

A Study to Evaluate the Effectiveness of Hoffman's Exercise on Successful Breastfeeding Among Antenatal Mothers with Nipple Defects at Sri Guru Ram Das Hospital, Vallah, Amritsar, Punjab

Amanpreet Kaur, Parvesh Saini, Karuna Sharma

Sri Guru Ram Das College of Nursing, Vallah, Amritsar, Punjab.

Corresponding Author: Amanpreet Kaur

ABSTRACT

Introduction: Breastfeeding is a completely natural way of feeding the baby. Numerous health benefits have been proven to pass from mother to child through breast milk. It is an ideal food for the baby. There are many possible breast abnormalities that breastfeeding mothers may encounter such as long nipple, short nipple, flat and inverted nipple and cracked nipple which may cause difficulties in feeding. Nowadays non-pharmacological strategies are more in trend as compare to pharmacological strategies. Among all the non-pharmacological measures, the most effective approach is Hoffman's exercise to treat nipple problems.

Aim: The aim of the study is to find out the effectiveness of Hoffman's exercise on successful breastfeeding among antenatal mothers with nipple defects.

Material and Method: A quantitative quasi experimental design was used in this research study. The present study was conducted on primipara antenatal mothers at Gynae OPD and antenatal ward at Sri Guru Ram Das Hospital, Vallah, Amritsar, Punjab. Total 60 primipara antenatal mothers were selected through the purposive sampling technique and the selected sample was assigned into two different groups that were 30 experimental and 30 control group. Written consent was taken from the participants of the study. Socio Demographic profile, Modified via Christi breastfeeding assessment scale was used as a tool for data collection. The intervention Hoffman's exercise (to manually stretch the breast away from the areola by applying pressure with thumb and forefinger to both horizontal and vertical direction 5 times a day till delivery) was demonstrated to experimental group of antenatal mothers with nipple defects who were nearing to delivery (37 to 40 weeks) and no intervention was given to control group.

Results: The result illustrated in the experimental group was medium risk 6(20%) on the level of breastfeeding, a large number of mothers 24(80%) had low risk on the level of breastfeeding with average mean and SD 7.80 ± 1.12 . In the control group, a high percentage of mothers 26 (86.7%) had medium risk on the level of breastfeeding, whereas 4(13.3%) had low risk on the level of breastfeeding with average mean and SD 4.53 ± 1.25 . The effectiveness was statistically tested by unpaired t-test to compare both the groups which manifested that $t=10.62$, $df=58$ the result was found to be significant at $p<0.05$ level of significance. Hence, it was concluded that the Hoffman's exercise was an effective intervention on successful breastfeeding among antenatal mothers with nipple defects.

Keywords: Effectiveness, Hoffman's exercise, successful breastfeeding, antenatal mothers, nipple defects.

INTRODUCTION

Pregnancy is a journey of creating a new life. Motherhood makes this journey

memorable and happy. During pregnancy, the mother and baby are considered a single unit because the baby gets the essential

nutrition from the mother through the placenta. At birth, this bond is replaced by breastfeeding. Breastfeeding is a completely natural way of feeding the baby. Numerous health benefits have been proven to pass from mother to child through breast milk. It is the ideal food for the baby. Moreover, breastfeeding also creates a unique bond between the mother and baby and also provides adequate warmth, security, affection and protection to the baby.¹

Breastfeeding saves lives. The World Health Organization (2018) reports that exclusive breastfeeding until six months of age could prevent the deaths of more than 820,000 infants every year.² Breastfeeding supports a child's ability to learn, diminishes the risk of malnutrition and helps prevent obesity and chronic diseases later in life. It also helps in birth spacing, recovering fast from giving birth and returning to their pre-pregnant weight sooner. Evidence shows that they also experience less postpartum depression and also have a lower risk of ovarian and breast cancers later in life.³

