https://mchandaids.org

International Journal of Maternal and Child Health and AIDS

ORIGINAL ARTICLE ANTENATAL CARE SERVICES

Prevalence and Associated Factors of Client Satisfaction with Antenatal Care Services Among Antenatal Care Attendants in Ethiopia: A Systematic Review and Meta-Analysis

Temesgen Geta, MSc[1], Eskindir Israel, MSc[2], Buzuayehu Atinafu, MSc[1]

Department of [1]Nursing, [2]Public Health, Wolaita Sodo University, Wolaita, Southern Ethiopia

*Corresponding author:
Temesgen Geta,
Department of Nursing,
Wolaita Sodo University,
Wolaita, Southern Ethiopia.

Tel: +25142342321

fashawgeta21@gmail.com

Received: 07 November 2023

Accepted: 06 June 2024

Published: 19 July 2024

DOI: 10.25259/IJMA_616

Quick Response Code

ABSTRACT

Background and Objective: An important indicator of the quality of antenatal care (ANC) is the satisfaction of the client. Despite this, women in Ethiopia are very dissatisfied with the quality of their ANC. In Ethiopia, a systematic review was conducted to estimate the pooled prevalence of client satisfaction (CS) with ANC services.

Methods: Only articles published in English were included in this review. Medline/PubMed, Web of Science, Google Scholar, Scopus, Ethiopian University Repository Online, and the Cochrane Library are the main databases. The review included cross-sectional studies written in English that met the inclusion requirements. Using a random effects model, the overall rate of CS with prenatal care was calculated. Additionally, Egger's test and funnel plots were used to examine publication bias. STATA version 14 was used to perform all statistical analyses.

Results: This review included 20 studies involving 8447 women attending prenatal care services. In Ethiopia, the overall customer satisfaction rate with prenatal care services was 60.42% (95% CI [51.33.99, 69.51]; I2 = 98.9%, P < 0.001). Previous ANC follow-up, iron and folic acid supplementation, and the last planned pregnancy were statistically associated with CS.

Conclusion and Global Health Implications: In Ethiopia, 60% of women are satisfied with their ANC. This shows that 40% of women are dissatisfied with the prenatal care provided by healthcare professionals. This will lead to a low utilization of ANC services throughout the country. Therefore, the Ethiopian government, especially the Ministry of Health and nongovernmental organizations (NGOs), must take measures to address this severity and improve identified factors.

Keywords: Client Satisfaction, Antenatal Care Service, Women, Ethiopia, Systematic Review, Meta-Analysis

INTRODUCTION

As recommended by the World Health Organization, providing high-quality antenatal care (ANC) is an important part of the reproductive, maternal, newborn, and child healthcare chain. Throughout the reproductive healthcare continuum, it provides the foundation for essential health functions, including health promotion, screening, and diagnosis. It provides an opportunity to communicate and support family and community during a critical time in the life of a mother. ANC is essential not only to save lives but also to improve lives, utilization, and quality of healthcare, and to lay the foundation for healthy motherhood.[1–6]

Data from sub-Saharan African countries, including Ethiopia, have shown that the main cause of poor ANC is client dissatisfaction with the service provided. Client dissatisfaction with

prenatal care services causes several negative consequences, such as poor administrative compliance, less participation in one's own healthcare, interruptions in the care process, and increasing rates of maternal and fetal mortality and morbidity. Client satisfaction (CS) status for healthcare services is one of the good approaches to evaluating service quality.[7–9] CS of health services, including ANC, is difficult to assess because it is influenced by both the characteristics of the client and the hospital. The CS can be defined as the positive evaluation of certain aspects of health services by women.[10] It can also be expressed as a woman's level of experience with what clients and the public expect to receive from a health facility.[11]

Satisfied clients are more likely to follow the recommendations of their healthcare professional, return to the services they need, and recommend them to others. Evaluation of CS with ANC helps review and improves the care provided. Its purpose is to describe health services from the client's perspective and provide an opportunity to measure and rate them according to women's satisfaction. Therefore, it is important for reproductive health professionals to receive feedback from women on their satisfaction with prenatal care services.[7,11]

Reviews from various countries indicate that the prevalence of CS with ANC is 40% in Uganda,[12] 59% in Oman,[13] 90% in Nigeria,[14] 82% in Sweden,[15] 41.1% in Egypt,[16] 68.3% in Gojam,[17] 70.3% in Harare,[18] and 83.9% in Tigray.[19] Although several individual studies have been conducted to assess women's satisfaction with ANC in different regions of Ethiopia,[17–36] there is no nationwide data to show the overall prevalence of women's satisfaction with ANC, and the representativeness and results of a single study are also neither conclusive nor consistent. Therefore, the purpose of this systematic review and meta-analysis was to assess the pooled prevalence of women's satisfaction with ANC and associated factors in Ethiopia. The results of this study provide general insight that enhances CS with ANC by helping to develop policies, design strategies, and improve the use of ANC services. This plays an important role in reducing maternal and newborn mortality.

