A Study to Assess the Effectiveness of Consumption of Black Cumin Water on Involution of Uterus among Postnatal Mothers Admitted in Selected Hospitals at Kanpur, Uttar Pradesh

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Abstract: *A quasi - experimental study was undertaken to assess the effectiveness of consumption of black cumin water on involution of uterus among postnatal mothers admitted in selected hospitals at Kanpur, Uttar Pradesh. It was conducted by Jiji. P. J at Mariampur hospital, Kanpur, Uttar Pradesh in partial fulfillment of the requirement for the degree of PHD Nursing Scholar from Malwanchal University, Indore. The objective of the study was to assess the level of involution of uterus among postnatal mothers before consumption of the black cumin water, to give black cumin water 15ml thrice a day for consumption to have good involution of uterus, to determine the effectiveness black cumin water on involution of uterus among postnatal mothers and to find the association with post - intervention involution score and selected demographic variables. The conceptual framework in this study based on "General system Theory" developed by Ludwig Von Bertalanffy. The research design was quasi - experimental pre - test post - test control design. In this study non probability convenient sampling technique was used to select the sample. Pilot study was conducted in Holy Cross Hospital, Ambikapur, Chhattisgarh. Data collection was done. Formal written permission was taken from Sr. Maria Philip, Administrator of Mariampur hospital, Kanpur and Dr Radian, Administrator of K. M. C hospital, Kanpur, Uttar Pradesh. Sample (60) was selected conveniently and self - structured interview was conducted to obtain the socio - demographic data. The assessment of pre - intervention involution score was done by using rating scale. Black cumin water 30ml was given for consumption thrice a day for three days to the experimental group and routine care to the control group. Then the assessment of the post - intervention involution score was done using the rating scale. Data collection was done in two shifts. Data analysis was done by using descriptive and inferential statistics. The results were as follows: The mean of pre intervention involution of uterus was 3.86% and the mean of post intervention involution of uterus was 9, 43%, the mean difference was 5.57% which indicates there is decrease in the post interventional involution of uterus. The 't' value calculated between the mean post intervention involution score of the experimental and control group of postnatal mothers is greater than the table value and is statistically significant, ('t' = 8.69 at > at 0, 05 level). Thus, it shows there is significant decrease in the fundal height 'good involution' in post intervention involution score among postnatal mothers at P> 0.05 level of significance. The Chi - square test was done to rule out the association with post - intervention involution score and socio demographic variables and it was found that there was significant association with post - intervention involution score and selected demographic variables of family income per month, amount of lochia, and the degree of afterpain in experimental group whereas in control group there was significant association with the post - intervention involution scores of postnatal mothers and selected demographic variables. The calculated chi square value of dietary pattern, family income per month, hours of labour pain, amount of lochia, the degree of after pain are 6.80, 10.66, 6.42, 14.71, 7.63 at degree of freedom 5.49, 9.49, 5.49, 9.49, 5.99 at p >0.05 level of significance. Hence there is significant association with socio demographic variables of post - interventional involution score among postnatal mothers at p>0.05 level of significance. The finding of study has several implications for general education, nursing education, nursing practice, administration and research. Based on the findings of the present study following conclusions were made. This suggests that the black cumin water is cost effective, accessible intervention for enhancing post - partum uterine recovery with potential to reduce associated maternal health risks.*

Keywords: postpartum recovery black cumin water, subinvolution prevention uterine involution, fundal height, parity, Lochia, degree of pain, Maternal Health

1. Introduction: Background of the Study

Involution of uterus is a process by which the uterus returns to its normal pre - pregnancy state (both anatomically and functionally) following childbirth or postpartum period. Normally, after childbirth, the enlarged uterus from pregnancy returns to its normal pre - pregnancy size and state.

Childbirth is one of the most important events in a woman's life. The wonder of motherhood is the enjoyable journey that is felt only by the mother after giving birth to a child. A mother, even though she is born earlier in this world, perceives an experience. It brings about remarkable changes in her normal life and introduces an exposure to a new role within her.

The first 6 weeks after the birth of the baby is known as postpartum period or puerperium. During this time, mothers experience numerous physiological and psychological changes. Main changes occur for uterus is involution of the uterus and descent of the fundus. Involution begins immediately after the delivery of the placenta. During involution, uterine muscles contracts firmly around the maternal blood vessels at the area where the placenta is attached. This contraction controls bleeding from the area when the placenta is separated.