A mother who is breastfeeding for the first time is in a vulnerable position and requires support, encouragement and knowledgeable assistance. There are many possible breast abnormalities that breastfeeding mothers may encounter.⁵ Identifying these issues are very important to continue a healthful breastfeeding relationship with the child. In addition to motivating mothers to breastfeed, obstetricians must ensure that pregnant women are physically prepared to nurse their infants. An often-neglected area is the detection and correction of anatomical abnormalities of the nipples. Examination of the nipple and areola is important to identify any anatomical abnormalities.⁶

The abnormalities of the nipple include the long nipple, short nipple, abnormally large nipple, flat nipple, inverted nipple and cracked nipple. Such abnormalities may cause difficulties in feeding. One of the abnormalities such as flat or inverted nipples that affect most of

the mothers. It is commonly seen in primipara mothers. Flat or inverted nipples are often caused by adhesions which never unlatch up naturally during puberty resulting in abnormal nipples. During nursing, there will be some pain as the nipples are pulled out.⁶

About 10% of pregnant women who intend to breastfeed have inverted or non-protractile nipples and this may lead to problems establishing and maintaining breast feeding. For more than 50 years such women have been advised to prepare their breasts during pregnancy, the most common methods of treatment being breast shells and Hoffman's exercise.⁵

In order to breastfeed effectively, the nipple needs to be able to draw to the back of the baby's mouth. Without this flexibility, the nipple is considered as flat or inverted nipple and the baby may not keep the nipple in mouth. In addition, the lacteal sinuses under the areola will not be able to bring within reach of the baby's jaw so that the breast cannot be milked effectively. Flat or inverted nipples are a concern for most mothers who have to breastfeed their babies for the first time. It is because inverted nipples are difficult to be latched on by the baby for the purpose of feeding.⁹

A Flat or inverted nipple is a source of repeated irritation, inflammation and interferes with breastfeeding. Furthermore, its anomalous appearance may cause psychological discomfort. With consideration of its underlying pathophysiologic components and severity, a number of techniques have been introduced for the correction of this anomaly. The majority of these techniques involve extensive skin incision around the nipple that may jeopardize the blood and nerve supply to the nipple or produce much scar tissue that is esthetically disagreeable.¹⁰

However, the practical problems with breastfeeding remain and despite many efforts, it is still increasing. Most of the primipara mothers were not able to breastfeed their babies properly due to inverted nipples. The poor breastfeeding

may not be always the outcome of illiteracy; it can also be due to flat or inverted nipples. Whichever may be the cause, the final result of poor breastfeeding is the hindered growth and development of a child in all aspects⁷.

The need for this study is to improve the breastfeeding effectively. As there are very few studies to check the Hoffman's technique effectiveness for the flat nipple and inverted nipple in antenatal mothers and inability to feed properly may also add up to postnatal depression and hamper the quality of life.⁴

Hoffman's exercise is a manual exercise that may help break adhesions at the base of the nipple that keep it inverted. It was introduced by Dr. J Brooks Hoffman in the year 1953. The thumbs of both hands are placed opposite to each other at the base of the nipple. The thumbs are pulled away from each other gently but firmly. This is done by up and down and sideways. This exercise can be done up to five times a day.¹¹ It can be done during pregnancy to prepare the nipples as well as it can be safely practiced immediately after the baby is born in order to draw them out.⁸

This method is advantageous over other methods because it can be performed by the mother herself at any time and it costs nothing. It is safe, simple and painless treatment.

OBJECTIVES

1. To identify the antenatal mothers with nipple defects in experimental and control group.
2. To provide the Hoffman's exercise to antenatal mothers with nipple defects in experimental group.
3. To evaluate the effectiveness of Hoffman's exercise on successful breastfeeding in the postnatal period in experimental and control group.
4. To find out the association of effectiveness of Hoffman's exercise on successful breastfeeding in experimental

and control group with selected socio-demographic variables.

HYPOTHESES

H₁: There is a significant effect of Hoffman's exercise on successful breastfeeding among antenatal mothers with nipple defects.

