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Research Article

Does Telephone Counselling Promote Breast Feeding Duration in Taiwan?

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Abstract

Background: In Taiwan, actual breastfeeding rates fall short of 6 months recommendation duration. 60.2% of infants are breastfed at 1 month, decreasing to 47.3% by 4 months and 37.9% by 6 months. The study aimed to evaluate the effectiveness of telephone-based counselling in encouraging mothers' breastfeeding duration at least 3 months in Taiwan. Methods: A quasi-experimental design using pre- and post-tests with intervention and control groups was selected for the study. A total 79 mothers were invited to participate randomized into either experimental group (n=40) or control group (n=39). Both groups received usual care during hospitalization but the experimental group received a scheduled telephone interviews after discharge from hospitals. Both groups will have a pre-test before discharge from hospital, a post-test at 1 month, 2 months, and 3 months. Breastfeeding Self-Efficacy Scale (BSES) were used to measure breastfeeding confidence. Results: The repeat measures ANOVA revealed no interaction effect for time by group (F (3, 44) = .71, p=.55). Similarly, there was no significant main effect for time (F (3,44) = .20, p=.90) or for group (F (1,22) = .27, p=.60). The only predictor and positive related to higher scores in BSES was the length of previous breastfeeding (P<.005). Conclusion: Although not a statistically significant difference, there are 23 out of 40 mothers in experimental group still having breastfeeding compared to 1 out of 39 mothers in control group in the third month.

Keywords: Breastfeeding; Breastfeeding Self-Efficacy Scale; Self-Efficacy

Introduction

Background and Significance

Breastfeeding has been strongly endorsed as optimal way to nourish and nurture infant, with the recommendations that optimal infants exclusively are breastfed for approximately 6 months of age and partial breastfeeding until infants are at least 2 years of age for optimal child health [1, 2]. For the initial six months of life, breastfeeding provides better health for both infants and mothers by preventing disease and promoting health [3, 4]. World Health Organization and [5] established 10steps of the Baby-Friendly Hospital Initiation, which ensure health professional to provide adequate breastfeeding support to the mothers and infants before discharge. Despite the implementation of the Baby-Friendly Hospital Initiation in hospitals since 2001 in Taiwan, unfortunately, a national survey conducted in 2004 showed that

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actual breastfeeding rates fall short of recommendation duration for six months. In Taiwan, the prevalence of exclusive breastfeeding at 1 month postpartum was 60.2%, decreasing to 47.3% by 4 months and 37.9% by 6 months [6].

The studies had shown that breastfeeding support and education offered by health professional could increase the duration of breastfeeding [7-10]. Several studies of telephonebased breastfeeding support by health professionals have provided equivocal results [10-17]. Simmonetti, et al. tested the effectiveness of a structured telephonic counseling on exclusive breastfeeding [16]. Their study found that the experimental group had higher exclusive breastfeeding rate compared with control group. Fallon, et al. examined the influence of telephone-based support on breastfeeding duration [12]. Their conclusion provided evidence for a beneficial effect of professional support on breastfeeding duration to 4.5 weeks postpartum. Tahir & Al-Sadat [17] had similar results. However, Bunik et al. [11] found that two weeks of daily telephone support did not increase breastfeeding duration but was associated with a decrease in sick visits in the first month.

Most studies about breastfeeding intervention had been conducted outside Taiwan, and a gap in knowledge exists about the effectiveness of postnatal telephone-based breastfeeding support within Taiwanese context. The effectiveness of this support is particularly important to consider because the telephone could be an efficient, accessible, and low-cost way of delivering education and providing support to breastfeeding mothers. The telephonebased interventional could also reduce geographic and physical barriers. Thus, mothers with a ban of doing a month at home in Chinese culture in the early phase of the postnatal period may be better served by telephone support. The main purpose of the research was to evaluate the effectiveness of telephone-based breastfeeding support and education intervention in encouraging mothers' breastfeeding duration at least 3 months in Taiwan.

