

Women's Use of Antenatal Care Services: A Systematic Review

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Abstract

Objectives: The aim of this study is to explore the factors affecting the utilization of antenatal care to facilitate the proper use of such services. **Design:** Multiple international electronic databases such as International Scientific Indexing, PubMed, Ovid, Proquest, Google Scholar, Scopus, and Scientific Information Database were used to discover articles written in English and published from 2015 to 2019 by using relevant keywords; and the reference lists of the articles were hand-searched. All cross-sectional studies focusing on factors impacting the utilization of antenatal care were searched, including community based, prospective, and retrospective studies, both quantitative and qualitative. **Results:** A total of 15 related papers were included in this study. The findings revealed that demographic factors, socioeconomic factors, attitudes, education, social support, and working status of the mothers were considered as factors influencing the utilization of antenatal care. **Conclusion:** Promoting the application of antenatal care services can be achieved by improving mothers' attitudes and economic status, as well as addressing their basic needs such as education and financial independence.

Keywords: Antenatal care, maternal education, maternal health intervention, maternal mortality.

1. Introduction/Background

Pregnancy-related complications are estimated to cause 358,000 women's deaths worldwide per year, with the majority developing in resource-poor environments where maternal health service utilization is poor (Sultana et al., 2017). The implementation of antenatal care (ANC) facilities has a significant effect on pregnancy, as it allows the identification of risk factors and early detection of pregnancy risks such as preterm births, and consequently, find the appropriate management thereof (Perumal et al., 2013).

Antenatal care includes screening for pregnancy problems, assessing pregnancy risk, treating problems that may arise during the antenatal period, administration of medications that may enhance pregnancy results, and provision of knowledge to train pregnant women physically and emotionally for childbirth and parenthood (Kisuule et al., 2013). The World Health Organization (WHO) advises at least four ANC visits to prevent pregnancy-related complications (WHO, 2007; Majrooh et al., 2014).

The United Nations' latest Sustainable Development Goals focus on reducing the global rate of maternal deaths, (currently 70 per 100,000 live births), by 2030 (Alkema et al., 2016). Substantial research has been conducted over the last decade to determine the number of antenatal visits required to promote the

health of mothers and children. The systematic study of randomized controlled trials in 2015 indicated that a reduced number of antenatal visits leads to increased perinatal mortality, particularly stillbirth (Dowswell et al., 2015). As a result, in November 2016, the WHO introduced a new model for reducing perinatal mortality and strengthening the care experiences of women by suggesting a minimum of eight antenatal visits (WHO, 2016).

While many may argue that increasing the number of prenatal visits would have a positive impact on maternal and newborn health (WHO 2016; Dowswell et al., 2015), related literature reveals that a reduced number of visits, with targeted interventions at each visit, proved to be equally effective as monthly ANC visits (Miltenburg et al., 2017). In many resource-restricted locations, an increased number of ANC visits to more than four did not indicate any improved birth outcomes for uncomplicated pregnant women (Muhwava et al., 2016). The main aim of this research was to explore the factors affecting the usage of antenatal care to promote the use of health care facilities.

2. Methods

Search Strategy

An extensive review was made of published literature from 2015–2019 available in English databases,

including International Scientific Indexing, PubMed, Ovid, Proquest, Google Scholar, Scopus, and Scientific Information Database (SID). The keywords searched included "utilizing antenatal care," "antenatal care," "antenatal care during pregnancy," "factors affecting utilizing antenatal care," "maternal mortality," "maternal death," "antenatal care and infant," "complications during pregnancy," and various other combinations of these. Keywords in the selected databases were used in the title, abstract, and keyword domains. The references of the searched articles were comprehensively investigated to find additional relevant articles.

Furthermore, general, and specific searching on www.searchenginelist.blogfa.com increased the generalization of the retrieved data, information, and knowledge. This website has a range of search engines on various topics and scopes. In this phase, massive quantities of information and data were retrieved. Some of the retrieved materials were repetitious and identical to previously searched documents, but some novel materials were detected and used in response to the study question. It is important to note that certain databases overlap because some publications have been cited in a variety of databases. The Endnote 7 Reference Manager software was used to avoid any re-entry of recovered studies.