ASSUMPTIONS

1. Use of Hoffman's exercise for flat and inverted nipples may promote successful breastfeeding.
2. Use of Hoffman's exercise is a cost effective measure for flat and inverted nipple.

METHODOLOGY

Research methodology indicates a general pattern for organizing the procedure to collect valid and reliable data for the problem under study. The present study was conducted at Sri Guru Ram Das Hospital, Vallah, Amritsar. Quantitative research approach was considered for the present study. Research design selected for the present study was Quasi-experimental design. The population of the study was antenatal mothers with nipple defects at Sri Guru Ram Das Hospital, Vallah, Amritsar who had fulfilled the inclusion and exclusion criteria. Sample size of the study comprised of 60 antenatal mothers. Purposive sampling technique was followed to select the samples. Ethical clearance was taken from the ethical committee of the SGRDIMS, Vallah, Amritsar. A written permission was taken from the Head of OBG department from SGRD Hospital, Vallah, Amritsar for data collection. The tool consists of following section:

SECTION A: SOCIO-DEMOGRAPHIC VARIABLES

SECTION B: MODIFIED VIA CHRISTI BREASTFEEDING ASSESSMENT SCALE

RESULTS

Table 1: Frequency and percentage distribution of demographic variables of antenatal mothers in experimental and control group. (N = 60)

S. No.	Socio-Demographic Variable	Experimental Group		Control Group		Chi-square (χ^2)	df	p value
		(f)	(%)	(f)	(%)			
1.	Age (in Years)					3.104	2	0.211 ^{NS}
	20-25 yrs.	16	53.3	21	70			
	26-30 yrs.	12	40	9	30			
2	31-35 yrs.	2	6.7	0	0	6.667	1	0.009*
	Occupation							
	Housewife	30	100	24	80			
3	self-employed	0	0	6	20	20.64	3	0.001*
	Education							
	Illiterate	1	3.3	1	3.3			
4	Primary level	17	56.7	1	3.3	8.148	1	0.004*
	Secondary level	8	26.7	18	60.1			
	Graduation	4	13.3	10	33.3			
5	Type of family					6.481	3	0.090 ^{NS}
	Nuclear	8	26.7	19	63.3			
	Joint	22	73.3	11	36.7			
6	Family income (per month)					7.954	1	0.004*
	≤ 5000	3	10	0	0			
	5001-10000	17	56.7	24	80			
	10001-20000	8	26.7	6	20			
> 20001	2	6.6	0	0				
6	Habitat					7.954	1	0.004*
	Urban	2	6.7	11	36.7			
	Rural	28	93.3	19	63.3			

*p<0.05 level of significance NS: Non-Significant

Table 1: illustrates the distribution of mothers according to the age group. It shows that majority of the antenatal mothers in both control group and experimental group were in the age group of 20-25 years that was 21(70%) and 16(53.3%) respectively. The data on occupation showed that all the antenatal mothers 30(100%) were Housewife in experimental group, on the other hand in control group most of mothers 24(80%) were housewives. Allocation of mothers according to the education records, that higher number of women had completed primary level of education that was 17(56.7%) in experimental group and 18(60.1%) in control group. Dispersion of mothers according to the type of family have shown that 22(73.3%) belonged to joint family in experiment group whereas 19(63.3%) were from nuclear family in control group. Scattering of mothers according to the monthly income of their family revealed that and maximum percentage had 10,001-20000Rs. income in experimental and control group that was 17(56.7%) and 24(80%) respectively. More than the half antenatal mothers indwelling from rural area were 28(93.3%) in experimental group and

19(63.3%) in control group. The association between experimental and control group was tested for homogeneity by using chi-square test. The result shows that occupation, education, type of family and habitat were found significant association between experimental and control group which reveals that both groups are non-homogenous. The other demographic variables in experimental and control group had no significant association and it is interfered that both the groups are homogenous and comparable.

