Original Research

ASSESSING THE IMPACT OF PHARMACIST INTERVENTION ON ENHANCING KNOWLEDGE, ATTITUDE, AND PRACTICE IN POSTNATAL CARE- A COMMUNITY-BASED CROSS-SECTIONAL STUDY

Vinola Shrim Mishmsa S[1], Shajin j[2], Krishna Ravi[3*]

[1] *Ms. Vinola Shrim Mishma S, Pharm.D., svsmishma@gmail.com, JKK Nattraja College of Pharmacy, Kumarapalayam, Namakkal, Tamil Nadu, India, 8870743120*
[2] *Mr. Shajin J, Pharm.D., shajinofficial@gmail.com JKK Nattraja College of Pharmacy, Kumarapalayam, Namakkal, Tamil Nadu, India, 6383744613*
[3*] *Dr. Krishna Ravi, Pharm.D., drkrishnaravi.7kr@gmail.com JKK Nattraja College of Pharmacy, Kumarapalayam, Namakkal, Tamil Nadu, India, 9074578052*

KEYWORDS

postnatal care, neonatal, maternal, danger signs, breast feeding.

ABSTRACT

Background: Postnatal care is critical for the well-being of both mothers and infants, yet it is often overlooked. This study aimed to assess and improve knowledge, attitudes, and practices related to postnatal care among the general public and pregnant women in the Kumarapalayam region.

Objective: The objectives of this study are to assess the knowledge of participants about postnatal care, identify the barriers associated with postnatal care service utilization, create awareness about postnatal care by providing PNC counseling, and evaluate the impact of counseling on Knowledge, Attitudes, and Practices (KAP) through a post-counseling questionnaire.

Materials and Methods: The study was conducted through a community-based cross-sectional design between March and September 2023. A total of 498 participants, including males, females, and pregnant women, were included in the study. Data was collected using a self-developed questionnaire, and open-ended questions were incorporated to capture individual perspectives. The study involved face-to-face interviews with the general public and pregnant women. Pharmacist interventions, including counselling and pamphlets, were provided to improve knowledge and attitudes. Data analysis was performed using SPSS, and ethical considerations were observed.

Results: The study revealed that while there was less awareness and knowledge about maternal danger signs and postnatal care, notable gaps existed, particularly among males and pregnant women. When comparing the pre-counselling and post-counselling mean scores in the general community, there is a knowledge mean difference of 6.95 and an attitude mean difference of 1.86. When comparing the pre and post-counselling mean scores in pregnant women, the knowledge mean difference is 7.35, attitude mean difference is 2.09, and practice mean difference is 1.35. The p-value of <0.05 indicates a statistically significant increase in knowledge, attitude, and improvement in practice from pre to post-intervention due to pharmacist intervention.

Conclusion: Targeted educational interventions are essential to improve awareness, especially among males and pregnant women. Understanding and respecting cultural beliefs are crucial when promoting maternal and infant health. Barriers to accessing postnatal care must be addressed, and education campaigns should fill gaps in knowledge related to maternal danger signs, postnatal care, and infant care practices. This study enhancing maternal and infant health in the Kumarapalayam region.

INTRODUCTION:

Pregnancy brings about many changes in the women's body which continue even after the baby is born. Postnatal refers to all issues relating to the mother and child after birth. In contrast, the postnatal period starts immediately after birth and for the first six weeks of life.[1] The days and weeks after birth are critical for a woman and her newborn child as their risk of developing long-term health problems were high. This postnatal period is also a period of adaptation to multiple changes, physiologically, socially, and psychologically. The well-being and chance of staying free of morbidity or mortality are much dependent upon the care given during pregnancy, delivery, and most importantly after delivery, the time when many maternal and neonatal deaths take place. Therefore, lack of care during the postnatal period may end up in death or morbidity as well as missed opportunities for various healthy behaviors benefiting the mother and her newborn.[2] Almost half of postnatal maternal deaths occur within the first 24 hours and 66% occur during the first week. [3]

Postnatal Visit: The World Health Organization (WHO) suggests that a woman and her infant have postnatal visits at least three times within the first six weeks after birth. The first should occur within 48–72 hours after birth (irrespective of the place of childbirth), the second between seven and 14 days, and the third at six weeks. However, postnatal care utilization remains low worldwide. In many parts of the world, postnatal care is often overlooked as a critical component of maternal and newborn health.

