

EFFECTIVENESS OF FENUGREEK CONSUMPTION ON BREAST MILK SECRETION AMONG POSTNATAL MOTHER IN SMCH, THANDALAM

Deepika. D ^{1*}, Ramya. K ², Sridevi. B ³,
Kavitha. M ⁴, and Madaswamy. R ⁵,

¹ Tutor, Department of Medical Surgical Nursing, Saveetha College of Nursing, Saveetha Institute of Medical and Technical Sciences, Chennai, Tamil Nadu. *Corresponding Author Email: dpkasri94@gmail.com

² B.Sc (Nursing) IV Year, Saveetha College of Nursing, Saveetha Institute of Medical and Technical Sciences, Chennai, Tamil Nadu. Email: 171901061.scon@gmail.com

³ Assistant Professor, Department of Medical Surgical Nursing, Saveetha College of Nursing, Saveetha Institute of Medical and Technical Sciences, Thandalam. Email: sri86peter@gmail.com, ORCID NO- 0009-0005-4883-0657.

⁴ Tutor, Department of Community Health Nursing, Saveetha College of Nursing, Saveetha Institute of Medical and Technical Sciences, Thandalam. Email: kavithakarhik98@gmail.com

⁵ Tutor, Department of Medical Surgical Nursing, Saveetha College of Nursing, Saveetha Institute of Medical and Technical Sciences, Chennai, Tamil Nadu. Email: madaswamy047@gmail.com

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Abstract

Background: Lactation insufficiency is one of the most common causes of stopping breastfeeding. It's not just because of the nutrients in it but breastfeeding also benefits the mother. Hence, the study aimed to determine the effectiveness of fenugreek consumption on breast milk secretion among postnatal mothers. The quasi-Experimental research design was chosen to conduct the study with 60 samples matched with inclusion criteria. Samples were allocated into the experimental group (n=30) and control group (n=30) by convenience sampling technique. A pre-test was done by using a breast pump for both experimental and control group. The experimental group received consumption of Fenugreek for three times in a day for 6 days. For the control group, routine hospital care was followed. On 6th post-natal day, the study participants were reassessed for the level of breast milk secretion by using the same breast pump. **Results:** The study results concluded that, the mean difference score in the experimental group was **62.30** and the calculated that, t test + = 14.942 was found to be statistically significant at p<0.001 level which clearly depicted that, there was a significant increase in the level of breast milk secretion after consumption of fenugreek in experimental group of postnatal mothers. It is also a simple, cost-effective, and non-pharmacological method that can be used to complement pharmacological management.

Keywords: Breast Milk, Effectiveness, Fenugreek, Consumption, Postnatal Mothers.

INTRODUCTION

Nutrients play an important role in the functioning and the development of the human body dietary nutrients on the structure and certain functions of the brain. Brain structure, and thus on its function, including cognitive and intellectuals ^[1]. Breast milk has been accepted as the gold standard of infant nutrition. Although the World Health Organization recommends exclusively breastfeeding for first six months of life ^[2]. Best practice breastfeeding includes early initiation within 1 hour of birth, exclusivity only breastmilk until 6 months of age, and continuation with appropriate introduction of complementary foods until 2 years of age ^[3]. These optimal infant feeding practices, contribute to the prevention of 823,000 annual infant deaths worldwide, with most

occurring in low-income countries. Globally, sub-optimal infant feeding practices late initiation, short duration and non-exclusivity contributes to high rates of infant mortality and morbidity [4,5]. Breast feeding rates in many developed countries remain low, and maternal perception of insufficient milk production is a major contributing factor [6].