METHODS

A systematic review was conducted to estimate the overall prevalence of CS with ANC among women, who receive ANC in Ethiopia.

Search Strategy

Databases such as Medline/PubMed, Web of Science, Google Scholar, Scopus, the Ethiopian University Repository online, and the Cochrane Library were used to search for studies that were included in this study. In addition, missing data was handled by contacting the corresponding authors. We checked the database https://www.crd.york.ac.uk/prospero and the Cochrane Library to ensure that the review had not been done before and to avoid duplication. PROSPERO also registered this review with the registration number CRD42023477088.

A comprehensive search strategy was developed using multiple Boolean operators using standard population comparison and intervention (PICO) questions. The following search terms were used: "or" and "and." Boolean operators are used to search for satisfaction and "antenatal care or prenatal care" OR client OR women OR mother AND Ethiopia and related terms such as Amhara, Oromia, Somalia, and other remaining regions. All articles retrieved from the database was checked for titles and abstracts before being exported to the Endnotes Library. These articles were read in their entirety and met the inclusion requirements for titles and abstracts. The results of the articles published in Ethiopia were evaluated using systematic review and narrative synthesis. The research method was carried out by three authors (TG, BA, and EI).

Eligibility Criteria

Inclusion and Exclusion Criteria

Those articles that were eligible for this review assessed the CS status with ANC services among its users in Ethiopia, and studies conducted using a cross-sectional study design and published in English were included in this study. This review excluded studies done outside of Ethiopia and study designs other than cross-sectional.

Data Extraction and Quality Assessment

The articles for this review were selected and guided by the PRISMA scheme. Data was extracted using parameters such as author name, year of publication; study location, sample size for each study, and study design. We collected the required data from the accepted articles using a Microsoft Excel spreadsheet. The authors (TG, BA, and EI) extracted data from the accompanying documents independently. After extensive agreement and discussion on the extraction of data and the performance of critical analysis using the Joanna Brings Institute Review Meta-Analysis and Statistical Evaluation Tool (JBI-MASTER), the studies that met eligibility criteria were included and summarized in the table. Joana found the studies; articles and their abstracts were used to determine whether they should be included. Before making the final selection for the review, the quality of the article was examined. Studies were classified as low risk if they had a quality assessment indicator score of seven or higher [Table 1].

Table 1: Critical appraisal results of eligible studies in this study on client satisfaction with antenatal care (ANC) services among family planning users in Ethiopia, 2022.

Name of author	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Total
Yohannes B *et al.*[20]	Y	Y	Y	Y	Y	Y	Y	Y	Y	9
Gelaw KA *et al.*[22]	Y	Y	Y	N	Y	Y	Y	Y	Y	8
Lakew S *et al.*[21]	Y	Y	Y	Y	Y	Y	N	Y	Y	8
Kebede DB *et al.*[23]	Y	Y	Y	Y	Y	Y	Y	Y	Y	9
Lire T *et al.*[24]	Y	Y	Y	Y	Y	Y	Y	Y	Y	9
Mekonnen N *et al.*[25]	Y	Y	Y	Y	Y	Y	Y	Y	Y	9
Tesfaye T *et al.*[26]	Y	Y	Y	Y	Y	Y	Y	Y	N	8
Melkamu BS *et al.*[27]	Y	Y	Y	U	Y	Y	Y	Y	Y	8
Fantaye C *et al.*[28]	Y	Y	N	Y	Y	Y	Y	Y	Y	8
Tirsit MA *et al.*[29]	Y	Y	Y	Y	Y	Y	Y	Y	Y	9
Fanta A *et al.*[30]	Y	Y	Y	Y	Y	Y	Y	Y	Y	9
Mustefa AH *et al.*[31]	Y	Y	Y	Y	Y	Y	Y	Y	Y	9
Tadese E *et al.*[32]	Y	Y	Y	Y	Y	Y	Y	Y	Y	9
Mequannent MA *et al.*[33]	Y	Y	Y	Y	Y	Y	Y	Y	Y	9
Wassie NM *et al.*[34]	Y	Y	Y	Y	Y	Y	Y	Y	N	8
Amanu AE *et al.*[17]	Y	Y	Y	U	Y	Y	Y	Y	Y	8
Amsalu NY *et al.*[35]	Y	Y	N	Y	Y	Y	Y	Y	Y	8
Hailu GA *et al.*[36]	Y	Y	Y	Y	Y	Y	Y	Y	Y	9
Birhanu S *et al.*[18]	Y	Y	Y	Y	Y	Y	Y	Y	Y	9
Fseha B[19]	Y	Y	Y	Y	Y	Y	Y	Y	Y	9

Y = Yes, N = No, U = Unclear; JBI critical appraisal checklist for studies reporting prevalence data: Q1—was the sample frame appropriate to address the target population? Q2—were study participants sampled appropriately? Q3—was the sample size adequate? Q4—were the study subjects and the setting described in detail? Q5—was the data analysis conducted with sufficient coverage of the identified sample. Q6—were the valid methods used for the identification of the condition? Q7—was the condition measured in a standard, reliable way for all participants? Q8—was there appropriate statistical analysis? Q9—was the response rate adequate, and if not, was the low response rate managed appropriately?

