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An Evidence Based Assessment of Pregnancy Information Leaflets as Counselling Aid among the Study Subjects of Dakshina Kannada

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ABSTRACT

The care of women during pregnancy is called Antenatal care. It includes visit to antenatal clinic, examination, investigations, immunization, supplements (iron, folic acid, calcium), and the required interventions. According to the Indian government guidelines, it is necessary for every pregnant women to have at least 3 antenatal checkups, together with 90 or more iron and folic acid tablets and at least 2 doses of TT injection. Due to lack of awareness and knowledge on pregnancy care, it is found that there are 73 still births out of 193 births per 1000 population worldwide. This study reports the findings of a questionnaire based interview conducted on 100 study subjects in Mangalore region to obtain data on the awareness of pregnant women about antenatal care. The results revealed that pregnancy information leaflet as counselling tool is effective for providing information to subjects as well as to improve their knowledge regarding the antenatal services which includes antenatal visits, iron and folic acid supplementation and injection TT doses. This study emphasizes the importance of pharmacist as counselor for special population like pregnant women for better healthcare outcome. By providing the information leaflet through the pharmacist to the women of child bearing age we can increase the knowledge levels regarding the antenatal services which are essential to reduce maternal morbidity and mortality.

Keywords: Antenatal Care, Still Birth, Leaflet, Pharmacist

INTRODUCTION

The care of women during pregnancy is called Antenatal care. The main aim of antenatal care is to clinically monitor and asses the health of the mother and foetus during pregnancy and to suggest corrective measures to obtain the best possible results for the mother and child. It includes visit to antenatal clinic, examination, investigations, immunization, supplements (iron, folic acid, calcium), and the required interventions[1]. Immunization at the time of pregnancy is the easiest way to protect the mother and child from infection. Eating a balanced diet during pregnancy is important for good foetal brain development as well as to reduce the risk of anemia.[2] Alcohol consumption during pregnancy can cause miscarriage, stillbirth and also foetal alcohol spectrum disorders. Smoking during the time of pregnancy is associated with pregnancy complications like pre-eclampsia, placental previa and placental abruption. According to the Indian government guidelines, it is necessary for every pregnant women to have at least 3 antenatal checkups, together with 90 or more Iron and folic acid tablets and at least 2 doses of TT injection.[3]Consumption of iron and folic acid tablets is very essential during pregnancy to avoid maternal anemia, puerperal sepsis, low birth weight and preterm birth. Due to lack of awareness and knowledge on pregnancy care, it is found that there are 73 still births out of 193 births per 1000 population worldwide[4]. At this

rate, the number of still births in a year due to lack in pregnancy care of Indian population alone comes to be about 100 million. Some studies have shown that many women do not have adequate knowledge regarding health risks during pregnancy and the need for proper antenatal care. So it is essential to educate women and help them to obtain appropriate knowledge. Getting good care before, during, and after pregnancy is very important for the growth and development of the baby and also to keep the mother healthy[5].

MATERIALS AND METHODS

An Interventional study was conducted for the duration of 6months in Dakshina Kannada. The study was limited for a sample of 100 based on the time schedule allotted for the project including other circumstances The study protocol was approved by the Institutional Ethics Committee of Srinivas Institute Of Medical Science and Research Centre, Mukka, Mangalore (Reference number: 2019/10/28/4). Subjects more than 18 years old, can understand English/Malayalam and subjects belonging to the family with one or more pregnancy either in past, present or to be in future were included in the study and the Subjects less than 18 years old, cannot understand English/Malayalam were excluded in the study . Inform consent form was prepared in Malayalam and English and same were used. Before selection of subjects the consent form was orally explained to the study subjects before filling it. The data of the subjects were collected using a data collection form from Dakshina Kannada through direct interaction with the subjects. .Data collected include subjects gender, age, age at marriage ,age at first child, socio demographic details, place of delivery of baby. After filling the pre counselling form the subjects were given pregnancy information leaflet, then in the following month post counselling form were filled. The collected data was analyzed by using excel 17 and SPSS 20.

