55.4)	40 (61.5)	.477*
Multiparous	29 (44.6)	25 (35.8)	
Abortion			
Non-Aborted	50 (76.9)	54 (83.1)	.380*
Aborted	15 (23.1)	11 (16.9)	
Lactation histroy	26 (45.6)	23 (42.6)	.749*

*Chi-Squared and ** independent t-tests were performed for statistical analyses.

Table 2: Mother's breastfeeding initiation, continuity and exclusivity status in experimental and control groups

Items	Control (n=33)	Intervention (n=32)	Value (two-sided)
Breastfeeding initiation; f (%)			.004*
Within first hour of birth	13 (39.4)	24 (75.0)	
After first hour of birth	20 (60.6)	8 (25.0)	
BF status at 2 months postpartum; f (%)	Control (n=30)	Intervention (n=31)	Value (two-sided)
Continuation of breastfeeding			.425**
Yes	26 (86.7)	29 (93.5)	
No	4 (13.3)	2 (6.5)	
Feeding status of the baby			.082**
Exclusively breast milk feeding	12 (40.0)	21 (67.7)	
Partially breast milk feeding	14 (46.7)	8 (25.8)	
Exclusively formula feeding	4 (13.3)	2 (6.5)	

*Pearson Chi-Square and **Fishers' Exact tests were performed for statistical analyses.