Data Processing and Analysis

Data was extracted using a Microsoft Excel spreadsheet, and the extracted data was analyzed using STATA version 14. To calculate the overall CS with the ANC service in Ethiopia, a Random effects model analysis was used. Publishing bias was examined using a funnel chart through visual assessment. Cochrane Q-Static and I^2 were used to test for study heterogeneity. To compare the estimated status of CS with ANC in the region, we performed a subgroup analysis. A pooled prevalence was presented in a forest pilot format with 95% CI.

RESULTS

Identification and Characteristics of the Included Studies

One hundred articles were identified in the main electronic databases and other applicable sources were searched between November and December 2022. Of these identified articles, 55 were deleted due to duplication and 45 were reserved for a more in-depth review. Twenty-three studies were excluded because the abstracts and titles did not meet the requirements. Of the remaining 32 articles, 12 studies were excluded because they did not meet the inclusion criteria defined for this review. Finally, 20 studies that met the eligibility criteria were included in this review [Figure 1].

A total of 20 articles with 8447 participants were included in this systematic review. All inclusion studies were cross-sectional and sample sizes ranged from 265[29] to 810.[27] Regarding the regional distribution of the included studies, six studies were performed in the Oromia region;[27–31,35] four in the Amhara region;[17,32–34] one each in Harare,[18] Addis Ababa,[36] Tigray,[19] Sidama;[26] and six in the Southern Region of Nations, Peoples and Peoples (SNNPR)[20–25] [Table 2].

Prevalence of Client Satisfaction with Antenatal Care Services

Among the included studies, the prevalence of CS with ANC ranged from 21.5%[25] to 89%.[36] The estimated pooled

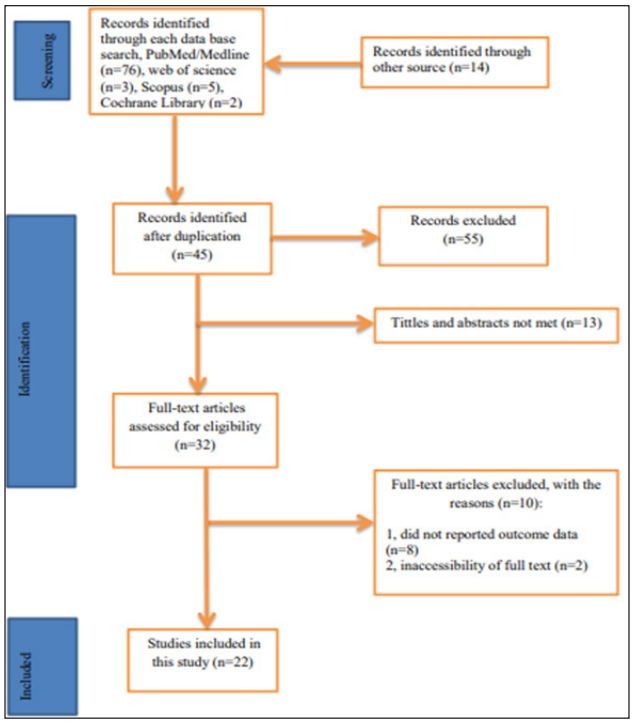

Figure 1: Preferred reporting items for systematic reviews and meta-analyses (PRISMA) flow chart of study selection for systematic review of customer satisfaction with antenatal care Services among its users in Ethiopia, 2022.

prevalence of CS with ANC service among attendants in Ethiopia was 60.42% (95% CI [51.33.99, 69.51]; $I^2 = 98.9\%$, $P \leq 0.001$) [Figure 2].

Subgroup Analysis of CS with Antenatal Care Services

In the subgroup analysis performed in each region, the highest prevalence of CS was observed in Tigray with a value of 83.9% (95% CI: 79.63%, 88.17), followed by Oromia 66.4% (95% CI: 55.6, 77.17). The lowest value was observed in the Sidama region at 33.00% (95% CI: 27.59, 38.41) [Figure 3].