The size of the uterus reduces gradually due to the reduction in size of cells and not the reduction cells in the number. The involution occurs due to the withdrawal of placental hormones after delivery of the baby. At the time of immediate

postpartum the uterus weighs 1000 gm and it weighs only 60 gm at the end of the postpartum period. Fundal height reduces 1 - 1.5 centimeters per day which is not the regular physiology of most of the postnatal mothers now.

I have selected Nigella Sativa for my present study. Nigella Sativa commonly known as black seed or Black cumin which belongs to botanical family of Ranunealaceac, has been used in many middle and far eastern countries as a natural remedy for over two thousand years.

The thymoquinine in black cumin has proven effects on reduction in size of cells. It may have some effects in the involution of uterus among postnatal mothers.

Need for the Study
Involution of uterus is a natural process after the child birth. The incidences of maternal morbidities in communities with limited access to health services are scarce. Estimates in developing countries vary between 16.5 pregnancy - related complications to more than 100 acute complications per maternal death. However, maternal deaths themselves may be under - reported. International organizations anticipate that 15% of pregnancies develop complications which necessitate medical care[18].

Sub involution is a medical condition in which after child birth, the uterus doesn't return to its normal size. When the involution is impaired or retarded is called sub involution. Uterus is the most common organ to be measured per abdomen the uterus involution is considered clinically as an index to assess sub involution. The female health worker should now the main prediction factors sub involution are grand multiparty, over distinction of uterus as twins & Hydroaminos, maternal ill health, prolapsed of the uterus, retroversion of uterus, retained products of consumption, uterine sepsis and the main clinical manifestation are some time asymptomatic and some symptoms are abnormal local discharge, irregular excessive uterine bleeding and increased body temperature.[18]

The absence of normal involution is called sub involution of uterus which can be caused by metritis or retention of placenta. Since Hemorrhage during the postpartum period is a life - threatening emergency for the mother. The first step to control is establishing rapid diagnosis. Incidence of retained placenta has been 0.23% from all the births over 15 years and twenty - six (36.61%) of these women had come in a State of severe shock. Thirty - six (50.7%) women required general anesthesia for manual removal and one woman (1.40%) with an adherent placenta had to undergo hysterectomy. The maternal mortality was 5.6% says Chhabra.

The investigator herself had the chance of meeting postnatal mothers who had PPH in clinical areas, which caused by poor involution of uterus, making it difficult to adapt to their new maternal role. So, the investigator felt the need to explore in this area with cheapest and easily available black cumin water.

This motivated the investigator to find out the effectiveness of consuming black cumin water on involution of uterus during the postpartum period. This study aims at comparing the effect of consuming, and not consuming black cumin water on involution of uterus.

Objectives
1) To assess the pre - interventional level of involution of uterus among postnatal mothers in experimental and control group.
2) To assess the post interventional level of involution of uterus among postnatal mothers in experimental and control group.
3) To determine the effectiveness of consumption of black cumin water on involution of uterus among postnatal mothers in experimental group.
4) To find out association with the post - interventional involution of uterus with the selected demographic variables in the experimental and control group.

Hypotheses
- H_1 - There is difference in the post interventional level of involution of uterus among postnatal mothers in experimental and control group at 0.05 level of significance.
- H_2 - There is association with the post - interventional level of involution of uterus among postnatal mothers and selected demographic variables in the experimental and control group at 0.05 level of significance.

2. Methods

The researcher's critique strategy for evaluating the effectiveness of consumption of black cumin water on involution of uterus among postnatal mothers in selected hospital at Kanpur, Uttar Pradesh. As its research approach, this study employed a quantitative evaluative research strategy. The current study used a Quasi - Experimental pre - test - post - test control group research design. The research was conducted at Mariampur and KMC Hospital, Kanpur Nagar, Uttar Pradesh. The setting was entirely reliant on the sample's availability and viability. The population consists of all Postnatal mothers enrolled in Mariampur and KMC Hospital in Kanpur, Uttar Pradesh. The study included 60 postnatal mothers as participants. The current study's sampling method was a non - probability convenient sampling strategy. Postnatal mothers eager to participate in the study, Postnatal mothers from a selected hospital in Kanpur Nagar, Uttar Pradesh, who could read, write, and interpret English and Hindi, Postnatal mothers who just delivered as Normal Vaginal Delivery were included in the study.

