Research Article

THE FREQUENCY OF BREASTFEEDING BY THE MOTHERS OF SURI TOWN DEPENDS ON THEIR EDUCATION LEVEL, NUTRITIONAL STATUS AND POST-PARTUM DEPRESSION

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ABSTRACT

Introduction: Breastfeeding is very important for baby after delivery. Lactation helps a baby to grow healthfully. Numerous factors have been reported to influence lactation such as age, parity, BMI, educational level, number of family members and postpartum depression. We carried out this prospective study to determine factors affecting the frequency of breastfeeding in a sample of mothers in Suri Sadar Hospital. **Materials and Method:** The research study was done in August 2019 in suri. A total 38 mothers who gave birth and stayed in hospital for postpartum service. Factors affecting the frequency of breastfeeding were analyzed. This survey was performed using some anthropometric measurement, questionaries' and Edinburgh Postnatal Depression scale (EPDS). **Result:** Result shows that most of the mothers belong to the normal and underweight BMI group. Most of the (39.4%) mothers' education are at secondary level and most of them belong to a family with 5-7 family members. We found that frequency of breastfeeding increases with BMI but decreases with increasing educational qualification and postpartum depression score. **Conclusion:** As a result of our study, BMI, education and Postpartum depression are the determining factor that affect frequency of breastfeeding. But age and parity have no effect on frequency of breastfeeding in this study. So maternal nutrition and mental health is much more important for breastfeeding frequency.

KEYWORDS: Frequency of breastfeeding, Socioeconomic status, BMI, Post-partum depression.

INTRODUCTION

During pregnancy the body of a woman goes through various anatomical and physiological changes to provide suitable environment for fetal development, to adapt to the increased metabolic demand and to prepare for the child birth. Physiological changes occur mainly in the uterus, fallopian tube, ovary and in the mammary glands. In uterus, enormous growth occurs during pregnancy. At term, weight of uterus is 900-1000gm and measure 35cm in length whereas weight about 50gm and length is 7.5cm in the non-pregnant state. Changes occur in all parts of uterus-body, isthmus and cervix. Total length of fallopian tube is increased. Tube becomes congested. Muscles undergo hypertrophy. In ovary, the growth and function of corpus luteum reaches its maximum at 8 weeks. It measures about 2.5cm and become cystic. Some hematological changes occur during pregnancy. Due to increased vascularity of the enlarging uterus, blood volume is markedly raised. The blood volume starts to increase from about 6th week, expands rapidly thereafter to maximum 40-50% above the nonpregnant level at 30-32 weeks. Plasma volume starts to increase by 6 weeks. The most suitable indicator of nutritional status of an adult is the Body Mass Index (BMI). This anthropometric indicator derived from measures of the weight and height of individual, is consistently and highly corelated with body weight. Low pre pregnancy BMI is considered a marker for minimal nutrient reserves, fetal growth restriction and adverse pregnancy outcome. BMI below 19.5kg/m² of a mother is good predictor of low birth weight babies and has significant association with birth weight, length, head circumference, arm circumference and chest circumference of the newborn. The 2002 DRI for pregnant women recommends an additional 25g/day to meet the protein needs of pregnancy. ICMR Nutrition Expert Group.[1] recommended an extra allowance of 20gm per day, an extra allowance of 500-600mg/day for calcium., an additional allowance of 10mg/day for iron, an additional allowance of 50-200 microgram of free folic acid and 0.5microgram of vitamin B12, 250 micrograms of Iodine are recommended per day.

In all age categories, the higher the parity the higher the level of under nutrition.[2]

Postpartum depression is a mode disorder that can affect women after childbirth. Mother with postpartum depression experience feelings of extreme sadness anxiety and exhaustion.

The American Psychiatric Association in the 2013 diagnostic and statistical manual of mental disorder (DSM-V), amended the name of this condition to peripartum depression and stipulates that the onset of mood disturbance can occur in pregnancy or within four weeks of childbirth.