Inclusion and Exclusion Criteria

The inclusion criteria for studies were as follows: the publication should have been from 2015 to 2019; written in English language; should have been an electronic publication with a systematic peer review process. There should have been congruency between the article topic,

the questions and purpose of the study. The factors should be affecting utilizing antenatal care; and there should be originality of the study. Our exclusion criteria were case report, case series, and narrative review. A total of 11,853 articles were found, including 3,490 in Google Scholar, 6,730 articles in PubMed, 80 in Ovid, 20 in Proquest, and 1,533 in SID. The search was carried out by three representatives: HF, AM, and SAM.

Designing the Quality Investigation Checklist

A checklist was designed based on the inclusion criteria, and all studies were evaluated accordingly.

Usage of the Checklist

The entire text of the papers was examined in accordance with the checklist mentioned in the preceding step. After the quality assessment of the retrieved full text articles, only 15 articles were selected for the review. These are represented in Table 1. The validation process was carried out by three participants: HF, AM, and SAM.

Deriving Responses to the Research Question

The responses were taken from the 15 papers gathered during the analysis process based on the research questions. The results are presented in Table 1.

Combination of Information Derived from the Publications Retrieved

In this step, the information derived from the retrieved articles was combined. Figure 1 shows a flow diagram of the collection of the articles.

