Knowledge, Attitude, And Practices on Antenatal Care Among Pregnant Women in Selected Health Birthing Centers in Butuan City

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ABSTRACT

It is the goal of good antenatal care to ensure that the woman does not suffer any adverse effects from the pregnancy and to maintain the health of the developing baby. Local data on the interrelationship among socio-demographic profile, knowledge, attitude, and practice on antenatal care is scarce. This quantitative study utilized a descriptive correlational research design to assess the interrelationship among socio-demographic characteristics, knowledge, attitude, and practices on antenatal care among pregnant women in selected Birthing Clinics in Butuan City for the third quarter of 2024. Findings revealed that half were 18 to 24 years old and majority were single. Most were college level and just over half were housewives. Most had a gravidity of one while one third had two and most had a parity of one. Majority had no abortion, majority had an above 10,000 family monthly income, and most had a nuclear family. Respondents were knowledgeable, had a positive attitude, and practiced antenatal care. Marital status, level of education, occupation, gravidity, parity, family monthly income, and type of family were correlated with attitude. Age, marital status, level of education, occupation, gravidity, parity, abortion, and type of family were correlated with attitude. Age, marital status, level of education, occupation, gravidity, parity, abortion, and type of family were correlated with practice. Knowledge was not correlated with attitude and practice. Attitude was correlated with practice. An antenatal care sustenance plan was proposed.

Keywords: Antenatal care; Attitude; Descriptive, Correlational design; Knowledge; Practice; Socio-demographic profile.

INTRODUCTION

Antenatal care is the clinical assessment of mother and fetus during pregnancy used for getting the best possible result for the mother and child. Early observation and ongoing care during pregnancy provide more favorable births compared to no prenatal observation. It is a key entry point for pregnant women to receive multiple health services such as nutritional maintenance, prevention or treatment of anemia, prevention, detection and treatment of malaria, tuberculosis, and sexually transmitted infections (Berhe et al., 2014). An adequate use of antenatal health services is associated with improved maternal and neonatal health status.

Pregnancy care is expected to affect the development of the fetus and the baby as well as the mother. Early booking and regular visitation of antenatal care can only achieve this (WHO, 2007). Over half a million women die each year from complications of pregnancy or childbirth. Most maternal deaths occur during childbirth, and the presence of trained medical staff could greatly reduce this number (UNICEF, 2008). ANC is also an opportunity to promote skilled birth attendance and postpartum care and to counsel women about child spacing (Reynolds et al., 2014). According to the WHO, approximately 810 people die every day due to complications during pregnancy and childbirth. In the Philippines, Northern Mindanao had the highest teenage pregnancy with 10.0 percent, followed by Davao Region with 8.2 percent, Central Luzon with 8.0 percent, and Caraga with 7.7 percent. Butuan City recorded a high maternal mortality rate in 2020 with 10.5 percent. ANC aims to avoid congenital disabilities, preterm labor, neural tube defects, anemia, and poor maternal health by providing routine check-ups and planning appropriate treatment and nutrition.

Reports have shown that increased knowledge and positive attitudes of pregnant mothers impact antenatal service utilization (Okafor, 2016). Almost 90 percent of maternal deaths occur in developing countries, and over half a million women die each year due to pregnancy and childbirth-related causes (Eram et al., 2016). Proper antenatal care reduces maternal and child morbidity and mortality. However, appropriate levels of knowledge, attitude, and practices are critical for maternal and neonatal outcomes, and this is not well determined in our country and in the study site. This gap will be filled by this study to initiate further larger studies.

This study focuses on three main variables the Knowledge, which refers to the awareness and information pregnant women have regarding antenatal care; Attitude, which refers to their feelings and perceptions towards seeking antenatal care services; and Practices, which refer to their actual utilization and behaviors towards antenatal visits. Thus, the objective of this study is to evaluate the level of knowledge, attitude, and practice of pregnant women on ANC in Butuan City. To the knowledge of the researchers, there are no similar studies done in the study area. This study is believed to give the present image of KAP on ANC in certain health facilities in Butuan City, which may help to initiate further studies. Lastly, this study aligns with the third sustainable development goal of health and well-being, benefiting locally or nationally a special population the pregnant women.

RESEARCH QUESTIONS

The study aimed to assess the interrelationship among socio-demographic characteristics, knowledge, attitude, and practices on antenatal care among pregnant women in selected Birthing Clinics in Butuan City for the third quarter of 2024.

Specifically, it answered the following queries:

What were the socio-demographic characteristics of the patient-respondents in terms of Age, Marital Status, Level of Education, Occupation, Gravidity, Parity Family Monthly Income and Type of Family?

What was the knowledge on antenatal care among pregnant women?

What was the attitude on antenatal care among pregnant women?

What was the practices on antenatal care among pregnant women

Was there a significant relationship between socio-demographic characteristics and knowledge on antenatal care; socio-demographic characteristics and attitude on antenatal care;

socio-demographic characteristics and practices on antenatal care; knowledge and attitude on antenatal care; knowledge and practices on antenatal care; and attitude and practice on antenatal care?

Based on the findings of the study, what antennal care enhancement plan was proposed based on the findings of the study?

Statement of Null Hypotheses

Ho1:   There was no significant relationship between the socio-demographic characteristics and knowledge on antenatal care among pregnant women.

Ho2:   There was no significant relationship between the socio-demographic characteristics and attitude on antenatal care among pregnant women.

Ho3:   There was no significant relationship between the socio-demographic characteristics and practice on antenatal care among pregnant women.

Ho4: There was no significant relationship between the level of knowledge and attitude on antenatal care

among pregnant women.

Ho5: There was no significance relationship between the level of knowledge and practices on antenatal care among pregnant women.

Ho6: There was no significant relationship between attitude and practices on antenatal care among pregnant women.