Prolactin is a water-soluble hormone essential for the establishment and maintenance of lactation in women [7]. The concentration of prolactin in blood is highest immediately post-partum (200 µg L⁻¹) [8] and declines progressively by 6 months post-partum to 80 µg L⁻¹ [9]. The suckling stimulus has been demonstrated to stimulate the release of prolactin, which peaks 45 min after the commencement of a breastfeed [10,11]. The concentration of prolactin in blood returns to pre-feed levels within 3 h of the beginning of a breastfeed [12]. Many cultures believe that certain foods increase human milk production during breastfeeding. These foods are believed to have galactagogue properties [13]. They include pharmaceutical agents and herbal supplements. Special food items containing galactagogues are one option for improving human milk and supporting breastfeeding [14]. Fenugreek (*Trigonella frenum-graecum*) have been used since ancient times as an herbal galactagogue. its seeds contain 50% fiber 30% soluble fiber and 20% insoluble fiber [15]. Women around the world consume fenugreek seeds to facilitate lactation during the postpartum period.[16].

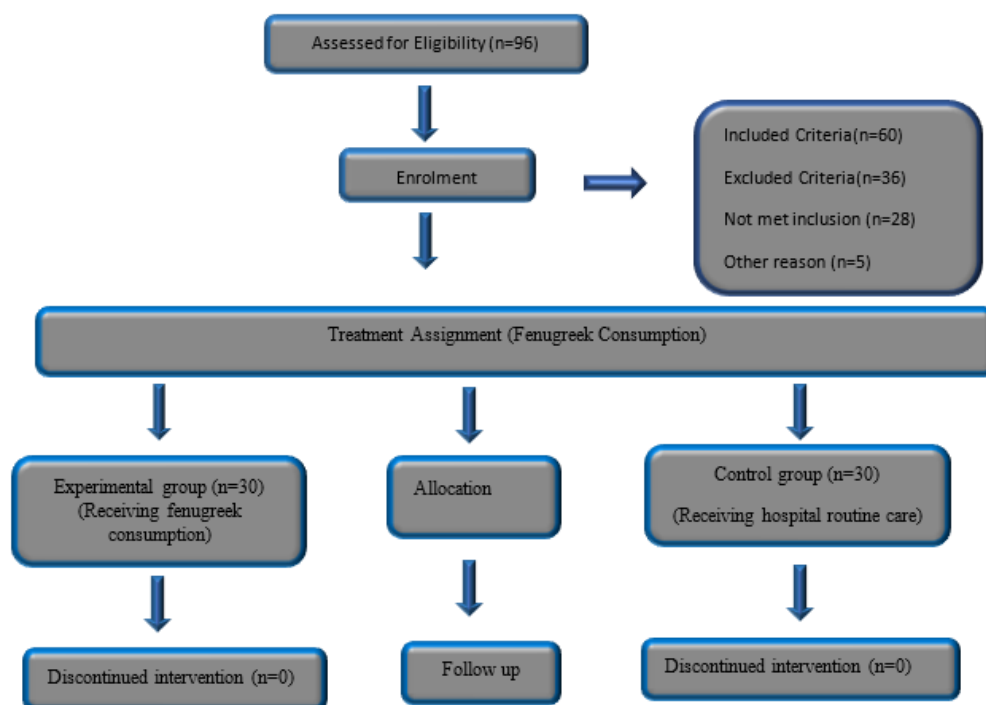
It is also believed that fenugreek stimulates sweat production and because breasts are modified sweat glands, one hypothesis is that this is how fenugreek may increase milk production [17]. It has been identified by the researcher that, many postnatal mothers had the issues of declined breastmilk secretion when working as a midwifery nurse during her clinical experience, which made her to take the present study as consumption of fenugreek is found to play a useful role in improving the breastmilk secretion. Based on theses sound scientific background, the investigators opted to conduct the study Hence the investigators conducted the study aimed to determine the effectiveness of fenugreek consumption on breast milk secretion among postnatal mothers by considering the potential benefits after reviewing the literature