RESULTS

Demographic Characteristic of Participants:

Our study enrolled 100 subjects from different areas of Dakshina Kannada. All the study subjects were female. Out of the 100 subjects, majority (58) were between 31 years to 50 Years of age, while 19 participants were in the 18-30 Years age group. (Figure: 1)

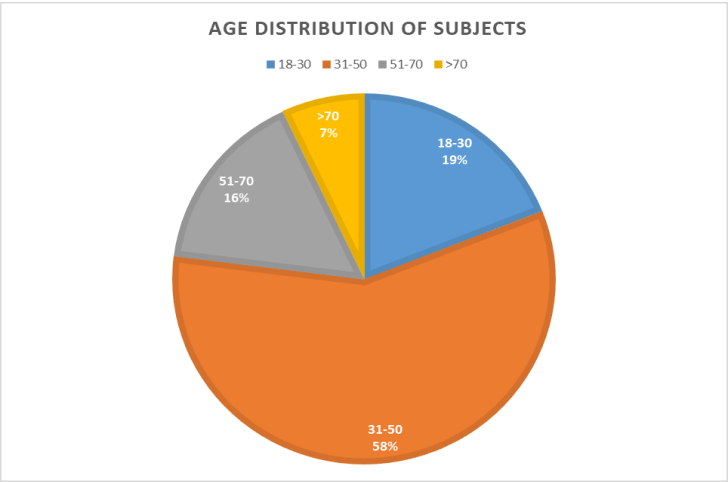

Figure1: Age distribution of subjects

On analysis of the marriage age, it is found that 50 got married between 21 to 25 years, while 18 subjects were in the age group of 25-30. It is also observed that 5 got married after 30 years of age and 13 were married before18 years. Subjects married between 18 years to 21 years were 14 in count. (Figure: 2)

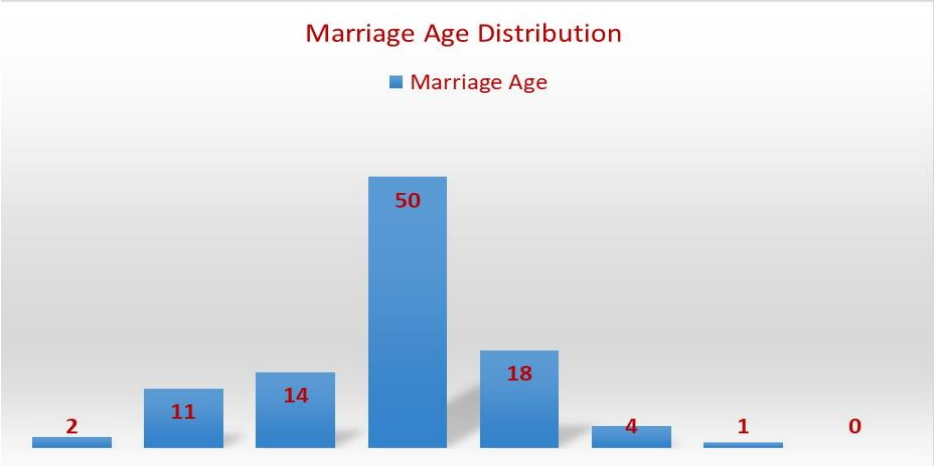

Figure 2: Distribution of subjects according to their marriage age.

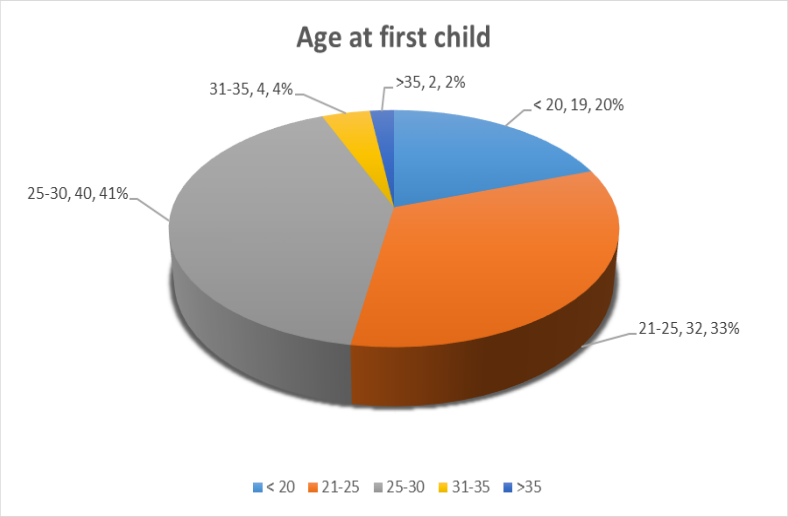

Figure 3: Distribution of age at first child.