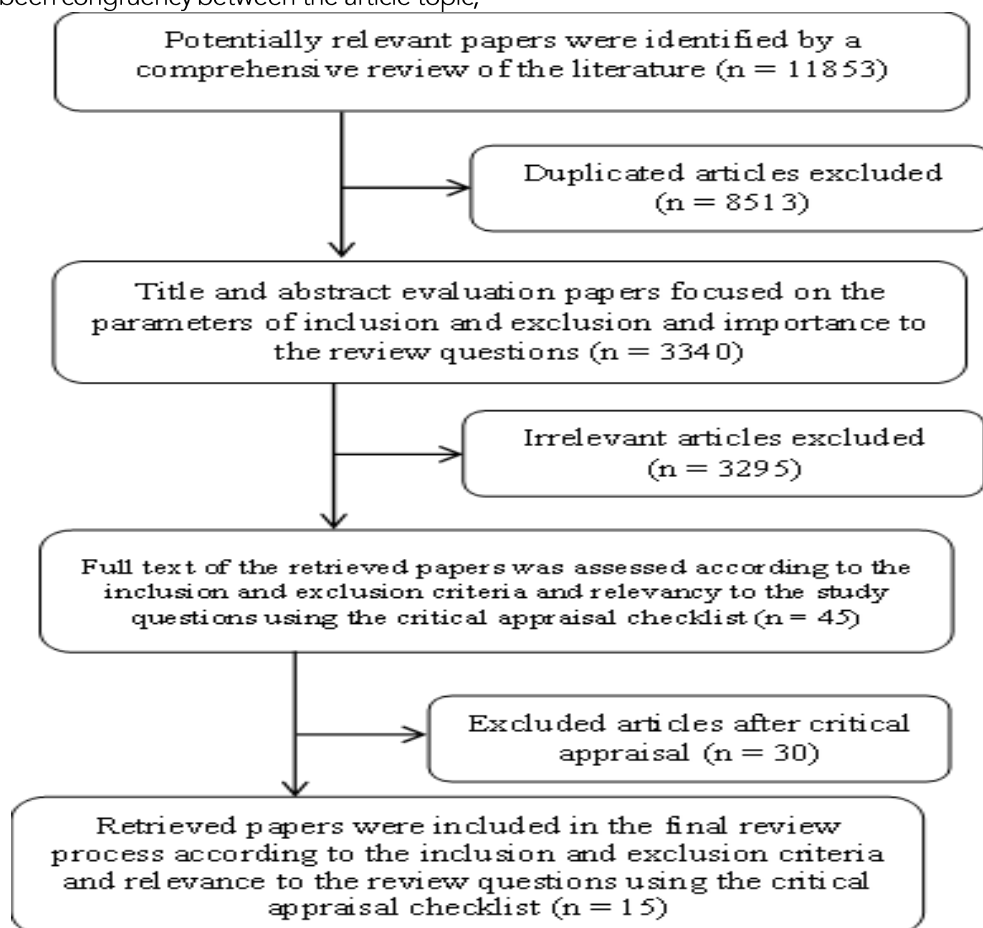


Figure 1. Flow diagram of article selection

3.Results

Table 1. Findings of the articles selected for review

Study	Design	Sample and setting	Main findings / Factors
Ali et al. (2018)	Cross-sectional study	4626 adolescents and adult women in Bangladesh	32% adults and 30% adolescent women utilized recommended ANC. Mothers' education level and income level.
Hijazi et al. (2018)	Cross-sectional study	831 women from Jordan	Mothers' education. Desire for the pregnancy. Living in a district served by an ANC clinic.
Narayan et al. (2018)	Cross-sectional study	70 women in Telangana state	81.3% mothers had four or more antenatal visits. Women's age at time of birth. Education (10th class and above) Working mothers Birth order Early registration
Akowuah et al. (2018)	Cross-sectional study	70 women in Ghana	Mothers' age, household size, and occupational status.
Wolderufael (2018)	Community-based cross-sectional study	639 women in Ethiopia	The proportion of women who received antenatal care for their last pregnancy was only 15.5%. 10.3% received two to three visits. Health extension workers and residential distance.
Adewuyi et al. (2018)	Community-based cross-sectional study	40680 households in Nigeria; 16740 in urban areas and 23940 in rural areas	Mothers' and fathers' education level, region of residence, wealth index, maternal age, frequency of watching TV. Distance to and permission to visit health facilities.
Siddiqui (2016)	Cross-sectional study	277 women in Saudi Arabia	36.0% of women book late for ANC visits. Late booking shows higher among nullipara.
Rurangirwa et al. (2017)	Population-based cross-sectional study	921 women in Rwanda	54% of pregnant women did not make the recommended four visits to ANC during pregnancy. Poor use of ANC services was higher among: Women aged 31 years or older Singles Women with poor social support
Othman et al. (2017)	Community-based cross-sectional Face-to-face interview	460 mothers in Yemen	54% of mothers were found to have made four or more antenatal care visits. Education, living place, age at first pregnancy, gravida, parity, unplanned pregnancy, and the number of live children.
Dansou et al. (2017)	Secondary data from the fourth Demographic and Health Survey BDHS	8701 women from Benin	59.56% of women attend all ANC visits. 27.61% attended fewer than four visits and 12.84% had never utilized ANC services. Economically well-off households. Educated women Desired pregnancies
Chorongo et al. (2016)	Cross-sectional comparative study	385 women in Malindi and Magarini sub-counties	35% of women sought first and second ANC services at the health facilities. Muslims were less likely to attend rural health facilities. Education: people with secondary or tertiary levels of education were less likely to seek ANC.
Kakati et al. (2016)	Cross-sectional study	300 women in India	68.7% women had more than three antenatal visits. Women's age, religion, caste, socioeconomic class, place of delivery, mode of delivery, and parity
Alsaifi et al. (2016)	Cross-sectional qualitative and quantitative study	520 women in Jeddah, Saudi Arabia	Age, number of delivery and related implications for the disclosure of pregnancy.
Manda-Taylor et al. (2017)	Qualitative study	20 mothers in Malawi	Delayed antenatal attendance among Malawian mothers includes: Attitudes toward pregnancy Hospital inefficiencies ANC promotion at the health facilities/communities Spousal/significant other involvement
Farrag et al. (2019)	Cross-sectional study	20 mothers in Egypt	85% of the mothers attended ANC during their last pregnancy. Two-thirds regularly attended ANC. Factors that were positively associated with utilization of ANC include: Urban residence Unemployment High education High family income

N=15, including design, sample size, determinants, main outcomes, and main finding

4.Discussion

Factors which impact the utilization of antenatal care have been extensively studied in both developing

and developed countries. These factors include demographics such as age, level of education, level of income, distance from care centers, working status, and residence. Some studies found other

factors such as attitude toward pregnancy and parity to be significant as well.

With regard to education, six studies in our review indicated that education significantly affects the utilization of antenatal care: with an increase in the level of women's education, the level of utilization increases. Women with a low level of education do not typically have a satisfactory level of utilization of antenatal care. Furthermore, low education level correlated with late initiation of antenatal care (Ayoola et al., 2010). Moreover, studies revealed that the frequency and timing of antenatal care are associated significantly with the level of education of both the mothers and their husbands (Bbaale, 2011; Asamoah & Agardh, 2017).

The impact of age on utilization of antenatal care has been considered in several studies. Women's age is considered as an essential factor in the utilization of antenatal care. Most articles revealed that with an increase in maternal age, the utilization of antenatal care increases, with women of age 31-years-old and above being most likely to receive maternity care. These results are consistent with study findings revealing that being a young mother is considered a significant barrier for the utilization of antenatal care (Ayoola et al., 2010; Chiavarini et al., 2014). Other studies have revealed that frequency and duration of antenatal visits are significantly related to maternal age and that maternal age is a factor associated with the use of antenatal care facilities (Simkhada et al., 2008).