MATERIALS AND METHODS

Study Design: The research approach adopted in the study was a quantitative approach by using a quasi-experimental research design. It was conducted among patients who undergo post-natal mothers at Saveetha Medical College and Hospital Chennai, after obtaining formal permission from the hospital authority. Samples who matched the inclusion criteria were selected by using a non-probability convenience sampling technique. Post partum mothers who underwent natural labor, assisted vaginal delivery including vacuum, forceps, lower segmental caesarean with normal sucking reflex, and were in the zero postnatal or post operative day, with inadequate breastmilk secretion of less than 15ml when assess during breast pump, Willing to participate in the study and can able to read, write, speak and understand Tamil or English were included. The exclusion criteria of the study were Mothers with history of obstetric complications during intranatal period, habit of consuming alcohol, smoking, preterm delivery, postpartum mothers having anatomical disorders of breasts, the babies with congenital anomalies including cleft lip and cleft palate. A total number of samples was 60 and allocated into experimental (n=30) and control group (n=30). The participants who consented for willing to participate were informed about the purpose of the study.

Demographic variables were collected using multiple-choice questionnaires. Pre-test level of breastmilk secretion was assessed by using a breast pump for both experimental and control group. The experimental group was received consumption of fenugreek 1 teaspoon of whole fenugreek seeds in a cup of boiling water for about 15 minutes and sip at leisure three times a day for six consecutive days. The control group was received routine care as per hospital policy. Post-test was done at the end of the sixth day of intervention for both experimental and control group using the same tool. The data were tabulated and analyzed by descriptive and inferential statistics using SPSS statistical package. A probability of 0.05 or less was taken as statistically significant.

Figure: 1 Consort Flow Chart Depicting the Steps Involved in Sample Recruitment Process



RESULT AND DISCUSSION

Regarding demographic and clinical characteristics, majority of the postnatal mothers, 9(30%) had no formal education and 9(30%) had primary and high school education respectively , 27(90%) were housewives, 26 (86.7%) belonged to nuclear family, 25(83.3%) had an Family income of above 20,000 per month, 20(66.7%) were aged between 21–25 years, 24(80%) were non-vegetarian, 20(100%) had planned pregnancy and had regular antenatal checkup, and 14(46.7%) had duration of marital status for 1–2 years In the control group, with regards to the demographic and clinical characteristics, majority of the postpartum mothers, 9(30%) had no formal education, 24(80%) were housewives, 26(86.7%) belonged to nuclear family, 25 (83.3%) had non-consanguineous marriage, 24(80%) were residing in urban area, 17 (56.7%) had family income of 20,000 to above per month, 16(53.3%) were aged between 26–30years, 30(100%) were non -vegetarian, 30(100%) had planned pregnancy and had regular antenatal checkup and 21(70%) had duration of marital statusfor1–2years.

Estimation of pre and posttest levels of breast milk secretion among study participants in experimental and control group.

In both experimental and control group, the pretest level of breastmilk secretion among postpartum mothers, majority had inadequate level <10ml 30 (100%), moderate level of 10-30ml and adequate level of >30ml was nil. In experimental group, the post-test level of breastmilk secretion ml. (g postpartum mothers' majority 23(76.6%) had adequate level of >30ml, 7(23.3%) had moderate level of 10-30ml and none had in adequate level of <10ml whereas in the control group, the posttest level of breast milk secretion among postpartum mothers, majority had 21(70%) inadequate level of <10ml, 9 (30%) moderate level of 10-30ml and 0(0%) none had adequate level of > 30ml.

Effectiveness of fenugreek consumption on The Breast Milk Secretion Among Study Participants in The Experimental Group.

The pretest mean score level of breast milk secretion among postpartum mothers in the experimental group was 6.10+1.56 and the posttest mean score was 68.40+23.18. the mean difference score was 62.30. the calculated paired 't' test value of t=14.942 was found to be statistically significant at p<0.001 level which clearly shows that there were significant increases in the level of milk secretion after the consumption of fenugreek. this clearly infers that; fenugreek consumption was found to be effective in increasing the level of milk secretion among postpartum mothers in the experimental group. (Table:1)

Table 1: Effectiveness of fenugreek consumption on The Breast Milk Secretion Among Study Participants in The Experimental Group.