Heterogeneity and Publication Bias

To minimize and adjust the heterogeneity of the study, we carried out a subgroup analysis depending on the region. The I^2 test results indicate that there was considerable heterogeneity in the study ($I^2 = 98.9\%$, $P \leq 0.001$). The existence of publication bias in the studies was observed by Egger's test and visual inspection of a funnel plot. The result of the funnel plot showed that the selected studies had symmetric distribution by inspection [Figure 4] and Egger's test ($P = 0.534$). This showed that there was no potential bias.

Table 2: Study characteristics included in the systematic review of client satisfaction (CS) with antenatal care (ANC) in Ethiopia.

No	Authors name	Year	Region	Study area	Study design	Sample	Prevalence
1	Yohannes B *et al.*	2013	SNNPR	Woliata zone	Cross-section	363	83
2	Gelaw KA *et al.*	2018	SNNPR	Wolaita	Cross-sectional	387	64.10
3	Lakew S *et al.*	2018	SNNPR	Arbaminch	Cross-sectional	405	68.00
4	Kebede DB *et al.*	2020	SNNPR	Hosanna	Cross-sectional	325	74.00
5	Lire T *et al.*	2021	SNNPR	Hawassa	Cross-sectional	422	79.20
6	Mekonnen N *et al.*	2017	SNNPR	Gofa	Cross-sectional	423	21.50
7	Tesfaye T *et al.*	2017	Sidama	Sidama	Cross-sectional	290	33.00
8	Melkamu BS *et al.*	2019	Oromia	Guji	Cross-sectional	810	66.00
9	Fantaye C *et al.*	2014	Oromia	Jimma	Cross-sectional	389	60.40
10	Tirsi .MA *et al.*	2015	Oromia	Jimma	Cross-sectional	265	69.50
11	Fanta A *et al.*	2020	Oromia	Jimma	Cross-sectional	358	58.10
12	Mustefa AH *et al.*	2022	Oromia	Arsi	Cross-sectional	366	55.00
13	Tadese E *et al.*	2013	Amhara	Bahirdar	Cross-sectional	369	52.30
14	Mequannent MA *et al.*	2021	Amhara	Debre Tabor	Cross-sectional	405	53.80
15	Wassie NM *et al.*	2018	Amhara	DebreBerhan	Cross-sectional	356	63.90
16	Amanu AE *et al.*	2020	Amhara	Gojjam	Cross-sectional	795	30.30
17	Amsalu NY *et al.*	2013	Oromia	Ambo	Cross-sectional	288	89.00
18	Hailu GA *et al.*	2022	Addis Ababa	Addis Ababa	Cross-sectional	616	33.00
19	Birhanu S *et al.*	2020	Harare	Harare	Cross-sectional	531	70.30
20	Fseha B	2019	Tigray	Shire	Cross-sectional	284	83.90

SNNPR: Southern Nations, Nationalities, and Peoples' Region.

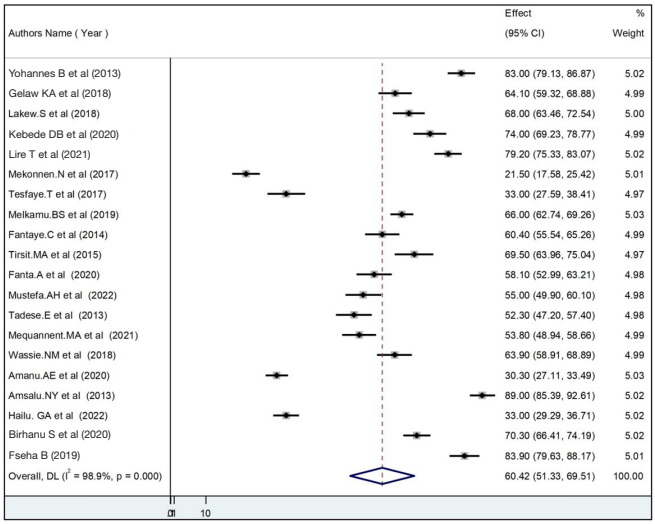

Figure 2: Forest plot showing the pooled prevalence of customer services with antenatal care service in Ethiopia (n = 8447).

