# Improving women's literacy in attending Antenatal Care: An Evidence from Philippines

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**Abstract.** Antenatal care (ANC) plays an essential role in safeguarding the health and well-being of mothers and infants. Health literacy is a key factor that enables married women to understand the importance of ANC and make informed decisions about maternal health services. This study aimed to identify the determinants of ANC completion among married women in the Philippines. The analysis used secondary data from the 2022 Philippines National Demographic and Health Survey (NDHS), conducted from 2 May to 22 June 2022 through individual and household interviews using a multistage cluster sampling method.The findings revealed that several sociodemographic factors significantly influence ANC completeness. Economic status showed a strong association, with adjusted odds ratios (aOR) of 1.850, 2.341, 3.385, and 5.120 for the poor, middle, richer, and richest groups, respectively, compared with the poorest group. Women residing in urban areas were also more likely to complete ANC (aOR: 1.154). Higher educational attainment further increased the likelihood of completing ANC, with women who had higher education showing an aOR of 2.623 compared with those with no education. Improved education and economic standing enhance access to maternal health information and strengthen health literacy, enabling women to better understand and utilize ANC services. Overall, the study highlights that economic status, place of residence, and education are key determinants influencing ANC completion among married women in the Philippines.

**Keywords**: ANC utilization, education level, literacy, women

## 1 Introduction

Antenatal care (ANC) is essential for safeguarding the health and well-being of mothers and infants. Routine antenatal appointments enable healthcare professionals to assess the well-being of both the mother and fetus, detect any issues early, and implement required preventive interventions. By quickly addressing health conditions, ANC aids in the reduction of maternal and new born mortality [1]. It includes medical evaluations, dietary advice, and psychological assistance. These elements jointly guarantee a healthy state of pregnancy. ANC equips women for secure childbirth. It instructs them on delivery and postpartum care [2]. Moreover, ANC facilitates discussions regarding delivery goals, pain management strategies, and possible problems.

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The Global Strategy for Women's, Children's, and Adolescents' Health (2016-2030) underscores the significance of antenatal care (ANC) as a vital metric for healthcare accessibility during pregnancy [3]. The objective is for 90% of pregnant women to participate in a minimum of four antenatal care visits, with the aim of increasing this to eight visits by 2030. Although 88% of pregnant women in the Americas regularly utilized prenatal care with four or more visits, global initiatives persist in striving for universal access to high-quality antenatal services [4]. ANC is essential for mother and infant health in the Philippines. In recent years, there has been an increase in ANC utilization, with 94% of women obtaining ANC from qualified practitioners. The transition to institutional delivery has been notable, with 78% of women giving birth in healthcare facilities [5]. Favorable maternal attitudes about antenatal care, awareness of its benefits, and a strong motivation to prioritize maternal health contribute to the early beginning of care.

Socioeconomic factors, including age, education, financial autonomy, and social support, can profoundly affect women's capacity to pursue complete antenatal care. Research has demonstrated that these characteristics influence the probability of women obtaining essential antenatal care [6; 7].

Young women, hindered by factors such as insufficient awareness, experience, or restricted access to healthcare information, are less inclined to receive full antenatal care [8]. The degrees of higher education and employment position significantly influence the extent of antenatal care a woman receives. Women possessing higher educational attainment are more inclined to obtain comprehensive antenatal care, as they are more cognizant of its significance and have superior access to knowledge and resources [9]. Employed women possess enhanced access to economic resources, facilitating their utilization of antenatal care services [7].

Women's access to antenatal care is affected by numerous social, economic, and cultural aspects, including their marital status [10]. Married women typically have enhanced access to antenatal care services owing to the social support provided by their spouses. Husbands significantly influence health-seeking behavior, and their support and collaborative decision-making can promote prompt health-seeking [11]. In establishing targeted treatments, it is crucial to acknowledge the varied socioeconomic experiences of married women. This study sought to identify the determining factors influencing married women's completion of antenatal care [ANC].

