RESEARCH
O&G Forum 2024; 34-3s: 2737-2744

STUDY ON ANTENATAL CARE PACKAGE'S IMPACT ON PRIMIGRAVIDA WOMEN'S KNOWLEDGE, ATTITUDE AND PRACTICE IN DEHRADUN, UTTARAKHAND

Neha Ali[1], Ms. Laxmi Kumar[2*], Ms. Sanjenbam Emon Chanu[3]

[1]Department of Obstetrics and Gynaecological Nursing, Himalayan College of Nursing, SRHU Dehradun, Uttarakhand, India
[2*]Department of Obstetrics and Gynaecological Nursing, Himalayan College of Nursing, SRHU, Dehradun, Uttarakhand, India.
[3]Department of Child Health Nursing, Himalayan College of Nursing, SRHU Dehradun, Uttarakhand, India

Abstract
Background: Each year, approximately 330,000 women die from pregnancy-related issues, with 20% of these deaths in India. Understanding the knowledge, attitudes, and practices (KAP) surrounding antenatal check-ups (ANC) is crucial for public healthcare, as ANC plays a pivotal role in reducing infant and maternal mortality. This study aims to assess the effectiveness of the Antenatal Care Package (ANCP) on primigravida women regarding ANC and its correlation with sociodemographic factors. Methods: Using a quantitative approach, 65 primigravida mothers were selected during antenatal OPD visits for a pre-test and post-test design. Data were collected using pretested tools consisting of socio-demographics, a knowledge questionnaire, attitude, and a practice scale on various ANC domains. Statistical analysis included the Non-parametric Wilcoxon signed rank test and Spearman's rho test with $p < 0.05$ denoting significance. Results: The study demonstrated a substantial average increase of 7.07 in knowledge scores (z-score: 7.875, p-value: 0.001), 2.89 in attitude scores (z-score: 6.088, p-value: 0.001), and 10.81 in practice scores (z-score: 7.625, p-value: 0.001) post-intervention, confirming its effectiveness. Positive associations were found between knowledge and attitude ($\rho = 0.728$), knowledge and practice ($\rho = 0.507$), and practice and attitude ($\rho = 0.463$). Significant relationships were also noted between KAP scores and demographic factors like age, education, and spouse, underscoring their impact on primigravida women's KAP scores in antenatal care. Conclusion: The study concludes that the ANCP effectively enhances awareness, improves attitudes, and enhances behavioral practices concerning antenatal care. It suggests regular training sessions and reinforcements to sustain improvement in antenatal care practices among primigravida women.
KEYWORDS: Knowledge, attitude, practice, primigravida women, antenatal care, and Antenatal care package.

1. INTRODUCTION

Pregnancy represents a transformative phase in a woman's life, characterized by excitement and hope, irrespective of whether it is planned or unexpected[1]. The cornerstone of ensuring the well-being of expectant mothers and their unborn babies is antenatal care (ANC), a comprehensive healthcare service offered by skilled professionals. This care initiates before conception, spans the entire pregnancy, and extends into the postpartum period[2]. Globally, the toll of gestational-related illnesses claims approximately one-third of a million women each year, with a staggering 99% of these deaths concentrated in developing nations. In India alone, contributing to 20% of global deaths, around 44,000 women annually succumb to preventable antenatal-related conditions[3].

Despite a decline in maternal deaths, falling from 212 to 130 per 100,000 live births between 2007 and 2014-16 in India, this progress falls short of the Sustainable Development Goal (SDG) target of 70 deaths per 100,000 live births[4]. Global guidelines stress the importance of regular ANC visits to mitigate maternal and perinatal mortality risks. The World Health Organization (WHO) recommends initiating ANC and attending a minimum of 4 visits (ideally 8) during pregnancy. However, from 2010 to 2016, only 62% of expectant mothers worldwide received the suggested quantity of visits.[5] These sessions offer crucial health and dietary guidance, screenings, and necessary management, mitigating the risk of low birth weight and reducing rates of perinatal and infant mortality associated with inadequate or substandard antenatal care.[6]