Out of 100 participants, 38 participants had their first child during the age of 25-30, 32 participants had their child during the age group of 21-25, and 14 participants had their child during 18-20 years of age. Also, 4 participants had their first child when they were less than 18 years of age and 6 participants had their first child when they were greater than 30 years of age. (Figure: 3)

Assessment of knowledge:

Knowledge regarding antenatal care:

The results of the study, conducted in order to know about the level of understanding of pregnant women in the Dakshina Kannada region about the importance of consultation and medical care during pregnancy is shown in Table 1. The study shows that only about 25% of the subjects were initially aware of the concept of antenatal care and all the 100 participants were initially ignorant about the need for antenatal checkup and consultation. However, on distributing information leaflets and giving proper counseling, the awareness about prenatal care was improved to 83% from the initial 25% and the attitude of the subjects towards regular antenatal checkup improved to 84% from 0%. Regarding the first antenatal check-up, only 39% of participants were aware that it should be done within the first three months of pregnancy, which improved to 85% after being given the correct information.

While evaluating the knowledge regarding the number of antenatal check-up required, 66% of the participants answered incorrect, which after the counseling came down to 12%. Regarding the assessment of

the necessity of antenatal care, we observed that 73% of participants answered wrong, which was later reduced to 8%. It is inferred that 84% answered wrong initially for the question if antenatal booking should be done before the third month of pregnancy but after counselling the percentage narrowed down to 8 %. Initially, 79% of the subjects did not feel that antenatal follow up is good for monitoring mother's and foetal health, but after counselling percentage of the wrong answer reduced to 7%. These results show that pregnant women from rural areas are generally unaware of the healthy practices to be followed during pregnancy. It is evident that the lack of proper information is one of the major factors that prevent pregnant women from opting for proper antenatal care.

Table 1: Knowledge Regarding Antenatal Care

ASSESSMENT QUESTIONS		PRE / POST					Chi-square	*p* value
		Pre (N=100)		Post (N=100)		Total		
		Count	%	Count	%	Count		
What Do You Understand By Antenatal Care?	Wrong	75	75%	17	17%	92		
	Correct	25	25%	83	83%	108	67.71	<0.00001
Necessity Of Antenatal Check Up	Wrong	100	100%	16	16%	116		
	Correct	0	0.0%	84	84%	84	144.82	<0.00001
Should First Antenatal Check-Up Should Be Done During The First 3 Months	Wrong	39	39%	15	15%	54		
	Correct	61	61%	85	85%	146	14.61	<0.00001
Should Come For At Least 5 Antenatal Check-Ups?	Wrong	66	66%	12	12%	78		
	Correct	34	34%	88	88%	122	61.28	<0.00001
Is Antenatal Check-Up Necessary?	Wrong	73	73%	8	8%	81		
	Correct	27	27%	92	92%	119	87.66	<0.00001
Antenatal Follow Up Is Good To Monitor Mothers And Foetus Health	Wrong	79	79%	7	7%	86		
	Correct	21	21%	93	93%	114	105.75	<0.00001
Antenatal Booking Should Be Done Before The Third Month Of Pregnancy?	Wrong	84	84%	8	8%	92		
	Correct	16	16%	92	92%	108	116.26	<0.00001

Knowledge Regarding Screening Test in Pregnancy:

Screening tests are an integral part of antenatal care. The results obtained from the study of the subjects regarding the importance of screening tests in pregnancy are given in Table 2. The results show that most of the subjects under study were not aware of the need for monitoring the health status of the mother and foetus using regular medical tests. 49% of participants answered wrong regarding Hepatitis B screening and after counselling it was reduced to 11%. The percentage of subjects who were oblivious of HIV infection was 48% which was lowered to 7% after the right information was given. 44 % of participants answered wrong regarding the haemoglobin screening but after counselling it was slashed to 8%. (Table: 2)

Table2: Knowledge Regarding Screening Test In Pregnancy:

		PRE / POST					Chi square	*p* value
		Pre (N=100)		Post (N=100)		Total		
		Count	%	Count	%	Count		
Blood Screening For Hepatitis B?	Wrong	49	49%	11	11%	60		
	Correct	51	51%	89	89%	140	34.381	<0.00001
Blood Screening For HIV Infection?	Wrong	48	48%	7	7%	55		
	Correct	52	52%	93	93%	145	42.157	<0.00001
Blood Screening For Haemoglobin Level?	Wrong	44	44%	8	8%	52		
	Correct	56	56%	92	92%	148	33.680	<0.00001
BP Examination	Wrong	23	23%	6	6%	29		
	Correct	77	77%	94	94%	171	11.656	.001*
Blood Sugar Examination	Wrong	27	27%	6	6%	33		
	Correct	73	73%	94	94%	167	16.004	<0.00001
Can High BP Affect Foetal Growth	Wrong	32	32%	28	28%	60		
	Correct	68	68%	72	72%	140	.381	> 0.5
Screening Of Blood For Infection Should Be Carried Out During Check-up?	Wrong	86	86%	7	7%	93		
	Correct	14	14%	93	93%	107	125.43	<0.00001
Regular Check-up Of BP During Pregnancy?	Wrong	81	81%	7	7%	88		
	Correct	19	19%	93	93%	112	111.120	<0.00001

23 % of participants were not aware of BP examination, 81 % of participants answered wrong regarding the regular BP check-up and 32 % of the participants answered incorrect in the question whether foetal growth can be affected by high BP. But after counselling it was reduced to 6% in BP examination, 7% in regular BP check-up and 28% in whether foetal growth can be affected by high BP respectively (Table:2).

27% of the participants answered incorrect regarding blood sugar examination and after counselling it was reduced to 6% .While answering the question concerning examination of blood for infection, 86 % answered wrong at first but after counselling it was reduced to 7%. (Table: 2)

Knowledge Regarding Injection TT:

The study shows that most of the subjects were unaware of the importance of taking injection TT and the number of injection TT to be taken during pregnancy. Only 12% of the subjects were initially aware of the importance of injection TT and only 15% were aware of the dosage. After counseling, the importance of taking injection TT was recognized by 85 % of the subjects and 80% of the study participants understood the information regarding the total dose of the injection TT (Table: 3).

Table 3: Knowledge regarding injection TT

		PRE / POST						
		Pre (N=100)		Post (N=100)		Total	Chi- square	*p* value
		Count	N %	Count	N %	Count		
Why Injection TT?	Wrong	88	88%	15	15%	103	106.67	<0.00001
	Correct	12	12%	85	85%	97		
How Many Dose Of Injection TT?	Wrong	85	85%	20	20%	105	84.71	<0.0001
	Correct	15	15%	80	80%	95		

Knowledge Regarding Iron and Folic Acid in Pregnancy

In our study for assessing the awareness about the need of intake of folic acid tablets by pregnant women, we found that only 9% of the participants were initially aware of the importance of folic acid intake. It may be noted that 29% of the participants remained unconvinced on the need for consuming folic acid tablets even after counseling (Table 4).

The study shows that majority of the participants were unaware of the importance of supplementing their diet through iron and folic acid tablets during pregnancy and 87% of the participants were initially unaware that iron and folic acid supplementation is good for the health of the foetus and the mother. Even after counseling, 36% of the participants remained unconvinced about the positive impact of iron and folic acid supplementation. (Table 4).

Table 4: Knowledge Regarding Iron And Folic Acid In Pregnancy

		Pre / Post				Chi- square	*p* value
		Pre (N=100)		Post (N=100)			
		Count	%	Count	%		
Why Iron And Folic Acid Tablets Given To Pregnant Women ?	Wrong	91	91%	29	29%	80.083	<0.00001
	Correct	9	9%	71	71%		
Supplementation Of Iron And Folic Acid Good For Mother And Foetus?	Wrong	87	87%	36	36%	54.926	<0.00001
	Correct	13	13%	64	64%		

Knowledge Regarding Social Habits in Pregnancy

The awareness of the participants regarding clean social habits during pregnancy was also assessed during the study. It was found that 35% of the participants did not regard smoking during pregnancy period to affect the health of the foetus. However, after counseling, 94% of the participants were able to recognize the importance of refraining from smoking during pregnancy (Table 5).

In assessing knowledge regarding whether the alcohol consumption affects foetal growth, out of 100 participants, we found that 37 % did not feel that alcohol

consumption is harmful to the health of the foetus and answered wrong initially. After counselling, the percentage of wrong answer reduced to 4% (Table 5).