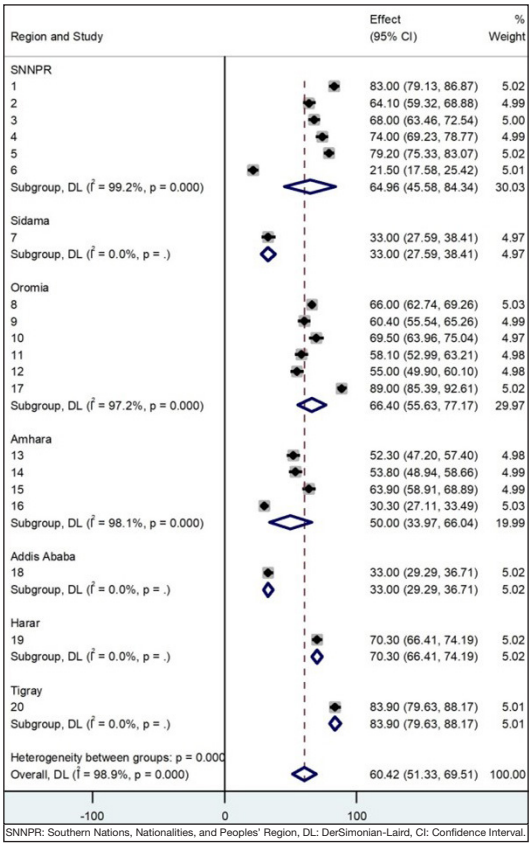

Figure 3: Subgroup analysis of customer service with antenatal care among the women by region in Ethiopia (n = 8447).

Factors Associated with Client Satisfaction

According to this review, three variables (ANC follow-up, last planned pregnancy, iron and folic acid supplementation) were significantly associated with CS with ANC, while educational status (nurse p = 0.706) and waiting time (p = 0.111) were not significantly associated [Table 3].

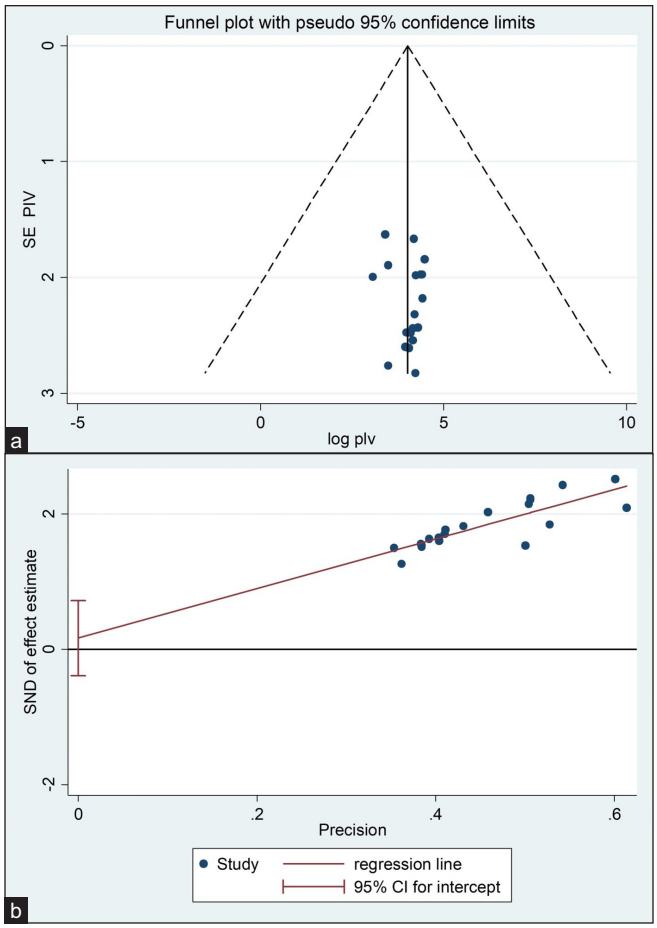

Figure 4: (a) Funnel plot and (b) Egger's test of the study. SND: Standard deviation, SE: Standard error, PIV: Probability of inverse variance, CI: Confidence interval.

DISCUSSION

The review found a pooled value of CS with the ANC service in Ethiopia of 60.42% (95% CI [51.33.99, 69.51]; I2 = 98.9%, P < 0.001). This review is in line with studies done in Ethiopia.[30,34] However, this result was lower than studies done in Nigeria (90%),[14] Kenya (95%),[37] Cameron (96.4%),[38] and Sweden (82%).[15] Results from previous studies suggest that differences in study participant characteristics, quality of prenatal care, policies and strategies, research areas, sampling methods, and sample size of participants could be cause for the discrepancy.[20–25] Additionally, tools to quantify CS levels, untrained staff, and poor job satisfaction among healthcare providers also contribute to low customer satisfaction in Ethiopia.[30–32]

Studies carried out in Egypt (41.1%),[16] and Uganda (40%)[12] showed lower results than the current review. This could be a sign that Ethiopia's health sector development program is

Table 3: Factors associated with client satisfaction (CS) with antenatal care (ANC) of the systematic review and meta-analysis in Ethiopia.