Levels of Breast Milk Secretion	Mean	S. D	Mean difference score	Paired 't' test & p-value
Pretest	6.10	1.56	62.30	t=14.942
Post test	68.40	23.18		P=0.0001, S***

Comparison of Pretest and Post Test Level of Milk Secretion Among Post-Partum Mothers Between the Experimental and Control Group

The pretest mean score level of breast milk secretion among postpartum mothers in the experimental group was 6.10± 1.56 and the pretest mean score in the control group was 6.63±1.54. The mean difference score was 0.53. the calculated student independent 't' test value of t=1.331 was not found to be statistically significant which clearly shows that there was no significant difference in the level of breast milk secretion among post-partum mothers between the groups. The post-test mean score of breast milk secretion among post-partum mothers in the experimental group was 68.40±23.18 and the post-test mean score in the control group was 28.30±1.91. The mean difference score was 40.10. the calculated student independent 't' test value of t=9.442 was found to be statistically significant at p<0.001 level which clearly shows that there was significant difference in the level of breast milk secretion among postpartum mothers between the groups this infers that fenugreek consumption was found to be effective in increasing the level of breast milk secretion among postpartum mothers in the experimental group than the control group who had undergone normal hospital routine care. (Figure: 2)

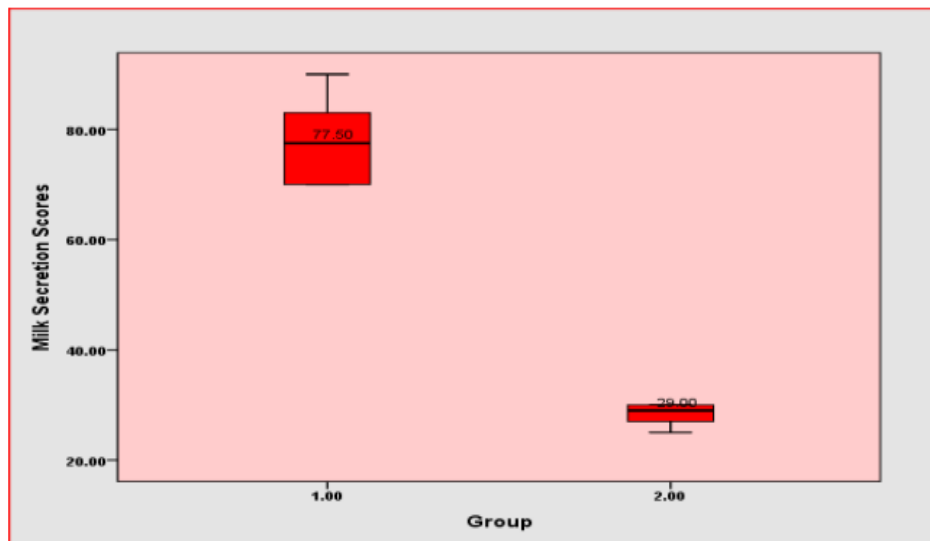


Figure 2: Boxplot showing the Comparison of posttest level of breast milk secretion among post-partum mothers between the experimental and control group.

The present finding study is also supported with **Bhuvanewari, A (2016)** conducted true experimental study among 60 postnatal mothers were divided equally divided in to experimental and control to determine the *effectiveness of fenugreek consumption on lactation among postnatal mothers*. Two to three samples were selected every day and fenugreek was given in a powder form of 2.5g mixed with the 100ml of water twice a day for consecutive five days. The findings of the study revealed that in experimental group had improved the perception of breast milk secretion with paired t ± test P value is 0.001. There is a statistical significance in promotion of perception on breast milk secretion which shows the effectiveness of fenugreek administration [18].