REVIEW OF RELATED LITERATURE AND STUDIES

Antenatal Care. Every minute, at least one woman dies from pregnancy-related complications or childbirth, totaling 529,000 women a year. For every woman who dies, about 20 more suffer from injuries, infections, or illnesses affecting about 10 million women annually. Studies show maternal mortality in developing countries is mainly due to poor access to maternal health care, poor antenatal and maternity wards, and inadequacies in available care (Igbokwe, 2012). Every year, around 6 million women become pregnant, with 5 million pregnancies ending in childbirth. Improved maternal and newborn health is linked to adequate utilization of prenatal health care. Pregnancy care affects fetal, baby, and maternal development (Akhtar et al., 2018). Health knowledge is essential for women to understand their health condition and the necessity of receiving adequate prenatal care (English et al., 2015).

Use of antenatal care services remains inadequate compared to WHO recommendations due to low education, poor decision-making, and low economic status. Experience of abortion and stillbirth increases ANC utilization (Dulla et al., 2017). ANC use is associated with awareness of nutrition during pregnancy, including intake of protein, vegetables, fruits, milk, green leafy vegetables, and organ meat to prevent anemia (Faye et al., 2011). WHO defines antenatal care as care by skilled professionals to ensure best health conditions for mother and baby during pregnancy, including risk identification, prevention and management of diseases, health education, and promotion (Downe et al., 2016).

The 2016 WHO ANC model recommends a minimum of eight contacts with the first in the first trimester and further scheduled visits up to 40 weeks. It includes maternal-fetal assessment, nutrition, prevention and treatment of physiological problems, preventative interventions for certain contexts, counseling for intimate partner violence, iron and folic acid supplementation, tetanus toxoid vaccination, and one ultrasound before 24 weeks for gestational age estimation and fetal anomaly detection (Tunçalp et al., 2017; Abalos et al., 2016; WHO, 2016). WHO recommends improving quality of antenatal care to reduce stillbirths and complications and give women a positive pregnancy experience (WHO, 2016).

In the Philippines, DOH guidelines include first prenatal visit at first trimester, at least four visits, iron and folate supplementation, iodine, tetanus toxoid immunization, counselling on healthy lifestyle, breastfeeding, infection management, and oral health services. Studies revealed older, poorer, and less educated women received poorer quality prenatal care compared to younger, richer, and better educated women (Lavado et al., 2010). Multiparous women also received poorer care. Doctors provide very good quality care, midwives and nurses provide fair care, and traditional birth attendants provide poor care. Quality of antenatal care, social position, and support describe gaps in care for specific groups of women (Bollini & Quack-Lötscher, 2013).

Knowledge of Pregnant Women Regarding Antenatal Care. Based on the study of Al-Jaradi et al. (2022), majority of pregnant women had good knowledge regarding vitamin supplements and iron-folic acid, two-thirds had knowledge about tetanus vaccine, and less than half had poor knowledge regarding blood screening for HIV and hepatitis B. Less than two-thirds had moderate knowledge regarding ANC visit schedules, and most had corrected total knowledge regarding ANC. These findings agree with Akhtar et al. (2018), Kaur et al. (2018), Mored et al. (2014), Tenaw et al. (2018), Mbada et al. (2014), and Hajela (2014) showing similar trends in knowledge about supplements, vaccines, ANC visits, HIV screening, antenatal exercises, and spacing in perinatal care.

As of 2022, mothers aged 25-29 made up over a quarter of new mothers in the Philippines, with ages 20-24 accounting for almost a quarter (Statista, 2024). Nearly 6 in 10 married women age 15-49 were employed

(PSA, 2022), 99 percent were literate with 37 percent having postsecondary education. Majority of pregnant women were from lower and upper-lower class, married between 16-25, with over a third primigravida and majority multigravida (Bashir et al., 2023). The average annual family income is Php 307,190, with middle class earning Php 18,000 to 109,200 per month (Divina, 2024). The unintended pregnancy rate declined while abortion rates increased (Guttmacher Institute, 2024). The most common family structure is nuclear with tight-knit extended family bonds (Scroope, 2017).

Attitude of Pregnant Women Regarding Antenatal Care. There a study showed that about two-thirds of pregnant women had a positive attitude, followed by one third with a negative attitude regarding ANC, agreeing with Kaur et al. (2018), Akhtar et al. (2018), and Tenaw et al. (2018) on knowledge and positive attitudes towards ANC and antenatal exercise. Findings showed significant associations between knowledge and demographic characteristics, and between practice and demographics, supported by Hajela (2014) on correct knowledge and attitude but incorrect KAP on diet and post-delivery nutrition. Educated people were less likely to experience mortality, while those with less financial capacity experienced mortality (Davies et al., 2018).

DOH recommends 12 prenatal care components including weight, height, BP, abdominal exam, diet advice, danger signs, breastfeeding, family planning, and postpartum care (Malaya, 2014). Half of women were satisfied with care, though 86.2% waited over two hours, 63% dissatisfied with medicines, 75% lacked complete tetanus vaccine, only 31% received antenatal instructions, 46% received exercise information, and 36% discussed fear and anxiety (Sutan et al., 2016). Dulla et al. (2017) reported half a million women die annually from pregnancy complications, mainly in developing countries, showing weak ANC activity, while Salehi & Kohan (2017) emphasized evaluating maternal-fetal attachment to improve bonding, highlighting the relevance of personal profile as an important research variable.

Practice of Pregnant Women Regarding Antenatal Care. Based on the study showed that the majority of pregnant women had good practice of vitamin supplement and iron-folic acid and calcium tablets during pregnancy, followed by the majority of them with good practice regarding eating habits changing during pregnancy, majority of them had good practice regarding the antenatal follow-up, while less than two-thirds of pregnant women had moderate practice regarding the visits to ANC regularity. On the other hand, over two-thirds of pregnant women had good performance in the total ANC practice.