In India, challenges persist in ensuring equitable access to quality ANC, particularly in underdeveloped regions, as revealed by a nationwide survey indicating that only 21% of women in their reproductive age receive complete ANC. Factors such as lower maternal education, lack of spouse participation, higher birth ranking, and adolescent pregnancy contribute to suboptimal utilization of complete prenatal care.[7] Maternal malnutrition, marked by prevalent iron deficiency leading to anemia, affects 52% of women aged 15-49 in India. Limited consumption of iron and folic acid supplements highlights disparities influenced by education, wealth, prenatal appointments, community health worker engagement, and household poverty.[8]

Despite progress in healthcare services for pregnant women and newborns in India, barriers to accessing and utilizing these services persist, particularly in remote areas. Factors such as

older age, illiteracy, manual labor, marriage to an unemployed individual, and poor socioeconomic status hinder the receipt of complete ANC. The Indian government, through initiatives like Janani Suraksha Yojana (JSY), Janani Shishu Suraksha Karyakram (JSSK), Pradhan Mantri Matru Vandana Yojana (PMMVY), and Surakshit Matritva Aashwasan (SUMAN), demonstrates commitment to improving healthcare access and reducing preventable maternal and neonatal deaths, with healthcare professionals playing a vital role in this transformative journey by providing quality healthcare services and promoting overall well-being. [9,10,11.] This research study aims to enhance the positive expectancy experience for mothers by educating them on self-care practices, empowering them to make informed decisions, and effectively utilizing antenatal care services.

2. METHODS

2.1 Research design, sampling method and tools, data collection and statistical analysis.

This study involved 65 primigravida women attending the antenatal (OPD) at CHC Doiwala, Dehradun, Uttarakhand. It utilized a quantitative approach with a one-group pre-test and post-test design. Data collection instruments included knowledge questionnaires, attitude, and practice scales, organized into five domains. Statistical analysis included the Non-parametric Wilcoxon signed rank test and Spearman's rho test using SPSS v20.The 35-point score was converted to percentages for assessing knowledge levels in pregnant women: >75% good knowledge, 50% -75% average knowledge, and <50% poor knowledge. Similarly, the 100-point score determined attitudes: <50% poor attitude, 50%-75% neutral attitude, and >75% positive attitude towards ANC among pregnant women. In practice, a total of 60 scores were graded as <50% poor, 50%-75% fair, and >75% good practice among pregnant women.

3. RESULTS

3.1 Demographic characteristics and clinical profile characteristics

Information on participants enrolled in the present study was collected **(Table 1).**

Table 1: Frequency and distribution percentage of demographic variables and clinical profile of primigravida women. n = (65)

S.No	Section a) Demographic variables	Frequency (f)	Percentage (%)
1.	**Age**		
	a) 18 - 25 years	47	72.3
	b) 26 - 33 years	18	27.7
2.	**Education status**		
	a) No formal education	9	13.8
	b) Primary education	19	29.2
	c) Secondary education	15	23.1
	d) Graduation	22	33.8
3.	**Education status of the spouse**		
	a) No formal education	4	6.2
	b) Primary education	22	33.8
	c) Secondary education	20	30.8
	d) Graduation	19	29.2
4.	**Occupation**		
	a) Housemaker	58	89.2
	b) Government employee	1	1.5
	c) Private employee	6	9.2
5.	**Occupation of spouse**		
	a) Government employee	5	7.7
	b) Private employee	24	36.9
	c) d) Self-employed	36	55.4
6.	**Type of family**		
	a) Nuclear	17	26.2
	b) Joint	48	73.8
7.	**Dietary pattern**		
	a) Vegetarian	11	16.9
	b) Non-vegetarian	48	73.8
	c) Eggetarian	6	9.2
8.	**Area of living**		
	a) Rural	37	56.9
	b) Urban	28	43.1
9.	**Monthly Family Income in Rs/-**		
	a) 8000-15,000	37	56.9
	b) 15001-30,000	20	30.8