Postnatal care includes: 1) Physical recovery includes the management of pain, the prevention and treatment of infection, and monitoring of postpartum bleeding. 2) Support for breastfeeding includes education and support for the mother, the management of breastfeeding difficulties, and feeding patterns. 3) Family planning includes counselling and education on contraception options, to help the mother and her partner make informed decisions about future pregnancies. 4) Newborn care includes monitoring the infant's vital signs conducting a thorough physical examination and providing education on newborn care including feeding, bathing, and diapering. 5) Emotional support includes counseling to women as needed, including screening for postpartum depression. 6) Prevention of complications includes prevention of infections, as well as management of any existing conditions.[4]

MATERIALS AND METHODS:

Study setting and period:

This study was conducted in and around Kumarapalayam between March, 2023 and September, 2023.

Study design:

A community based cross sectional study was conducted to assess and improve the knowledge, attitude, and practice in postnatal care among general public and pregnant women in kumarapalayam region.

Sample:

People who are living in kumarapalayam, all genders above 18 years old, pregnant women, who is willing to participate in the study, were included. People with psychiatric disorder were excluded from the study.

Sample size:

A total sample of 498 respondents was calculated using RAOSOFT with a 5% margin of error and 95% confidence interval. Male n=174, Female n=270, Pregnant women n=54.

Data collection instrument:

Data was gathered using a self-developed questionnaire based on an in-depth literature study. To improve the quality and accommodate individual perspectives and viewpoints, open-ended questions were used.

Data collection procedure:

Firstly in the general public (men and women) above the age of 18, the data were collected through face-to-face interviews. The questionnaire was administered to assess the knowledge and attitude in postnatal care and then we (pharmacist intervention) provided counselling and pamphlets (in English and Tamil language) to improve their knowledge and attitude and readminister the same set of questions to evaluate that they had improved in their postnatal care knowledge and attitude. Second, we chose the above 8-month pregnant women and followed the same procedure that we did in the general public to assess and improve their knowledge and attitude, and we followed up with the pregnant women in their postpartum period (after 3 weeks of delivery) to assess their practice in postnatal care through face to face interviews. We conduct the practice questionnaire to assess postpartum women's practice and provide counselling to help them improve their postnatal care practice. Then readminister the practice questionnaire to see how much their postnatal care practice has improved.

Data analysis:

The data were entered in Microsoft excel and analysed using SPSS version 27. The positive responses were assigned a score “2” and acceptable answers were scored as “1” and “0” score for negative responses. The total score for knowledge is 17 and 10 for attitude and 7 for practice. The data were described using frequency (percentage), mean, standard deviation, as appropriate. To assess the impact of pharmacist intervention, Mann Whitney U test and Paired t test are used.

Ethical considerations:

This study was approved by the JKKN institutional ethical committee. Prior to taking the questionnaire, participants completed consent forms after the aim, objective and study methodology were made clear to them.

RESULTS:

Out of 498 participants, 174 male, 270 female and 54 were pregnant women. The male and female participants were considered as general public. In that 498 participants, the largest age group was 15-24 years (45.98%), followed by 25-39 years (37.75%), 40-54 years (10.84%), and 55-69 years (5.42%). When come to residential category, 68.48% lived in rural areas, 31.52% resided in urban areas. Occupation of participants includes, 55% were Non-working, 27.71% were working, and 17.26% were Professionals. Education wise categorization includes, a majority (38.55%) was Graduates, followed by those in the Medical and Para Medical fields (28.71%). While those with only a School level education constituted 25.71%, the Illiterate participants made up the smallest group at 7.42%.

Table 1: demographic characters.