The idea that PPD is a special form of depression is implicit in then development of Edinburg Postpartum Depression Scale (EPDS).[3] Economic, social and biological factors, obstetrical history, lifestyle, history of mental illness is identified as risk factors for PPD.[4]

Exclusive breast feeding (EBF) in the first six months of life is very important for the health of both the mother and their infants.[5] EBF reduces morbidity and mortality of the infants in the first year of life. Breast feeding is also important for building a strong biological and emotional foundation for the infant's health and wellbeing, as well as that of their mother. EBF decreases the risk of obesity in childhood.[6] It is recommended that breast feeding be initiated within 30-60 minutes after birth to promote successful breastfeeding.[7] Stress or anxiety may decrease production and milk ejection reflex. Poor nutrition of the mother may affect production of breast milk. Various factors play a main role in the duration of EBF, most important of which include twin pregnancies, mother's perception of insufficient breast milk, short maternity leave, using a pacifier for the infant, infant's irritability, birth place and having full time job [8]. Nutritional counselling is an evidence of parental care for all women during pregnancy. Diet and lifestyle are important determinants of both mother and offspring, since the pre pregnancy period. Even in the most industrialized countries, specifically dietary intake in pregnancy and lactation are often inadequate. In the Italian population, this applies to DHA, iron iodine, calcium, folic acid and vitamin.[9]

Studies in Assam regarding the association between the nutritional status of pregnant women and their socioeconomic status indicate that there is a high level of undernutrition among pregnant women in low socioeconomic group. It is also reported that several socioeconomic factor such as age of mother, occupation of husband, type of family, size of family and age of last child are significantly corelated with undernutrition.[10] Other study shown that low socioeconomic status, lack inadequate information on nutritive components of these food items (like, dislike, harmful, allergic), forgetfulness and lack of husband support are among the factors that hindering their practice of adequate diet intake.[11] Similar results were observed in a study in low level of education of both women and their spouses and poverty were associated with poor nutritional status, especially

for those from the rural area in Bangladesh.[12] The use of occupation and household income in addition to education improves the description of socioeconomic inequalities in diet and health related factors.[13] Economic, social, biological factors, obstetrical history, lifestyle and history o mental illness are identified as risk factors of PPD.[4] Studies showed that poor women experienced more food insecurity compared to higher income group. So, the prevalence of PPD in developed countries (high income) is found almost 13% and the prevalence of PPD is found greater in developing countries.[14] Studies have also indicated that food insecurity leads to maternal stress during pregnancy, and food insecure pregnant mothers worry about having enough food for themselves and their child.[15] Stressful life even put women at risk for PPD.[16] A study in Iran found that mothers with poor economic satisfaction were mere depressed. The history of pregnancy loss and pregnancy complications were another risk factor for PPD.[17] It was found in a study that economic strata and social conditions do affect the level of depression among women belonging to different SES.[18] Fowles et al. 2011 concluded that psychosocial dis stress and poor eating habits contributed to inadequate dietary quality. Thus, various studies have been carried out all over the world with respect to the impact of the nutritional, socioeconomic and emotional factors on the breastfeeding by the mother. The present study was undertaken to identify the maternal factors associated with the frequency of breastfeeding during the neonatal period in Suri, a district town of West Bengal.

METHODS AND MATERIALS

Subjects
Newly delivered mother admitted in postnatal word of the department of Gynecology and Obstetrics of Suri Sadar Hospital were considered for the study. Women with history of antidepressant use, stressful life events, consumption of alcohols, cigarette smoking, drug abuse were excluded.

Methods
Basic information about their daily dietary intake, source of income and other information related to pregnancy were collected from mothers. Edinburgh Postpartum Depression Scale (EPDS), pre translated and validated in Bengali languages was administered for the assessment of Postpartum Depression. Various instruments those were used the study were Anthropometric rod, Weight machine, Socioeconomic status (SES).

A pretested interview schedule was used for collection of general information of the subjects. The SES of the subjects was measured using the updated Kuppuswamy scale (Ref) which is based on monthly family income, spouse education and spouse occupation. Structured questionnaires were used to collect information on socioeconomic characteristics of the subjects. Frequency of daily breastfeeding were recorded for three

consecutive days for each subject and the average is taken.

Post-partum depression was evaluated using Edinburgh Postpartum Depression Scale (EPDS)

Statistical analysis
Descriptive statistics such as mean, standard deviation (SD) and standard error of mean (SEM) were computed for the sociodemographic and anthropometric data of the subjects. The relationship between maternal factors and frequency of daily breastfeeding were calculated using Pearson's correlation coefficients. Multivariate regression analysis was used to examine the association between and frequency of daily breastfeeding and SES, maternal weight, family size and parity. The statistical analyses were performed using Minitab software.