	c) 30001-45,000 d) 45001-60,000	7 1	10.8 1.5
10a.	**Previous information on Antenatal care package**. a) Yes b) No	 26 39	 40 60
10b	**Source the information. (n=26)** a) Health team members (Doctor, Nurses, Asha) b) Family members, friends, and neighbors. c) Mass media.	11 8 7	16.9 12.3 10.8
SECTION b). Clinical profile of primigravida women			
1.	**Duration of marriage life (years)** a) < 1 -3 b) 4 - 6 years	 58 7	 89.2 10.8
2.	**Trimester** a) First trimester b) Second trimester	 39 26	 60 40
3.	**Pregnancy conceived by** a) Spontaneous b) After taking treatment	 55 10	 84.6 15.4
4.	**Present Haemoglobin level in mg/dl** a) 8 - 11 b) ≥11 – 14	 18 47	 27.7 72.3
5.	**Accompanying person to visit the health care center n=65)** a) Family members b) Asha c) Family members & Asha.	 28 20 17	 43.1 30.8 26.2
6	**Registration under govt maternal services (n=35)** a) JSSY b) PMVVY c) Both	 14 11 10	 21.5 16.9 15.4

3.2 Proficiency of intervention (ANCP) in terms of knowledge, attitude, and practice (Table 2).

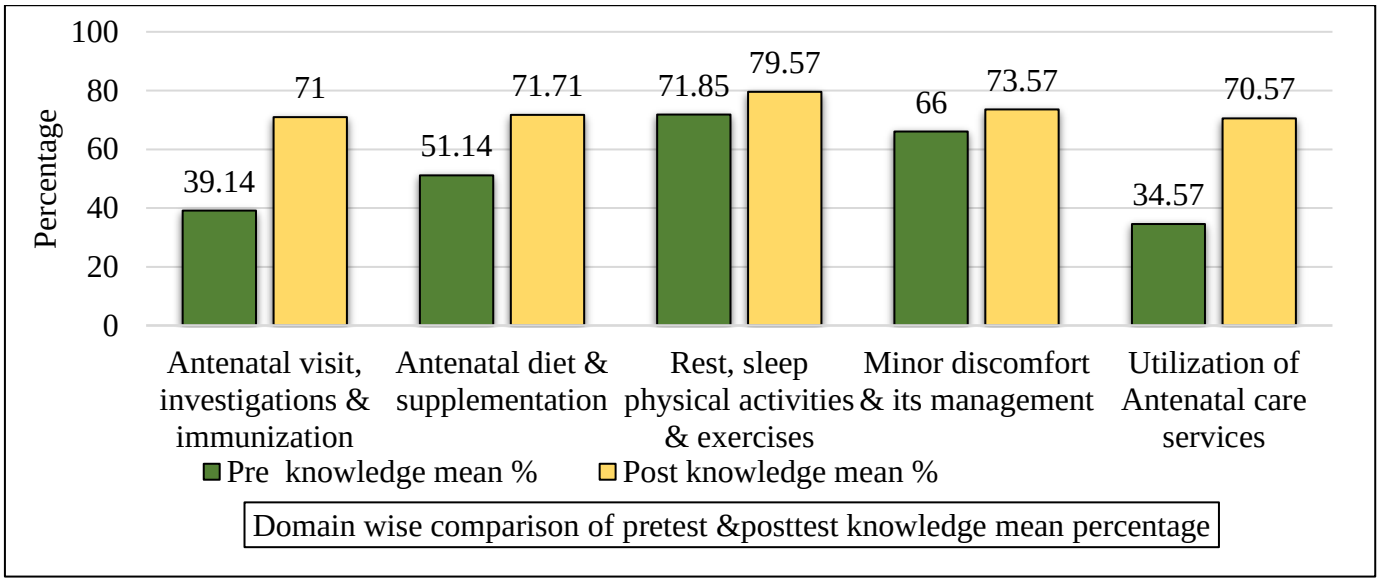
In this study, we employed the Wilcoxon signed rank test to assess the impact of an antenatal care package (ANCP) intervention. Our findings demonstrated substantial enhancements in knowledge (z-value = 6.966), attitudes (z-value = 6.008), and practices (z-value = 6.955) (with a p-value < 0.001), supporting our hypothesis that the ANCP intervention effectively boosted post-test knowledge beyond the initial baseline. **(Table 2 & 3).** The study also included a Domain-wise comparison of the pretest & post-test mean percentage of knowledge, attitude, and practice scores of primigravida mothers regarding antenatal care **(Fig 1).** To sum up, our research offers compelling evidence that the ANCP intervention led to significant improvements in knowledge, attitudes, and practices among participants, making a valuable contribution to the field of antenatal care research.

