**Knowledge, Cognition and Attitude Towards Prenatal Check-ups Amongst Chinese Primigravida women**

**ABSTRACT**

**Background:** Although pregnant women often demonstrated cognition and positive attitudes toward prenatal check-ups, the interplay of cognition and attitude has not been well established.

**Purpose**: The objective of this study was to investigate the cognition and attitude towards prenatal check-ups among Chinese primigravid women and the relationship between them.

**Methods:** A cross-sectional study design was employed among 180 Chinese primigravida aged 18–35 from hospitals in Shandong Province, China. Data was collected using validated questionnaires assessing demographic characteristics, cognition, and attitude. A 28-item cognition scale and an Antenatal Care scale with 26 items for attitude were used. Analysis of the data employed descriptive statistics, chi-square tests, and linear regression.

**Result:**  A moderate level of cognition towards prenatal check-ups was found, with the highest mean (3.78) in recognizing fetal benefits, and a high level for attitude. The highest score for attitude was in normative beliefs, with a mean (47.76). Cognition was significantly associated with education level, occupation, family monthly income, and mode of payment for medical bills. The same demographic variables influenced attitudes (p < 0.05). No significant associations were found for age, ethnicity, work experience, or gestational age and cognition, nor with attitude. A strong positive significant relationship, however, was found between cognition and attitude (p <0.05). Regression analysis showed that education level, occupation, family monthly income, gestational age, and mode of payment for medical bills were predictors of cognition and attitude.

**Conclusion:** Data showed that primigravida mothers tend to show healthy cognition as well as high attitude towards PCU. Educational attainment, occupation, monthly income and mode of payment for medical bills seemed to play a role in curtailing their cognition and attitude as opposed to age, ethnicity, working experience and gestation age. Furthermore, evidence pointed out that cognition related to attitude of which knowledge was being translated into action. Moreover, variables such as educational level, monthly income, occupation, gestational age, and mode of payment significantly predicts cognition and attitude.

***Keywords:*** *Prenatal Check-Ups (PCU); Primigravids; Demographic Factors;*

*Cognition and Attitudes; Maternal Health*

**BACKGROUND**

Prenatal care remains the cornerstone of maternal and child health, but there is a huge variation in utilization patterns globally. Prenatal checkups are essential in the early detection and prevention of possible risks in pregnancy. The continuum of prenatal checkups provides an opportunity for health promotion, screening, and disease prevention. Improving maternal health is one of the Millennium Development Goals (MDGs) for international development (Tao et al.,2020). The "Healthy China 2030" plan has maternal health as one of its core contents and has formulated specific goals and implementation strategies. with a special policy supporting document "Healthy China Action (2019-2030)", dedicated to "maternal and child health promotion action" (NHC, 2023). This program, which started in 2016, has been initiated to strengthen maternal health policies to reduce maternal mortality and to lower the mortality ratio to <12 per 100,00 live births. (National Health Commission, 2022).

Prenatal checkups are significantly influenced by demographic factors, cognitive understanding of pregnancy, and attitudes towards healthcare. Education, income, and access to healthcare infrastructure play key roles that can impact cognitive acceptance and willingness to attend prenatal care. While pregnant women often demonstrated knowledge and positive attitudes toward antenatal care, the interplay of cognition and attitude is not clear. Demographic factors, such as, age, race, education, occupation, income, and gestational age, influence pregnant women's cognition and attitudes toward prenatal care. To date, however, limited literature shows demographic factors influencing the cognition and attitudes of first-time pregnant Chinese. In the study of Bashir, et.al. (2023), it shows that demographic profiles such as age, occupation, and education had no significant relationship with the cognition of pregnant women in prenatal checkups. In terms of the relationship between the attitude of primigravida women in prenatal checkup, education, and occupation had an impact. It was shown that educated women were better acquainted with prenatal care. Family income impacts decision making, creating a positive attitude and good knowledge towards prenatal checkups. Another study also reveals that ethnicity plays a role in prenatal checkups. Attitude towards pregnancy and fear of childbirth were found, however, to be affected by varying personal and social factors (Xiang, J., & Gao, L.,2025).