## 2 Research Method

The research examined secondary data from the 2022 Philippines National Demographic and Health Survey (NDHS). The Philippine Statistics Authority executed the 2022 Philippines National Demographic and Health Survey, which was financed by the Philippine government. The Commission on Population and Development significantly aided in supplying handheld tablets for data collection. The Inner-City Fund (ICF) provides technical assistance via the Demographic and Health Survey Program funded by the United States Agency for International Development. This curriculum offers support and proficiency in executing demographic and health surveys worldwide. The national survey was conducted from May 2 to June 22, 2022. The data was gathered by person and household interviews utilizing a multistage and stratified random sampling approach [12].

The cross-sectional study included married Filipino women aged 15 to 49 who had given birth

within the three years preceding the interview. The weighted sample of the study comprised 4,147 married women from a total of 27,821 respondents, yielding a response rate of 98.0% among eligible women in the Philippines. The research utilized prenatal care as a dependent variable. The research employing completed prenatal care complies with the World Health Organization (WHO) criteria, which mandate a least of eight visits throughout pregnancy [13]. The study categorized prenatal care into partial and comprehensive forms. The research included socioeconomic status as an independent variable. The research employed the wealth quintile of household assets to assess socioeconomic position. Households were classified according to the quantity and variety of amenities, including televisions, bicycles, and automobiles, as well as the attributes of the residence, such as access to clean water, sanitation facilities, and the materials utilized for the ground level building. The research utilized principal component analysis to obtain the score. The national wealth quintiles were established by computing the average household scores for each member across five categories, representing 20% of the population [14]. The survey classified the population into distinct categories according to their socioeconomic status: the poorest, poorer, middle, wealthier, and richest groups.

The research examined five control variables: housing type, age category, educational attainment, employment status, and parity. The housing variable was categorized into two groups: rural and urban. The research utilized the urban-rural classifications established by the Philippines Statistics Authority.

The study included the age groups of 15–19, 20–24, 25–29, 30–34, 35–39, 40–44, and 45–49. Conversely, the education level includes the lack of formal schooling as well as primary, secondary, and post-secondary education. The survey classified employment into two distinct categories: employed individuals and jobless individuals. Furthermore, the study assessed parity according to the number of live births. The three classifications of parity are primiparous [having given birth once or less times], multiparous [having given birth two to four times], and grand multiparous (having given birth more than four times).

### 2.1 Data Analysis

A bivariate analysis was conducted utilizing the chi-square test. In the subsequent phase of the inquiry, a collinearity test was utilized to determine the absence of a significant association among the independent variables. We employed binary logistic regression analysis to implement the method [entry methods]. The study's adjusted odds ratios [aOR] were presented with 95% confidence intervals [CI]. Furthermore, statistical analysis was performed utilizing IBM SPSS 26.

### 2.2 Ethical Approval

The 2022 Philippines NDHS employed the household questionnaire and the women's questionnaire. The questionnaires were adapted to correspond with the Philippines' particular demographic and health issues, utilizing the DHS program model questionnaires as a foundation. Input was acquired from several parties, including governmental bodies, academic institutions, and international organizations. The ICF Institutional Review Board evaluated the survey protocol. The Institutional Review Board of ICF International complied with the "Protection of Human Subjects" regulations (45 CFR 46) established by the US Department of Health and Human Services. The 2022 Philippines NDHS collected data via computer-assisted personal interviewing (CAPI). The study's data were sourced from the website https://dhsprogram.com.

## 3 Result and Discussion

The data indicates that the proportion of prenatal care among married women in the Philippines was roughly 27%. Table 1 displays the descriptive data of Antenatal Care among married women in the Philippines.

