

## PEER REVIEW HISTORY

BMJ Open publishes all reviews undertaken for accepted manuscripts. Reviewers are asked to complete a checklist review form (<http://bmjopen.bmj.com/site/about/resources/checklist.pdf>) and are provided with free text boxes to elaborate on their assessment. These free text comments are reproduced below.

### ARTICLE DETAILS

<b>TITLE (PROVISIONAL)</b>	Early initiation of antenatal care and its associated factors among pregnant women attending antenatal care at public health centers in Bahir Dar Zuria zone, Northwest Ethiopia, 2021: a cross-sectional study
<b>AUTHORS</b>	Ambaye, Eskahun; Regasa, zegeye; Hailiye, Gizaw

### VERSION 1 – REVIEW

<b>REVIEWER</b>	Kumari, Archana All India Institute of Medical Sciences
<b>REVIEW RETURNED</b>	09-Aug-2022

<b>GENERAL COMMENTS</b>	There are several grammatical errors in the manuscript. The introduction can be cut short. It is too lengthy.
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<b>REVIEWER</b>	Alayu, Daniel University of Gondar, Epidemiology and Biostatistics
<b>REVIEW RETURNED</b>	25-Aug-2022

<b>GENERAL COMMENTS</b>	<p>Comments</p> <ul style="list-style-type: none"><li>• Abstract- Act and update it according to comment given below in methods, results and discussion parts</li><li>• Strength and limitation of the study:-<ul style="list-style-type: none"><li>} Including public health facilities found in bahirdar zuriya can't be your strength of the study. Including public health facilities found in your study setting is an expected mere thing.</li><li>} You also did your study purposefully on public health facilities. You could add private facilities too. Leaving your private institutions can't be limitations. I think you did it purposefully</li></ul></li></ul> <p>So, amend strength and limitation of the study</p> <ul style="list-style-type: none"><li>• Methods<ul style="list-style-type: none"><li>} Study area: - You said most health facilities in the city provide ANC services". Is there any health facility by which ANC is not provided in your study settings? I don't think so! If so, you may need to update your exclusion criteria.</li><li>} Data management tool:<ul style="list-style-type: none"><li>: There is a sentence which said "P value&lt; 0.2 will be entered..." Is it a proposal or a final paper? Please update it.</li><li>: What was the result after you did model fitness?</li><li>: Have you assessed multicollinearity? If so, mention it</li><li>: Your analysis parts discussed about only regression analysis. You need to add also what you did about descriptive analysis</li></ul></li></ul></li></ul> <p>Generally your data management tool is too shallow. You need to update it.</p> <ul style="list-style-type: none"><li>• Results<ul style="list-style-type: none"><li>} Your result parts said nothing about your outcome variable. You</li></ul></li></ul>
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	<p>need to write about your outcome variable( may be percentage with its odds ratio. You tried to write the frequency of an outcome in abstract section. But there is nothing in result section. So, update it!!)</p> <ul style="list-style-type: none"> <li>• Discussion <ul style="list-style-type: none"> <li>⌋ In your discussion part, what you wrote about knowledge is not correct. AOR= 0.37</li> <li>You said “Pregnant women who had knowledge on early initiation of first ANC were 0.37 times more likely to initiate early as compared to their counterparts”.</li> <li>Primary write it in correct ways. Next, these result shows Knowledge is preventive (those who are knowledgeable are less likely to initiate first ANC). So, your interpretation and your comparisons are wrong!! (NB: Tables four of your result classify knowledge before 16 weeks and after 16 weeks. In discussion you discuss those who had knowledge with that of who hadn’t. So, it is inconsistent!!).</li> <li>These are a major error. You need to revise it once again and make it consistent with your result sections.</li> <li>⌋ If knowledge are really preventive, you need to have a strong justifications</li> </ul> </li> <li>• Conclusions and recommendation <ul style="list-style-type: none"> <li>⌋ If you didn’t update what you wrote about knowledge, you may still need to update your recommendations too.</li> <li>⌋ Awareness is not a significant factor. So, why information dissemination is needed? Your recommendations should be in line with your result sections.</li> </ul> </li> </ul>
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<b>REVIEWER</b>	Tizazu, Getaye College of Health Science Debre Markos University Debre Markos, Department of Health Informatics
<b>REVIEW RETURNED</b>	29-Aug-2022