Socio-demographic Characteristics and KAP. Pregnant mothers were enrolled in the study with a mean age of 27.7 years, and most reported that high blood pressure, maternal smoking, alcohol consumption, infection, and medicines affected fetal growth during pregnancy, with two-thirds visiting health facilities in the first three months; majority had good knowledge and attitude but low practice, with marital status, occupation, gravidity, and parity showing significant association to knowledge, and gravidity and parity to practice (Gebremariam et al., 2023).

Results showed moderate knowledge, positive attitude, and good practice, with linear regression identifying women with more than seven children had lower knowledge scores, women aged 20-24 had lower attitude scores than 18-19, women in defacto relationships and Fijian women of Indian descent had lower attitude scores than married and I Taukei women, and women aged 30–34 had lower practice scores than 18–19 (Imtishal et al., 2023). Respondents had majority knowledge towards ANC, with 38 percent receiving information from health care providers and few from husbands, 80 percent accepting ANC utilization, majority seeking permission for visits, 58 percent utilizing ANC in previous pregnancies, over one third preferring mother and child health centers, few preferring public hospitals, and 5 percent private hospitals; multigravida, gestational months, seeking permission, spouse accompany, and awareness significantly contributed to ANC utilization with significant differences observed (Mohamoud et al., 2022).

Interrelationship among KAP. The highest percentage of pregnant women had a high knowledge score regarding antenatal care, most showed a positive attitude, and the highest percentage also had good practice scores. The level of overall knowledge had a significant direct correlation with practices towards antenatal care, while it had an insignificant correlation with attitude (Ibrahim et al., 2014). Pregnant women had average knowledge, positive attitudes, and good practices toward ANC, with overall knowledge positively correlated

with practices. Age, type of family, education, and occupation had significant associations with awareness and practices, but practice of ANC remained low despite good knowledge and attitude (Bashir et al., 2023). Almost a quarter of respondents had good knowledge, almost a quarter had sufficient knowledge, and majority had less knowledge. Over one third had a positive attitude towards ANC, fewer than those with a negative attitude (Hernawati et al., 2024).

The result indicated majority had correct answers in total knowledge regarding ANC, positive attitude, and practice towards ANC. Sociodemographic characteristics including education were significantly associated with knowledge; transport and past obstetrical history with attitude; and monthly income with practice. There was a statistically highly significant correlation between knowledge and attitude, knowledge and practice, and attitude and practice (Mallick et al., 2023). Majority of mothers had good knowledge and attitude but low level of practice, with marital status, occupation, gravidity, and parity showing significant association to knowledge, and gravidity and parity to practice (Gebremariam et al., 2023). Majority of women had adequate knowledge, positive attitude, and practiced ANC adequately, with age, parity, education, occupation, and type of family significantly associated with awareness (Kaur et al., 2021). Majority knew about antenatal care, while the rest did not; majority wanted to follow ANC, while over a quarter did not due to negative attitude, and less than half practiced ANC follow up during pregnancy (Henok et al., 2015).

RESEARCH METHODOLOGY

Design. The study made use of a descriptive correlational design. The descriptive design was determined the socio- demographic characteristics of the pregnant women and the level of knowledge, attitude, and practices on antenatal care. It was correlational as it assessed the interrelationship among socio-demographic characteristics, knowledge, attitude, and practice on antenatal care among pregnant women.

Environment. This study was conducted at the selected Health Birthing Centers in Butuan City.

Respondents. The respondents of this study were 323 pregnant women who submit for antenatal in the said hospital and birthing clinics.

Sampling Design. A quota sampling was utilized in this study.

Inclusion Criteria and Exclusion Criteria. Respondents of the study must comply with the following inclusion and exclusion criteria: (a) must be of legal age, regardless of marital status, educational attainment, occupation, and religion; (b) must be pregnant residing in Butuan City Agusan del Norte who must visit in selected health facilities and had been living at least six months in the area for their antenatal visits; (c) must be able to read and write and must be willing to give voluntary consent. Excluded from the study were those pregnant mothers who live outside Butuan City.

Instrument. The study made use of a four-part questionnaire as the primary tool in data collection. Part one pertains to the socio-demographic characteristics of pregnant women. This part contains the following: Age, marital status, level of education, occupation, gravidity, parity, family monthly income, and type of family. Part two to four of the instrument is adopted from the study of Akhtar et al. (2018). It pertains to the Knowledge on antenatal care (14 items), Attitude on antenatal care (10 items) and Practice on antenatal care (7 items). The knowledge aspect is answerable by yes

(2) or no (1) while the attitude and practice is answerable by a three-point Likert scale where 1 is disagree, 2 is neutral, and 3 as agree. A means score was used to determine the level of knowledge, attitude, and practice on antenatal care. A score of 1.00 – 1.50 is not knowledgeable, and 1.51 – 2.00 is knowledgeable. For attitude, a score of 1.00 – 1.67 is negative attitude, 1.68 – 2.34 is neither positive nor negative attitude, and 2.34 – 3.00 is positive attitude. For practice, a score of 1.00 – 1.67 is not practiced, 1.68 – 2.34 is moderately practiced, and 2.34 – 3.00 is practiced.

For reliability, the instrument has undergone reliability testing among 15 pregnant women and Cronbach alpha revealed the following results: Knowledge was .630, attitude was .781, and practice was .808. The instrument's

reliability was established using Cronbach's alpha measurement to demonstrate internal consistency. An item is considered reliable with Cronbach's alpha score greater than 0.6, acceptable between 0.6 to 0.8, with a corrected item-total correlation greater than 0.3 (Hajjar, 2018; Cronbach, 1951).