Study Methods

Research Designs

A quasi-experimental design using pre- and post-tests with intervention and control groups was selected for the study. 80 participants was invited to participate and were randomly assigned, by drawing numbers, into either the experimental or control groups The experimental group received usual care during hospitalization and a scheduled telephone interviews after discharge from hospitals in order to increase breastfeeding duration and the control group received only usual care during hospitalization. Both groups had a pre-test before discharge from hospital. Then, after discharge from hospital, both groups had a post-test at 1 month, 2 months, and 3 months.

Research Hypotheses

Consistent with the Aims of this Study, the Following Hypotheses are:

- 1. The women who participate in a telephone-based intervention have longer breastfeeding duration when compared to the women in a usual care-based approach.
- 2. The women who participate in a telephone-based intervention have higher breast-feeding self-efficacy than women in a control group
- 3. Are there relationships between demographic variables and Breastfeeding Self-Efficacy Scale (BSES)?

Sample

Based on the previously similar studies, in this study, a total 80 were invited to participate. All participants were recruited from a hospital in Southern Taiwan. In Taiwan, under the national

health insurances, mothers with normal spontaneous delivery could stay at hospital at least 3 days and 5 days for mothers with cesarean section. All potential participants were identified on the postpartum ward. Eligible participants were all in-hospital breastfeeding mothers and were required to be 18 years of age or older due to Taiwanese law regarding adult status. Further requirement for participation in this study included ability to understand and communicate in spoken and read Mandarin. Each mother must have full-term gestation and have a singleton birth, and both primiparas and mutiparas. Mothers were excluded if they have serious medical conditions which could interfere with the initiation breastfeeding. Also, mothers were excluded if their infants are admitted to a neonatal intensive care unit, were born prior to 37 weeks' gestation, weighted less than 2500 gram at birth or had a bilirubin level above 15 mg/dl.

Instruments

The demographic variables comprised the factors identified from previous studies as those that could influence breastfeeding duration. These were age, working plans postpartum, gestational age, previous breastfeeding experiences, length of previous breastfeeding, and plan to breastfeeding, and intention to breastfeeding till 6 months.

Intention to breastfeeding for 6 months, developed by Wilhelm, Stepans, Hertzog, Rodehorst, & Gardner [18], was a single item: "To what degree do you intend to breastfeed for 6 months?". The item was scored with a 7-point Likert scale ranging from 1=extremely unlikely to 7= extremely likely, This item was developed for the purpose of the study based on [28] guidelines for measuring the strength of intention [18,19].

The Breastfeeding Self-Efficacy Scale (BSES), developed by [20], is a 33items, self-reported instrument developed to measure breastfeeding confidence. It contains two subscales: Technique, which deals with physical tasks of breastfeeding, and Intrapersonal Thoughts, which deals with the mother's attitudes and beliefs about breastfeeding. All items are preceded by the phrase "I can always" and are anchored by a 5-point Likert scale where 1= not at all confident and 5= always confident. As recommend by [21], all items are presented positively and scores are summed with a possible range of 33-165, with higher scores indicating higher levels of breastfeeding self-efficacy. An internal consistency reliability estimate of Cronbach's alpha coefficient for the scale was .96 [20]. The Breastfeeding Self-Efficacy Scale (BSES) was translated into Mandarin by Dai & Dennis [27] and the psychometric assessment method used to validate the translated Chinese version. The Cronbach's alpha coefficient for the Chinese version BSES was 0.93 and .97 for this study sample for the total BSES score.

Procedure

Permission to conduct the research was obtained from the hospitals where the study was to be conducted. Once ethical approval and study authorization by the participating hospitals, potential participants were recruited into the study. Potential participants were identified by the researchers at 3 to 5 days postpartum and approached to further assess eligibility and provide study explanation. Participants were explained that data was collected by the research team over 3 months. Data were collected by a researcher: before discharge from the hospital, at 1, 2 and 3 months postpartum. If the mothers were no longer to breastfed, we assessed the timing and reasons for stopping. Participants were requested to complete the demographic information sheet, and BSES on the first occasion to set as baseline, and BSES at the three remaining data collection period. The participants were spend 10 minutes to complete the questionnaires. The same data collection process was used for both group.