Table: 2 Overall Knowledge, Attitude, and Practices of primigravida women before and after the intervention.

1.	**Level of knowledge**	**Knowledge score**	**Pre-test**		**Post-test**	
			Frequency	Percentage	Frequency	Percentage
a).	Poor (<50%)	0-18	33	50.8	2	3.1
b).	Average (50%-75%)	19-27	30	46.2	45	69.2
c).	Good (>75%)	28-35	2	3.1	18	27.7
2.	**Level of attitude**	**Attitude score**	**Pre-test**		**Post-test**	
			Frequency	Percentage	Frequency	Percentage
a).	Poor (<50%)	0-50	-	-	-	-
b).	Neutral (50%-75%)	51-75	44	67.7	31	47.7
c).	Positive (>75%)	76-100	21	32.3	34	52.3
3.	**Level of practice**	**Practice score**	**Pretest**		**Post-test**	
			Frequency	Percentage	Frequency	Percentage
a).	Poor (<50%)	0-30	44	67.7	2	3.1
b).	Fair (50%-75%)	31-45	19	29.2	55	84.6
c).	Good (>75%)	46-60	2	3.1	8	12.3

Table 3: Result of Wilcoxon signed rank test (Proficiency of intervention (ANCP)
Ranks (n=65)

		N	Mean Rank	Sum of Ranks
post-knowledge total: pre-knowledge total:	Negative Ranks	0	0.00	0.00
	Positive Ranks	64	32.50	2080.00
	Ties	1		
	Total	65		
Post-attitude total: Pre-attitude total:	Negative Ranks	0	0.00	0.00
	Positive Ranks	47	24.00	1128.00
	Ties	18		
	Total	65		
Post-practice total: Pre-practice total:	Negative Ranks	1	1.00	1.00
	Positive Ranks	63	33.00	2079.00
	Ties	1		
	Total	65		
Test Statistics		Post knowledge total – Pre knowledge total	Post attitude total – Pre attitude total	Post practice total – Pre practice total
Z Asymp. Sig. (2-tailed)		-6.966	-6.008	-6.955
		.001	.001	.001