**Table 1. Descriptive Statistics of Antenatal Care among Married Women in Philippines (n=4147)**

| Characteristics | Antenatal Care | | P-Value |
|---|---|---|---|
| | incomplete n = 3008 | Complete n = 1139 | |
| Socio-Economic | | | < 0.001 |
| Poorest | 86.5% | 13.5% | |
| Poorer | 74.3% | 25.7% | |
| Middle | 67.3% | 32.7% | |
| Richer | 56.6% | 43.4% | |
| Richest | 41.3% | 58.7% | |
| Type of residence | | | < 0.001 |
| Urban | 62.2% | 37.8% | |
| Rural | 73.6% | 26.4% | |
| Age Groups | | | < 0.001 |
| 15 - 19 | 78.0% | 22.0% | |
| 20 - 24 | 76.9% | 23.1% | |
| 25 - 29 | 66.4% | 33.6% | |
| 30 - 34 | 64.3% | 35.7% | |
| 35 - 39 | 65.0% | 35.0% | |
| 40 - 44 | 63.3% | 36.7% | |
| 45 - 49 | 64.3% | 35.7% | |
| Education | | | < 0.001 |
| No Education | 91.6% | 8.4% | |
| Primary | 84.7% | 15.3% | |
| Secondary | 72.5% | 27.5% | |
| Higher | 55.0% | 45.0% | |
| Employment Status | | | < 0.001 |
| Unemployed | 72.9% | 27.1% | |
| Employed | 61.1% | 38.9% | |
| Parity | | | < 0.001 |
| Primiparous | 63.8% | 36.2% | |
| Multiparous | 66.2% | 33.8% | |
| Grand Multiparous | 84.0% | 16.0% | |

Table 1 indicated that married women with the highest socioeconomic position exhibited the greatest antenatal care (ANC) completion rate at 58.7%. Married women residing in urban regions were more inclined to complete antenatal care (37.8%) compared to those in rural areas. Among age groups, married women aged 40-44 had the greatest completion rate of antenatal care [36.7%]. Married women with higher education were more likely to finish antenatal care

[45%]. Employed married women had a higher likelihood of completing antenatal care (38.9%) compared to their unemployed counterparts. Moreover, primiparous married women had a higher antenatal care completion rate (36.2%) compared to multiparous and grand multiparous married women.

**Table 2. The Result of Binary Regression Logistic of Antenatal Care among Married Women in Philippines (n=4147)**

| Predictors | P Value | Completed ANC | | |
|---|---|---|---|---|
| | | aOR | 95% CI | |
| | | | Lower Bound | Upper Bound |
| Education: No Education [Ref] | - | | | |
| Education: Primary | < 0.001 | 1.709 | 1.707 | 1.711 |
| Education: Secondary | < 0.001 | 2.342 | 2.340 | 2.345 |
| Education: Higher | < 0.001 | 2.623 | 2.620 | 2.627 |
| Socio-Economic : Poorest [Ref] | - | - | - | - |
| Socio-Economic : Poorer | < 0.001 | 1.850 | 1.850 | 1.851 |
| Socio-Economic : Middle | < 0.001 | 2.341 | 2.341 | 2.342 |
| Socio-Economic : Richer | < 0.001 | 3.385 | 3.384 | 3.386 |
| Socio-Economic : Richest | < 0.001 | 5.120 | 5.118 | 5.121 |
| Residence Type : Rural | - | - | - | - |
| Residence Type : Urban | < 0.001 | 1.154 | 1.153 | 1.155 |
| Age Groups : 15 – 19 [Ref] | - | - | - | - |
| Age Groups : 20 - 24 | < 0.001 | .902 | .902 | .903 |
| Age Groups : 25 - 29 | < 0.001 | 1.486 | 1.486 | 1.487 |
| Age Groups : 30 - 34 | < 0.001 | 1.725 | 1.724 | 1.726 |
| Age Groups : 35 - 39 | < 0.001 | 1.840 | 1.839 | 1.841 |
| Age Groups : 40 - 44 | < 0.001 | 2.334 | 2.332 | 2.335 |
| Age Groups : 45 - 49 | < 0.001 | 3.732 | 3.728 | 3.735 |
| Employment Status: Unemployed [Ref] | - | - | - | - |
| Employment Status: Employed | < 0.001 | 1.205 | 1.205 | 1.205 |
| Parity: Primiparous | < 0.001 | 2.570 | 2.569 | 2.571 |
| Parity: Multiparous | < 0.001 | 2.014 | 2.013 | 2.014 |
| Parity: Grand Multiparous [Ref] | - | - | - | - |