Instruments
Following a thorough assessment of literature, textbooks, journals, internet references, and professional advice, observational rating Scale for involution of uterus was established. Experts provided me with helpful feedback on the critique's veracity and appropriateness.

a) Selection of the tool - The researcher used self - interview schedule for demographic data, which deal with the demographic variables of the mothers. It includes items such as age of the mother in years, educational status, type of work, Dietary pattern, Family monthly income, parity, Hours of labor pain, amount of Lochia, the range of body mass index, habits (unhealthy), and the degree of after pain.

b) Development of the tool - The tool was developed after extensive review of research and non - research literature, based on the experience of the investigator**,** Based on the consultation with the subject experts in the field of nursing and statistics and Formal and informal discussion with peer group. This study consists of observational rating scale for measuring the involution of uterus. Involution of uterus refers to returning of uterus to normal pre - pregnancy state as evidenced by measuring the distance between the symphysis pubis and uterine fundus with an inch tape, which may be reduced more than one centimeter per day from the previous day's measurement

The wide spread of these tool designs among professionals in obstetrics and gynecology, nursing, and nursing research has established the content validity of a rating scale for involution of uterus. The tool was validated by twelve obstetricians and nursing specialists. The pilot study was conducted on ten samples having similar characteristics. The Observational rating Scale for involution of uterus was tested using the Karl - Her - Person correlation coefficient and test - retest method, proving its reliability, validity, and appropriateness for research, indicating its reliability, i. e., r=1 (acceptable range is 0.7–1).

Black Cumin Water
Refers to 100ml of water boiled with 15 gms of black cumin until it becomes 90ml.

Steps of Procedure
Consumption of black cumin water for the involution of uterus
Steps
- Explain the procedure, its purpose and benefits to the client.
- Obtain verbal and written informed consent
- Explain the method of consumption of black cumin water.
- Black cumin water should be given orally 30ml thrice a day for three days from the day of delivery.
- The rate of involution of uterus can be assessed clinically by noting the fundus of the uterus in relation to the symphysis pubis.

Score	Scoring procedure for observational rating scale
0	(0 - 0.5cm below the umbilicus than the measurement of the previous day)
1	(0.6 - 1 cm below the umbilicus than the measurement of the previous day)
2	(1.1 cm - 1.5 cm below the umbilicus than the measurement of the previous day)
3	(1.6 cm and more below the umbilicus than the measurement of the previous day)

The total maximum score for three days '9' and minimum score '0'

Scoring procedures for level of involution of uterus		
Level of involution of uterus	Scores	Grade
Poor involution of uterus	0 - 3cm	0
Moderate involution of uterus	4 - 6cm	1
Good involution of uterus	7 - 9cm	2

Data Collection:
The researcher obtained permission from Malwanchal University, Indore and Holy Cross Hospital, Recognized Dissertation Committee before collecting data. A non - probability convenient sampling method was used to select 60 postnatal mothers who delivered recently as Normal Vaginal Delivery or LSCS. Informed consent was sought before enrolling patients, and privacy, dignity, and respect for religious and cultural views were ensured throughout the data collection process. A study involved respondents who were given a demographic profile questionnaire and a observational rating scale to measure involution of uterus by measuring tape. From 1st day to 3rd day of delivery, the fundal height is measured daily for assessing involution of uterus then compared in observational rating scale was used to measure their levels of uterus.

Ethical consideration
The research synopsis with research problem and objective were presented to the research committee. Informed consent from authorities of Mariampur hospital, Kanpur, Uttar Pradesh was obtained. Informed consent was also obtained from all samples, who were willing to participate in the study. Refer Appendix 'E' for the consent form.

Explanation was given regarding the purpose of the study. Confidentiality was insured to postnatal mothers of Mariampur hospital and K. M. C. Hospitals, Kanpur, Uttar Pradesh. Due written permission from the authority was sought obtained.

3. Results

The pre - intervention level of involution of uterus score had 3.86% mothers in experimental group 3.86% and 3.53% mothers in control group, whereas the post - intervention level of involution of uterus score had 9.43 % mothers in experimental group and 5% mothers in control group.