The prenatal checkup profile in China indicates the need to understand the factors influencing its current situation. This study aims to investigate the relationship of demographic profile to cognition and attitude towards prenatal checkup among first-time pregnant Chinese women. There is a need to determine the factors that lead Chinese women who are pregnant to receive or not to receive prenatal check-ups. This may provide a foundation for effective maternal health management programs

**OBJECTIVE:** The purpose of this study was to determine the cognition and attitude towards prenatal check-ups of Chinese primigravida women.

**2.0 Methodology**

**2.1. Research Design**

This investigation utilized a cross-sectional research design. Thus, the researcher collects and analyzes the quantitative data.

**2.2. Participants of the Study**

Data was collected from hospital. A purposive sampling method was employed in this study to choose 180 respondents.

**2.3. Instrumentation**

The study utilized 3 questionnaires to gather data.

**Part 1 – Demographic Profile Questionnaire**

Based on the relevant literature reviewed the researcher was able to identify pertinent items to include in the demographic profile. These were: Age, Ethnicity, Education Level, Occupation, Working Experience, Family Monthly Income, Gestational Age and Mode of Paying Medical Bills.

**Part 2 – PCU Cognition Scale**

A constructed questionnaire was used to assess cognition of primigravida on prenatal check-ups. The questionnaire was subjected to content validity among maternal health experts. The reliability-tested result of the constructed cognition scale was a Cronbach alpha of 0.97.

 PCU Cognition Scale measured the variable level of cognition of PCU of Chinese primigravida, which measured the 7 dimensions (28 items in total). The 7 dimensions are based on "Preconception and Prenatal Care: Healthcare Guidance (China 2018)". The frame designed based on "THE KAP SURVEY MODEL (USAID FROM THE AMERICAN PEOPLE", the items had been evaluated by experts in maternal health, and then the reliability and validity analysis was carried out to prove that it is reliable.

**Part 3 –****PCU Attitude Scale**

 The Antenatal Care Scale (ANCS) was the third tool. The ANCS was a useful and trustworthy instrument for figuring out how women felt about and intended to use prenatal exams. The researcher was granted permission by the author and was provided with a copy of the questionnaire. The purpose of the Antenatal Care Scale (ANCS) was to define antenatal care as it was understood in relation to the Theory of Planned Behavior. ANCS in this study would have been used to determine the attitude and beliefs of primigravida on pregnancy check-ups. The scale had been shown to have good reliability and validity. Cronbach α for the Antenatal Care Scale (ANCS) was 0.96, and values for the six subfactors were between 0.88 and 0.94.

**2.4. Data analysis**

Descriptive statistics (mean and standard deviation) were used to determine classification, high, low, medium, etc.

For the significance test, the chi-square test was used to determine whether there was a significant relationship among the groups in the demographic data.

**3.0. RESULTS**

This chapter presents the results and analysis of the data collection.

*Table 1. Demographic Profile of the Respondents*

|  |  |  |  |
| --- | --- | --- | --- |
| **Profile** | **Frequency** | **Percent** | **Cumulative Percent** |
| **Age** |  |
| 19-29 yrs. old | 127 | 70.60 | 70.60 |
| 30-64yrs. old | 53 | 29.40 | 100.00 |
| **Ethnicity** |  |
| Han | 146 | 81.10 | 81.10 |
| Other Ethnic Groups | 34 | 18.90 | 100.00 |
| **Education Level** |  |
| Middle to Highschool and below | 95 | 52.80 | 52.80 |
| Bachelor’s degree and higher | 85 | 47.20 | 100.00 |
| **Occupation** |  |
| Employed | 163 | 90.60 | 90.60 |
| Unemployed | 17 | 9.40 | 100.00 |
| **Working experience** |  |
| <5years | 55 | 30.60 | 30.60 |
| .>5years | 125 | 69.40 | 100.00 |
| **Gestational Age** |  |
| 1st trimester | 76 | 42.20 | 42.20 |
| late 1st trimester | 104 | 57.80 | 100.00 |
| Family monthly income |  |
| < 3000 | 54 | 30.00 | 32.20 |
| >3000 | 126 | 70.00 | 100.00 |
| **Mode of Payment for Medical Bills** |  |
| with insurance | 134 | 74.40 | 74.40 |
| without insurance | 46 | 25.60 | 100.00 |

