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Does women empowerment affect in Timing of Antenatal Care Initiation in Nepal?

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Abstract

Background: Many pregnant women who are in their first trimester of pregnancy are still being left behind and do not attend antenatal care (ANC) visits on time, which is unfortunately a dreadful condition. This paper explores the dimensions of women empowerment and their relationship to the timely initiation of ANC.

Methods: The study is based on the 2016 Nepal Demographic and Health Survey. Currently married women aged 15-49 years (n=1,973) who had live births 2 years before the survey were the main target population. The study used binary logistic regression to examine the causal relationship between women empowerment and the timing of ANC service.

Results: The findings reveal that more than two-thirds of the respondents who had a live birth two years prior to the survey made their first antenatal visit during the first trimester. Eight out of 10 highly empowered women are more likely to visit in the first trimester than low empowered women. Furthermore, according to the study, the level of women empowerment affects the timing of ANC service. Furthermore, except for control over sexual relations, indicators-wise empowerment level indicates a positive impact on the timing of ANC services.

Conclusions: Women, especially young women, should be empowered in order to meet the SDG target. There should not be any maternal deaths during pregnancy as well as childbirth and after birth.

Keywords: women empowerment, antenatal care, timing and NDHS

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Background

Antenatal care (ANC) is the most important indicator to improve maternal health. Good maternal health is possible when a mother has adequate contact with skilled health personnel, receive counselling on obstetric danger sign if any and preventive measure during pregnancy, and also find out whether or not their pregnancy will be healthy. But unfortunately, many women miss this opportunity and die which could be prevented. In 2017, there were around 810 women who died per day from pregnancy- and childbirth-related causes that may have been averted (World Health Organization [WHO], 2019). It is astonishing that, despite significant improvement over the years, maternal mortality remains a problem and one of the world's most pressing concerns for many developing nations (WHO, 2015).

Timing of antenatal contact in their first trimester is an opportunity for women to detect complications if any and treatment of that complications on time to have a positive pregnancy. Unfortunately, the situation is still quite bad; many pregnant women who are in their first trimester of pregnancy are still being left behind and do not make ANC visits on time. Different factors hinder them to have a timely and adequate ANC service for example cultural factor (Simkhada, Porter, & Van Teijlingen, 2010), quality of care (Stephenson &Tsui, 2002), poor knowledge on timing of first ANC (Ndidi, & Oseremen, 2010; Tadele, Getachew, Fentie, & Amdisa, 2022) education (Stephenson &Tsui, 2002; Tadele, Getachew, Fentie, & Amdisa, 2022), location (Sserwanja, Nabbuye, & Kawuki, 2022;) and women empowerment/autonomy (Sebsyang, Efendi, & Astutik, 2017; Sserwanja, Nabbuye, & Kawuki, 2022;). However, this study is mainly focus on the women empowerment.

The association between women empowerment and timing of ANC services, however, may or may not follow the same trends in each of the countries because women empowerment is diverse and contextual. Sebsyang, Efendi, & Astutik (2017) also stated in their study based on five ASEAN countries that these five countries had various levels of women empowerment related to ANC use. They further stated that in general, the total number of ANC visits is strongly correlated with women empowerment status in more nations than the time of a woman's first ANC visit.

Timely ANC services is a vital part of maternal health to ensure and enrich mother and child health. During pregnancy, a pregnant woman should have at least 4 visits and the first visit should be in the first trimester. The growing number of mothers who make ANC visits is meaningless unless and until they receive timely contact with skilled provider during their pregnancy. It is said that ANC alone can reduce maternal mortality by 20 percent when provided in acceptable quality and regularly (Anik et al., 2021). Despite its utmost important, far too many women continue to be excluded from ANC services. This could endanger their lives.

It is noteworthy that inadequate and late initiation of ANC services is one of the key contributors to maternal mortality in developing countries like Nepal where still about 42 percent of women are not making their first visit in their first trimester (Central Bureau of Statistics [CBS], 2020). Likewise, a monetary payment of NRs. 800 is provided as an incentive for successfully completing antenatal care appointments during the 4, 6, 8, and 9 months of pregnancy in Nepal. This isn't just about the incentives, this encourages women to schedule their first ANC appointment during the first trimester to ensure a safe delivery by skilled health provided. Similarly, about 98 percent of healthcare facilities provide ANC services in Nepal (Ministry of Health and Population, Nepal; New ERA, Nepal; ICF, 2021). This indicates Nepal

government is positive towards mother's health but still many women are left behind. This is the major concern. Equally, to achieve the Sustainable Development Goals (SDGs) in the context of Nepal, which is crucial as well, these gaps must be closed. Nepal government is always working to save women's lives, it is still a very big mystery why mothers are not using the ANC program. A substantial amount of work investigated the factors associated with ANC utilization in poor countries including Nepal in an attempt to promote ANC utilization and improve maternal health outcomes. In this regard, this paper explores the dimensions of women empowerment and their relationship to the timely initiation of ANC among currently married women in Nepal.