Table 2: Effectiveness of Hoffman's exercise on level of breastfeeding in experimental and control group. (N= 60)

Level of breastfeeding	Experimental group		Control group	
	f	%	f	%
High risk (0-2)	0	0	0	0
Medium risk (3-6)	6	20	26	86.7
Low risk (7-10)	24	80	4	13.3
Mean and SD	7.80±1.12		4.53±1.25	

Table 2: depicts that in experimental group there was medium risk 6(20%) on the level of breastfeeding, bulk number of mothers 24(80%) had low risk on the level of breastfeeding with average mean and SD 7.80±1.12. However, in control group, high percentage of mothers 26 (86.7%) had medium risk on the level of breastfeeding,

whereas 4(13.3%) had low risk on the level of breastfeeding with average mean and SD 4.53 ± 1.25 .

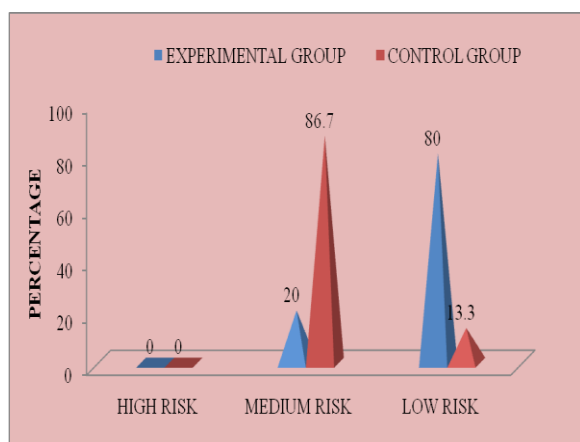


Figure1: Level of breastfeeding in experimental and control group

Table 3: depicted that level of breastfeeding after intervention in experimental group (Mean=7.80 and Standard deviation=1.12). Mean difference was 3.27 and mean percentage was 78 of experimental and 45.3 of control group. The effectiveness was statistically tested by unpaired t-test to compare both the groups which manifested that $t=10.62$, $df=58$ the result was found to be significant at $p < 0.001$ level of significance. Therefore, H1 was accepted. Hence, it was concluded that the Hoffman's exercise was an effective intervention on successful breastfeeding among antenatal mothers with nipple

Table 3: Comparison of effectiveness of Hoffman's exercise on successful breastfeeding in experimental and control group . (N=60)

Level of breastfeeding	Mean	SD	Mean D	Mean %	't' value	df	'p' value
Exp. group	7.80	1.12	3.27	78	10.62	58	0.001*
Control Group	4.53	1.25		45.3			

*Significant at $p < 0.001$ level

Table 4: Association between level of breast feeding and demographic variables in experimental group (N=60)

S.No	Demographic Variable	Medium risk	Low risk	Chi value χ^2	df	p value
1.	Age (in Years)	5	11	2.786	2	0.248 ^{NS}
	20-25 yrs.	1	11			
	26-30 yrs.	0	2			
	31-35 yrs.					
2	Occupation			0	0	0
	Housewife	24	24			
	self-employed	6	6			
3	Education			5.184	3	0.159 ^{NS}
	Illiterate	1	0			
	Primary level	3	14			
	Secondary level	2	6			
4	Graduation	0	4	2.088	1	0.148 ^{NS}
	Type of family					
4	Nuclear	3	5			
	Joint	3	19			
5	Family income (per month)			2.472	3	0.480 ^{NS}
	≤ 5000	0	3			
	5001-10000	5	12			
	10001-20000	1	7			
	> 20000	0	2			
6	Habitat			0.536	1	0.464 ^{NS}
	Urban	0	2			
	Rural	6	22			

* $p < 0.05$ level of significance NS: Non-Significant

Table 4:- denotes that the association between post-test level of breastfeeding with demographic variables in Experimental group which was assessed by using chi-square test. The result reveals that there was no association between selected demographic variables and level of breastfeeding at $p < 0.05$ level.