RESULTS

The anthropometric and other characteristic of the subjects are summarized in table 1. The mean age, height, weight and parity of the mothers were found to be 21.6 Yrs., 1.55 m, 46 kg and 1.8 respectively.

Table 1: General characteristics of the subjects.

Variable	Mean	SE Mean	StDev
Present Age (Yrs.)	21.63	0.69	4.2
Mother's height (mt.)	1.55	0.02	0.12
Mother's weight (kg)	46.00	1.20	7.37
Parity	1.78	0.13	0.81

The maternal BMI were estimated and is presented in Table 2. Almost half the subjects were under weight as is reflected from their BMI value.

Table 2: Nutritional status of the subjects according to BMI.

BMI range	N(%)
Underweight	18(47.4)
Normal	18 (47.4)
Overweight	2(5.2)
Total	38(100)

The distribution of the mothers according their parity is presented in table 3. Majority of the mothers were primiparaous.

Table 3: Description of the parity of the subjects.

Parity	N (%)
1	17(44.7)
2	12(31.6)
3	9(23.7)
Total	38(100)

Distribution of the subjects according to their family members is shown in table 4. Almost half of the subjects were found to have 5 to 7 members in their families.

Table 4: Description of the no. of family members of the subjects.

No. of family members	N (%)
2-4	17(44.7)
5-7	18(47.4)
>7	3(7.9)
Total	38(100)

Distribution of the subjects according to their educational qualification is presented in table 5. Most of the mothers were educated up to secondary level of education, although 18 % of the subjects were illiterate. Only 8% of the subjects were educated up to the higher secondary level.

Table 5: Education level of the subjects.

Mothers level of Education	N(%)
Illiterate	7(18.4)
Pre-primary level	2(5.26)
Primary level	11(28.9)
Secondary level	15(39.4)
Higher secondary level	3(7.9)
Total	38(100)

The maternal factors related to frequency of breastfeeding (time/ day) were estimated using Pearson's correlation coefficients (Table 6). Maternal BMI, Education and postpartum depression are found to be significantly correlated to frequency of breastfeeding. Poor maternal nutritional status or BMI are associated with poor lactation performance (lower frequency of breastfeeding).

Table 6: Pearson's correlation coefficient between no. of times breastfed per day and other maternal factors.

Pearson's correlation coefficient	Mothers age	Mothers BMI	Parity of mother	Mothers years of education	Postpartum depression score (EPDS)	No. of family members
no. of times breastfed/day	0.231	**0.681**	-0.066	**-0.774**	**-0.862**	0.006
p value	0.162(NS)	**0.01***	0.694(NS)	**0.01***	**0.001****	0.972(NS)

* Significant at p<0.05 level, ** significant at p<0.01 level

The relationship between EPDS score and no of breastfeeding time are expressed as scattered plot in figure 1. The regression line in the figure suggest that the frequency of breastfeeding is higher among the subjects with lower EPDS score (that is with lesser or no depression), but the frequency of breastfeeding is low among the mothers with higher EPDS score (indicating presence of post-partum depression).
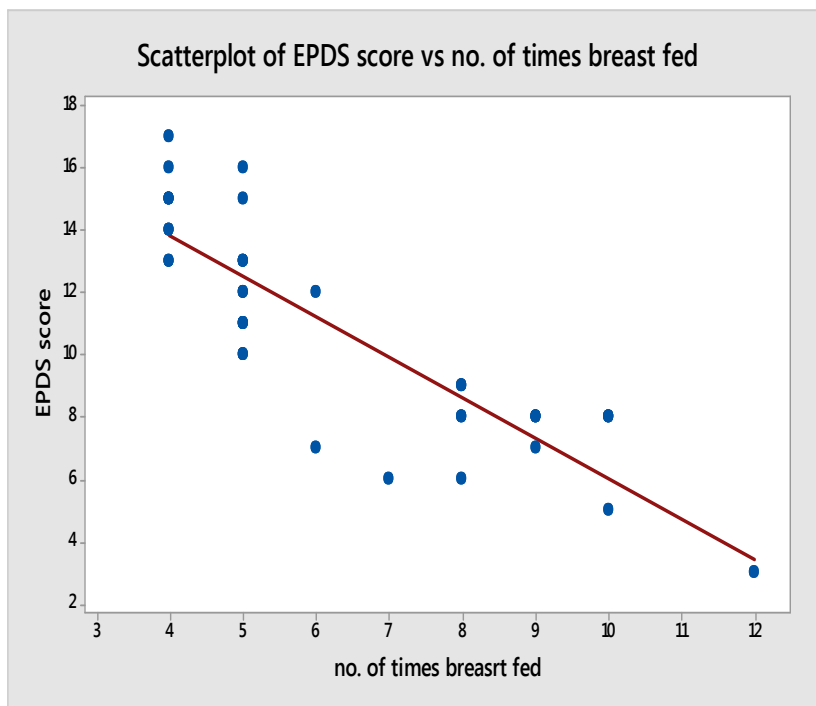