Additionally, the current review revealed low socioeconomic status as a factor that negatively affects the utilization of antenatal care. It was also found that the frequency and duration of antenatal care are associated significantly with the level of income: with an increase in the level of income, the level of utilization in terms of timing and frequency increased (Bbaale, 2011). The results of the current review indicate that an increase in family income is associated significantly with the utilization of antenatal care (Simkhada et al., 2008). In fact, among suburban women, the low socioeconomic background and the distance between the residence and the health care service were the main two factors affecting utilization of maternity services (Islam & Odland, 2011). Generally, the economic condition of the family has a significant and powerful effect on the use of maternal care services.

Studies indicate that urban mothers who have high socioeconomic status receive more adequate antenatal care than those with lower socioeconomic status (Nisar et al., 2003). This could be explained by the fact that the continuity of antenatal care is affected and influenced by adequate financial resources. Women with a low level of income cannot pay for antenatal care and may not have the means to cover the cost of transportation to such visits. Additionally, it is clear that mothers residing in rural areas have inferior antenatal care compared to those in urban areas, which is evidenced in several studies (Simkhada et al., 2008; Houweling et al., 2007).

However, the factors of attitude toward pregnancy, inefficiency of medical care, ANC promotion conflicting messages, marital status, and lack of partner's support/essential other involvement found in one study (Manda-Taylor et al., 2017) were not prevalent in others. Previous studies have also found that the detection of pregnancy before six weeks of gestation was correlated with improved chance of utilization of maternal care services (Ayoola et al., 2010). Mothers' attitudes are important factors, as it was found that some of the mothers did not regard antenatal care as important until a complication had occurred, which affected the utilization of maternal care (Chowdhury et al., 2003). Other factors are only mentioned in previous studies and not supported by evidence. However, these factors need to be investigated further to support their effectiveness.

Working status of the mother has also been revealed as a factor. Studies have shown that unemployment is one barrier to the prompt and regular usage of prenatal services (Beeckman et al., 2011). The time and duration of antenatal care visits were both linked to the mothers' and their husbands' working conditions (Bbaale, 2011). Other studies have confirmed that mothers who are unemployed, often do not receive full antenatal care services (Ciceklioglu et al., 2005).

Meanwhile, mothers who are working, receive antenatal care services more than their non-working counterparts (Beeckman et al., 2010), and they are more likely to have timelier prenatal care facilities (Navaneetham & Dharmalingam, 2002). On the other hand, a research conducted in India revealed that prenatal care is more widespread among non-working mothers (Pallikadavath et al., 2004), so the results in this category are somewhat inconclusive.

Overall, the number of antenatal care visits was found to be inadequate. One of the key problems in recent research that needs focus is investigating challenges which prohibit disadvantaged mothers from receiving adequate antenatal care. According to the final model, adequacy of prenatal care coverage is influenced by a variety of health care service and individual factors. Our findings indicate that education is the most significant influencing that is constant in most of our included articles. It makes sense that educated women are more likely to appreciate and practice flexibility and decision-making rights of prenatal care about their safety and well-being. More years of schooling is also shown to boost the willingness of women to contact health professionals and discuss any health issues.

Implications and Suggestions

To achieve significant changes regarding antenatal care services, this study highly suggests that the public sector should adopt health policies to improve access to maternal and child health services to cover underserved areas and those who are disadvantaged. Raising the number of prenatal care clinics that are physically close to those who reside in

rural areas would help improve their use. Likewise, the ministry of health of a given country can incorporate mobile antenatal care to improve usage of perinatal services and eliminate travel costs.

5. Conclusion

The current study revealed that the utilization of antenatal care is influenced by several factors, especially among disadvantaged mothers. The significant factors that affect utilization of antenatal care include mothers' age, education, working status, attitude toward pregnancy, and level of income. Promoting maternal education programs is an important measure that needs to be taken in the future which might increase the level of utilization of maternal health services. Also, increasing the number of health care facilities covering a suburban area might improve usage of antenatal care services.

Conflicts of Interest and Source of Funding

The authors declare that there is no conflict of interest. The authors declare this was a non-funded project.

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