Intervention

The intervention consisted of phone calls by trained nurses, who were provided the script developed with national breastfeeding authorities and hospital breastfeeding guideline, starting on the day of discharges. In the first month as doing a month in Chinese culture, the frequency of phone calls was at least once per week and mothers were encouraged to call when necessary the trained nurses to solve any breastfeeding problems. The phone call timing was planned in accord by both the mothers and trained nurses. The initial contents of the each phone interview were mainly directed by mothers' response to their immediate difficulties. If the difficulties were reported, the nurses attempted to solve the difficulties over the phone, or provide home visits if mothers lived with 30 km of the hospitals. Moreover, in each call, mothers were given the reminders about the breastfeeding issues such as breast milk supply and demand, breast and nipple care, handling breast swelling, diet, pumping and milk storage, growth spurts and cluster feeding, and return to work. In the second and third month, some mothers had to return to work. The contents of calls were mainly focus on pumping milk and storage at workplace and gave more breastfeeding support to mothers. Before termination of the call, mothers were again asked if they had any more questions. It was expected that each mother will received 12 telephone counselling by the end of the study. When mother decided to stop breastfeeding, the contact was discontinued.

Ethical considerations

Ethical approvals to conduct this study were obtained from the Institutional Review Board from study hospital in Southern Taiwan. The main ethical considerations are confidentiality. It is important to ensure that each questionnaire would be identified by a number only. Mothers were assured that all information provided would be kept in strict confidence in a locked filing cabinet during the study period and would be held for five years, after which the data would be destroyed. Data were secured on a password-protected computer file with access available only to the researcher. Full assurances were provided to all participants that all information collected were confidential and would be not disclosed to anyone other than the researcher. Mothers were also advised that no information about the project would be published in any form that would allow any individual or hospital to be recognized. The researchers approached all eligible participants and explained the purpose of the study, data collection methods, and confidentiality issues. All participants were informed that they had the right to withdraw from undertaking the study at any time without comment or penalty. The participants were informed that no personal data would be requested that would identify them; they were assured that participation in the study would not impact on their future care.

Data analysis

Several types of statistical analyses were performed to determine the relationship between the variables. The Statistical Package for the Social Science (SPSS) version 25 was used to analyze the data. An alpha level of .05 was used to test for the significance of statistical difference. For this study, means and standard deviations was used to summarize the scores for each scale and subscales. Alpha coefficients for all scales was calculated to determine the reliability of the scales. Repeated measures analysis of variance was used to determine the effectiveness of the intervention on breastfeeding duration.

Results

Sample characteristics

The total valid study sample was 79 mothers. Thirty-nine mothers in the control group and forty mothers in the experimental group. One mother who did not complete the questionnaires at the first data collection time; as complete data sets were not available for her; her data was not included in the analysis. The mean age of the mother in the experiential group was 30.85 (SD=4.61), range from 19 to 41 years; in the control group the mean age was 31.33 (SD=5.12), ranging from 20 to 43 year. There was no significant difference in age between the two groups (t (79) = .44, p=.66). Intention to breastfeeding for 6 months was scored with a 6-point Likert scale ranging from 1= extremely unlikely to 6= extremely likely. The mothers in the experiential group had mean scores of 5.05 (SD=1.36) and those in the control group had mean scores of 5.03 (SD= 1.13), indicating that the majority of mothers had intention to breastfeeding for 6 months. The majority of mothers were married (95%), natural spontaneous delivery (53%), family support for breastfeeding (95%), plan for breastfeeding (94%), did not attend prenatal preparation class (77%), and did not have

breastfeeding experience (58%).