Knowledge: Out of a total of 498 participants, only 38.55% were heared about postnatal care. Only 17.26% of the participants displayed a good understanding of infant danger signs, and 44.57% of the participants were able to identify a minimum of two infant danger signs, 38.15% were not knows any infant danger signs. 16.06% of the participants have a strong awareness of maternal danger signs, while 42.77% of them can recognize at least two maternal danger signs and 41.16% of the participants are don’t know any maternal danger signs. When presented with danger indications, 47.79% of people prefer to seek care at a hospital and 20.88% seeks home remedies. Healthcare providers (67.67%) were the most common source of postnatal care information, followed by family or neighbors (45.18%) and social media (29.71%), with a small minority (0.60%) expressing confusion.

For keeping baby warm, 48.59% favored skin-to-skin contact, 54.81% opted for wrapping the baby with cloth. On caring umbilical cord, 33.53% are observed to practice cleaning and drying the umbilical cord, while a notable 60.44% of participants lack knowledge regarding umbilical care.

Frequency of breastfeeding per day shows that, 34.13% of participants reported breastfeeding their infants eight times daily, while 33.73% of participants stated they breastfed between four to six times a day. A significant majority of 71.48% of participants reported that they prefer breast milk to their babies for up to six months, while 5.4% of participants stated they prefer breast milk up to four months.

50.40% of participants say that the newborn should expose to sunlight <30 min. 63.25% expressed a preference for not using cosmetics. 36.74% indicated a preference for using cosmetics. 20.68% of participants are aware that expressed breast milk can be stored in the refrigerator for up to four days, while 36.34% of participants indicated that they choose not to store expressed breast milk. Both the groups of "General Public" (Male and Female) and "Pregnant Women" exhibit knowledge score mean±SD values of 8.9 ± 3.85 and 7.62 ± 3.97 respectively.

Table 2: knowledge on postnatal care:

Attitude: Having cultural beliefs among participant's shows that, 37.95% acknowledged having cultural beliefs, while 62.04% reported not having such beliefs. Reasons for following cultural beliefs included avoiding going outside before 40 days (29.71%), concerns about potential harm (13.45%), and adherence due to elder influence (37.34%), with a small portion citing other reasons (0.6%). When it came to cesarean sections, 62.04% of respondents said they would rather not use horoscopes, whilst 18.87% said they would rather use horoscope for cesarean birth. Attitude on traditional mode of care includes, 52.02% perceived traditional modes of care as good, 21.28% as bad, 26.70% were don't know to judge whether it is good or bad. The majority sought emotional support (62.65%) and physical support (60.44%) as postnatal services, while a significant proportion also required financial support (42.16%), and a smaller percentage felt no service was needed (20.28%).

The attitudes toward allowing neighbors or relatives to caressing the baby 37.34% answered Yes, 30.72% answered No, and 31.92% responded with Sometimes. On babies undergarment usage, 29.71% used diapers, 18.67% used cloth, 51.00% used cloth mainly and diaper occasionally, and a small percentage expressed uncertainty (0.40%), with differing practices among males, females, and pregnant women.

The general community 5.70 ± 1.70 has slightly higher mean ± SD scores for attitude compared to pregnant women 5.37 ± 1.98.

On comparing the knowledge and attitudes of male and female shows that, Males scored significantly lower in knowledge and attitude compared to females, as indicated by p-values less than 0.05 (Mann Whitney U test), suggesting notable gender-based differences in both areas.

On comparing knowledge and attitude between general community and pregnant women, there is a statistically significant difference in the knowledge scores between the general community and pregnant women, with the former having a slightly higher mean score (p-value < 0.05). However, attitude scores are not significantly different between the two groups (p-value > 0.05).

Table 3: attitude on postnatal care:

Practice: Among the surveyed Postpartum women (n=54), Number of postnatal visits that postpartum women done is only 7.4% for three postnatal visits, while the majority of participants choose to visit the hospital only when either the baby or the mother falls ill

40.7%. Barriers to attain postnatal care includes, the most common barriers to postnatal care are a lack of information on postnatal care (48.1%) and financial problems (11.1%). Additionally, 18.5% cited the absence of services in their areas, and 7.4% mentioned time constraints. Notably, 29.6% reported no specific barriers to accessing postnatal care.