Table:5 Knowledge regarding social habits in pregnancy

		Pre / Post					Chi-square	*p* value
		Pre (N=100)		Post (N=100)		Total		
		Count	Row N %	Count	Row N %	Count		
Smoking Harmful To The Foetus?	Wrong	35	35%	6	.6%	41		
	Correct	65	65%	94	94%	159	25.802	<0.00001
Alcohol Consumption Affect Foetal Growth?	Wrong	37	37%	4	4%	41		
	Correct	63	63%	96	96%	159	33.410	<0.00001

Knowledge Regarding Drug and Healthy Lifestyle:

The results obtained from assessing the awareness level of participants regarding use of drugs and healthy lifestyle are given in Table 6. From the total of 100 participants, regarding the effect of infection on the foetus during pregnancy, 39 % were not aware that infections during pregnancy cause harm to the baby. But after counselling, percentage of wrong answer reduced to 5%.

While assessing the knowledge level of the participants regarding the intake of medications other than the prescribed medication, 44 out of 100 participants were not aware about the negative effects of taking medicines other than those prescribed by a medical practitioner. But after counselling, percentage of wrong answer reduced to 6 %. The study also showed that only 22% of the participants regarded the place of delivery as important. After counselling, 94 out of 100 participants realized the importance of the place of delivery of the baby.

While assessing the knowledge of the participants regarding awareness about any case of medical emergency during pregnancy, we found that among 100 participants, 30 % answered wrong initially. This means that they were not aware about the steps to be taken during a medical emergency. But after counselling, the percentage of wrong answer reduced to 7 %. (Table 6)

From our study, we came to know that many of the subjects are unaware of the need of USG in pregnancy. Among the 100 participants, only 15% answered correct initially. After counselling, it was increased to 92 %. While assessing the dietary habits during pregnancy, we came to know that among the 100 participants, only 17 % recognized the need for changing their dietary practices as advised by the doctor. Counselling was able to increase this to 93 % (Table 6).

Table: 6 Knowledge regarding drug and healthy lifestyle.

		PRE / POST				Chi-square	*p* value
		Pre (N=100)		Post (N=100)			
		Count	%	Count	%		
Infection During Pregnancy Cause Harmful	Wrong	39	39%	5	5%		
	Correct	61	61%	95	95%	33.683	<0.00001
Any Medicines Other Than Prescribed Can Cause Harm To Baby?	Wrong	44	44%	6	6%		
	Correct	56	56%	94	94%	38.507	<0.00001
Where To Deliver Baby?	Wrong	22	22%	6	6%		
	Correct	78	78%	94	94%	10.631	<0.00001
Any Problem During Pregnancy, What Will You Do?	Wrong	30	30%	7	7%		
	Correct	70	70%	93	93%	17.543	<0.00001
Should Undergo USG As Advised By Doctor	Wrong	85	85%	8	8%		
	Correct	15	15%	92	92%	119.164	<0.00001
Should Change Dietary Habit As Advised By Doctor.	Wrong	83	83%	7	7%		
	Correct	17	17%	93	93%	116.687	<0.00001

DISCUSSION

Inadequate access to information and underutilization of modern healthcare services are the major reasons for poor health in developing countries. This is especially true in the case of antenatal care of women during pregnancy. So it is necessary to create awareness among

women regarding antenatal care services to ensure proper utilization of available facilities. In rural India, the lack of adequate access to mass communication media and internet prevents the widespread dissemination of essential knowledge regarding antenatal care to women. Our study shows that, in such cases, distribution of pregnancy information leaflet followed by counselling is an effective way to provide essential information to the study subjects.

A study done by Amanpreet Kaur *et al* shows that regarding the knowledge about antenatal care, 22.0% mothers have poor knowledge while 45.6% and 32.4% have average and good knowledge[6]. The results can vary according to the level of education of the subjects, their socio-economic status and geographical location in which the study is conducted. Our study showed that in the Dakshina Kannada region of Karnataka state, 75% of the subjects are not aware of the necessity for antenatal care. In this region, the pregnant women are generally unaware of the need for regular antenatal check-up. Before providing information through booklets and counselling, all the women who took part in the study (100%) were ignorant about the need for proper antenatal care. This shows that unawareness of mothers regarding ANC is an important factor for the lack of proper care during pregnancy. The increase in percentage of both knowledge regarding antenatal care (83%) and the necessity of antenatal check-up (84%) is done through counselling. In the current study, 39% were not aware of when first antenatal check-up should be done. The first antenatal check-up should be done during the first 3 months and 66% does not have adequate knowledge regarding the number of antenatal check-ups required.