Breastfeeding Self-Efficacy Scale

In order to check differences between the experiential group and control group at time 1, a t-test was conducted. The data revealed that there was no statistically significant difference at Time 1 between the two groups (t (77) = -1.09, p=.28). To test the hypotheses that the women who participate in a breast-feeding self-efficacy approach have longer breastfeeding duration and have higher breast-feeding self-efficacy when compared to the women in a usual care-based approach, a repeated measures analysis of variance was conducted for the Breastfeeding Self-Efficacy Scale (BSES). Group was the between-subject factor and time of test was the within-subject factor (after delivery prior to discharge from the hospital, postpartum 1 month, 2 months and 3 months). Table 1 shows the mean BSES scores for the experimental group and control group at the four data points. At the four data points, the mean BSES scores for control group were 116.5 (SD=26.8), 116 (SD=27.3), 121.4 (SD=38.1), and 112; the mean BSES scores for experimental group were 124.5 (SD=36.5), 124.8 (SD=36.1), 136.3 (SD=28.3), and 153.4 (SD=24). The data revealed that women in both groups had higher levels of breastfeeding selfefficacy.

| | Experimental Group | | | Control group | | |
|--------------------|--------------------|------|----|-------------------|------|----|
| | Mean ^a | SD | N | Mean ^a | SD | Ν |
| After delivery | 124.5 | 36.5 | 40 | 116.5 | 26.8 | 39 |
| Postpartum 1 month | 124.8 | 36.1 | 40 | 116 | 27.3 | 39 |
| Postpartum 2 month | 136.3 | 28.3 | 37 | 121.4 | 38.1 | 14 |
| Postpartum 3 month | 153.4 | 24 | 23 | 112 | | 1 |

 Table 1: Mean BSES scores for experimental group and control group.

The repeat measures ANOVA revealed no interaction effect for time by group (F (3,44) = .71, p=.55). A graph of the interaction is showed in Figure 1. Similarly, there was no significant main effect for time (F (3,44) = .20, p=.90)



Figure 1: Graph of Interaction of Breastfeeding Self-Efficacy or for group (F (1,22) = .27, p=.60). These results revealed that mothers' breastfeeding confidence did not differ between the two groups of mothers. In addition, there was no change in breastfeeding self-efficacy following the completion of phone intervention. Therefore, the hypothesis that mother who received breastfeeding self-efficacy approach would have longer breastfeeding duration and higher breastfeeding self-efficacy than mothers who received the usual care was not supported.

Correlation Between Demographic Variables and Breastfeeding Self-Efficacy Scale (BSES)

Analyses of correlation coefficients were conducted to investigate the potential relationships between the demographic variables as independent variables and Breastfeeding Self-Efficacy Scale as dependent variables. Pearson product moment correlations were used to analyze the relationship between the continuous independent variables, such as age, intention to breastfeeding to 6 months, length of previous breastfeeding and gestational age, with the continuous dependent variables of Breastfeeding Self-Efficacy Scale. The BSES was found to have a low, positive but significant correlation with length of previous breastfeeding (Table 2). The results indicated that women with longer previous breastfeeding time have higher breastfeeding self-efficacy.

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| | Breastfeeding Self- Efficacy Scale |
|--|---------------------------------------|
| Age | -0.08 |
| Intention to breastfeeding till 6 months | 0.22 |
| Length of previous breastfeeding | .31* |
| gestational age | -0.05 |
| *p<.05 level | |

 Table 2: Correlation between Demographic variables and
 Breastfeeding Self-Efficacy Scale.

T-test were calculate to determine the relationships between the categorical independent variables, such as working plan postpartum, previous experience of breastfeeding and plan to breastfeeding. The results indicated that BSES had no significant relation with any dichotomous demographic variables (Table 3).

| | t | р |
|--------------------------------------|-------|------|
| Working plan postpartum | 1 | 0.33 |
| Previous experience of breastfeeding | -1.33 | 0.19 |
| Plan to breastfeeding | -0.17 | 0.87 |

 Table 3: Correlation between Demographic variables and
 Breastfeeding Self-Efficacy Scale.