Table 2 illustrates the results of the binary logistic regression analysis on Antenatal Care (ANC) completion among married women in the Philippines. The probability of completing ANC differed among several wealth categories for socioeconomic level. Married women from lower

socioeconomic backgrounds exhibited a greater likelihood of completing antenatal care compared to the most impoverished (Adjusted Odds Ratio: 1.850; 95% Confidence Interval: 1.850-1.851). Women of middle wealth were 2.341 times more likely to attain comprehensive antenatal care (Adjusted Odds Ratio: 2.341; 95% Confidence Interval: 2.341–2.342) compared to the poorest women. Affluent married women exhibited a 3.385-fold increased probability of completing antenatal care. Moreover, the wealthiest married women exhibited a much higher likelihood of completing antenatal care (aOR: 5120; 95% CI: 5.118–5.121) compared to the poorest women. Married women residing in urban areas exhibited a greater likelihood of receiving complete antenatal care compared to those in rural areas (aOR: 1.154). Women aged 45-49 were considerably more likely to achieve full ANC compared to those aged 15-19 (aOR: 3732; CI 3728 – 3735). Additionally, married women with higher education were more likely to finish antenatal care than their uneducated counterparts (Adjusted Odds Ratio: 2.623; 95% Confidence Interval 2.620 – 2.627).

The study identified a correlation between socioeconomic factors and the completeness of antenatal care among married women in the Philippines. The chance of women receiving antenatal care services was enhanced by employment, marital status, and affluence. Married women with higher education attend more antenatal care visits than unmarried and less-educated women [15]. In the Philippines, married women with highly educated and financially stable husbands possess greater empowerment to decide on completing antenatal care [16].

Other research indicates that in the Philippines, socioeconomic characteristics like as education, occupation, and wealth significantly affect the completeness of antenatal care (ANC), with wealthier individuals being more likely to complete ANC [17]. Wealth status was a sociodemographic feature significantly associated with all maternal healthcare parameters [18]. The independent influences of education and wealth on ANC quality indicate distinct contributions of knowledge, assertiveness, and financial access [19]. Enhanced education and financial resources about maternal health facilitate greater accessibility to antenatal care services.

The findings indicate that women in urban regions were more likely to attain complete antenatal care compared to those in rural areas. Wulandari's study [20] indicated that women in urban areas of the Philippines were more inclined to finish ANC visits than their rural counterparts. The research indicated that women in metropolitan regions have superior access to healthcare services [20]. A study by Islam [21] revealed that respondents from low-income rural families in developing nations exhibit reduced utilization of antenatal care visits. Individuals with a lower educational attainment and those with less educated spouses, lacking media access, exhibited a diminished likelihood of accessing antenatal care services [21]. Respondents residing in urban areas had superior contributing variables, including spousal education and wealth level, that facilitated comprehensive antenatal care [20].

The study identified three maternal factors associated with the completeness of antenatal care among working mothers in the Philippines: age, education, and employment. Among age categories, married women aged 40-44 exhibited the greatest completion rate of ANC at 36.7%. Women in the 45-49 age group were substantially more likely to achieve comprehensive antenatal care compared to those in the 15-19 age group (aOR: 3732; CI 3728 – 3735).