Data Gathering Procedures. Before data collection, the researcher submitted the study title for approval, was assigned a research adviser, and secured approval letters from the Dean of Allied Health Sciences, Chief Academic Officer, Chief of Hospital, and Administrators of Birthing Clinics in Butuan City. A design hearing was conducted to ensure ethical and technical standards, after which the research paper was submitted to the university and hospital ethics committees for approval. Upon issuance of the notice to proceed, recruitment began, and respondents signed informed consent before completing the questionnaire. Due to the pandemic, social distancing, face masks, and sanitization were required. Questionnaires were placed in plastic envelopes for easy sanitization before and after use. The researcher checked each completed questionnaire to confirm all questions were answered, continuing until the desired sample size was reached. Data were compiled, analyzed using statistical techniques, and presented in tables with interpretations, implications, research, and supporting literature. At the end of the study, all completed surveys were shredded.

Statistical Treatment of Data. The statistical data were analyzed. The following descriptive and inferential statistics were used in the study: Frequency Distribution and Simple Percentage were was used to present the socio-demographic characteristics of the respondent. Weighted Mean and standard deviation were used to determine the knowledge, attitude, and practices on antenatal care of the pregnant women. Chi-square Test of Independence used to assess whether or not there was a significant relationship between the socio-demographic characteristics and the knowledge, attitude, and practice on antenatal care among pregnant women. Cramer's V used to assess the strength of association should there exist a significant relationship utilizing the Chi Square. And, Pearson r used to assess the interrelationship among knowledge, attitude, and practices on antenatal care among pregnant women.

Ethical Considerations. Ethical considerations are an essential component of any research study. The study was submitted for ethical approval prior to data gathering.

Presentation, Analysis, And Interpretation of Data

Table 1 Profile of the Respondents

Profile	f	%
Age		
18- 24 years old	81	50.00
25-34 years old	77	47.50
35-44 years old	4	2.50
Marital Status		
Single	103	63.60
Married	59	36.40
Level of Education		
College Graduate	56	34.60
High School Level	5	3.10

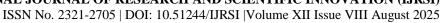|		
College Level	63	38.90
High School Graduate	38	23.50
Occupation		
Housewife	85	52.50
Government employee	36	22.20
Private employee	41	25.30
Gravidity		
One (1)	56	34.60
Two (2)	49	30.20
Three (3)	42	25.90
Four (4)	12	7.40
Five (5)	3	1.90
Parity		
Zero (0)	56	34.60
One (1)	58	35.80
Two (2)	33	20.40
Three (3)	15	9.30
Abortion		
Zero (0)	150	92.60
One (1)	12	7.40
Income		
Above 10,000	121	74.70
5,001 – 10,000	41	25.30
Type of Family		
Nuclear	66	40.70
Extended	8	4.90
Intergenerational	31	19.10
Cohabitational	57	35.20

Note: *n=162.*

The table shows that half of the respondents were 18 to 24 years old and almost half were 25 to 34 years old, with very few aged 35 to 44. This aligns with the reproductive age group, as mothers aged 25-29 made up 27.9 percent and those aged 20-24 made up 23.7 percent of new mothers in the Philippines (Statista, 2024). Majority were single while over one third were married, contrary to Bashor et al. (2023) finding that most pregnant women were married between 16-25 years. Most were college level, over one third were college graduates, almost a quarter were high school graduates, and few were at high school level only, with PSA (2022) reporting 99 percent of women are literate and 37 percent have postsecondary or college education. Just over half were housewives, a quarter were private employees, and almost a quarter were government employees, reflecting the common paternal family setup where men provide and women stay at home. PSA (2022) states nearly 6 in 10 married women aged 15-49 were employed, with 79 percent paid in cash only.

Most had a gravidity of one, one third had two, a quarter had three, and few had four or five; most had a parity of one, over one third had zero, almost a quarter had two, and few had three, similar to Bashir et al. (2023) who reported over one third were primigravida and majority were multi gravida of 2 to 4. Majority had no abortion while very few had at least one; abortion is illegal in the Philippines unless therapeutic, though unintended pregnancy rates declined while abortion rates increased (Guttmacher Institute, 2024). Majority had family monthly income above Php 10,000, a quarter had Php 5,001-10,000, with average family income in 2021 at Php 307.19 thousand per year (Divina, 2024). Most had a nuclear family, over one third were cohabitational, few were intergenerational, and very few extended, reflecting the common nuclear household structure with tight-knit bonds among extended family members (Scroope, 2017).

Table 2 Knowledge on Antenatal Care

Dimensions	Mean score	SD	Interpretation
Segregation			
Do pregnant women need to go for antenatal check-up?	2.00	.000	Knowledgeable
2. If yes, is it required to go for ANC even if there is no complication during pregnancy?	2.00	.000	Knowledgeable
3. Should first antenatal check-up be done in the first 3 months?	2.00	.000	Knowledgeable
4. Is it necessary to give injection TT during pregnancy?	2.00	.000	Knowledgeable
Does pregnant woman need vitamin supplement and iron folic acid tablet during pregnancy?	2.00	.000	Knowledgeable
6. Regular Blood pressure examination is necessary during pregnancy.	1.93	.263	Knowledgeable
Can high blood pressure affect the fetus growth?	1.96	.204	Knowledgeable

Can high blood pressure affect the fetal growth?	1.97	.173	Knowledgeable
9. Is maternal smoking harmful to the fetus?	2.00	.000	Knowledgeable
Can alcohol consumption during pregnancy affect the fetal growth?	2.00	.000	Knowledgeable
Are you aware that any infection during pregnancy can cause harm to your baby?	2.00	.000	Knowledgeable
Are you aware that any medicines other than those prescribed by doctor can cause harm to your baby?	1.88	.323	Knowledgeable
Does pregnant woman need vitamin supplement and iron folic acid tablet during pregnancy?	2.00	.000	Knowledgeable
Regular Blood pressure examination is necessary during pregnancy	2.00	.000	Knowledgeable
Grand mean	1.98	.056	Knowledgeable

Note: *n=162.*

Legend: A score of 1.00 – 1.50 is not knowledgeable, and 1.51 – 2.00 is knowledgeable.

