

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

TITLE (PROVISIONAL)	Prevalence and determinants of pregnancy termination in Ethiopia: A systematic review and meta-analysis
AUTHORS	Kumsa, Henok; Mislu, Esuyawkal; Arage, Mulugeta; Kidie, Atitegeb; Hailu, Tilahun; Tenaw, Lebeza

VERSION 1 – REVIEW

REVIEWER	Pillai, Vijayan University of Texas-Arlington
REVIEW RETURNED	22-May-2023

GENERAL COMMENTS	<p>The technical aspects of meta-analysis conducted have been well and I congratulate the authors of this study. On a critical note, I would add that the inclusion of multiple studies with varying methodologies, settings, and populations can introduce heterogeneity. It may be argued that combining such diverse studies may compromise the validity and accuracy of the pooled estimates.</p> <p>I would like to point out that there is a limited focus on broader social determinants. Critics might argue that the study's focus on individual-level factors, such as age and education, may neglect the role of broader social determinants of pregnancy termination. Also of poverty, access to healthcare, gender inequality, and social norms which may influence pregnancy termination. However, these criticisms are not to take away from the importance and merits of this study. Also on Table 1, in the last row, column 1, I do not know what 'insecurely house hold' means. The authors may want to take a second look at it.</p>
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REVIEWER	Ba, Djibril Penn State College of Medicine, Department of Public Health Sciences
REVIEW RETURNED	22-Jul-2023

GENERAL COMMENTS	<p>Comments to the author: The systematic review and meta-analysis assessed the prevalence of pregnancy termination in Ethiopia and found that one in five women terminated their pregnancies. Being a student, irregular menstrual bleeding, early initiation of sexual intercourse, and multiple sexual partners were determinants of pregnancy termination in Ethiopia. The paper is interesting and well-structured yet suffers from significant limitations and methodological issues that need to be addressed and corrected before the paper can be accepted for publications.</p> <p>Comments below:</p>
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	<p>Since these mostly cross-sectional studies, I suggest you change the term “predictors” to “determinants”.</p> <p>Consider revising your search timeline from 2004 to July 2024 to include some most recent studies on this topic in SSA including Ethiopia (https://journals.plos.org/globalpublichealth/article?id=10.1371/journal.pgph.0001509)</p> <p>Please provide rationale about including unpublished data and how they were collected.</p> <p>The heterogeneity is very high and consider to perform additional sub-group analyses to identify the source of heterogeneity.</p> <p>Could clarify whether these are spontaneous or induced abortions or the combination of both?</p> <p>Consider to revise the statistical analysis and methods significantly. You are missing some detailed information such as data extraction, how you combine the ORs, how the effect estimates were first log transformed to normalize the distribution. Move Heterogeneity and publication bias into the statistical analysis section.</p> <p>It's not clear how you were able to extra the effects estimate of each determinant from each study?</p> <p>You need a detailed Table with study authors, sample sizes, and type of study etc...</p>
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VERSION 1 – AUTHOR RESPONSE

Response to Reviewer 1

Title of the research article: Prevalence and predictors of pregnancy termination in Ethiopia: A systematic review and meta-analysis

Dear Reviewer,

Thank you for providing your comments and suggestions to further develop our manuscript. We have carefully considered each of your points and have made the necessary revisions, resulting in a significant improvement in the quality of the manuscript. Please find our detailed response to each point below.

#Comments

Comment	Responses
<p>The technical aspects of meta -analysis are conducted have been conducted well and I congratulate the authors of this study. On a critical note, I would add that the inclusion of multiple studies with varying methodologies, settings, and populations can introduce heterogeneity. It may be argues that combining such diverse studies may compromise the validity and accuracy of the pooled estimates.</p> <p>I would like to point out that there is a limited focus on broader social determinants. Critics might argue that the study's focus on individual-level factors, such as age and , education may neglect the role of broader social determinants of pregnancy termination. Also of poverty, access to healthcare, gender inequality, and social norms</p>	<p>Thank you for reviewing our manuscript.</p> <p>We understand your concern regarding to heterogeneity. We tried to minimize the heterogeneity through subgroup analysis based on the region (state), publication year, and study population.</p> <p>We would like to apologize for typo error</p>

which may influence pregnancy termination. However, these criticisms are not to take away from the importance and merits of this study. Also on Table 1, in the last row, column 1, I do not know what ‘insecurely house hold ‘ means. The authors may want to take a second look at it.	It is “Insecurely hosed women” and it means women who live or spend their time on the street.
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Response to Reviewer 2

Title of the research article: Prevalence and predictors of pregnancy termination in Ethiopia: A systematic review and meta-analysis

Dear Reviewer,

Thank you for providing your comments and suggestions to further develop our manuscript. We have carefully considered each of your points and have made the necessary revisions, resulting in a significant improvement in the quality of the manuscript. Please find our detailed response to each point below.