This study's results contradict those of the earlier study by Akter et al. Evidence indicates that incomplete prenatal visits increase more significantly with age compared to complete antenatal visits [22]. However, our study results are consistent with those of earlier investigations. Women

aged 20-34 receive superior prenatal care compared to those aged 15-19. those aged 30-49 exhibit a reduced incidence of neglecting prenatal care compared to those aged 15-29. This may be attributed to older women possessing the autonomy to make their own healthcare decisions, and older mothers having a greater comprehension of the significance of utilizing health services. This subsequently enhances the probability of pregnant women utilizing prenatal care [23; 24].

Additionally, married women with higher education levels were more inclined to complete antenatal care [45%]. Women with higher education who are married were more likely to finish antenatal care than those without education (Adjusted Odds Ratio: 2.623; 95% Confidence Interval 2.620 – 2.627). Ali et al. In their study, al. shown that education was a significant positive determinant of optimal prenatal care usage in both adolescents and adults. Women, both adult and adolescent, possessing higher educational attainment were 8.08 times ($P < 0.001$) and 2.98 times ($P < 0.001$) more likely to have four or more antenatal care visits, respectively, compared to women lacking educational credentials [25]. The findings of this study align with those of prior research. Women with lower educational attainment utilized prenatal visits less frequently, whereas those with greater educational attainment utilized them more frequently.

The results are credible as education serves as a viable avenue for information acquisition, and well-educated women acknowledge the significance of prenatal visits throughout pregnancy [22]. Individuals with a heightened awareness of the significance and suitability of prenatal care services are more inclined to utilize the prescribed frequency of prenatal visits [24]. Women with less or no formal education may lack the knowledge necessary to utilize health services effectively and may not prioritize receiving these services [26]. Moreover, a greater level of education enhances their ability to utilize health services and comprehend the instructions, education, and advice provided by medical personnel through improved communication skills, hence facilitating interactions with healthcare professionals [27; 23].

Employed married women had a higher likelihood of completing ANC (38.9%) compared to their jobless counterparts. Employed married women had a 1.205-fold increased likelihood of completing ANC compared to jobless married women (aOR: 1.205). Employment is frequently linked to education. Individuals with lesser educational attainment frequently experience economic disenfranchisement and are predominantly employed in the informal sector, such as laborers, compared to individuals with higher educational qualifications. This establishes economic obstacles to obtaining health services, including antenatal care [27].

Andriani et al. In their study, al. discovered that mother work augmented the likelihood of ongoing care during pregnancy by 10%, although it was not substantially correlated with continued care following delivery and postnatal care (PNC). Women who generate income through employment can finance medical services; consequently, they are less likely to rely solely on their partner for maternal health care expenses [28]. However, contrary to our findings, Ali et al. In their study, the authors indicated that women's employment status adversely affected recommended treatment, as employed women utilized antenatal care (ANC) less frequently than their unemployed counterparts. This may result from demanding work schedules or restricted chances to allocate time for prenatal care in contrast to non-working women [25].

This study's drawbacks include dependence on secondary data, which naturally constrains the variety of variables for analysis. Furthermore, the dataset employed did not include all relevant factors. The investigation did not consider local cultural barriers that affect women's healthcare-seeking behaviors. The study also failed to investigate women's agency in decision-making

processes and did not examine the supportive roles of family members, including husbands' involvement in prenatal care (ANC).

## 4 Conclusion

This study concludes that varying economic conditions significantly affect the completion of antenatal care (ANC) among married women in the Philippines, even when accounting for age, education level, work position, area of residence, and parity type. The attainment of ANC is favourably associated with elevated socio-economic position. To enhance the comprehensiveness of ANC, it is advisable to boost healthcare accessibility, frequently hindered by budgetary constraints

## References


[1] Kuhnt, J., & Vollmer, S. [2017]. Antenatal care services and its implications for vital and health outcomes of children: evidence from 193 surveys in 69 low-income and middle-income countries. *BMJ Open*, *7*[11], e017122. https://doi.org/10.1136/bmjopen-2017-017122

[2] Al-Ateeq, M. A., & Al-Rusaiess, A. A. [2015]. Health education during antenatal care: the need for more. *International Journal of Women's Health*, 239–242. https://doi.org/10.2147/IJWH.S75164

[3] World Health Organization. [2019]. *Global Strategy for Women's, Children's and Adolescents' Health [2016–2030]*.