Table 1 Table 1 shows the demographic profile of respondents in terms of Age, Ethnicity, Educational Level, Occupation, Working Experience, Gestational age, and Mode of Payment. Most of the respondents are from age 19- 29 years old with 127 (70.60 %), Han ethnic group with 146 (81.10 %), most had middle school education with 95 (52.80%), employed were 163 (90.60%) , and those with more than 5 years of experience were 125 (69.40%), Those in the late first trimester were 104 (57.80 %), in terms of income, those earning more than 3000 were 126 (70%) and 134 (74.40%) had insurance coverage.

*Table 2. Level of Cognition towards Prenatal Check up*

|  |  |  |  |
| --- | --- | --- | --- |
| **Dimension** | **Mean** | **Std. Deviation** | **Interpretation** |
| Recognition of Benefits (Maternal) | 2.78 | 0.45 | Moderate level |
| Recognition of Benefits (Fetal) | 3.78 | 0.42 | High level |
| Perception on PCUs in general | 2.46 | 0.18 | Moderate level |
| Perception in terms of affordability | 2.35 | 0.88 | Moderate level |
| Perception in terms of availability and accessibility | 2.29 | 0.14 | Moderate level |
| Perception in terms of quality of checkup | 2.74 | 0.13 | Moderate level |
| Plans / Decisions | 2.85 | 0.21 | Moderate level |
| **Mean** | **2.75** | **0.34** | **Moderate level** |

Table 2 presents the level of cognition towards Prenatal Checkup, where in majority of respondents scored on the Moderate level, and only the recognition of fetal benefits had a high level of cognition (3.78). The overall mean for cognition is 2.75, still at a moderate level. The overall moderate level of cognition suggests that while there is a baseline understanding of PCUs, there is significant potential for enhancing this understanding. Zhu (2018) suggests that overall cognition about health services is influenced by various factors, including education, cultural beliefs, and socioeconomic status. In summary, while the general level of cognition is moderate, there exists room for improvement, especially considering the favorable demographic characteristics.

*Table 3 Attitude of the respondents towards Prenatal Check up*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Dimensions (Total score/no. of items)** | **Mean score** | **Total Mean** | **Std. Deviation** | **Interpretation** |
| Intention (21/3) | 5.77 | 17.30 | 6.21 |  |
| Subjective Norms (21/3) | 6.44 | 19.33 | 1.24 |  |
| Normative Beliefs (56/8) | 5.97 | 47.76 | 2.58 |  |
| Attitude Towards Behaviors (42/6) | 5.38 | 32.32 | 11.90 |  |
| Behavioral Beliefs (28/4) | 5.93 | 23.73 | 5.76 |  |
| Perceived Behavioral Control (14/2) | 5.45 | 10.91 | 2.84 |  |
| **Overall Mean** | **5.82** | **151.35\*** | **5.08** | **High** |

Table.3 presents the respondents' attitudes towards prenatal checkups in terms of dimensions. The total mean score is 151.35, indicating a high attitude to PCU. The highest mean score was for subjective norms (6.44), and the lowest mean was for attitude towards behavior (5.38). This indicates that the respondents have a high attitude level towards prenatal check-up.

*Table 4. Level of cognition towards PCU when grouped in terms of the demographic profile.*