Only 46.3% postpartum women were learned about postnatal care during pregnancy. Among that, 60% were learnt from healthcare providers, 56% from family members and 44% from online sources. Giving any food or drink other than breast milk for the baby results that 42.59% says yes. Only 22.22% women were drinking sufficient amount of water during their postpartum (3.7L / day). The average mean related to postpartum women in the study is 3.67 with a standard deviation of 1.40

Table 4: practice on postnatal care:

Impact of pharmacist intervention in general community: while comparing the pre counselling and post counselling mean scores in general community, the knowledge mean difference is 6.95 and the attitude mean difference is 1.86. Mean Difference provides a straightforward indication of the average score change from pre to post-intervention. A very small p-value <0.001 indicates that both cases' observed differences are statistically significant (paired t test). Therefore our pharmacist intervention increases the knowledge and attitude in the general community.

Table 5: Impact of pharmacist intervention:

Impact of pharmacist intervention in pregnant women: while comparing the pre and post counselling mean scores in pregnant women includes, the knowledge mean difference is 7.35, attitude mean difference is 2.09, and the practice mean difference is 1.35. The p-value of <0.05 indicates a statistically significant increase in knowledge, attitude, and enhancement in practice from pre to post-intervention due to pharmacist intervention.

DISCUSSION:

This study identified significant gender differences in awareness and knowledge regarding postnatal care, with females showing higher levels of awareness about maternal danger signs and infant care practices compared to males. The demographic profile, primarily composed of females and young participants, highlights the need to target educational interventions at younger age groups.

The finding that only 38.55% of participants were aware of postnatal care underscores a critical gap in knowledge. This is comparable to other studies that have also found low awareness levels. The preference for hospital-based care (47.79%) indicates confidence in healthcare providers, suggesting that enhancing the skills and knowledge of healthcare professionals in postnatal care is crucial.

Cultural beliefs significantly influenced postnatal care behaviors, with 37.95% of participants acknowledging such beliefs. These cultural practices, including the use of horoscopes for cesarean sections, emphasize the need for culturally sensitive health promotion strategies. The perception of traditional care methods as beneficial (52.02%) also highlights the importance of integrating culturally appropriate practices with modern healthcare.

The study revealed barriers to postnatal care, including lack of information, financial problems, and absence of services. Addressing these barriers through robust public health campaigns and digital health interventions could improve postnatal care utilization. The positive impact of pharmacist intervention in increasing knowledge, attitude, and practice among both the general community and pregnant women was statistically significant, suggesting that such interventions are effective in enhancing postnatal care outcomes.

In conclusion, this study highlights the importance of targeted educational interventions and culturally sensitive approaches to improve postnatal care awareness and practices, addressing the identified barriers to enhance maternal and infant health outcomes.

CONCLUSION:

Many participants demonstrated awareness of maternal danger signs and postnatal care, but knowledge gaps, especially among males and pregnant women, underscore the need for targeted educational interventions. Cultural beliefs strongly influenced attitudes and behaviors related to maternal and infant care, emphasizing the importance of respecting these beliefs in healthcare promotion. Common barriers to postnatal care included information gaps, financial issues, limited services, and time constraints. Some respondents didn't specify barriers, indicating a need for improved support and education. The study highlighted areas of uncertainty, pointing to the necessity of health education and awareness campaigns addressing knowledge gaps in maternal danger signs, postnatal care, and infant care practices.