Factors	OR	CI	I^2	P-value	Significance level
Previous ANC follow up (yes/no)	4.35	1.9, 9.93	84.1%	0.000	Significant
Iron and folic acid supplementation (yes/no)	6.76	3.6, 12.6	65.8%	0.005	Significant
Last pregnancy planned (yes/no)	0.66	0.35, 0.97	78.7%	0.009	Significant
Waiting time(>30')	4.16	0.96, 18	54.5%	0.111	Nonsignificant
Educational level (illiterate versus literate)	2.7	1.42, 3.98	0.00%	0.704	Nonsignificant

OR: Odds' ratio, CI: Confidence interval.

raising the standard of medical care, which might explain why people there are comparatively more satisfied. Furthermore, the estimates in this review were based on 20 Ethiopian studies with variable reports (with low and high prevalence) as compared to just one report (not a pooled prevalence) from Uganda and Egypt. So, this could explain why the report increased and Ethiopian women are more satisfied than those of the two nations.

In terms of subgroup analysis, Tigray had the highest incidence of CS with ANC, while Sidama had the lowest values. Different standards of care, varying compassionate and respectful mothercare methods, or provider experiences could all be contributing factors to this variance. Moreover, the high frequency of a single research review may be the cause of the highest value in the Tigray region. Our review also showed a lower value in the remaining regions. This may be because research from these regions that had varying prevalence (greater and lower) was included in the review. To improve women's satisfaction with ANC, those regions that have a low prevalence of the level of women's satisfaction need strong and immediate actions.

This review identified three variables as predictors of CS with ANC. Those who had previous ANC follow-ups were 4.35 times more likely to be satisfied with ANC compared to their opposite group. This finding was consistent with previous studies.[12,20,33] This could be due to the increasing awareness of pregnant women through repeated contact with the ANC. Repeated ANC fulfills the client's needs and also increases the effectiveness of the response. Additionally, it facilitates women's knowledge about pregnancy-related complications and the advantages of the ANC service. Therefore, this increases women's satisfaction with ANC service and increases client flow.[16,24,33]

According to this review, iron and folic acid supplementation in CS was statistically significant. Pregnant women who received iron and folic acid supplementation were more likely to be satisfied with their ANC services. This review was supported by findings from Ethiopia.[31] All healthcare services from health institutions are expected to produce positive outcomes and improve service user satisfaction. When women receive iron and folic acid supplementation, they may feel that they are getting some benefit from the service and are more satisfied with the ANC service. The provision of women with these micronutrients has positive results on maternal and fetal health. This means that all women should use these micronutrients and be happy with ANC services.

Last but not least, the last planned pregnancy was significantly associated with CS with ANC. Unplanned women were significantly less likely to be satisfied with the ANC services provided. The results of previous studies were consistent with this review.[28] This is because women may be overly sensitive to privacy and confidentiality due to the potential stigma associated with out-of-wedlock pregnancies. In addition, women with unplanned pregnancies have more unstable relationships than those with planned pregnancies.

Limitations

This review has certain limitations: It included only cross-sectional studies that did not assess cause-and-effect analysis, bias could exist because the search was only in English, the primary studies in this review did not include all ten regions, and the majority of included studies relate to specific regions of the country, which can make it difficult to generalize results for all regions in Ethiopia.

CONCLUSION AND GLOBAL HEALTH IMPLICATIONS

In the world, there is unacceptably high maternal mortality. To reduce maternal mortality, different countries have taken various measures, such as high-quality ANC, skilled delivery care, postnatal care, postabortion care, and family planning. Among these prevention strategies, the appropriate ANC has its own contribution to prevent maternal and perinatal mortality and morbidity. Conducting a systematic review of women's satisfaction with ANC can help Ethiopia and developing countries develop policies and strategies that are essential to prevent maternal mortality related to poor ANC care. This review found that 60% of study participants were satisfied with the ANC services provided in Ethiopia. Therefore, for the Ethiopian government, especially the Ministry of Health, ongoing supervision, monitoring, and

evaluation of the quality of ANC are strongly recommended. When the client receives ANC, we also highly recommend that the healthcare professional routinely assess the client's needs and expectations. It is strongly recommended to increase women's awareness of the benefits of ANC follow-up and planned pregnancies and provide them with adequate iron and folic acid tablets to improve predictors of CS.

Key messages

This review found that four in ten Ethiopian women were dissatisfied with the ANC they received. This reduces client flow to the ANC service and results in high maternal and perinatal mortality and morbidity.

- Previous ANC follow-up, iron and folic acid supplementation, and the last planned pregnancy significantly affect CS. Recognition of identified factors that affect maternal satisfaction with ANC is also important to enhance CS with ANC among women. Therefore, the Ethiopian government should have a policy and strategy to improve the poor satisfaction of the ANC among women.

Acknowledgments

None.

COMPLIANCE WITH ETHICAL STANDARDS

Conflicts of Interest

The authors declare that they have no competing interests.

Financial Disclosure

Nothing to declare.

Funding/Support

No funding was received.

Ethics Approval

Not applicable.

Declaration of Patient Consent

Not applicable.