|  |  |  |
| --- | --- | --- |
| **Profile** | **Grouping Variables** | **PSU Cognition Score** |
| **Mean** | **Standard Deviation** | **Interpretation** |
| Age  | 19-30 yrs. old | 2.62 | 0.09 | Moderate level |
| 31-35 yrs. old | 2.60 | 0.07 | Moderate level |
| Ethnicity  | Han | 2.62 | 0.09 | Moderate level |
| Other Ethnic Groups | 2.62 | 0.08 | Moderate level |
| Education Level  | Middle to Highschool and below | 2.64 | 0.10 | Moderate level |
| Bachelor’s degree and higher | 2.59 | 0.06 | Moderate level |
| Occupation | Employed | 2.61 | 0.08 | Moderate level |
| Unemployed | 2.69 | 0.13 | Moderate level |
| Gestational Age | 1st trimester | 2.60 | 0.08 | Moderate level |
| late 1st trimester | 2.63 | 0.09 | Moderate level |
| Mode of payment for medical bills | with insurance | 2.63 | 0.09 | Moderate level |
| without insurance | 2.59 | 0.08 | Moderate level |
| Working Experience | <5years | 2.62 | 0.09 | Moderate level |
| >5years  | 2.64 | 0.10 | Moderate level |
| Family monthly Income | < 3000 | 2.61 | 0.08 | Moderate level |
| >3000 | 2.63 | 0.09 | Moderate level |

Table 4 shows the Level of cognition towards PCU when grouped in terms of the demographic profile. The findings show a moderate level of cognition (Mean=2.62) in all aspects of the demographic profile of the respondents. It seems that the respondents do not fully understand the value of prenatal checkups during pregnancy at whatever age, educational level, ethnicity or financial status in life. This points to the need to emphasize the importance of prenatal checkups. It has been recognized that cognitive process plays an important role in the adjustment of expectant mothers (Liang, et al, 2025). Pregnant women, regardless of their demographic profile, need to understand the maternal health information for pregnancy care, birth preparedness, and newborn care (Elia & Ayungo, 2023).

*Table 5 Significant relationship between the profile variables and the level of cognition among Chinese primigravida*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Grouping Variables** | **Mean** | **P-value** | **Interpretation** | **Decision HO1** |
| Age | 19-29 yrs. Old | 2.62 | 0.54 | No significant  | Failed to reject HO1 |
|  | 30-64yrs. old | 2.60 |  |  |  |
| Ethnicity | Han | 2.62 | 0.93 | No significant  | Failed to reject Ho1 |
|  | Other Ethnic Groups | 2.62 |  |  |  |
| Education Level | Middle to Highschool and below | 2.64 | 0.00 | Significant  | Reject Ho1 |
|  | Bachelor’s degree and higher | 2.59 |  |  |  |
| Occupation | Employed | 2.61 | 0.00 | Significant  | Reject Ho1 |
|  | Unemployed | 2.69 |  |  |  |
| Working Experience | <5years | 2.60 | 0.17 | No significant  | Failed to reject Ho1 |
|  | .>5years | 2.63 |  |  |  |
| Family monthly Income | < 3000 | 2.63 | 0.00 | Significant  | Reject Ho1 |
|  | >3000 | 2.59 |  |  |  |
| Gestation Age (in Weeks) | 1st trimester | 2.62 | 0.72 | No significant  | Failed to reject Ho1 |
|  | late 1st trimester | 2.64 |  |  |  |
| Mode of payment for medical bills | with insurance | 2.61 | 0.00 | Significant  | Reject Ho1 |
|  | without insurance | 2.63 |  |  |  |

1. Table 5 provides a detailed examination of the relationship between the profile variables and the level of cognition among Chinese primigravida. Significant relationships were found for educational level, occupation, family monthly income, and mode of payment for medical bills (p<0.05). However, in terms of demographic variables such as age, ethnicity, working experience, and gestation age in weeks, no significant relationship was found (p > 0.05). This means that whatever the age, ethnic grouping, working experience and gestational age the primigravida has, their moderate level of cognition towards PCUs would not be influenced since their p-value is greater than the significance level set at 0.05. On the other hand, education, occupation, monthly family income, and mode of paying medical bills influence their cognition since the p-value is <0.05.
2. *Table 6. Attitude of the respondents towards PCU when grouped in terms of the demographic profile*