All pregnant ladies are recommended to go for their first antenatal check-up in the first trimester to identify and manage any medical complication as well as to screen them for any risk factors that may affect the progress and outcome of their pregnancy. In this study, 39% were not aware about when first antenatal check-up should be done. In the Post counselling session, it was noticed that the unawareness percentage reduced to 15%.

Our report reveals that 88% of the study subjects are not aware of the necessity of TT injection. After giving counseling, the figure got reversed and the awareness percentage reached about 85% from the earlier 12%. Komal Bint E Ajmal *et al.* in their study "Knowledge attitude and practice regarding TT vaccination in reproductive age women (15-49)" in 2018 found that 8.88% of the subjects had knowledge regarding TT vaccination[7] .In our study during the pre counselling session 12% of the subjects were aware regarding injection TT but after the post counselling it got increased to 85%.

According to our study among the 100 study subjects, only 9 subjects were aware about the need of iron and folic acid supplements in pregnancy care. After using the leaflet as a counselling tool, the misconception was largely overcome and got increased to 91 %, which again demonstrates the importance of the pregnancy information leaflet as an effective tool to create awareness among pregnant women. Hei Jen Jou *et al*. in their study "Awareness and use of folic acid among pregnant women in Taipei" reported that, due to inadequate knowledge, self-treatment and lack of interest to approach physician for ANC checkup, only 15.6 % of pregnant women was using folic acid during their pregnancy.[8] Min Ji Kim *et al.* in 2012 found that only 23.7% of the subjects had knowledge about the role of folic acid in preventing birth defects.[9]

The results from our study are comparable to the above results and shows that lack of awareness related to pregnancy care is common. More than half of the participants in our study had insufficient knowledge regarding the importance of blood screening for hepatitis, HIV infection and haemoglobin levels. About 70% of the subjects were unaware regarding the impact

of BP and Blood Sugar on the health of the foetus. The study also shows that due to lack of proper information, majority of the women do not give due importance to taking timely doses of TT injection and supplementing their diet with iron and folic acid tablets during pregnancy. So the intervention of the pharmacist for creating awareness and suggesting food supplements that do not place additional burden on the household is essential. Information leaflets, contact classes and counselling sessions used in this study helped to bring about a major change in attitude of the subjects towards ANC and is consistent with the findings of another study which showed that effectiveness of pregnancy leaflets exceeded both requirements and expectations over a range of quality assurance parameters and helped to educate women.[10]

To improve effective utilization of ANC services, we need to raise awareness through counselling, ensure that antenatal care is easily available, improve the quality of ANC services and ensure effective monitoring and evaluation of available facilities for ANC. Pharmacists play a major role in increasing awareness among mothers about the danger signals in pregnancy and further emphasizing the importance of ANC.

CONCLUSION

The most probable reasons for the reduced percentage of awareness regarding antenatal care are lack of inadequate facilities and manpower for creating awareness among the target population. Remoteness of the villages and apathy on the part of health workers, in addition to social stigma attached to pregnancy due to cultural and religious factors, may also be responsible for the low awareness level among the subjects studied. Due to these factors peculiar to the Indian context, counseling can be identified to be an important tool to influence the decisions of pregnant women regarding ANC and help them prevent complications due to improper pregnancy care. We observed that after our counseling, there was an increase in percentage of both knowledge regarding antenatal care (75%) and awareness regarding the necessity of antenatal check-up (100%).The results reveal that pregnancy information leaflet as a counseling tool is effective for providing information to subjects as well for improving their knowledge regarding antenatal services which include antenatal visits, iron and folic acid supplementation and injection TT doses. This study emphasizes the importance of the pharmacist as a counselor for special populations like pregnant women for enhancing their knowledge regarding ANC for better healthcare outcomes. By providing the information leaflet through the pharmacist, we can increase the knowledge levels of the public regarding antenatal services, which is essential to reduce maternal morbidity and mortality.

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