In order to explore which demographic factors were predictive of mothers' breastfeeding self-efficacy, standard multiple regression were performed. In the multiple regression on the breastfeeding self-efficacy scale, all the predictor variables account for 25% of the variance (R=.50, F7, 79= 2.48, P=.03). The only independent variables that contributed significantly to the prediction of breastfeeding self-efficacy was the length of previous breastfeeding (P<.005). The model indicates that mothers with longer previous breastfeeding time had more breastfeeding self-efficacy (Table 4).

| | В | Std. Error | β | t | |
|---------------------------------------|--------|------------|-------|------|--|
| Age | -0.23 | 0.98 | -0.04 | 0.81 | |
| Gestational age | -0.9 | 0.97 | -0.15 | 0.36 | |
| Working plans postpartum | 1.02 | 3.21 | 0.04 | 0.75 | |
| Previous breastfeeding experience | -12.7 | 9.78 | -0.21 | 0.2 | |
| Length of previous breastfeeding | 2.64 | 0.87 | 0.48 | .00* | |
| Plan to breastfeed | -12.31 | 29.29 | -0.05 | 0.68 | |
| Intention to breastfeed till 6 months | 4.14 | 2.95 | 0.18 | 0.17 | |
| *p<.005 | | | | | |

 Table 4: Standard Multiple Regression on Breastfeeding Self-Efficacy Scale (BSES).

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Discussion and Conclusion

Contrary to the hypotheses, mothers in the experimental group did not have higher breastfeeding self-efficacy and longer breastfeeding duration than mothers in the control group. This finding had confirmed the study by [11] but contrasted with the results of Tahir & Al-Sadat [17]. There are several possibilities that could explain why mothers did not change as expected. Firstly, the major reason for not continue to breastfeeding is returning to work. Returning to work are the most vulnerable for terminating breastfeeding [22]. reported that women are more likely to stop breastfeeding if they were working compared with women who were. Not employed. In Chinese culture, doing a month is an important part at postpartum. For the women, during this month, they can stay home and give breastfeeding and pumping breast milk in order to restore. After 42 working days, they have to return to work. Occupation type, time constraints with pumping at work, overall support level within the work environment, inconvenience for family [18] could influence pumping breast milk in the workplace. Also, after women returned to the work, the infant often is taken care by grandparents in Taiwan. The grandparents often feel the process of dealing with frozen breast milk is so inconvenience. They believe that using formula milk can quickly calm with baby crying and keep infant quiet longer than breast milk. That is probably the number of breastfeeding is decrease. The data revealed that there are 37/40 and 23/40 mothers in experimental group still having breastfeeding compared to 13/39 and 1/39 mothers in control group at 2 months and 3months postpartum. Although in the current study it cannot determined that whether there is a causal relationship between returning to work and weaning, the data suggest that return to work decrease the number of breastfeeding. Clearly, postpartum employment information beyond return to work dates is needed. In future study, it may be worthwhile to stratify group assignment based on mothers' employment status so that the effect of the intervention can be interpreted with less ambiguity.

Intended duration was not a predictor of actual duration either 1 or 3 months postpartum. This differs from previous research which was identified intended duration of breastfeeding as a predictor of actual duration [23-26]. However, intention and actual situation such as returning to work postpartum could be conflict. The best description for career mother is that the spirit is willing, but the flesh is weak. Mothers in this study with long length of previous breastfeeding experience was the only predictor and positive related to higher scores in BSES. Mothers with previous breastfeeding experience have expected well skills of breastfeeding and pumping milk and knowledge about the advantage of breast milk. This indicates that a greater effect can be reached by including significant other in the education of breastfeeding as well as by offering peer group support.

Breastfeeding is high value but using self-report questionnaires and telephone interviews rather than direct observation may have increased the potential for social desirability bias and mother may have underreported the use of formula milk. Also, participant mothers in the study were given birth from Baby-Friendly Hospital and they may affect or gather additional support from health care providers rather than from the research team. Problems associated with conducting research are evidence in the sample, such as small sample size. Consequently, generalizability of the findings is limited. In conclusion, considering most of women do not continue to breastfed because of returning to work. Health care policy makers or companies need to be reconsidered friendly working place for mother to pump milk. The results of the present research affirm the beneficial role of high selfefficacy in successful breastfeeding. A self- efficacy approaches to breastfeeding not only has the potential to improve the quality of care but also increase new mothers' confidence in her ability to breastfed. Future research is needed to evaluate the confidencebuilding strategies to determine if breastfeeding self-efficacy can be enhanced to alter breastfeeding outcomes and whether these study findings can be generalizing to other population.

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