|  |  |  |
| --- | --- | --- |
| **Profile** | **Category** | **PCU Attitude Score** |
| **Mean** | **Standard Deviation** | **Interpretation** |
| Age | 19-29 yrs. old | 151.34 | 0.98 | High |
|  | 30-64yrs. old | 150.85 | 1.04 | High |
| Ethnicity | Han | 151.34 | 0.98 | High |
|  | Other Ethnic Groups | 150.80 | 1.05 | High |
| Education Level | Middle to Highschool and below | 151.12 | 1.06 | High |
|  | Bachelor’s degree and higher | 151.34 | 0.26 | High |
| Occupation | Employed | 151.34 | 0.96 | High |
|  | Unemployed | 150.55 | 1.07 | High |
| Working Experience | <5years | 151.34 | 0.47 | High |
|  | .>5years | 151.12 | 1.09 | High |
| Family monthly Income | < 3000 | 150.38 | 1.04 | High |
|  | >3000 | 151.34 | 0.40 | High |
| Gestation Age (in Weeks) | 1st trimester | 151.34 | 0.97 | High |
|  | late 1st trimester | 151.34 | 0.99 | High |

Table 6 presents the overall level of attitude of the respondents towards PCU when grouped in terms of the demographic profile, which was found to be high. The demographic profile, such as age, ethnicity, education level, occupation, gestational age, mode of payment, working experience, and family income all have a high level, possibly indicating an attitude that is favorable towards prenatal checkups. In the study of Wuna et al.(2025), the attitude of the respondents was positive. It supports Suriyanti's research and holds a positive attitude and tends to have prenatal check-ups. Attitude as a factor also influences the behavior of pregnant women during pregnancy check-ups (Febiandi et al., 2022)

*Table 7. Significant relationship between the profile variables and the level of attitude among Chinese primigravidas*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Grouping Variables** | **Mean** | **P-value** | **Interpretation** | **Decision HO2** |
| Age | 19-29 yrs. old | 151.34 | 0.89 | No significant  | Failed to reject Ho2 |
|  | 30-64yrs. old | 150.85 |
| Ethnicity | Han | 151.34 | 0.46 | No significant  | Failed to reject Ho2 |
|  | Other Ethnic Groups | 150.80 |
| Education Level | Middle to Highschool and below | 151.12 | 0.00 | Significant  | Reject Ho2 |
|  | Bachelor’s degree and higher | 151.34 |
| Occupation | Employed | 151.34 | 0.00 | Significant  | Reject Ho2 |
|  | Unemployed | 150.55 |
| Working Experience | <5years | 151.34 | 0.17 | No significant  | Failed to reject Ho2 |
|  | .>5years | 151.12 |
| Family monthly Income | < 3000 | 150.38 | 0.00 | Significant  | Reject Ho2 |
|  | >3000 | 151.34 |
| Gestation Age (in Weeks) | 1st trimester | 151.34 | 0.16 | No significant  | Failed to reject Ho2 |
|  | late 1st trimester | 151.34 |
| Mode of payment for medical bills | with insurance | 151.12 | 0.00 | Significant | Reject Ho2 |
|  | without insurance | 151.34 |

Table 7 provides a detailed examination of the relationship between the profile variables and the level of attitude among Chinese primigravidas. Similar to the findings on cognition towards PCUs, the attitude of the respondents was found to be significant for educational level, occupation, income, and payment of medical bills. The demographic factors, such as age, ethnicity, working experience, and gestational age, on the other hand, were found not to have a significant relationship with attitude.

*Table 8. Relationship between the cognition and attitude of Chinese primigravids.*

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Variables** | **Mean** | **SD** | **Spearman’s Rho**  | **Relationship** | **p-value** | **Interpretation** | **Decision Ho3** |
| **Cognition** | 2.75 | 0.31 | 0.82 | Strong Positive | 0.00 | Significant | Reject HO3 |
| **Attitude** | 151.35 | 0.99 |

The statistical analysis presented in Table 8 offers a pivotal insight into the dynamics between cognition and attitude of Chinese Primigravids. Cognition was found to be significantly associated with attitude towards PCUs. The significant negative correlation, indicated by a Spearman’s Rho value of 0.82 (p=0.00), suggests that increased cognition about prenatal care might lead to a potentially more critical perspective towards its utilization. This indicates that with the increase in cognition of prenatal check-ups, the attitude towards the utilization of prenatal check-ups is favorable.