Table 2 shows respondents were knowledgeable about antenatal care, knowing the need for check-ups even without complications, first check-up in the first 3 months, injection TT, vitamin supplements, iron folic acid, regular blood pressure checks, and effects of high BP, smoking, alcohol, infections, and non-prescribed medicines on the fetus. Majority had gravidity of two or more, explaining their knowledge. Ibrahim et al. (2014) found high knowledge scores, positive attitude, and good practice scores, while Hernawati et al. (2024) found almost a quarter had good knowledge, almost a quarter sufficient, and majority less knowledge. Bashir et al. (2023) reported average knowledge, positive attitudes, and good practices. Al-Jaradi et al. (2022) found majority knew about vitamin supplements and iron-folic acid, two-thirds knew about tetanus vaccine, less than half knew about HIV and hepatitis B screening, and less than two-thirds knew ANC visit schedules. Findings agree with Akhtar et al. (2018), Kaur et al. (2018), Mored et al. (2014), Tenaw et al. (2018), Mbada et al. (2014), and Hajela (2014). Results indicate good knowledge on antenatal care but sustaining it for first-time pregnant women is needed.

Table 3 Attitude on Antenatal Care

Dimensions	Mean score	SD	Interpretation
1. Early antenatal booking is good for my pregnancy	2.27	.446	Agree
I will go for antenatal booking before the third month of my pregnancy.	2.27	.446	Agree
3. I believe that vitamin supplement and iron folic acid tablet is good for the fetus.	2.58	.495	Agree
4. Antenatal follow up is good to monitor mother's	2.15	.356	Agree

and fetus' health			
5. I will allow the doctor to check my blood pressure	2.72	.452	Agree
Do pregnant women need to go for antenatal check-up	2.72	.452	Agree
7. If yes, is it required to go for ANC even if there is no complication during pregnancy?	2.28	.452	Agree
Should first antenatal check-up be done in the first 3 months?	2.27	.446	Agree
Does pregnant woman need vitamin supplement and iron folic acid tablet during pregnancy?	2.56	.498	Agree
Regular Blood pressure examination is necessary during pregnancy	2.72	.452	Agree
Grand mean	2.45	.282	Positive attitude

Note: *n=162.*

Legend: For attitude, a score of 1.00 – 1.67 is negative attitude, 1.68 – 2.34 is neither positive nor negative attitude, and 2.34 – 3.00 is positive attitude.

Table 3 presents data on the attitude towards antenatal care, showing that respondents had a positive attitude. They agreed with early antenatal booking, taking vitamin supplements and iron folic acid, regular check-ups including blood pressure monitoring, and the importance of antenatal care even without complications. Most had prior pregnancy experience, contributing to their knowledge and positive attitude. Supporting studies also found positive attitudes towards antenatal care (Hernawati et al., 2024; Mallick et al., 2023; Gebremariam et al., 2023; Akhtar et al., 2018; Tenaw et al., 2018), though one study noted some women still had negative attitudes (Henok et al., 2015). The findings indicate that respondents understand the benefits of antenatal care for both mother and baby.

Table 4 Practice on Antenatal Care

Dimensions	Mean score	SD	Interpretation
1. Seek antenatal care regularly during pregnancy.	2.54	.500	Agree
2. Current pregnancy is unplanned.*	2.53	.757	Disagree
Waiting for the fetus (baby) to move before going for antenatal care.*	2.70	.458	Disagree
4. Unable to meet the transport costs to the healthcare facility.*	2.40	.734	Disagree
5. Feeling well and not having any serious problems,	2.43	.721	Disagree

which need the nurse or doctor's attention.*			
No power to make decisions on your own. Husband/partner or family members must make the decision for you to go for antenatal care.*	2.69	.463	Disagree
7. Take five antenatal visits during pregnancy.	2.56	.498	Agree
Grand mean	2.55	.407	Practiced

Note: *n=162. * Negatively worded items.*

Legend: For practice, a score of 1.00 – 1.67 is not practiced, 1.68 – 2.34 is moderately practiced, and 2.34 – 3.00 is practiced.

Table 4 is the presentation of the data on the practice on antenatal care. Antenatal care was practiced by the respondents. They agreed that they sought antenatal care regularly during pregnancy and took five antenatal visits during pregnancy. However, they disagreed that their current pregnancy was unplanned, they waited for the fetus (baby) to move before going for antenatal care, they were unable to meet the transport costs to the healthcare facility, they felt well and not having any serious problems, which needed the nurse or doctor's attention, and they had no power to make decisions on their own. Husband/partner or family members made the decisions for them to go for antenatal care. Majority of the respondents had practiced antenatal care already. And, because they greatly benefit from it as well as their baby then there is no reason for them not to do it again.

The highest percentage of pregnant women had good practice scores (Ibrahim et al., 2014). The finding of the study revealed that pregnant women had good practices toward antenatal care (ANC). Furthermore, the practice of ANC in the study area was low despite good knowledge and attitude toward ANC (Bashir et al., 2023). The result indicated that majority of participants had practice towards overall antenatal care (Mallick et al., 2023). Majority of mothers had good knowledge and attitude, but they had low level of practice (Gebremariam et al., 2023). Majority of women were practicing antenatal care adequately (Kaur et al., 2021). Less than half of women practiced antenatal care follow up during their pregnancy time (Henok et al., 2015).