<b>GENERAL COMMENTS</b>	<p>Review Report Title - Early Initiation of Antenatal Care and Factors Associated with Early Antenatal Care Initiation at public Health Facilities in resource-limited setting, 2021. Reviewer – Getaye Tizazu Reviewer’s Report Dear journal editors, thanks to you to invite me to review this article. I provide my comments and suggestions section by section to be corrected in the next version of this article General comments First of all, I would like to give my appreciation to the authors who have been involved in this interesting article which will contribute to promoting maternal and infant health. To achieve its objectives you need to correct the comments and suggestions provided below accordingly. Language - the authors should read the manuscript intensively and correct all grammatical and spelling errors Level of interest – the article have importance in the field of study. Specific comments and suggestions Comments Title 1. To make your title specific and clear avoid the redundant phrase “early initiation ....” 2. Include study design and area 3. Remove resource-limited setting Abstract</p>
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	<p>1. Correct t grammatical errors like antenatal care services are.....and.....</p> <p>2. In the result section, the confidence interval for proportion should be included</p> <p>3. In the conclusion and recommendation section, you need to specify for whom you recommend.</p> <p>4. In the strength and limitation study unable to include private health facilities couldn't be a limitation. If they are available why not include them?</p> <p>Introduction</p> <p>1. Your reference should be updated eg. Page 2 Line 26-27 WHO ANC recommendation 4 ANC visits</p> <p>2. Read the manuscript again and correct punctual and grammar errors eg. Page 3 Line 25</p> <p>3. Remove the objective "know information gaps on early initiation of ANC service" because the result didn't answer this objective on page 3 line 35.</p> <p>Method</p> <p>1. Write G.C rather than Gorgonians Calendar</p> <p>2. Use Bahidar zuia special zone consistently if Bahirdar city and Bahirdar zuria special zone are the same administrative structure</p> <p>3. Grammatical errors should be corrected eg. Page 3; line 55 to page 4; line 5.</p> <p>4. It is better to categorize independent variables in to socio demographic factors and obstetrics related factors</p> <p>5. Put Sampling technique and procedures next to sample size determination section.</p> <p>6. Remove "pretest was done in a public health centers is not selected for the study "from data collection tools and methods because it is also described in data quality assurance.</p> <p>7. Make clear the exclusion criteria</p> <p>8. Give operational definition for danger signs and minor disorder</p> <p>Result</p> <p>1. It sounds if you write your descriptive results in two sections namely socio-demographic and obstetric characteristics.</p> <p>2. Write full text rather than using standard abbreviation example Px page 9; line 30</p> <p>3. It is better classify age as &lt; 20 , 20-34 and &gt;=35 years</p> <p>Discussion</p> <p>1. All signs should be discussed – like gravida and family size</p> <p>2. The Authors should specify the stakeholders they recommend</p> <p>3. The authors need to review recent literature and discuss findings with them</p> <p>Suggestions those require clarification</p> <p>Abstract</p> <p>1. Knowledge on early initiation of 1st ANC (AOR= 1.7, 95%CI; 1.14-2.55) in abstract and (AOR =0.37,95%CI;0.27-0.5) in the result part what makes this to be different?</p> <p>Introduction</p> <p>1. Have you reviewed similar articles on the timing of ANC? If so what gap did you find and add for?</p> <p>2. WHO's 2016 ANC model recommends that pregnant mothers should start their ANC visit within 12 weeks of gestation, but you take up to 16 weeks as a recommended time of initiation. What is your reason?</p> <p>Methods</p> <p>1. Are health extension workers working in health centers?</p> <p>2. Why you didn't include parity as a predictor variable?</p>
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	<p>3. You classify knowledge as &lt;16 wks and &gt;= 16wks, what does this classification tell the reader?</p> <p>4. Do you calculate the sample size for the second objective?</p> <p>5. What is the scientific rationale for the use of design effect since your sampling technique was systematic random sampling?</p> <p>6. How to measure knowledge and awareness (page 4; line 27, and be free of pain (page 4; line 30?</p> <p>Ethical issue Why you don't take consent from the client you collect data?</p> <p>Result /discussion 1. Why the number of participants doesn't match with the sample size n=592 example for variable distance to the health center (page 8; lines 45-46)? 2. What does the variable Knowledge on early initiation of first ANC &lt;16wks and &gt;=16wks mean?</p>
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<b>REVIEWER</b>	Demeke , Nebyu University of Gondar
<b>REVIEW RETURNED</b>	05-Sep-2022