*Table 9. Best predictor of cognition and attitude*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Characteristic****(cognition)** | **Coefficient** | **T Stat** | **R Squared** | **P Value** |
| Age | 0.01 | 0.26 | 0.00 | 0.80 |
| Ethnicity | -0.03 | -0.50 | 0.00 | 0.62 |
| Education level | 0.37 | 10.64 | 0.39 | 0.00\* |
| Occupation | -0.32 | -4.53 | 0.10 | 0.00\* |
| Working experience | 0.05 | 1.05 | 0.01 | 0.29 |
| Family monthly Income | 0.38 | 9.69 | 0.35 | 0.00\* |
| Gestational Age | -0.24 | -6.01 | 0.17 | 0.00\* |
| Mode of payment for Medical Bills | 0.23 | 4.78 | 0.11 | 0.00\* |
| **Characteristic****(Attitude)** |  |
| Age | 0.03 | 0.17 | 0.00 | 0.87 |
| Ethnicity | -0.11 | -0.55 | 0.00 | 0.58 |
| Education level | 1.23 | 10.42 | 0.38 | 0.00\* |
| Occupation | -0.83 | -3.36 | 0.06 | 0.00\* |
| Working experience | 0.25 | 1.53 | 0.01 | 0.13 |
| Family monthly Income | 1.14 | 8.25 | 0.27 | 0.00\* |
| Gestational Age | -0.96 | -7.20 | 0.23 | 0.00\* |
| Mode of payment for Medical Bills | 0.89 | 5.68 | 0.15 | 0.00\* |

Table 9 presents the result of the linear regression analysis to determine the best predictor of cognition and attitude towards PCUs. Demographic factors, namely: education level, occupation, family monthly income, gestational age, and mode of payment for medical bills, emerged as significant predictors of cognition and attitude in this analysis. Data implies that role of demographic profile is important in the cognition and attitude among pregnant women.

**4.0. DISCUSSION**

Zhu (2018) emphasizes the importance of awareness of maternal health benefits in encouraging expectant mothers to seek regular prenatal care. Enhanced awareness can lead to better maternal health outcomes, as informed mothers are more likely to engage in behaviors that promote their health and that of their fetus. Chinese primigravida mother aware the importance of prenatal checkup that benefit the welfare of their fetal well-being. The analysis of the status of maternal antenatal checkups and related factors in Hubei Province found that primiparous mothers, due to their first birth, themselves and their families paid more attention, and most of them were able to receive antenatal checkups on time and on schedule (Chen et al., 2018). This may indicate the presence of enhanced positive attitudes of pregnant women's friends, husbands, and family members towards prenatal check-ups. Some studies show the influence of age on understanding information on danger signs, labor signs, and exclusive breastfeeding (Maluka, et al, 2020). Educated pregnant women usually seek various information, which was seen in the findings in the study of Bello, et al. (2022), which found the influence of age, occupation, level of education, and monthly income on prenatal checkups.

Pregnant women have a relatively high degree of autonomy and can independently decide on their prenatal checkup plans. In terms of insurance, pregnant women are more willing to take the initiative to have prenatal check-ups. In support of the study of Meldgaard, et.al. (2022) shows education and employment have impact the level of cognition. Other studies also support that sociodemographic in terms of education and occupation had a significant association with the level of knowledge and attitude towards of level of cognition among pregnant women (Bashir,et al, 2023).The factors that are significantly related to attitude to PCUs may be linked to the status in life of the respondents. Those who are educated, working, with stable income and means to pay medical bills may be expected to have good attitude towards prenatal care. An educated pregnant woman is more likely to recognize the authority of modern medicine and consider prenatal check-ups as a necessary part of scientific parenting. They can acquire knowledge through professional channels, while those with lower education levels rely on other means. Those who are working, the work environment emphasizes health management, and there is a sense of encouragement among colleagues and friends. This provides strategies for promoting health practices for pregnant women. Similarly to the study of Alhusen,et.al, (2016) the, educational level, income, and medical bills affect health practices. It is also supported by the study of Papageorge,et.al.(2021) that the higher the income level, the more positive is the influence on health behavior.