[4] Pan American Health Organization. [2022]. *Access to antenatal and delivery care*.

[5] Tantengco, O. A. G., & Ornos, E. D. B. [2023]. Trends in health insurance and antenatal care coverage in the Philippines. *Journal of Public Health*, *45*[1], e146–e147. https://doi.org/10.1093/pubmed/fdac068

[6] Anik, A. I., Islam, M. R., & Rahman, M. S. [2021]. Do women's empowerment and socioeconomic status predict the adequacy of antenatal care? A cross-sectional study in five South Asian countries. *BMJ Open*, *11*[6], e043940. https://doi.org/10.1136/bmjopen-2020-043940

[7] Suh, H., Kalai, S., Trivedi, N., Underwood, C., & Hendrickson, Z. M. [2023]. Effects of women's economic empowerment interventions on antenatal care outcomes: a systematic review. *BMJ Open*, *13*[3], e061693. https://doi.org/10.1136/bmjopen-2022-061693

[8] Alibhai, K. M., Ziegler, B. R., Meddings, L., Batung, E., & Luginaah, I. [2022]. Factors impacting antenatal care utilization: a systematic review of 37 fragile and conflict-affected situations. *Conflict and Health*, *16*[1], 33. https://doi.org/10.1186/s13031-022-00459-9

[9] Denny, H. M., Laksono, A. D., Matahari, R., & Kurniawan, B. [2022]. The determinants of four or more antenatal care visits among working women in Indonesia. *Asia Pacific Journal of Public Health*, *34*[1], 51–56. https://doi.org/10.1177/10105395211051237

[10] Winters, S., Pitchik, H. O., Akter, F., Yeasmin, F., Jahir, T., Huda, T. Md. N., Rahman, M., Winch, P. J., Luby, S. P., & Fernald, L. C. H. [2023]. How does women's empowerment relate to antenatal care attendance? A cross-sectional analysis among rural women in Bangladesh. *BMC Pregnancy and Childbirth*, *23*[1], 436. https://doi.org/10.1186/s12884-023-05737-9

[11] Onah, M. N., Onah, R. C., & Onah, F. E. [2023]. Linkages between women's empowerment, religion, marriage type, and uptake of antenatal care visits in 13 West African countries. *PLOS Global Public Health*, *3*[6], e0000406. https://doi.org/10.1371/journal.pgph.0000406

[12] Philippines Statistics Authority. [2023]. *2022 Philippines Nasional Demographic and Health Survey: Final Report*.

[13] WHO. [2018]. *WHO Recommendations on Antenatal Care for a Positive Pregnancy Experience: Summary*.

[14] Wulandari, R. D., Laksono, A. D., Prasetyo, Y. B., & Nandini, N. [2022]. Socioeconomic Disparities in Hospital Utilization Among Female Workers in Indonesia: A Cross-Sectional Study. *Journal of Primary Care & Community Health*, *I3*[2], 1–7. https://doi.org/10.1177/21501319211072679

[15] Habonimana, D., & Batura, N. [2021]. Empirical analysis of socio-economic determinants of maternal health services utilisation in Burundi. *BMC Pregnancy and Childbirth*, *21*[1]. https://doi.org/10.1186/s12884-021-04162-0

[16] Susy K Sebayang, Efendi Ferry, & Astutik Erni. [2017]. *Women's Empowerment and the Use of Antenatal Care Services in Southeast Asian Countries. DHS Working Paper* [129].