The present finding study is supported with **Rania Mohamed et al (2018)** conducted case control study among 60 healthy mothers whom baby was admitted to Pediatric NICU at Egypt. The aim of the study was to evaluate the effect of the consumption of one of the herbal galactagogues (fenugreek) on expressed breast milk volume and post-partum prolactin level change for more than two weeks and used to express breast milk using manual breast pump. Mothers were divided into two equal groups as following: group 1 included 30 mothers who consumed three times 200 ml of fenugreek tea (50 gm of fenugreek seeds) with eight times breast pump and group 2 included 30 mothers who used breast pump 8 times per day without fenugreek consumption. Total daily volume of pumped breast milk was assessed at day 3, day 8 and day 15. Serum prolactin was withdrawn at day 3 and day 15. The results showed that the mean breast milk volume increased earlier (at day 3) in the fenugreek group more than the control group (274.60 ± 46.97 ml, 246.37 ± 46.62 ml respectively $p < 0.005$). Prolactin level was significantly higher on day 3 in group of fenugreeks than another group [19].

Association Between the posttest level of breast milk secretion among postpartum mothers with their selected demographic variables in the experimental group.

The demographic variables age in years ($\chi^2 = 6.162$, $p=0.046$) had shown statistically significant association with posttest level of breast milk secretion among postpartum mothers in the experimental group at $p<0.05$ level and the other demographic

variables had not shown statistically significant association with posttest level of breast milk secretion among postpartum mothers in the experimental group.

The study aimed to evaluate the effect of the consumption of one of the herbal galactagogues (fenugreek) on expressed breastmilk volume and postpartum prolactin level change.

Methods: The study included 60 healthy mothers whom baby was admitted to Pediatric Ain shams University NICU for more than two weeks and used to express

breast milk using manual breast pump. Mothers were divided into two equal groups as following: group 1 included 30 mothers who consumed three times 200 ml of

fenugreek tea (50 gm of fenugreek seeds) with eight times breast pump and group 2 included 30 mothers who used breast pump 8 times per day without fenugreek

consumption. Total daily volume of pumped breast milk was assessed at day 3, day 8 and day 15. Serum prolactin was withdrawn at day 3 and day 15 at 9 am.

Results: The results showed that the mean breastmilk volume increased earlier (at day 3) in the fenugreek group more than the control group (274.60 ± 46.97 ml,

246.37 ± 46.62 ml respectively $p < 0.005$). Yet at day 8 & 15 the net daily volume showed no significant difference between both groups. Prolactin level was

significantly higher on day 3 in group of fenugreek than other group (152.77 ± 18.46 ng/ml versus 134.53 ± 17.35 ng/ml) with no significant difference later on.

Conclusion: Fenugreek consumption affects the early stage of lactogenesis and prolactin level but did not affect the established breastmilk volume or change in

prolactin level at later stages so it can be used for mother satisfaction and reassurance in the early stages of lactation

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The present finding study is also supported with **Rathwa, R. et al (2021)** conducted study among 60 postnatal mothers in a selected hospital, Vadodara. It was an experimental pre-test post-test control group design used to assess effect of fenugreek on lactation among postnatal woman. The present study revealed that in pretest experimental group 25(83.3%) had insufficient lactation and only 5(16.7%) had sufficient lactation while in post-test 20(66.7%) had sufficient lactation and 10(33.3%) insufficient lactation. The post-test lactation revealed that in control group mean score was 22.97 ± 3.755 and in experimental group mean score was 30.03 ± 5.334 with mean difference of 7.06 with obtained t value ($t=5.934$, $df=58$, $p=0.001$) was statistically significant at $p<0.05$ level. The association between pre interventions lactation of postnatal woman of experimental and control group with selected demographic variables such as age, educational status, occupational status, religion, residency, type of family and food habits were found statistically not significant at $p<0.05$ level with pre interventions lactation of postnatal woman of experimental and control group [20].

LIMITATIONS

The researcher felt difficulty in collecting the data from the sample in the hospital during their treatment period.

CONCLUSION

Based on the findings of the current study, it was evident that there was significant effect of consumption of fenugreek that enhance, the breast milk production among the postnatal mothers. Therefore, consumption of fenugreek can be used as an alternative treatment by all the midwife nurse and others health care profession in an effort to promote breast milk production during the postnatal period as a part of nursing care for all the postnatal mothers.

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Conflict of Interest: Authors declare no conflict of Interest.

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