 According to Notoatmodjo, (2010), the formation of new behavior, especially in adults starts from the cognitive aspect, the subject knows in advance of the theory, and then stimulates their responses. These study findings in line with Yanti's research, written by Sudarti (2014), she also found a significant relationship between knowledge and attitudes of pregnant women towards compliance with prenatal check-ups in the Flamboyan region of Palangkaraya, Central Kalimantan. This is consistent with the discovery of Mamuroh et al. (2020). It is proven that knowledge is important for one’s health behavior.

Education and occupation were identified as significant factors influencing cognitive function. This is supported by the study of Ali et al. (2025) and the research by Bashir et al. (2023) that found a significant correlation between educational attainment, occupation, and attitudes towards prenatal check-ups. Pregnant women with stable incomes and occupations tend to have wider access to resources and can better comprehend health information that was seen in the study of Mbekenga et al. (2021). These findings imply that income level and stage of pregnancy can notably impact how prenatal checkup is perceived and utilized, aligning with research by Meldgaard et al. (2022). Conversely, age, ethnicity and work experience are not predictive factors. This suggests a level of uniformity in prenatal check ups cognition and attitude across these variables, indicating that while specific demographics play a crucial role, there is a broad base of shared understanding or barriers to prenatal care cognition and attitude across diverse groups. The best predictor of cognition and attitude about demographic profile provides valuable insight into the primigravida and its impact to pregnancy. Pregnant women's understanding of prenatal checkups and maternal health information is critical in the application of pregnancy care among primigravida pregnant women (Elia et al., 2023). The finding underscores the need for intervention, especially towards pregnant women, in understanding factors that contribute to the increased risk of being uncompliant to prenatal checkups. Health care professionals must develop effective strategies to enhance the overall outcome of primigravida women (Ali et al.,2025). Demographic characteristics of pregnant women have an influence on their ability to comprehend maternal health information. These findings highlight the complex interplay between demographic characteristics and attitude, suggesting that interventions aimed at influencing attitude may need to consider these various factors and their interactions.

**5.0. Conclusion**

 Data shows that primigravida mothers tend to show healthy cognition as well as high attitude towards PCU. Educational attainment, occupation, monthly income and mode of payment for medical bills seemed to play a role in curtailing their cognition and attitude as opposed to age, ethnicity, working experience and gestation age. Furthermore, evidence pointed out that cognition related to attitude of which knowledge is being translated into action. Moreover, variables such as educational level, monthly income, occupation, gestational age, and mode of payment significantly predicts cognition and attitude.

**COMPETING INTERESTS DISCLAIMER**:

Authors have declared that they have no known competing financial interests OR non-financial interests OR personal relationships that could have appeared to influence the work reported in this paper.

**Disclaimer (Artificial intelligence)**

Author(s) hereby declares that NO generative AI technologies such as Large Language Models (Chat GPT, COPILOT, etc.) and text-to-image generators have been used during the writing or editing of this manuscript.