Methods

This study is completely based on secondary data from the 2016 Nepal Demographic and Health Survey (NDHS). NDHS is a nationally representative cross-sectional survey conducted every 5 years. The detail of sampling is provided in the freely available NDHS reports and on the Measure DHS website (https://dhsprogram.com). This study adopted a descriptive and analytical research design to achieve the objectives of the study. It also analyzes the effect of various demographic and socioeconomic characteristics of women on timing of antenatal care services.

This study has been restricted to the most recent birth to currently married mothers aged 15-49 with sample of 1,973 that occurred in the two years preceding the survey period. The two-year reference period provides a more current estimate than the five years and should therefore be less prone to recall error by women.

Study Variables

Dependent variables

The main dependent variable in this study is the timing of ANC contact. According to the WHO model, the timing of the first ANC visit should be made during the first trimester of pregnancy (not less than 3 months). Here timing indicates the first antenatal care visit within 3 months which is very important to diagnose the potential risk if any. The respondents who made their first visit within 3 months were recoded '1'and '0' for else.

Independent variable (Women empowerment)

The main independent variable of this study is women empowerment which is based on three dimensions: household decisions making, control over sexual relations and access to resources for medical treatment. Based on these variables the study had also tried to show the composite variable of the women empowerment index.

1. Household decision making: This dimension includes the agency of women in the household purchase, own health care and mobility. Women were asked whether she has a final say on these three indicators. The responses were coded 1 to 4, with 1: indicating the woman made the decision herself, 2: if the decision was made together with her partner, 3: the decision made together with another person, 4: if husband/partner alone, 5: if someone else. All these values were made dichotomous '0' and '1'. Women who made decisions alone or together with others were assigned as 1 and 0 when the women did not decide at all. All these three binary indicators were then summed and the result ranges were from 0 to 3. The score 0 is named as 'none', 1-2 (Low) and 3(high).

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2. Control over sexual relations: Control over sexual relationships refers to a woman's ability to act autonomously regarding sexual matters. Within sexual relationships, power dynamics have a clear causal link to violence or the fear of violence, and violence, in turn, affects health sometimes forced sexual initiation is also associated with pregnancy and may cause violence at this time. This dimension has four indicators namely can ask a partner to use a condom, can refuse sex, ask her husband to use a condom if he has STI and can refuse sex if she knows that her husband has other women. All these indicators refer to women agencies that can control their sexual relations according to their choice. All the responses were made binary with 1 for Yes, can refuse and 0 for acceptance 'cannot refuse'. All the binary values were then summed up and the score was categorized into 'none' if the value is 0, assigned 'low' for the value 1 to 3, and assigned 'high' for the value 4.

3. Access to health care: This is related to the problem in accessing health treatment with four variables where women were asked about the difficulty getting permission to go, difficulty getting money for the treatment, difficulty going to health facility due to its distance, not wanting to go to healthcare center alone and difficulty to go health facility concerning female health provider. The answers are dichotomous: big problem (coded 1); or, not a big problem (coded 2). These variables were once more made binary, with 0 indicating a big problem and 1 indicates not a big problem. The overall binary value ranges from 0 to 5, with 0 indicating women who have a problem getting access to healthcare and 5 indicating those who do not. As a result, these values were once again categorized in this study as none, low, and high empowerment for values 0, 1-4, and 5 respectively.

4. Women empowerment index: This is the overall women empowerment index which was calculated based on all 12 indicators. The summative index score ranges from 0 to 1. A score of 0 indicates 'no empowerment' and 1 indicates 'high empowerment. The total score of the composite index was then divided into terciles of none, low, and high levels based on previous evidence (Atteraya et al., 2014; Shibre, et al., 2021).

Covariates

Based on the literature review the following factors that have an influence on empowerment and increases in the uptake of ANC care are considered: Maternal age (15–24, 25–34, 35 and above), birth order (1^{st}, 2^{nd}, 3^{rd} and above), place of residence (Urban, Rural), Province level, educational level (No education, Primary and Secondary and above), media exposure (none, either and both), working status (not working, working but not earning cash and kind and working and earning) and wealth (poor, middle and rich).