Table 1: Overall pre - intervention levels of involution score and post - intervention level of involution score of uterus among postnatal mothers

Aspects	Maximum possible scores	Minimum possible scores	Experimental group			Control group		
			mean	mean %	mean % difference	mean	mean %	Mean % Difference
Pre - intervention level	9	0	1.16	3.86	5.57	1.06	3.53	1.47
Post intervention level	9	0	2.83	9.43		1.5	5	

Postnatal mothers had 'poor' involution of uterus in experimental group and 40% of postnatal mothers had 'poor' involution in control group.33% of mothers had 'moderate' level of involution of uterus in experimental group whereas 53% of mothers had 'moderate' level of involution in control group and 67% of mothers had 'Good' level of involution of

uterus in experimental group and 7% subjects had good'
involution in control group.

Table 2: Data analysis on experimental and control group using frequency and percentage regarding the involution of uterus among postnatal mothers, N - 60

Level of Involution of Uterus	Experimental Group Involution Score		Control Group Involution Score	
	Frequency (F)	Percentage (%)	Frequency (F)	Percentage (%)
Poor (0 - 3)	0	0	12	40
Moderate (4 - 6)	10	33	16	53
Good (7 - 9)	20	67	02	07
Total	30	100	30	100

The paired 't' test computed between scores of experimental group's involutions of uterus and control group's involution of uterus was statistically significant at 0.05 level of significance. The calculated 't' value (8.69) is greater than table value (t $_{58}$) = 2.00. Hence the research hypothesis H_1 - which states there is difference in the post - interventional level of involution of uterus among post - natal mothers in experimental and control group at 0.05 level of significance is accepted.

Table 3: The mean of experimental score is 7.13 and the control mean score is 4.27. The mean difference is 2.28 which indicate that there is difference in involution score of the postnatal subjects, N – 60

Aspects	Mean	Mean Difference	Standard Deviation	Standard Error	t' value	't' Value at df=58	Inference
Experimental group	7.13	2.86	1.28	0.329	8.69	2	*Significant
Control group	4.27		1.26				

Table value 't' $_{(58)}$ - 2.00 ∗ significant, p<.0.05

The association with the post - intervention involution scores of postnatal mothers of experimental group and selected demographic variables were analyzed by chi square test. The chi square value of family income per month, amount of lochia and the degree of afterpain are 12.72, 6.24, 4.03 at degree of freedom 2, 2, 1, which are greater than the table value 5.99, 5.99, 3.84 at 0.05 level of significance.

The chi square value of the age of mother in years, educational status, type of work, dietary pattern, parity, hours of labor pain, the range of body mass index, unhealthy habits are not found to be significant. Hence the research hypothesis (H_2) - There is an association with the post - interventional level of involution of uterus among postnatal mothers and selected demographic variables in the experimental and control group at 0.05 level of significance, is accepted.

Table 4: Chi – square value showing relationship with post - intervention involution of uterus score and selected demographic variables in experimental group, N – 30

S. No	Demographic Variable	Level of pain sore			Df	P value	Chi square (x2)	Inference
		Poor	Moderate	Good				
1	**Age of mothers in year**							
	19 - 25	0	5	7	2	5.99	1.87	Not significant
	26 - 32	0	5	10				
	33 - 39	0	0	3				
2	**Educational status**							
	Illiterate	0	0	0	0	0	0	Not significant
	Literate	0	10	20				
3	**Type of work**							
	Light	0	8	16	2	5.99	0.62	Not significant
	Moderate	0	1	3				
	Severe	0	1	1				
4	**Dietary Pattern**							
	Vegetarian	0	7	15	1	3.84	0.08	Not significant
	Non - Vegetarian	0	3	5				
5	**Family income per month**							
	< Rs.10.000	0	4	2	2	5.99	12.72	*Significant
	Rs, 10001 - Rs, 20000	0	6	5				
	>Rs.20001	0	0	13				
6	**Parity**							
	Primigravida	0	3	13	1	3.84	0.07	Not Significant
	Multigravida	0	7	7				
7	**Hours of labour pain**							
	01-Jun	0	2	7	2	5.99	4.77	Not significant
	07-Dec	0	8	11				
	13 - 18	0	0	2				

8	**Amount of Lochia**						
	Slight	0	9	8	2	5.99	6.24	∗**Significant**
	Moderate	0	1	8			
	Severe	0	0	4			
9	**The range of body mass index**						
	Normal	0	9	18	1	3.84	0	Not significant
	Below normal	0	0	0			
	Above normal	0	1	2			
10	**Any unhealthy habits**						
	Nil	0	10	20	0	0	0	Not significant
	Smocking	0	0	0			
	Alcoholism	0	0	0			
	Drug addiction	0	0	0			
11	**The degree of after pain**						
	Mild	0	5	9	1	3.84	4.03	***Significant**
	Moderate	0	1	15			
	Severe	0	0	0			