**REFERENCES**

1. Alhusen, J. L., Ayres, L., & DePriest, K. (2016). Effects of maternal mental health on engagement in favorable health practices during pregnancy. Journal of Midwifery & Women's Health, 61(2), 210–216. <https://doi.org/10.1111/jmwh.12407>
2. Ali, S.A., Sualeh, M., Raza, G. et al. (2025). Exploring the impact of pregnancy on cognitive function: a comparative study in a low-income setting. BMC Pregnancy Childbirth 25, 447 (2025). https://doi.org/10.1186/s12884-025-07539-7
3. Bashir, S., Ansari, A. H., & Sultana, A. (2023). Knowledge, attitude, and practice on antenatal care among pregnant women and its association with sociodemographic factors: A hospital-based study. Journal of Patient Experience, 10, Article 23743735231183578. https://doi.org/10.1177/23743735231183578
4. Bello, C. B., Esan, D. T., Akerele, S. A., & Fadare, R. I. (2022). Maternal health literacy, utilisation of maternal healthcare services and pregnancy outcomes among newly delivered mothers: A cross-sectional study in Nigeria. Public Health in Practice, 3, 100266. <https://doi.org/10.1016/j.puhip.2022.100266>
5. Chen Xiaohong, Yi Shuyuan, Deng Shumin, Xu Delong, Li Shiyue, & Yan Hong. (2018). Analysis on status and associated factors of antenatal care of pregnant women in Hubei Province. Chinese Journal of Family Planning, 26(9), 4.DOI: 10.3969/j.issn.1004-8189.2018.09.003
6. Elia, E., Ayungo, J.(2023). Socio-demographic influence on the pregnant women's comprehension of maternal health information in Tanzania. Heliyon. 2023 Nov 20;9(12):e22448. doi: 10.1016/j.heliyon.2023.e22448
7. Febiandi, R., Al-Bahra, A., & Sumarmi, S. (2022). The influence of availability of facilities, role of health workers and attitudes of pregnant women on the behavior of pregnant women performing pregnancy checkups during the COVID-19 pandemic at Cibinong Hospital. JIKO (Jurnal Ilmiah Keperawatan Orthopedi), 6(2), 62–67. https://doi.org/10.46749/jiko.v6i2.91
8. Maluka, S. O., Joseph, C., Fitzgerald, S., & Salim, R. (2020). Why do pregnant women in Iringa region in Tanzania start antenatal care late? A qualitative analysis. BMC Pregnancy and Childbirth, 20(1), 126. <https://doi.org/10.1186/s12884-020-2823-4>
9. Mamuroh, L., Sukmawati, S., & Nurhakim, F. (2020). THE RELATIONSHIP BETWEEN KNOWLEDGE, ATTITUDE, AND PRENATAL VISITS IN PREGNANT WOMEN. Journal of Maternity Care and Reproductive Health, 3(2). <https://doi.org/10.36780/jmcrh.v3i2.96>
10. Mbekenga, C.(2021) Health Literacy, Information Seeking Patterns and Perceived Outcomes among Pregnant Women in Two Districts of Tanzania. http://dx.doi.org/10.21203/rs.3.rs-156717/v1
11. Meldgaard, M., Gamborg, M., & Terkildsen Maindal, H. (2022). Health literacy levels among women in the prenatal period: A systematic review. Sexual & Reproductive Healthcare : Official Journal of the Swedish Association of Midwives, 34, 100796. <https://doi.org/10.1016/j.srhc.2022.100796>
12. National Health Commission [NHC]. (2022). Technical guidelines for internet+ maternal health services. http://www.nhc.gov.cn/
13. National Health Commission [NHC]. (2023). China maternal and child health development report 2023. http://www.nhc.gov.cn/
14. Notoatmodjo, S. (2010). Health Education and Behavior. In Jakarta: Rineka Cipta. Rineka Cipta.
15. Papageorge, N. W., Zahn, M. V., Belot, M., Van den Broek-Altenburg, E., Choi, S., Jamison, J. C., & Tripodi, E. (2021). Socio-demographic factors associated with self-protecting behavior during the COVID-19 pandemic. Journal of Population Economics, 34, 691-738
16. Sudarti, AF (2014). Relationship between Pregnant Women Knowledge Levels about ANC and Frequency of ANC Visits in BPS Fajar Samiati, Yogoyudian, Wates, Kulon Progo, Yogyakarta. Medika Respati: Health Scientific Journal, 9(2).
17. Tao, Z., Cheng, Y., Du, S., Feng, L., & Wang, S. (2020). Accessibility to delivery care in Hubei Province, China. Social Science & Medicine, 260, 113186. https://doi.org/10.1016/j.socscimed.2020.113186
18. Wuna, N. S. K., Mutmaina, N. R., Zakiah, N. V., Rahmawati, N. D. A., & Nasrun, N. E. K. (2025). Determinants of pregnant women’s knowledge about antenatal care and compliance with pregnancy check-ups at Poasia Health Center. World Journal of Advanced Research and Reviews, 25(1), 213–225. https://doi.org/10.30574/wjarr.2025.25.1.0004
19. Xiang, J. M., & Gao, L. L. (2025). Decisional conflict, anxiety, and social support among Chinese pregnant women making further prenatal testing decisions. Journal of Reproductive and Infant Psychology, 43(1), 34-46.