The findings clearly show that the respondents are really submitting themselves for antenatal care. This only shows that they know how important it is to go through antenatal care while being pregnant because it has positive effects to the mother and the baby. They know too well how antenatal works as most of them are gravida two already. This is a repetition of something good and therefore mothers do not hesitate to practice antenatal care. The antenatal care is part of the mandate on National Safe Motherhood Program (NSMP) where it is focused on making pregnancy and childbirth safer and sought to change fundamental societal dynamics that influence decision making on matters related to pregnancy and childbirth while it tries to bring quality emergency obstetrics and newborn care facilities nearest to homes. this move ensures that those most in need of quality health care by competent doctors, nurses and midwives have easy access to such care.

Also, according to Administrative Order No. 2021-0034 on National Policy on Essential Care art Primary Level Non-specialist Birthing Centers. The order shall apply to all maternal and newborn care providers/skilled health professionals in primary care facilities and non-specialist birthing centers in Rural Health Units, Urban Health Centers, Local Govenrment Unit (LGU) Hospitals and similar service providers in the private sector such as private practicing midwives, nurses and doctors (Department of Health, 2021).

Table 5 Relationship between Profile and Knowledge on Antenatal Care

Variables	Chi value	*p* value	mer's V	Decision	Interpretation

Age	8.557	.073	--	Failed to reject Ho	Not significant
Marital status	12.330	.002	.276	Reject Ho	Significant
Level of Education	23.291	.001	.268	Reject Ho	Significant
Occupation	28.875	.000	.299	Reject Ho	Significant
Gravidity	27.067	.001	.289	Reject Ho	Significant
Parity	33.632	.000	.322	Reject Ho	Significant
Abortion	1.722	.423	--	Failed to reject Ho	Not significant
Family monthly income	9.473	.009	.242	Reject Ho	Significant
Type of family	65.355	.000	.449	Reject Ho	Significant

Legend: Significant if *p* value is < .05. Dependent Variable: Knowledge. Cramer's V: ES ≤ 0.2 - The result is weak. Although the result is statistically significant, the fields are only weakly associated. 0.2 < ES ≤ 0.6 - The result is moderate. The fields are moderately associated. ES > 0.6 - The result is strong. The fields are strongly associated.

The table shows that the p values for the independent variables of marital status, level of education, occupation, gravidity, parity, family monthly income, and type of family were lesser than the significant value of .05. These values were interpreted as significant which led to the decision of rejecting the null hypothesis. Thus, marital status, level of education, occupation, gravidity, parity, family monthly income, and type of family were significantly correlated with knowledge on antenatal care. The correlations were moderate positive. A very high knowledge is influenced by, a marital status of being single, a higher education, being a housewife, higher gravidity and parity, higher family monthly income, and having a nuclear family.

Being married means that they have support from their partners and with the support this tends to allow the respondents to strive to get more information about antenatal care. Their partners may push them to gain more knowledge. Similarly, with higher education means that they become more knowledgeable and this being knowledgeable is also applied to antenatal care. The more education, the more initiatives to research about antenatal care in online resources. Being a housewife would only mean that they will have time for antenatal care. Because there is no conflict of schedule between work and antenatal check-ups. With gravidity and parity, it means that they gained experience on pregnancy already and therefore this experience allowed them to gain knowledge already. In terms of family monthly income, the higher the income means the more resources that the person has in accessing information about antenatal care.

Supporting the findings, marital status, occupation, gravidity, and parity had showed statistically significant association to their comprehensive knowledge. And their gravidity and parity had also showed statistically significant association to their level of practice (Gebremariam et al., 2023).

However, the p value for the independent variable of age and abortion were greater than the significant value

of .05. These values were interpreted as not significant which led to the decision of failing to reject the null hypothesis. Thus, age and abortion were not significantly correlated with knowledge on antenatal care. This means that a very high knowledge is highly attainable no matter what age and whether there was an abortion or not. Contrary to the findings, it was found that almost all the variables such as age, parity, level of education, occupation and type of family had a significant association with awareness about ANC (Kaur et al., 2021).

Table 6 Relationship between Profile and Attitude on Antenatal Care

Variables	Chi value	*p* value	mer's V	Decision	Interpretation
Age	26.267	.003	.285	Reject Ho	Significant
Marital status	17.205	.004	.326	Reject Ho	Significant
Level of Education	27.400	.026	.237	Reject Ho	Significant
Occupation	23.518	.009	.269	Reject Ho	Significant
Gravidity	94.591	.000	.382	Reject Ho	Significant
Parity	78.858	.000	.403	Reject Ho	Significant
Abortion	23.330	.000	.371	Reject Ho	Significant
Family monthly income	5.633	.344	--	Failed to reject Ho	Not significant
Type of family	68.312	.000	.375	Reject Ho	Significant

Legend: Significant if *p* value is < .05. Dependent Variable: Attitude. Cramer's V: ES ≤ 0.2 - The result is weak. Although the result is statistically significant, the fields are only weakly associated. 0.2 < ES ≤ 0.6 - The result is moderate. The fields are moderately associated. ES > 0.6 - The result is strong. The fields are strongly associated.

The table shows that the p values for the independent variables of age, marital status, level of education, occupation, gravidity, parity, abortion, and type of family were lesser than the significant value of .05. These values were interpreted as significant which led to the decision of rejecting the null hypothesis. Thus, age, marital status, level of education, occupation, gravidity, parity, abortion, and type of family were significantly correlated with attitude on ante natal care.