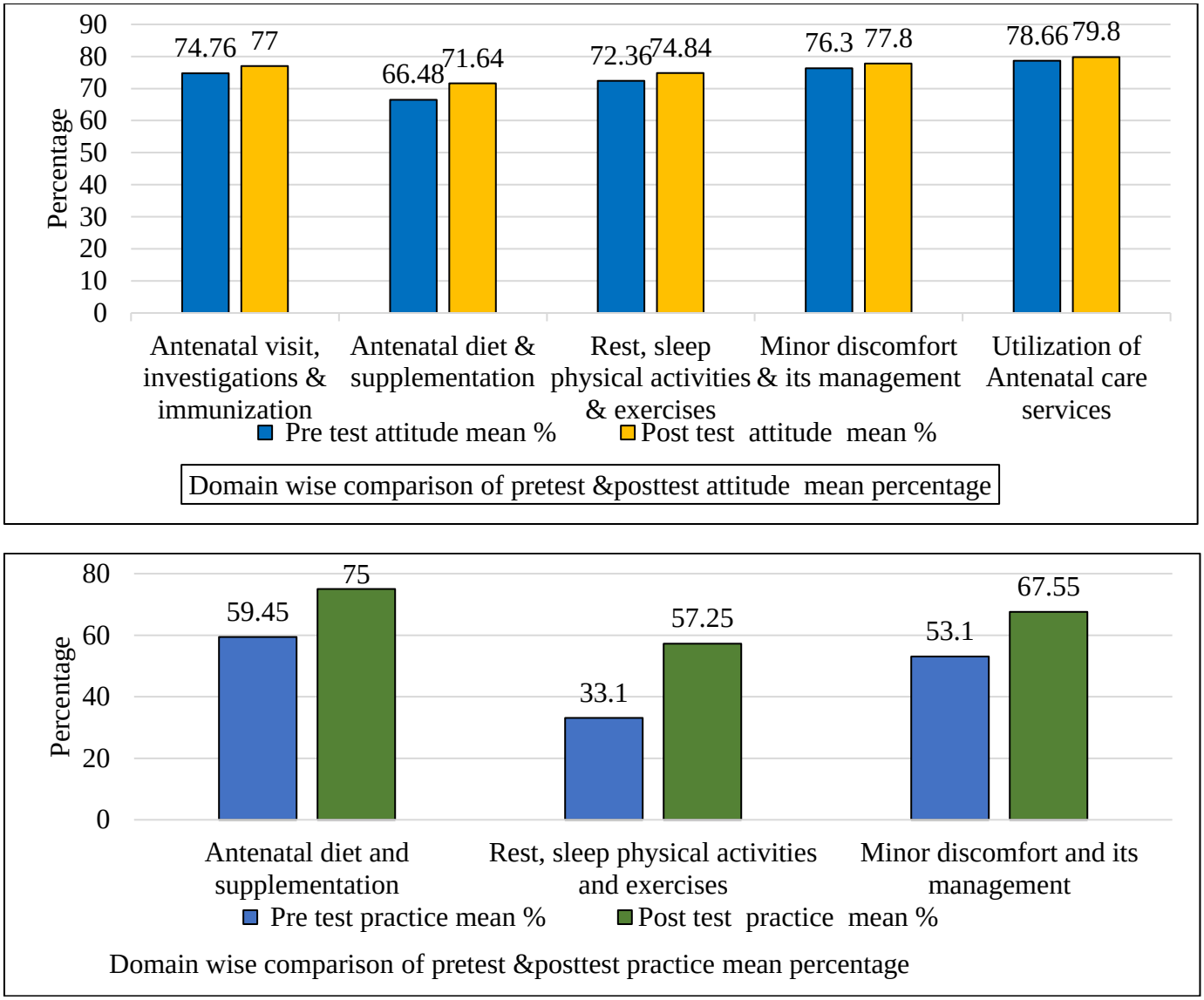


Fig 1: Domain-wise comparison of pretest & posttest mean percentage of knowledge, attitude and practice scores of primigravida mothers regarding antenatal care.

3.3 Correlation between knowledge, attitude, and practice scores of primigravida women regarding antenatal care and their association with socio-demographic variables.

The demonstrates significant positive correlations: knowledge and attitude ($\rho = 0.728$), and knowledge and practice ($\rho = 0.507$), indicating that higher knowledge corresponds to more favorable as is altered to go with attitudes and better self-care practices. Although less strong, a positive correlation exists between practice and attitude ($\rho = 0.463$), suggesting that improved practices tend to align with more positive attitudes **(Fig 2).** There was a significant relationship discovered between a score of knowledge and age of primigravida women, the education status of primigravida women, and their spouses indicating that these factors played a role in shaping knowledge levels among the participants