Fig. 1: Scattered plot of EPDS score versus no. of breastfeeding time.

The relationship between frequency of breastfeeding score and BMI are expressed as scatter plot in figure 2. The frequency of breastfeeding is found to be increased with an increase in the mothers BMI within the normal range.
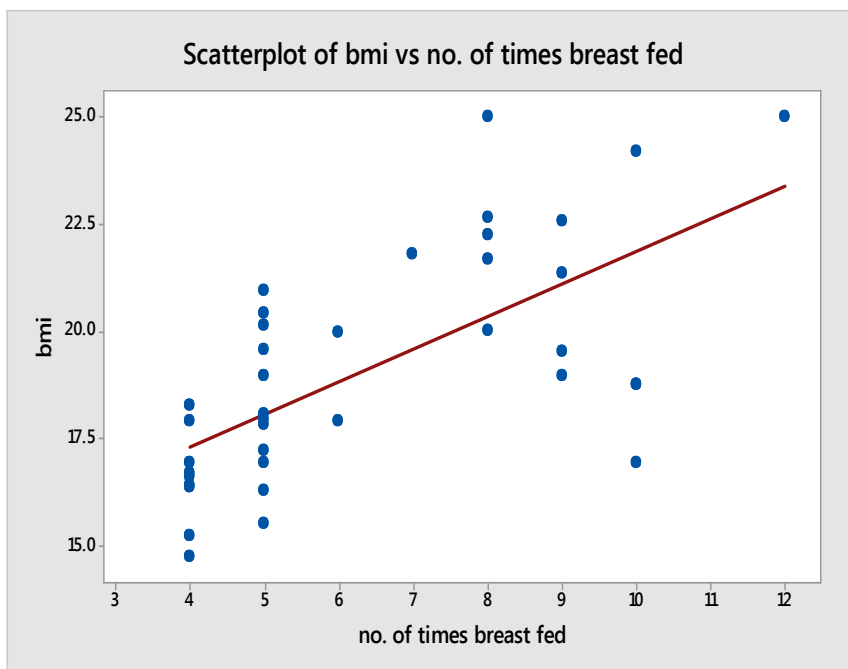

Figure 2: Scatterplot of BMI values vs. no. of times breast fed in a day.