Table 5: Association between level of breast feeding and demographic variables in control group. (N=60)

S. No	Demographic Variable	Medium risk	Low risk	Chi value χ^2	df	p value
1.	Age (in Years) 20-25 yrs. 26-30 yrs.	20 6	1 3	4.451	1	0.035*
2	Occupation Housewife self-employed	20 6	4 0	1.154	1	0.283 ^{NS}
3	Education Illiterate Primary level Secondary level Graduation	1 1 14 10	0 0 4 0	3.077	3	0.380 ^{NS}
4	Type of family Nuclear Joint	16 10	3 1	0.271	1	0.603 ^{NS}
5	Family income (per month) ≤ 5000 5001-10000	21 5	3 1	0.072	1	0.788 ^{NS}
6	Habitat Urban Rural	10 16	1 3	0.271	1	0.603 ^{NS}

*p<0.05 level of significance NS: Non-Significant

Table 5: -denotes that the association between post-test level of breastfeeding with demographic variables in control group which was assessed by using chi-square test. The result reveals that there was no association between selected demographic variables and level of breastfeeding at p<0.05 level.

DISCUSSION

The present study data presented that level of breastfeeding after intervention in experimental group (Mean= 7.80 and Standard deviation= 1.12). Mean difference was 3.27 and mean percentage was 78 of experimental and 45.3 of control group. The effectiveness was statistically tested by unpaired t-test to compare both the groups which manifested that t=10.62, df=58 the result was found to be significant at p<0.05 level of significance. Therefore, H1 was accepted. Hence, it was concluded that the Hoffman's exercise was an effective intervention on successful breastfeeding among antenatal mothers with nipple defects.

This finding was supported by a study conducted by P. Padmavathi (2015) on effectiveness of Hoffman's exercise on successful breast feeding among primipara mothers with flat and retracted nipples. The study was conducted on 30 primipara mothers (15 in control group and 15 in

experimental group) immediately after delivery. Experimental group received Hoffman's exercise. The levels of successful breast feeding were assessed in both groups. The study concluded that in control group majority (80%) of primipara mothers were medium risk and 20% of them were low risk whereas in experimental group 73 of them were low risk and 27% of them had medium risk. The overall mean percentage was 56% in control group whereas in experimental group 78% with 't' value 6.82, significant at P < 0.05).¹²

RECOMMENDATIONS

1. A comparative study can be conducted similarly between various alternative complementary methods to correct the nipple defects for achievement of successful breastfeeding after delivery.
2. Similar study can be conducted as comparative study between the regular hospital routine.
3. Similar study can be conducted as comparative between primipara and multi mothers in different setting.
4. The study can be done on a large sample to generalize the findings of research study.
5. The study can be carried out for longer period of time.

IMPLICATIONS OF THE STUDY

Based on the findings the researcher recommended the implications on Nursing practice, Nursing education, Nursing administration and Nursing research.

NURSING PRACTICE

- Nurses play an important role in primary health care by early detection and prevention of nipple defects.
- The findings of the study revealed that Hoffman's exercise can be included for nursing management during antenatal period.
- Hoffman's exercise should be considered as complimentary therapy and can be imparted to nursing students to improve skill in providing care and update their knowledge on evidence-based practice.
- In service education program regarding demonstration of Hoffman's exercise can be provided by the nursing personnel to help mothers to gain comfort during antenatal period.
- Nurses are in best position to impart Hoffman's exercise to mothers in antenatal period.

NURSING EDUCATION

- With the emerging health care demands and newer trends in field of nursing, education must focus on the innovations to enhance the nursing care.
- Nurses can learn about the identification of mothers with nipple defects and provide Hoffman's exercise in antenatal period.
- Nursing students should be taught about the importance of Hoffman's exercise thereby they can help women in antenatal period to correct the nipple defects for achievement of successful breastfeeding after delivery.
- Adequate practical training can be given to the nursing staff and students regarding Hoffman's exercise.
- Techniques to correct the nipple defects during antenatal period for achievement of successful breastfeeding after

delivery and it can be incorporated in nursing curriculum.