<b>GENERAL COMMENTS</b>	<p>Generally, the papers need thorough English language edition. As the study excluded multiple health facilities like hospitals it will not be representative of the whole area rather to those only from health centers. Thus, the term "health center" should be mentioned in the title.</p> <p>Abstract. Is 592 the sample size or the participant number? Clarify it. You should only put the sample size in the method section not the number of participants. "Participated on the study." Should be removed from methods section. The method section in the abstract lack information on sampling procedure, study area and the health facilities involved... Results: It should rather start with the response rate and some pertinent characteristics of the participants. Conclusion: do not restate you finding but conclude your results. "More than half" is a result not a conclusion.</p> <p>Strength and limitation Since you have excluded number of health facilities, I do not believe being representativeness is your strong point. Isn't recall bias one of your limitations?</p> <p>Introduction Please define EDHS at first use. Generally, the introduction has relevant information but could have better if written with more coherence and flow.</p> <p>Method "11629 pregnancies is expected in 2020 Gregorian calendar" why expected? The date has already passed. The sections about population inclusion and exclusion criteria can be merged into one section. As the flow of pregnant women across the five health centers is will not be the same, the calculation of "N" should have been for each health center then the sample should have been proportionally allotted to each health center. The use of design effect was appropriate but why only 1.5?</p>
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	<p>You do not need to define ANC in the methods, it has already been discussed in your introduction.</p> <p>If pretest was conducted, please elaborate more on where it was conducted? What the goal was? How the researchers used it to improve the questionnaire?</p> <p>“semi structured questionnaire” if this was the case what analysis was used to address open ended questions? Is there a qualitative component included in the study?</p> <p>The measurement of gestational age was not clearly described. Did the authors use ultrasound images? Or did they only use self-reported late menstrual period claims?</p> <p>How did you measure knowledge about ANC? Since it is one of the significant variables it should be mentioned clearly.</p> <p>Ethical consideration</p> <p>This study involves human subjects but no information was provided on the consent of the study participants.</p> <p>Results</p> <p>The interpretation of odds ratio needs revision. The keyword “the odds of” should be used rather than “more likely”.</p> <p>Discussion</p> <p>Possible explanations must be cited.</p> <p>Conclusion</p> <p>The conclusion should put the result in light of what is known but the authors put the result as is.</p> <p>References</p> <p>Reference number 2 is not complete.</p>
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### VERSION 1 – AUTHOR RESPONSE

For reviewer 1

We accept all of your comments and revised the article accordingly

- the grammatical error (revised)

For reviewer 2

- Abstract
  - o Revised according to the journal format
- On strength and limitation section
  - o Based on comment provided, only methodological limitation highlighted under this section
- On method section we included
  - o Model fitness result and
  - o Multicollinearity, on the main document based on your comments
  - o Data management section also revised
- Result section
  - o Descriptive values added on outcome variables based on your comment and revised accordingly
- Discussion
  - o what we wrote about knowledge on ANC initiation time was revised based on your suggestion
- conclusion
  - o updated accordingly