The relation between frequency of breastfeeding and mother's years of education were expressed as scatter plot in figure 3. Higher frequency of breast feeding is found among mothers with lower educational level as is reflected by a negative correlation coefficient.
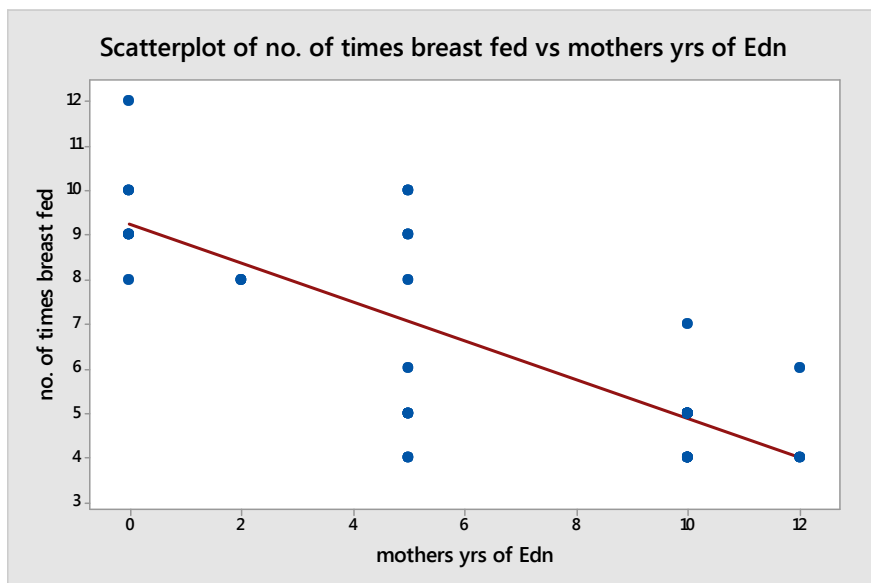
Figure 3: Scatterplot of years of mothers' education vs. no. of times breast fed in a day.

Simple linear regression using the frequency of breastfeeding as the dependent variable and the significantly correlated factors with it as the predictors yields the following regression equation.

Regression Equation
No. of times breast fed/day = 11.19 0.2180 mother's years of Education+ 0.0451 BMI 0.3948 EPDS score

DISCUSSION

The present study was carried out with subjects belonging to 18 to 33 years age group. Some studies concluded that older primiparas (24years or older) produced less milk in the first week postpartum than younger primiparas (16-23years). The study also speculated that milk yield is dependent on the amount of functional tissue in the breast which may decrease with age due to "disuse atrophy" and lactational capacity is the greatest before age 20 and declines thereafter.[20] But our study could not find any determinant effect of age on the frequency of breastfeeding. Maternal age has crucial effect on frequency of breastfeeding and the primiparaous mothers aged 35 years or older group experience difficulties when they fed their babies after delivery. Adolescence is a risk factor for low breastfeeding rates.[21] In the northern territories and western provinces, having lower pre pregnancy body mass index, giving birth at older age is associated with increased likelihood of 6-months exclusive breast feeding.[22] Breast-milk expression behaviors may differ by maternal BMI category only in the early postpartum depression.[23] Maternal obesity and overweight are negatively correlated to duration and quality of lactation [24]. In the present study the frequency of breastfeeding was lower among underweight subjects and higher among the subjects with normal weight. This may be due to the fact that adipose tissue acts as a reservoir for steroid hormones and is also a site of steroid production and metabolism. One theory for the delay of lactogenesis is progesterone stored in adipose tissue leads to higher progesterone level in obese women than normal weight women which disrupts the usual sudden drops in progesterone leading to lactogenesis.

Several studies have concluded that level of education is related to women's decision about breastfeeding, but this relationship is likely to be mediated through interaction with other social context variables. Family structure, social support, norms about natural or artificial infant's feeding, working conditions, health promotions interventions or hospital practices, among others, could moderate these interactions.[25] Some studies also reported that maternal occupation is associated with suboptimal feeding practice.[22] The present study concluded from the result of the multivariate regression that the education level of the mother is inversely related to the number of breastfeeding per day. This might be explained by the fact that women who were better educated could have a better opportunity for employment that could lead them to be out of the house whole day and the mother less than secondary prolong the EBF from 6 months because spend more time with their child this might related to they had less opportunity of getting a job.[26]

Women who had difficulties in breastfeeding were more likely to have symptoms of depression.[27] Postpartum depression has been identified as a risk factor for early breastfeeding cessation.[28] In the present study it was found that the frequency of breastfeeding is higher among the women who lacks the post-partum depression and on the other hand we also found that the postpartum depression decreases due to increasing no. of breastfeeding time. The women who can successfully breastfed their babies feel satisfaction. We found that Women who have negative feeling about breastfeeding and reported severe pain while nursing soon after birth were more likely to experience postpartum depression.

CONCLUSION

Hence it can be concluded from the present study that the nutritional status of the lactating mothers should be improved and the factors affecting the post-partum depression should be eradicated to keep the post-delivery mother joyful and happy, then only she would be able to breast feed her newborn sufficiently to foster proper growth of the baby.

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