Use of Artificial Intelligence (AI)-Assisted Technology for Manuscript Preparation

The authors confirm that there was no use of AI-assisted technology for assisting in the writing or editing of the manuscript and no images were manipulated using AI.

Disclaimer

None.

Availability of Data and Materials

The datasets generated and/or analyzed during this study are not publicly available to prevent any kind of misuse by the public before publication, but are available from the corresponding author upon reasonable request.

Consent for Publication

Not applicable.

REFERENCES

1 Maternal Health Task Force. Antenatal care. (2020). [Accessed on 2023 January 2]. Available from: https://www.mhtf.org/topics/antenatal-care/
2 Lambon-Quayefio MP, Owoo NS. Examining the influence of antenatal care visits and skilled delivery on neonatal deaths in Ghana. Appl Health Econ Health Policy. 2014 Oct;12(5):511–22.
3 World Health Organization (WHO). WHO recommendations on antenatal care for a positive pregnancy experience, 2016. [Accessed on 2023 January 2]. Available from: file:///C:/Users/user/Downloads/9789241549912-eng.pdf
4 Singh A, Pallikadavath S, Ram F, Alagarajan M. Do antenatal care interventions improve neonatal survival in India? Health Policy Plan. 2014 Oct;29(7):842–8.
5 Wondemagegn AT, Alebel A, Tesema C, Abie W. The effect of antenatal care follow-up on neonatal health outcomes: A systematic review and meta-analysis, Public Health Rev. 2018 Dec 17;39:33.
6 Geltore TE, Anore DL. The impact of antenatal care in maternal and perinatal health, empower. Midwives obstet. Nurses. 2021;107.
7 Nwaeze IL, Enabor OO, Oluwasola TA, Aimakhu CO. Perception and satisfaction with quality of antenatal care services among pregnant women at the university college hospital, Ibadan, Nigeria. Ann Ib Postgrad Med. 2013 Jun;11(1):22–8.
8 Emelumadu OF, Onyeonoro UU, Ukegbu AU, Ezeama NN, Ifeadike CO, Okezie OK. Perception of quality of maternal healthcare services among women utilising antenatal services in selected primary health facilities in Anambra State, Southeast Nigeria. Niger Med J. 2014 Mar;55(2):148–55.
9 Abebaw E, Reta A, Kibret GD, Wagnew F. Incidence and predictors of mortality among preterm neonates admitted to the neonatal intensive care unit at Debre Markos referral hospital, Northwest Ethiopia. Ethiop J Health Sci. 2021 Sep;31(5):937–46.
10 Linder-Pelz S. Social psychological determinants of patient satisfaction: A test of five hypotheses. Soc Sci Med. 1982;16(5):583–9.
11 Asadi-Lari M, Tamburini M, Gray D. Patients' needs, satisfaction, and health related quality of life: towards a