NURSING ADMINISTRATION

- With technological advances and ever-growing challenges, the health care administrators have the responsibility to provide continuing nursing education opportunities to understand the nipple defects management with complementary therapies including Hoffman's exercise.
- The Nurse administrators can initiate Hoffman's exercise through development programs like in-service education and continuing nursing education program.
- This enables the nurse to update the knowledge and to render the cost-effective care to the public.
- Nurse administrators can prepare written policies and protocols regarding care of women in antenatal ward with Hoffman's exercise.

NURSING RESEARCH

- The professionals and the students can conduct many studies on different complimentary therapies to bring about newer perspectives in nursing care.
- Nurse researcher should challenge to perform scientific work and take part in assessment, application and evaluation of complementary therapies in women during antenatal period.
- The study finding will motivate the initial researchers to conduct the same study on large scale and study will be the reference for the extensive and intensive nursing care.
- Disseminate the findings of research through conferences, seminars and publishing in nursing journals.

REFERENCES

1. Ladewing, London, Dolds. Essentials of Maternal-Newborn nursing. 3rd ed. Tokyo:A division of the Benjamin/Cummings Publishing company;2016.

2. Johnston M, Landers S, Noble L, Szucs K, Viehmann L. Breastfeeding and the use of human milk. *American academy of pediatrics*. March 2012;129(3):827-841.
3. Victora CG. Breastfeeding in the 21st century: epidemiology mechanism and lifelong. *January 2016*; 383(3):475-490.
4. Ponmathi P, Mounika N, Vijayalakshmi B, V.P.R.Sivakumar. Effect of Hoffman's technique on flat nipple over nipple type and quality of breast feeding among postnatal mothers. *Int J Pharm Bio Sci*. October 2017;8(4):522-525.
5. Jacob A. *A comprehensive text book of midwifery*. 2nded. Bangalore: Jaypee Brothers medical publishers Pvt Ltd; 2005:243.
6. Godfrey S.S. Role to Hoffman's exercise on level of breastfeeding among mothers with nipple defects. *Nightingale nursing times*. July 2015; 11(4).
7. Bagal SU, Salunkhe JA, Salunkhe AH, Kakade SV, Mohite VR. A comparative study to assess problems of inverted nipple and its relationship to successful breastfeeding among antenatal mothers. *Int J Health Sci Res*. 2017;7(4):280-288.
8. Smith A. Flat or inverted nipples. *IBCLC Breastfeeding basics*. July 2013.
9. Amir LH. Breastfeeding-managing 'supply' difficulties. *Aust Fam Physician*. 2006; 35(2):686-689.
10. Kang J K , Yun B M, Song J K, Shin S M .Inverted Nipple Correction Using a Combination of the Perpendicular Suture Method and the Purse-String Suture Method . *Arch Aesthetic Plast Surg* 2017;23(2):104-107 Available from : URL <https://doi.org/10.14730/aaps.2017.23.2.104>
11. Hoffman technique - *Cosmetic Surgery* 2016. Available from: www.cosmeticchoice.com.au.Hoffmantechne ique
12. P. Padmavathi. Effectiveness of Hoffman's Exercise on Successful Breast Feeding among Primipara Mothers with Flat and Retracted Nipples. *Int. J. Nur. Edu. and Research*. April-June 2015 3(2):124-126.

How to cite this article: Kaur A, Saini P, Sharma K. A study to evaluate the effectiveness of Hoffman's exercise on successful breastfeeding among antenatal mothers with nipple defects at Sri Guru Ram Das Hospital, Vallah, Amritsar, Punjab. *Int J Health Sci Res*. 2020; 10(3):121-128.