Analysis of data

The analysis was made using Statistical Package for Social Science (SPSS) version 20 and used univariate, bivariate and multivariate methods. Bivariate analysis was used to assess the relationship between the dependent and independent variables. Pearson's chi-square statistics were used to test for the strength of association between the independent and dependent variables.

Lastly, the study used binary logistic regression as the multivariate analysis tool to examine the causal relationship between women empowerment and utilization of ANC plus controlling demographic and socioeconomic variables. This study was used to predict antenatal care

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services using binary logistic regression to explore the causal relationship. The result was shown in odds ratios (ORs) with a 95 percent confidence interval. The value of OR <1 indicates a negative relationship, OR>1 indicates a positive relationship and OR=1 indicates no relationship. Statistical significance was set at 1%, 5% and 10% levels to measure the strength of association between independent and dependent variables.

Results

Timing of ANC services by background characteristics

Antenatal care includes education, counselling, screening and treatment to monitor and promote the well-being of the mother and fetus. Four or more visits during pregnancy in a normal case are considered sufficient visits for ANC services. During these visits, women get a chance to know about their pregnancy and can plan for skilled delivery however, the visit should be in the first trimester. This study has also tried to cover ANC service utilization in terms of timeliness. Table 1 reveals the distribution of women with timing of ANC services utilization according to women's background characteristics.

Data shows that about 66 percent of women made their ANC visit in the first trimester. Data further shows in more youth women are found in receiving ANC services at their first trimester of pregnancy than their older counterparts (67% Vs 65%). Women whose pregnancy is in first-order are more likely to have ANC visits on time than those who have 2nd and 3rd birth orders.

Similarly, the higher the level of women's education higher the use of ANC services at first trimester of their pregnancy. For example, about 76 percent of women with secondary and above level education have utilized ANC services at first trimester whereas it is only 51 percent for women who have no education. The role of media exposure also seems effective in receiving timely ANC services. Women who are not exposed to both radio and television are less likely to receive ANC services at first trimester than women who are exposed to both radio and television (Table 1).

According to the location of women's residence, almost 7 in 10 urban women received ANC services at their first trimester of pregnancy whereas it is about 6 in 10 among rural women. Likewise, more women from Gandaki province (74.9%) received ANC service in the first trimester. Women who work for cash and kind are more likely to visit at first trimester (57.9%). However, the difference between the richest and poorest in utilizing ANC services on time was larger among the rich (18.2) indicating that the inequality is higher in poor than rich women All the variable is significant at 1 percent except maternal age and types of earning on timeliness (Table 1).

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Table 1: Percentage distribution of women who had a live birth in the 2 years preceding the surveys according to background characteristics and ANC service utilization, 2016

Background characteristics	Timeliness
Maternal age	
Youth (15-24)	67.0
Adult (≥25)	65.0
p-value	0.350
Birth order	
1st child	75.4
2nd child	65.5
3rd child and more	53.9
p-value	0.000
Education	
No education	51.4
Primary	60.7
Secondary and above	76.3
p-value	0.000
Media exposure	
None	49.4
Either	64.7
Both	77.8
p value	0.000
Province	
Province 1	71.8
Madhesh	53.4
Bagmati	70.6
Gandaki	74.9
Lumbini	73.4
Karnali	51.3
Sudurpashchim	70.1
p-value	0.000
Place of residence	
Urban	69.4
Rural	62.2
p-value	0.000
Province	
Province 1	71.8
Madhesh	53.4
Bagmati	70.6
Gandaki	74.9
Lumbini	73.4
Karnali	51.3
Sudurpashchim	70.1
p-value	0.000
Types of earning	
Not paid	66.9
Cash and kind	69.0
Not working	64.1
p-value	0.202
Wealth index	
Poor	57.9
Middle	65.6
Rich	76.1

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p-value	0.000
Total	**66.0**

Source: Calculated from NDHS 2016 datafile

Timing of ANC services by women empowerment

Table 2 shows the first ANC visit at first trimester in terms of their level of empowerment and its dimension. This study has looked at three aspects of women empowerment: decision-making power, access to health care, and sexual relationship control. According to the table women empowerment appears to be beneficial in utilizing ANC services on time, according to data. Women with a high level of empowerment are more likely to use ANC services at first trimester than women with a low level of empowerment (77.7 % Vs 56.5%). This pattern appears to be consistent in all three dimensions. However, ANC visits in first trimester is found more varied in case of access to health care where highly empowered women are 20 percentage points more likely than their counterparts to receive ANC services in first trimester of pregnancy. At a 1 percent level, the majority of the dimensions are significantly associated (Table 2).