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REFERENCE:

1. Alkema L, Zhang S, Chou D, et al. A Bayesian approach to the global estimation of maternal mortality. *The Annals of Applied Statistics.* 2017;11(3):1245-1274.
2. World Health Organization, United Nations Population Fund, World Bank, United Nations Children's Fund (UNICEF). *Pregnancy, Childbirth, Postpartum and Newborn Care: A Guide for Essential Practice*. 3rd ed. World Health Organization; 2015.
3. Beraki GG, Tesfamariam EH, Gebremichael A, et al. Knowledge on postnatal care among postpartum mothers during discharge in maternity hospitals in Asmara: a cross-sectional study. *BioMed Central of Pregnancy Childbirth.* 2020;20(1):17.
4. World Health Organization. Counselling for maternal and newborn health care : a handbook for building skills. Published online 2013.
5. Roney E, Morgan C, Gatungu D, et al. Men's and women's knowledge of danger signs relevant to postnatal and neonatal care-seeking: A cross sectional study from Bungoma County, Kenya. *PLoS One*. 2021;16(5):e0251543. Published 2021 May 13.
6. Yosef T, Tesfaye M. Pregnancy danger signs: Knowledge and health-seeking behavior among reproductive age women in southwest Ethiopia. *Womens Health* . 2021;17:17455065211063295.
7. Dol J, Hughes B, Tomblin MG, et al. Canadian Women's Experience of Postnatal Care: A Mixed Method Study. *Canadian Journal of Nurses*. 2022;54(4):497-507.
8. Pathak PK, Singh JV, Agarwal M, Kant S. Postnatal newborn care practices and knowledge of newborn danger signs among mothers in rural area of Lucknow, Uttar Pradesh: A cross-sectional study. *Journal of Family Medicine and Primary Care*. 2021;10(1):300-306.

TABLES:

Table 1: demographic characters:

Domain	Number of participants (n=498)	Percentage (%)
Residence		
Rural	341	68.48
urban	157	31.52
Occupation		
Non working	274	55
Working	138	27.71
Professionals	86	17.26
Education level		
Illiterate	37	7.42
School level	126	25.71
Graduates	192	38.55
Medical and para medical	143	28.71

Table 2: knowledge on postnatal care:

Knowledge on postnatal care	Male (n=174)	Female (n=270)	Pregnant women (n=54)	Total number of participants (n=498)	Percentage (%)
Ever heared of postnatal care					
Yes	67	119	6	192	38.55
No	72	75	27	174	34.93
May be	35	76	21	132	26.5
Knowledge of infant danger sign					
I Don't know any danger signs	81	88	21	190	38.15
I Know atleast 2 danger signs	58	135	29	222	44.57
Well known about danger signs	35	47	4	86	17.26
Knowledge of maternal danger sign					
I Don't know any danger signs	91	91	23	205	41.16
I Know atleast 2 danger signs	54	135	24	213	42.77
Well known about danger signs	29	44	7	7	16.06
Where you go after danger sign					
Hospital	75	113	50	238	47.79
Home remedies	41	50	13	104	20.88

Stay home and do nothing	0	6	1	7	1.40
I don't know	11	7	3	21	4.21
Source of postnatal care information					
From healthcare providers	108	198	31	337	67.67
From family or neighbours	67	111	47	225	45.18
From Social medias	46	95	7	148	29.71
I don't know	2	1	0	3	0.60
To keep baby warm					
Skin to skin contact	65	161	16	242	48.59
Wrap the baby with cloth	80	150	43	273	54.81
Do nothing	20	19	2	41	8.23
I don't know	35	26	4	65	13.05
Umbilical care					
Don't apply anything (clean and dry)	59	79	29	167	33.53
I don't know	108	171	22	301	60.44
Apply something i.e. ash, oil, powder, etc..	7	20	3	30	6.02
Frequency of breast feeding					
8 times per day	30	124	16	170	34.13
4-6 times per day	69	83	16	168	33.73
When baby cries	51	22	11	84	16.86
I don't know	24	41	11	76	15.26
How long baby should feed breast milk only					
Upto 2 months	5	11	2	18	3.61
Upto 4 months	12	15	0	27	5.4
Upto 6 months	103	212	40	355	71.48
I don't know	54	32	12	98	19.67
Duration of sunlight exposure					
<30 min	75	143	33	251	50.40
30-60 min	43	75	12	130	26.10
I don't know	44	45	7	96	19.27
Don't show in sunlight	12	7	2	21	4.21
Using of Cosmetics					
Prefer	72	79	32	183	36.74
Not prefer	102	191	22	315	63.25
Storing Expressed Breast Milk					
Yes	35	62	6	103	20.68
No	58	104	19	181	36.34
I don't know	81	104	29	214	42.97