comprehensive model. Health Qual Life Outcomes. 2004 Jun 29;2:32.
12 Tetui M, Ekirapa EK, Bua J, Mutebi A, Tweheyo R, Waiswa P. Quality of antenatal care services in eastern Uganda: Implications for interventions. Pan Afr Med. J 2012;13:27.
13 Ghobashi M, Khandekar R. Satisfaction among expectant mothers with antenatal care services in the Musandam region of Oman. Sultan Qaboos Univ Med J. 2008 Nov;8(3):325–32..
14 Onyeajam DJ, Xirasagar S, Khan MM, Hardin JW, Odutolu O. Antenatal care satisfaction in a developing country: A cross-sectional study from Nigeria. BMC Public Health. 2018 Mar 20;18(1):368.
15 Hildingsson I, Rådestad I. Swedish women's satisfaction with medical and emotional aspects of antenatal care. J Adv Nurs. 2005 Nov;52(3):239–49.
16 Ismail NI, Essa RM. Pregnant women's satisfaction with the quality of antenatal care at maternal and child health centers in El-Beheira Governorate, Int Ther J. 2017;14:15.
17 Emiru AA, Alene GD, Debelew GT. Women's satisfaction with the quality of antenatal care services rendered at public health facilities in Northwest Ethiopia: The application of partial proportional odds model. BMJ Open. 2020 Sep 17;10(9):e037085.
18 Birhanu S, Demena M, Baye Y, Desalew A, Dawud B, Egata G. Pregnant women's satisfaction with antenatal care services and its associated factors at public health facilities in the Harari region, Eastern Ethiopia. SAGE Open Med. 2020 Nov 20;8:2050312120973480.
19 Fseha B. Assessment of mothers level of satisfaction with antenatal care services provided at Alganesh health center shire, North West Tigray, Ethiopia. Biomed J Sci Tech Res. 2019;16(1):11798–802.
20 Yohannes B, Tarekegn M, Paulos W. Mothers' utilization of antenatal care and their satisfaction with delivery services in selected public health facilities of Wolaita Zone, Southern Ethiopia, Int J Sci Technol Res. 2013;2(2):74.
21 Lakew S, Ankala A, Jemal F. Determinants of client satisfaction to skilled antenatal care services at Southwest of Ethiopia: A cross-sectional facility based survey," BMC Pregnancy Childbirth. 2018 Dec 6;18(1):479.
22 Gelaw KA, Gebeyehu NA. Maternal satisfaction and associated factors among pregnant women attended at antenatal care service in Bedessa health center, Wolaita Zone, Ethiopia. Sci Res. 2020;8(2):39–44.
23 Kebede DB, Belachew YB, Selbana DW, Gizaw AB. Maternal satisfaction with antenatal care and associated factors among pregnant women in Hossana town. Int J Reprod Med. 2020 Jul 28;2020:2156347.
24 Lire T, Megerssa B, Asefa Y. Antenatal care service satisfaction and its associated factors among pregnant women in public health centres in Hawassa city. Southern Ethiopia. Proc Singapore Healthc. 2022;31:20101058211007880.
25 Mekonnen N, Berheto TM, Ololo S, Tafese F. Quality of antenatal care services in Demba Gofa Woreda, Gamo Gofa Zone, Rural Ethiopia. Heal Sci J. 2017;11(3).
26 Tesfaye T, Mekonnen H, Negesa L. Maternal antenatal care service satisfaction and factors associated with rural health centers, Bursa District, Sidama Zone, Southern Ethiopia: A cross-sectional study. J Women's Heal Care. 2017;6(363):4–20.
27 Melkamu S, Hotessa D, Damene D. Determinants of focused antenatal care service satisfaction in public health facilities in Ethiopia 2018: A mixed study design. J Public Heal. Epidemiol. 2019;11(8):158–69.
28 Fantaye C, Fessahaye A, Desta W. Satisfaction with focused antenatal care service and associated factors among pregnant women attending focused antenatal care at health centers in Jimma town, Jimma zone, South West Ethiopia: A facility based cross-sectional study triang. BMC Research Notes. 2014;7:164. [Accessed 2023 Nov 01]. Available from: http://www.biomedcentral.com/1756-0500/7/164
29 Tirist A, SalgedoWB, Bayou NB. Evaluation of the quality of antenatal care (ANC) service at higher 2 health center in Jimma, South West Ethiopia. Open Access Library Journal. 2015;2:e1398.
30 Fanta A, Gudina F, Abonesh T. Quality of antenatal care at Jimma medical center south west Ethiopia. *Ethiop J Health Sci*. 2020 January;12(1).
31 Mustefa AH, Bekelu TW. Quality of antenatal care service and factors associated with client satisfaction at public health facilities of Bele Gasgar District. J Patient Exp. 2022 Mar 2;9:23743735221083163.
32 Tadese E, Mirkuzie W, Yibeltal K. Quality of antenatal care services at public health facilities of Bahir-Dar special zone, Northwest Ethiopia. BMC Health Serv Res. 2013 Oct 26;13:443.
33 Ayalew MM, Nebeb GT, Bizuneh MM, Dagne A. Women's satisfaction and its associated factors with antenatal care services at public health facilities: A cross-sectional study. Int J Womens Health. 2021 Mar 1;13:279–86.
34 Wassie NM, Kokebe KA. Quality of antenatal care service at Debre Berhan referral hospital. *J Clin. Diagn Res*. 2018 June;12(6):IC01–5.
35 Amsalu NY, Mitsiwat AG, Eshetu EC. Assessment of quality of antenatal care (ANC) service provision among pregnant women in Ambo town public health institution, Ambo, Ethiopia. Am J Nurs Sci. 2013.
36 Hailu GA, Weret ZS, Adasho ZA, Eshete BM. Quality of antenatal care and associated factors in public health centers in Addis Ababa, Ethiopia, a cross-sectional study. PLoS One. 2022 Jun 10;17(6):e0269710.
37 Vo BN, Cohen CR, Smith RM, Bukusi EA, Onono MA, Schwartz K, *et al*. Patient satisfaction with integrated HIV and antenatal care services in rural Kenya. AIDS Care. 2012;24(11):1442–7.
38 Edie G, Obinchemti TE, Tamufor EN, Njie MM, Njamen TN, Achidi EA. Perceptions of antenatal care services by pregnant women attending government health centres in the Buea Health District, Cameroon: A cross sectional study. Pan Afr Med J. 2015 May 21;21:45.

How to cite this article: Geta T, Israel E, Ataro BA. Prevalence and associated factors of client satisfaction with antenatal care services among antenatal care attendants in Ethiopia: A systematic review and meta-analysis. Int J MCH AIDS. 2024;13:e016. doi: 10.25259/IJMA_616