The correlations were moderate positive. A very positive attitude is influenced by increasing age, a marital status of being single, a higher education, being a housewife, higher gravidity and parity, having no abortion, and having a nuclear family. With increasing age there is development of maturity and development of wisdom. With this people develop and gain better understanding of the importance of antenatal care to the mother and baby, thus embracing and providing a positive attitude towards it. With being married, this means that the person has a support system who will provide support all the way to the antenatal care process, and thus the person can gain positive attitude towards antenatal care. With higher levels of education, means that ther is also higher levels of knowledge, with better knowledge there is better appreciation of the importance of antenatal care and thus will be able to provide positive attitude towards it. Being a housewife means that there are no competitions in complying with antenatal care. They can accomplish natal care as they are only at home. With this they can better appreciate its importance and benefits, thus they will be able to place positive attitude towards it. With increasing gravidity and parity, it means that they already gained experience on

antenatal and because it is very helpful, they normally place a positive attitude towards it. Having no abortion means that they are greatly benefitting from the effects of antenatal care and therefore they place a positive attitude towards it. Lastly, having a nuclear family is typical family. Members of the family can provide support towards achieving antenatal care.

Supporting the findings, some sociodemographic characteristics including education were significantly associated with knowledge; transport and past obstetrical history of complication was significantly associated with attitude; monthly income was significantly associated with practice (Mallick et al., 2023). However, the p value for the independent variable of family income was greater than the significant value of .05. This value was interpreted as not significant which led to the decision of failing to reject the null hypothesis. Thus, family income was not significantly correlated with attitude on antenatal care. This means that a very positive attitude is highly attainable no matter what the family income is. Linear regression identified that women in de facto relationships had a 2.12 lower attitude score compared to the married category (Imtishal et al., 2023). Also, the study showed that, multigravida, gestational months, seeking permission and spouse accompany to the antenatal care visit and level of awareness significantly contributed to the utilization of ANC by pregnant women in this study. Significant difference was strongly observed (Mohamoud et al., 2022).

Table 7 Relationship between Profile and Practice on Antenatal Care

Variables	Chi value	p value	mer's V	Decision	Interpretation
Age	34.131	.000	.325	Reject Ho	Significant
Marital status	12.545	.014	.278	Reject Ho	Significant
Level of Education	27.446	.007	.238	Reject Ho	Significant
Occupation	18.605	.017	.240	Reject Ho	Significant
Gravidity	1.204E2	.000	.431	Reject Ho	Significant
Parity	99.405	.000	.452	Reject Ho	Significant
Abortion	18.354	.001	.337	Reject Ho	Significant
Family monthly income	8.396	.078	--	Failed to reject Ho	Not significant
Type of family	60.839	.000	.354	Reject Ho	Significant

Legend: Significant if p value is < .05. Dependent Variable: Practice. Cramer's V: ES ≤ 0.2 - The result is weak. Although the result is statistically significant, the fields are only weakly associated. 0.2 < ES ≤ 0.6 - The result is moderate. The fields are moderately associated. ES > 0.6 - The result is strong. The fields are strongly associated.

The table indicates that age, marital status, level of education, occupation, gravidity, parity, abortion, and type of family were significantly correlated with antenatal care (ANC) practices, as their p-values were less than .05. These variables showed moderate positive correlations with ANC practice, suggesting that higher practice levels are associated with increasing age, being single, having higher education, being a housewife, greater gravidity and parity, no history of abortion, and being part of a nuclear family. Experience, social support, educational attainment, and availability of time contributed to better ANC practices. Previous pregnancies and absence of complications like abortion also positively influenced practice. The presence of a supportive nuclear family further enhanced compliance with ANC.

Supporting literature showed that age, type of family, education, and occupation were significantly associated with ANC awareness and practices (Bashir et al., 2023). Despite good knowledge and attitude, ANC practice remained low in the study area. Family income, however, had a p-value greater than .05, indicating no significant correlation with ANC practice. Therefore, high ANC practice is achievable regardless of income level. Linear regression analysis showed that those aged 30–34 had lower ANC practice scores than those aged 18–19 (Imtishal et al., 2023).

Table 8 Relationship between Profile and Practice on Antenatal Care

Variables	r value	*p* value	Decision	Interpretation
Knowledge and Attitude on antenatal care	.131	.096	Failed to reject Ho	Not significant
Knowledge vs. Practice on antenatal	.140	.076	Failed to reject Ho	Not significant
Attitude vs. Practice on antenatal	.555	.000	Reject Ho	Significant

Legend: Significant if p value is < .05. Pearson r value interpretation: .00 to .30 (.00 to -.30) is negligible correlation; .30 to .50 (-.30 to -.50) is low positive negative) correlation; .50 to .70 (-.50 to -.70) is moderate positive (negative) correlation; .70 to .90 (-.70 to -.90) is high positive (negative) correlation; and .90 to 1.00 (-.90 to -1.00) is very high positive (negative) correlation.

The correlation between knowledge and attitude on antenatal care was found to be not significant (p > .05), meaning knowledge did not significantly influence attitude. A positive attitude can still exist despite low knowledge. This contrasts with theoretical expectations from the Health Belief Model and KAP model, which suggest knowledge should impact attitude. Supporting literature (Ibrahim et al., 2014) similarly found knowledge correlated with practice but not attitude.

The correlation between knowledge and practice was also not significant (p > .05), indicating that high antenatal care practices can occur even with low knowledge. This contradicts the assumptions of both the Health Belief Model and KAP model. Despite this, Bashir et al. (2023) reported a positive relationship between knowledge and ANC practices.

In contrast, the correlation between attitude and practice was significant (p < .05), with a moderate positive relationship. This means that a more positive attitude is associated with higher antenatal care practice, aligning with the theoretical frameworks and supporting literature (Mallick et al., 2023; Ibrahim et al., 2014). A noted limitation was the use of a dichotomous knowledge instrument, which may have influenced the insignificant findings for knowledge correlations. A Likert-scale format, like those used for attitude and practice, may have produced different results.