Mean ± SD	8.9 ± 3.85	7.62 ± 3.97	

Table 3: attitude on postnatal care:

Attitude on postnatal care	Male (n=174)	Female (n=270)	Pregnant women (n=54)	Total number of participants (n=498)	Percentage (%)
Having Cultural Belief					
Yes	72	89	28	189	37.95
No	102	181	26	309	62.04
Reasons For Following Cultural Belief					
Cannot go outside before 40 days	53	71	24	148	29.71
Devil will catch them on the way	24	36	7	67	13.45
I don't have cultural belief but follows because of elders said.	61	120	5	186	37.34
Other reasons	2	1	0	3	0.6
Follow Horoscope for Ceserian Delivery					
Yes	37	54	3	94	18.87
No	97	163	49	309	62.04
Sometimes	40	53	2	95	19.07
Traditional Mode of Care					
Good	99	136	24	256	52.02
Bad	31	65	10	106	21.28
Don't know	44	69	20	133	26.70
Which postnatal service is important??					
Emotional support	96	199	17	312	62.65
Physical support	95	176	30	301	60.44
Financial support	74	129	7	210	42.16
No service needed	32	50	19	101	20.28
Others	2	0	0	2	0.40
Allowing neighbours or relatives to caressing Baby					
Yes	77	94	15	186	37.34
No	56	83	14	153	30.72
sometimes	41	93	25	159	31.92
Baby's underwear usage					
Diaper	69	69	10	148	29.71
Cloth	26	40	27	93	18.67
Cloth mainly and diaper occasionally	78	159	17	254	51.00
I don't know	1	2	0	2	0.40
Mean ± SD	5.70 ± 1.70		5.37 ± 1.98		

Table 4: practice on postnatal care:

Practice on Postnatal care	Pregnant women (n=54)	Percentage (%)
Postnatal visits		
No visit	5	9.3
1 visit	2	3.8
2 visit	5	9.3
3 visit	4	7.4
Whenever baby and mother get sick	22	40.7
I don't know	14	27.8
Barriers		
Financial problems	6	11.1
Lack of information on postnatal care	26	48.1
Lack of service in their areas	10	18.5
Time constraints	4	7.4
Baby and mother were healthy	13	24.1
No barriers	16	29.6
Do you learned about postnatal care during pregnancy?		
Yes	25	46.3
No	29	53.7
Source of information		
From healthcare providers	15	60
From family members	14	56
From online	11	44
Giving any food or drink for your baby other than breast milk		
Yes	23	42.59
No	31	57.40
Drinking a sufficient amount of water during postpartum? (3.7L / day)		
Yes	12	22.22
No	42	77.77
Sleeping position that you prefer for your newborn		
Stomach sleeping	0	0
Side sleeping	0	0
Back sleeping	54	100
Mean ± SD	3.67 ± 1.40	

Table 5: Impact of pharmacist intervention:

S.no	Domain	Pre-counselling (mean ± SD)	Post-counselling (mean ± SD)	Mean difference	*p*-value
Impact of pharmacist intervention in general community					
1	Knowledge	8.91 ± 3.85	15.85 ± 1.30	6.95	< 0.001*
2	Attitude	3.32 ± 1.49	5.81 ± 1.37	1.86	< 0.001*
* Statistically significant at <0.001					
Impact of pharmacist intervention in pregnant women					
1	Knowledge	7.63 ± 3.98	14.98 ± 1.88	7.35	<0.05*
2	Attitude	3.80 ± 1.71	5.89 ± 1.42	2.09	<0.05*
3	Practice	3.67 ± 1.40	4.72 ± 0.49	1.35	<0.05*
* Statistically significant at <0.05					