For reviewer 3

- Title section
  - o Revised by including study area and design

- Abstract section
  - o We accept all of your comments and revised the Abstract section accordingly
- Introduction
  - o The introduction part also updated accordingly
  - ♣ 4 ANC visit to 8 visit
  - ♣ Grammatical error on page 3 line 25
- Method
  - o Are HEW work on health facility?
  - ♣ No, HEW works at community level (household ) and health post
  - o Parity was included on the questioner but it was not significant to add in multivariable analysis.
  - o Sample size was calculated for both proportion and factors and the highest was used
  - o Scientific rationale to use design effect ?
  - ♣ Design effect is a constant that can be used to correct estimated sampling variance. Most statistical tests have been developed under the assumption that the data has been collected by Simple Random Sampling . But in our case we used systematic random sampling so to overcome sampling error we use design effect.
  - o How to measure knowledge and awareness?
  - ♣ knowledge on time to initiate ANC were asked through the questioners to know did the women know exact time to initiate ANC and classified as has knowledge and has no knowledge
- o Result
  - ♣ Variable “distance to health center by foot” is not match with the total study participant, because this questions was for participant who didn’t use any transportation like car/bajaj etc.....and travel by their foot to health centers
  - ♣ Knowledge on early initiation of first ANC :-revised and updated on main document
- For review 4
- Title
  - o The Term “health center ” added to the title section based on the comment
- Abstract
  - o 592 is number of participants:- A total of 592 mothers were interviewed for the study
  - o 610 total sample size
  - o Updated based on comment provided
- Strength and limitation
  - o Revised and updated based on the comments
- Introduction
  - o Revised and updated based on the comments
- Methods
  - o Design effect 1.5?
  - ♣ In many situations the correct design effect is difficult to computed, because it is too complicated. Design effect is a constant that can be used to correct estimated sampling variance. Since we didn’t use cluster sampling 1.5 design effect is enough to approximate variance difference between simple random sampling and systematic random sampling (which we used)
  - o Pre-test were conducted in Bahir dar health center
  - ♣ Reason to conduct the pretest:-to assess the validity of the questionnaire to check clarity of questions, ambiguity, arrangement of questions, order & options for the questions and skipping pattern accordingly
  - o There was no open ended questions and there was no qualitative data
  - o Gestational age data was taken from ultrasound results
  - ♣ knowledge and awareness on time to initiate ANC were asked through the questioners to know did the women know exact time to initiate ANC and classified as has knowledge and has no knowledge
- Ethical consideration
  - o Comment accepted and updated accordingly

- Result ,conclusion and discussion
- o Comment accepted and updated accordingly

### VERSION 2 – REVIEW

<b>REVIEWER</b>	Tizazu, Getaye College of Health Science Debre Markos University Debre Markos, Department of Health Informatics
<b>REVIEW RETURNED</b>	09-Nov-2022

<b>GENERAL COMMENTS</b>	<p>Dear authors, I appreciate your effort in this article and correct the comments in the next version. Hope you will respond for the following comments accordingly;</p> <ol style="list-style-type: none"> <li>1. Read the whole manuscript carefully and correct grammatical errors</li> <li>2. Remove inconsistency Bahirda zuria special zone vs bahirdar city</li> <li>3. Read the age classification and correct it in table 1</li> <li>4. Remove unstandardized abbreviations such as Px table 4</li> <li>5. Include discussion for gravida and family size</li> <li>6. Since HEW are not the staff of the health center, remove them</li> <li>7. Brief why you don't take consent from participants</li> <li>8. Means of transportation, on foot 270 times to reach HC on foot measured by participant 198. make it clear. See the husband's education and cost of transport as well.</li> </ol> <p>Thanks</p>
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### VERSION 2 – AUTHOR RESPONSE

Reviewer 3

All comments are accepted and revised accordingly

- Participant consent is added under ethical consideration section.

### VERSION 3 – REVIEW

<b>REVIEWER</b>	Tizazu, Getaye College of Health Science Debre Markos University Debre Markos, Department of Health Informatics
<b>REVIEW RETURNED</b>	30-Dec-2022

<b>GENERAL COMMENTS</b>	I would like to express my appreciation to authors responding for comments throughout a review of this article in addition to conducting the study. To the best of my knowledge, the manuscript could be eligible for publication. Thanks.
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