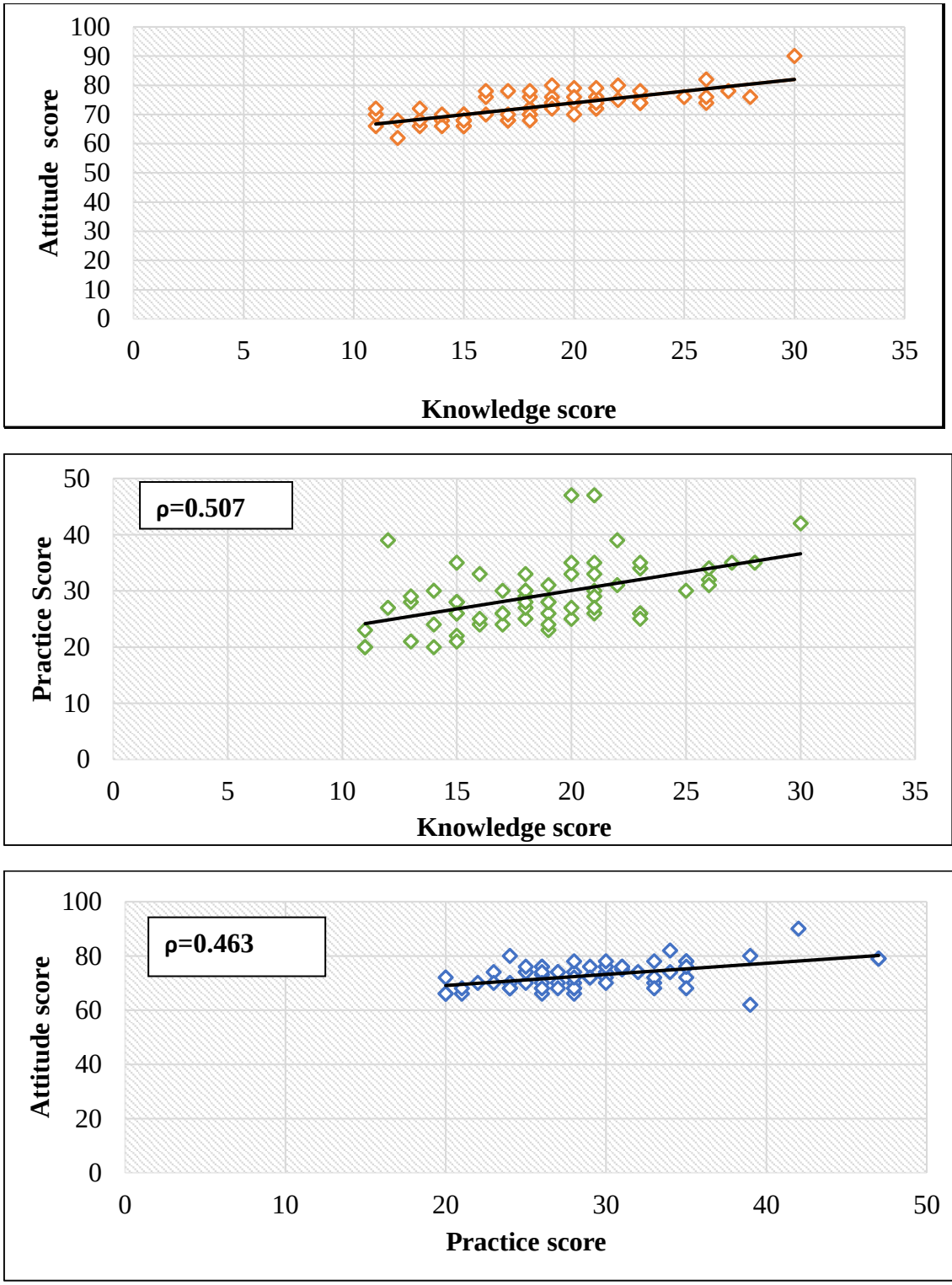


Fig.2: Correlation between knowledge, attitude, and practice of primigravida women regarding antenatal care. (N=65)

4. DISCUSSION

The study emphasizes demographic and clinical factors impacting maternal healthcare outcomes. Specifically, 72.3% of participants are aged 18-25, indicating a potential need for specialized antenatal support due to their limited pregnancy and childbirth experience. This is reinforced by findings that new mothers, particularly those experiencing childbirth for the first time, communicate a feeling of not being ready for the demands of motherhood.[12, 13]

Participants and spouses share closely related educational backgrounds, with 29.2% completing primary education. Considering both partners' educational levels is crucial in designing effective maternal healthcare interventions. The presence of 13.8% with no formal education indicates potential challenges in disseminating healthcare information. These findings align with the idea that mothers' education significantly influences appropriate maternal healthcare utilization.[14.]