[17] Labid, S. A. C. [2017, January 26]. *Predicting Antenatal Care Utilization in the Philippines: A CHAID Analysis*. https://doi.org/10.17758/uruae.uh0117416

[18] Landicho, N. M. [2019]. Determinants of Maternal Health Care Utilization in the Philippines: Implications on Information Dissemination Strategies. In *Journal of Public Affairs and Development* [Vol. 6]. https://orcid.org/0000-0001-9407-7604

[19] Afulani, P. A. [2015]. Rural/urban and socioeconomic differentials in quality of antenatal care in Ghana. *PLoS ONE*, *10*[2]. https://doi.org/10.1371/journal.pone.0117996

[20] Wulandari, R. D., Laksono, A. D., & Rohmah, N. [2021]. Urban-rural disparities of antenatal care in South East Asia: a case study in the Philippines and Indonesia. *BMC Public Health*, *21*[1]. https://doi.org/10.1186/s12889-021-11318-2

[21] Islam, Md. A., Sathi, N. J., Abdullah, H. M., Naime, J., & Butt, Z. A. [2022]. Factors Affecting the Utilization of Antenatal Care Services During Pregnancy in Bangladesh and 28 Other Low- and Middle-income Countries: A Meta-analysis of Demographic and Health Survey Data. *Dr. Sulaiman Al Habib Medical Journal*, *4*[1], 19–31. https://doi.org/10.1007/s44229-022-00001-2

[22] Akter, M. B., Mahmud, A., & Karim, M. R. [2023]. Determinants of Antenatal Care Visits in Bangladesh: A Quantile Regression Analysis. *Health Services Research and Managerial Epidemiology*, *10*. https://doi.org/10.1177/23333928231168119/ASSET/IMAGES/LARGE/10.1177_23333928231168119-FIG2.JPEG

[23] Raru, T. B., Mamo Ayana, G., Bahiru, N., Deressa, A., Alemu, A., Birhanu, A., Yuya, M., Taye Merga, B., Negash, B., & Letta, S. [2022]. Quality of antenatal care and associated factors among pregnant women in East Africa using Demographic and Health Surveys: A multilevel analysis. *Https://Doi.Org/10.1177/17455065221076731*, *18*. https://doi.org/10.1177/17455065221076731

[24] Sisay, G., & Mulat, T. [2023]. Antenatal Care Dropout and Associated Factors in Ethiopia: A Systematic Review and Meta-Analysis. *Health Services Research and Managerial Epidemiology*, *10*. https://doi.org/10.1177/23333928231165743/ASSET/IMAGES/LARGE/10.1177_23333928231165743-FIG10.JPEG

[25] Ali, N., Sultana, M., Sheikh, N., Akram, R., Mahumud, R. A., Asaduzzaman, M., & Sarker, A. R. [2018]. Predictors of Optimal Antenatal Care Service Utilization Among Adolescents and Adult Women in Bangladesh. *Https://Doi.Org/10.1177/2333392818781729*, *5*, 233339281878172. https://doi.org/10.1177/2333392818781729

[26] Khan, M. N., Kumar, P., Rahman, M. M., Islam Mondal, M. N., & Islam, M. M. [2020]. Inequalities in Utilization of Maternal Reproductive Health Care Services in Urban Bangladesh: A Population-Based Study. *SAGE Open*, *10*[1]. https://doi.org/10.1177/2158244020914394/ASSET/IMAGES/LARGE/10.1177_2158244020914394-FIG2.JPEG

[27] Kare, A. P., Gujo, A. B., & Yote, N. Y. [2021]. Quality of antenatal care and associated factors among pregnant women attending government hospitals in Sidama Region, Southern Ethiopia. *SAGE Open Medicine*, *9*. https://doi.org/10.1177/20503121211058055/ASSET/IMAGES/LARGE/10.1177_20503121211058055-FIG1.JPEG

[28] Andriani, H., Rachmadani, S. D., Natasha, V., & Saptari, A. [2022]. Continuum of care in maternal, newborn and child health in Indonesia: Evidence from the Indonesia Demographic and Health Survey. *Https://Doi.Org/10.1177/22799036221127619*, *11*[4]. https://doi.org/10.1177/22799036221127619