∗ *significant, p≤0.05*

Chi – square value showing relationship with post - intervention involution of uterus score and selected demographic variables in control group

The association with the post - interventional involution scores of postnatal mothers of control group and selected demographic variables were analyzed by chi square test. The chi square value of the chi square value of the age of mother in years, educational status, type of work, Dietary pattern, parity, the range of body mass, any unhealthy habits, are 2.31, 0, 2.51, 2.38, 0.056, 4.77 2.41, 0 at the degree of freedom 9.49, 0, 5.99, 5.99, 3.84, 5.99, 5.99, 0 respectively, whereas the table value as per the degree of freedom not more than the tabulated value at the degree of freedom. . The calculated chi square value of family income per month, hours of labour pain, amount of lochia, the degree of after pain are 10.66, 6.42, 14.71, 7.63 at degree of freedom 5.99, 5.99, 9.49, 5.99, at 0.05 level of significance. Hence there is significant association with socio demographic variables with the post - interventional involution score among postnatal mothers. Thus it proves H2 - There is an association with the post - interventional level of involution of uterus among postnatal mothers and selected demographic variables in the experimental & control group at 0.05 level of significance is accepted.

4. Discussion

None of the mothers had 'poor' involution of uterus in experimental group and 40% of mothers in control group.33% of subjects had moderate level of involution of uterus in experimental group whereas 53% in control group.67% of mothers had 'Good' level of involution of uterus in experimental group and 7% mothers in control group.

The paired 't' test computed between scores of experimental group's involution and control group's involution was statistically significant at 0.05 level of significance. The calculated' value (8.69) is greater than table value (t $_{58}$) = 2.00. Hence the research hypothesis is accepted. This shows that the consumption of the black cumin water for the involution of uterus among postnatal mothers is effective.

The association with the post - interventional involution scores of postnatal mothers of experimental group and selected demographic variables were analyzed by chi square test. The chi square value of family income per month, the amount of lochia, the degree of afterpain is 12.72, 6.96, 6.24 at degree of freedom 2, 2, 2 which is greater than the table value 5.99, 5.99, 5.99 at 0.05 level of significance.

The chi square value of the age of mother in years, educational status, type of work, dietary pattern, parity, hours of labor pain, the range of body mass index, unhealthy habits are not found to be significant. Hence the research hypothesis (H$_2$) – which says there is an association with the post - interventional level of involution of uterus among postnatal mothers and selected demographic variables in the experimental and control group at 0.05 level of significance, is accepted.

The association with the post - interventional involution scores of postnatal mothers of control group and selected demographic variables were analyzed by chi square test. The chi square value of the chi square value of the age of mother in years, educational status, type of work, dietary pattern, parity, the range of body mass, any unhealthy habits, are 2.31, 0, 2.51, 2.38, 0.56, 2.41, 0 at the degree of freedom 4, 0, 2, 2, 1, 2, 0 which is greater than the table value 9.49, 0, 5.99, 5.99, 3.84, 2,, 0 respectively, whereas the table value as per the degree of freedom not more than the tabulated value at the degree of freedom. The calculated chi square value of family income per month, hours of labour pain, amount of lochia, the degree of after pain are 10.66, 6.42, 14.71, 7.63 at degree of freedom 4, 2, 4, 2, which is greater than the table value 9.49, 5.49, 9.49, 5.99 at 0.05 level of significance. Hence there is significant association with socio demographic variables with the post - interventional involution score among postnatal mothers. Thus it proves H2 - There is an association with the post - interventional level of involution of uterus among postnatal mothers and selected demographic variables in the experimental & control group at 0.05 level of significance is accepted.

Limitations:
It is difficult to get cooperation from the subjects due to stay in the hospital 3days following normal vaginal delivery.

5. Conclusion

The usual involution of uterus immediately in the postnatal period is very poor when compared to the book. This requires some interventions to improve the rate of involution of uterus. The findings of the study revealed that there was no significant association between demographic variables and post interventional score of involution of uterus among postnatal mothers of experimental and control group. The research hypothesis H_1 - There is difference in the post - interventional level of involution of uterus among postnatal mothers in experimental and control group at 0.05 level of significance.

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Nil

Conflict of Interest:
There are no conflicts of interest.

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