The participants' occupation as homemakers (89.2%) could impact their access to healthcare services and information. Given that the majority lived in joint families (73.8%), it is essential to consider the role of extended family structures in maternal care decisions and support systems. This might have implications for healthcare providers in terms of involving family members in antenatal care discussions and education. Additionally, the finding that around 60% of participants had no prior knowledge of antenatal care suggests a potential gap in healthcare awareness that needs to be addressed through targeted educational programs, these insights align with broader findings in India, where maternal health outcomes were shaped by structural factors like economic status, caste/ethnicity, education, gender, religion, and culture. Additionally, intermediary factors such as residence, maternal age, parity, and exposure to mass media and health messages played significant roles.[15.]

The enrollment of participants in government maternal services, particularly through initiatives like Janani Shishu Suraksha Yojana (JSSY) and Pradhan Mantri Vaya Vandana Yojana (PMVVY), indicates a substantial reliance on public healthcare services. This information is crucial for policymakers to ensure sufficient funding and accessibility for all eligible mothers. Additionally, there is reported limited utilization of the Janani Suraksha Yojana (JSY) scheme among tribal women, highlighting the need for the NRHM to consider and address traditional and cultural factors influenced by the local community.[16.]

The improvement in knowledge observed can be attributed to their dedicated involvement in the study and interaction with the researchers, these findings align with previous studies conducted by (**Patil A et al., 2020; and Dayna AJA et al., 2020).** which reported the success of intentional health training in enhancing knowledge among expecting women, these studies further support the notion that educational interventions can positively impact knowledge levels in expecting females regarding ANC.[17, 18.] Rooted in years of experience, attitudes transform through patience, persistent steps, and a commitment to gradual change. Regarding primigravida women's attitudes during antenatal care (ANC), the current study found a mean-variance of 2.89 before & after the test. These outcomes are in agreement with a study performed by (**Parthasarathy et al., 2019)** noted an increase in attitude scores after a prenatal care module[19]. Furthermore (**Nidhi N, 2018)** found substantial improvements in knowledge and attitude scores. Both studies highlight the positive impact of education on primigravida women's antenatal care behavior.[20] Regarding primigravida women's activities in the present study, a significant improvement in practices was seen. These findings align with a study conducted by (**Kanimozhi TK, 2021)**[21.] Study underscores the importance of not only imparting knowledge but also addressing factors beyond attitude to promote positive healthcare practices, findings also reported that demographic factors like age, education, and spouses' educational levels, have an impact on primigravida women's scores related to antenatal care.

CONCLUSION

In summary, this study confirms the effectiveness of the Antenatal Care Package (ANCP) in enhancing awareness, attitudes, and practices related to antenatal care. The positive correlation among knowledge, attitude, and practice underscores their interrelation. The study emphasizes the need for regular training programs to provide updated knowledge and skills for antenatal care, ensuring consistent education for pregnant women. Improving mothers' health and promoting correct antenatal care practices can significantly reduce morbidity and mortality rates for both mothers and newborns.

References

1. Tunçalp Ö, Pena-Rosas JP, Lawrie T, Bucagu M, Oladapo OT, Portela A, et al. WHO recommendations on antenatal care for a positive pregnancy experience—going beyond survival. BJOG. 2017;124:860–62. doi: 10.1111/1471-0528.14599.

2. Dutta DC. Textbook of obstetrics 9th edition, Jaypee brothers New Delhi: 2018. Page no 86-94.

3. Trends in maternal mortality: 2000 to 2017: estimates by WHO, UNICEF, UNFPA, World Bank Group and the United Nations Population Division. Geneva: World Health Organization; 2019.