CONCLUSION AND RECOMMENDATIONS

Conclusion. In conclusion, knowledge on antenatal care do not influence attitude and practice. However, attitude influences practice on antenatal care. This means that a very positive attitude and very high levels of practice on antenatal care can be achieved despite the low level of knowledge on antenatal care. However, a high level of practice can be achieved through a very positive attitude on antenatal care. The findings of the study partially proved the Health Belief Model and KAP Model as it was only attitude that influences practice while knowledge did not influence attitude and practice. To address the findings of the study an antennal care enhancement plan was proposed.

Recommendations. The results of this study guide the following suggestions are offered:

Practice. A part of the research utilization of the output, the antenatal care sustenance plan is recommended for use in the birthing centers where the study was conducted to aid in the practice of antenatal care among pregnant women at the brangay level. Other birthing centers and hospitals in the region may also adopt the said plan as applicable to them. Also, a special meeting shall be called for to discuss the findings of the study among birth center administrators.

Policy. The study findings can support the crafting or strengthen the issued policies and guidelines in the strict compliance of antenatal care and related laws or mandates among pregnant women identifying specific measures to have massive information dissemination and practice on antenatal care.

Education. The research study can serve as a reference to studies relating to knowledge, attitude, and practice on antenatal care and the interrelationship among socio- demographic profiles, knowledge, attitude, and practice on antenatal care. Further, the study can be used as an educational material in research referencing the methodology used. It can also serve as a reference in terms of the statistical treatments used and in research in ethics. The output can also be used in educating women of reproductive age, including men, to gain knowledge, positive attitude and high levels of practice on antenatal care.

Nursing Research. art of research utilization is the posting of the abstract of the study in the bulletin of the hospital. The paper will also be submitted for publication in a refereed journal.

Antenatal Care Sustenance Plan

Rationale

It is the goal of good prenatal care to ensure that the woman does not suffer any adverse effects from the pregnancy and to maintain the health of the developing baby. Furthermore, this is the opportunity for the physician and other healthcare experts to educate both the moms and their partners about the importance of maintaining a healthy lifestyle. Micronutrient supplements, treatment for hypertension to prevent eclampsia, and immunization against tetanus are all options that are available to pregnant women who are receiving antenatal care. For the purpose of preventing the transfer of HIV from mother to child, antenatal care may also include the provision of HIV testing and medication. Findings of the study revealed the need to sustain the knowledgeable result on antenatal care. Also, there is a need to sustain the positive attitude on antenatal care and sustain the practice level on antenatal care. Other findings revealed a correlation between attitude and practice on antenatal care. Thus, this antenatal plan was created mainly to sustain such finding.

General Objectives

The primary purpose of this antenatal care sustenance plan is to sustain the high levels of knowledge, very positive attitude, and high level of practice on antenatal care among pregnant women.
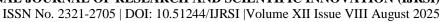
Specific Objectives

a. To sustain the knowledgeable level on antenatal care among pregnant women;

b. To sustain the very positive attitude on antenatal care among pregnant women;

c. To sustain the practiced level on antenatal care among pregnant women; and

d. To sustain the high levels of knowledge, very positive attitude, and high level of practice on antenatal care among pregnant women.

Areas of Concern	Specific Objectives	Activities	Persons Responsible	Resources Needed	Time Frame	Success Indicators
Knowledge -	To sustain	Personally-	Pregnant	Internet	1st	Saved articles

the need to sustain the knowledgeable result on antenatal care.	the knowledgeable level on antenatal care among pregnant women.	initiated activities: •Read articles and view videos on antenatal care. •Attend seminars and webinars on antenatal care. Hospital-initiated activities: Provide education program at the barangay level in coordination with the barangay health workers.	women, Doctors, Nurses, and Midwives, Hospital Administrators, Barangay Health Officials.	connection, Desktop, laptop, tablets, or android phones. Budget for the creation of leaflet. Infographic.	Quarter of the Year	and videos. Certificates of attendance and participation. Update Facebook and official website. Survey results
Attitude - The need to sustain the positive attitude on antenatal care.	To sustain the very positive attitude on antenatal care among pregnant women.	Personally-initiated activities: •Read articles and view videos on antenatal care. •Attend seminars and webinars on antenatal care. Hospital-initiated activities: Encourage involvement husbands or parents in the antenatal care.	Pregnant women, Doctors, Nurses, and Midwives, Hospital Administrators, Barangay Health Officials.	Internet connection, Desktop, laptop, tablets, or android phones. Budget for the creation of leaflet. Infographic.	4th Quarter of the Year	Saved articles and videos. Certificates of attendance and participation. Update Facebook and official website. Survey results

Practice - The need to sustain the practice level on antenatal care	To sustain the practiced level on antenatal Care among pregnant women.	Personally-initiated activities: •Read articles and view videos on antenatal care. •Attend seminars and webinars on antenatal care. Hospital-initiated activities: • Obtain permission to take email or cellphone number of the pregnant mother to be used for follow-ups and reminder of the next scheduled check-up to complete the visits.	Pregnant women, Doctors, Nurses, and Midwives, Hospital Administrators, Barangay Health Officials.	Internet connection, Desktop, laptop, tablets, or android phones. Budget for the creation of leaflet. Infographic.	4th Quarter of the Year	Saved articles and videos. Certificates of attendance and participation. Update Facebook and official website. Survey results
Correlation between attitude and practice on antenatal care.	To sustain the high levels of knowledge, very positive attitude, and high level of practice on antenatal care among pregnant women.	Note: All activities mentioned in the first, second, and third concerns are applicable here.	Pregnant women, Doctors, Nurses, and Midwives, Hospital Administrators, Barangay Health Officials.	Note: All resources mentioned in the first, second, and third concerns are applicable here.	4th quarter of 2024.	Note: All success indicators mentioned in the first, second, and third concerns Are applicable here.

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