Table 2: Percentage distribution of women who had a live birth in the 2 years preceding the surveys according to women empowerment and timing of ANC service, 2016

Empowerment	Timeliness
Decision- making power	
None	64.0
Low	65.6
High	70.2
p-value	0.076
Access to health care	
None	59.6
Low	72.7
High	79.0
p-value	0.000
Control over sexual relations	
None	56.6
Low	61.1
High	68.9
p-value	0.001
Overall empowerment	
Low	56.5
Moderate	67.4
High	77.7
p-value	0.000
Total	**66.0**

Source: Calculated from NDHS 2016 datafile

Women empowerment and timing of ANC services

The World Health Organization (WHO) recommends that ANC should be initiated within the first trimester of gestation with at least four, and optimally eight visits during the pregnancy (WHO, 2016). Women with a high level of empowerment, for instance, are twice as likely to utilize the ANC services than women with low levels of empowerment. Table 3 shows the effect of women empowerment on timing of ANC services in terms of gross and net effect using odds ratio.

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Women's decision-making power as an empowerment indicator is positively associated with timely ANC visits. For example, women with a high level of decision making power have a 32 percent higher likelihood of making their first ANC visits in their first trimester. However, this value is lower (aOR=1.07) while adjusting demographic and socioeconomic variables.

When compared to women who do not have access to health care, women with a high level of access to health care are about 3 times (cOR=2.55) and almost 2 times (aOR=1.61) more likely to receive first ANC services in first trimester. The ability to control sexual relations is not found statistically significant. For instance, women with a high level of control over sexual relations have 70 percent (cOR=1.70) greater odds of receiving first ANC services in their first trimester compared with women with no control over sexual relations. While in case of adjusting demographic and socioeconomic variables it is about 14 percent less odds with a high level of control over sexual relations.

Table 5.3: Crude model for women empowerment and ANC services (n=1973)

Variables	**cOR**	**aOR**
Decision-making power (Ref.=None)		
Low	1.07	0.83
High	1.32**	1.07
Access to health care (Ref.=None)		
Low	1.80***	1.27
High	2.55***	1.61***
Control over sexual relations (Ref.=None)		
Low	1.20	0.94
High	1.70*	0.86
Overall empowerment (Ref.=Low)		
Moderate	1.59***	1.20
High	2.69***	1.42**

*** significant at 1%; ** significant at 5% and * significant at 10%
Source: Calculated from NDHS 2016 datafile

Discussions and Conclusions

Women empowerment and the timing of the ANC visit are two distinct topics, although they are both related to issues concerning reproductive rights for women. Both advocate for bettering women's standing in order to defend not only their own but also the rights of their unborn child. The importance of ANC services in the first trimester has also focused in the national health policy with targeting 4 visits at 4^{th}, 6^{th}, 8^{th}, and 9^{th} months. When it comes to mother's health, the most important factor that cannot be disregarded is antenatal care and others are skilled delivery attendants and postpartum care. Evidence clearly shows that women empowerment matters in receiving ANC services on time.

The study's findings complement Partly's (2016) research study, which reviewed 67 papers in developing countries and found that women empowerment is positively related to the utilization of health care services. Overall, the study's main finding shows women empowerment is positively associated with timing of first ANC visits, even after adjustment for the demographic and socioeconomic factors. The study's findings complement Partly's

(2016) research study, which reviewed 67 papers in developing countries and found that women empowerment is positively related to the utilization of health care services. However, results differed among women empowerment dimensions. Among the three dimensions control over sexual relations is not significantly associated with ANC services. Since there are different factors that communicate with women empowerment and timing of ANC first visits, this study is only focused on women empowerment.

The considerable interaction between women's access to health care and the time of their first ANC visits shows that these two variables may be linked by strong processes. Only availability is relevant until and unless accessibility is present. If women have access to health care, the government's claim on ANC services in practically all health institutions is likely to be successful and on pace to meet the SDG target. There should not be any maternal deaths during pregnancy as well as childbirth and after birth. The outcomes of the study show that the timing of first ANC visits varies even within a country or among women themselves. This implies that in order to attain the intended results, mothers, particularly young parents, should be educated and made aware of their reproductive rights and availability of ANC services in facilities. Because they are distinct groups, many of them are on the verge of falling behind. When women have access to basic health services provided by the government, they are more likely to use them efficiently.

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