4. Maternal and Adolescent Healthcare. Annual Report - 2018. Ministry of Health and Family welfare. Available at: https://mohfw.gov.in/sites/default/files/03%20ChapterAN2018-19.pdf. Accessed on 22 February 2020.

5. Antenatal care. UNICEF DATA. [https://data.unicef.org/topic/maternal-health/ antenatal-care/] Accessed on 16 Jan 2019

6. World Health Organization. WHO recommendations on antenatal care for a positive pregnancy experience. World Health Organization; 2016. Accessed January 19, 2021.

7. Kumar G, Choudhary TS, Srivastava A, Upadhyay RP, Taneja S, Bahl R, et al. Utilisation, equity and determinants of full antenatal care in India: analysis from the National Family Health Survey 4. BMC Pregnancy Childbirth. 2019 Dec;19(1):1–9.

8. NFHS-5. Fact sheet, (2019-21) Available at: http://www.iipsindia.ac.in /http://www.mohfw.gov.in. Accessed on 20 January, 2021.

9. Pradhan Mantri Matru Vandana Yojna. https://wcd.nic.in/schemes/pradhan-mantri-matru-vandana-yojana.

10. Janani Suraksha Yojana, National Health Portal of India. Available at https://www.nhp.gov.in/janani-suraksha-yojana-jsy-_pg.

11. Janani Suraksha Yojana, National Health Mission. Available at http://www.nrhmhp.gov.in/content/jsy.

12. Javadifar N, Majlesi F, Nikbakht A, Nedjat S, Montazeri A. Journey to motherhood in the first year after childbirth. [Internet]. J Family Reprod Health. 2016;10:146–53. [cited 2017 Mar 2

13. Deave T, Johnson D, Ingram J. Transition to parenthood: the needs of parents in pregnancy and early parenthood. BMC Pregnancy Childbirth. 2008;8:30.

14. Wang H, Frasco E, Takesue R, Tang K. Maternal education level and maternal healthcare utilization in the Democratic Republic of the Congo: an analysis of the multiple indicator cluster survey 2017/18. BMC Health Services Research. 2021 Dec;21(1):1-3.

15. Hamal, M., Dieleman, M., De Brouwere, V. et al. Social determinants of maternal health: a scoping review of factors influencing maternal mortality and maternal health service use in India. Public Health Rev 41, 13 (2020). https://doi.org/10.1186/s40985-020-00125-6

16. Jungari S, Paswan B. Does the National Rural Health Mission improve the health of tribal women? Perspectives of husbands in Maharashtra, India. Public Health. 2019 Nov 1;176:50–8.

17. Patil A, Biradar S. Antenatal care among Primi mothers. International Journal of Nursing Education and Research. 2020 Nov 16;8(4):429–31.

18. Dayna AJA, Chaudhary V. A Study to Evaluate the Effectiveness of Structured Teaching Programme on Knowledge regarding antenatal care among Primigravida mothers in a selected Villages of Mehsana District. International Journal of Advances in Nursing Management. 2020 Jan 15;8(1):93–5.

19. Parthasarathy K, Prasath R, Krishnaraj P. Journal of science Nursing a study to assess the effectiveness of structured teaching program on warning signs during pregnancy in terms of knowledge, practice, and attitude among antenatal mothers. 2019 Jan 3;2012–3.

20. Nidhi N. Effectiveness of self-instructional module on knowledge and attitude regarding antenatal care among primigravida mothers in selected government hospital, Dehradun, Uttarakhand. Int J Med Sci Public Health. 2018;7(11):651.

21. Kanimozhi TK. A Study to Assess the Effectiveness of Structured Teaching Programme on Knowledge and Knowledge on Practice regarding Antenatal Care among Primigravida mothers at selected PHC at Coimbatore [Internet] [masters]. P.P.G College of Nursing, Coimbatore; 2021 [cited 2022 Nov 14]. Available from: http://repository-tnmgrmu.ac.in/18717/