#Comments

Comment	Responses
Since these mostly cross-sectional studies, I suggest you change the term “predictors” to “determinants”.	Thank you for reviewing our manuscript. We accepted the comment and revised the manuscript accordingly.
Consider revising your search timeline from 2004 to July 2024 to include some most recent studies on this topic in SSA including Ethiopia	Thank you for your comment. Mentioned study was used Ethiopian Demographic and Health Survey of 2016 to determine the prevalence and factors. The article below also used similar data and study population to determine the prevalence and factors. Tesema GA, Mekonnen TH, Teshale AB. Spatial distribution and determinants of abortion among reproductive age women in Ethiopia, evidence from Ethiopian Demographic and Health Survey 2016 data: Spatial and mixed-effect analysis. PloS one. 2020;15(6):e0235382. https://doi.org/10.1371/journal.pone.0235382
Please provide rationale about including unpublished data and how they were collected.	Unpublished data were not included in the review.

<p>The heterogeneity is very high and considers to perform additional sub-group analyses to identify the source of heterogeneity.</p>	<p>We understand your concern regarding to heterogeneity. We tried to minimize the heterogeneity through subgroup analysis based on the region (state), publication year, and study population.</p>
<p>Could clarify whether these are spontaneous or induced abortions or the combination of both?</p>	<p>We would like to apologize for the inconvenience. We explained the term definition of our outcome variable as below in the manuscript.</p> <p>In this study, termination of pregnancy is the removal of pregnancy tissue, conception products, or fetus, and placenta from the uterus. The term 'fetus' and 'placenta' is commonly used after eight weeks of pregnancy. Pregnancy tissue and products of conception are the tissues that are produced by the union of an egg and sperm before eight weeks. Terminating a pregnancy is a deliberate action taken by a health professional or the woman herself.</p>
<p>Consider to revise the statistical analysis and methods significantly. You are missing some detailed information such as data extraction, how you combine the ORs, how the effect estimates were first log transformed to normalize the distribution.</p> <p>Move Heterogeneity and publication bias into the statistical analysis section.</p> <p>It's not clear how you were able to extra the effects estimate of each determinant from each study?</p> <p>You need a detailed Table with study authors, sample sizes, and type of study etc...</p>	<p>Thank you, We revised the manuscript accordingly.</p> <p>Heterogeneity and publication bias add to statistical analysis section.</p>

	<p>We extracted determinates from articles with similar control group and classification to estimate the effect.</p> <p>The detail table included the supplementary file.</p>
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VERSION 2 – REVIEW

REVIEWER	Pillai, Vijayan University of Texas-Arlington
REVIEW RETURNED	02-Nov-2023

GENERAL COMMENTS	Please leave your comments for the authors below: This is a well-organized analysis study . Please go over the very first line under the introduction. It needs to be rewritten.
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REVIEWER	Ba, Djibril Penn State College of Medicine, Department of Public Health Sciences
REVIEW RETURNED	29-Oct-2023

GENERAL COMMENTS	Thank you for addressing some of my initials comments. The p-values in your abstract don't agree with the 95% CI. Please double check. The authors also are missing additional recent published paper on this topic. Please do an additional thorough literature search. Please provide a clear justification why this study was not registered. Usually for meta-analyses subgroup analysis shouldn't be used as Table 1. Table with study authors, sample sizes, and type of study etc is usually Table 1. You are still missing You are missing some detailed information such as data extraction, how you combine the ORs, how the effect estimates were first log transformed.
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VERSION 2 – AUTHOR RESPONSE

Response to Reviewer 1

Title of the research article: Prevalence and predictors of pregnancy termination in Ethiopia: A systematic review and meta-analysis

Dear Reviewer,

Thank you for providing your comments and suggestions to further develop our manuscript. We have carefully considered each of your points and have made the necessary revisions, resulting in a significant improvement in the quality of the manuscript. Please find our detailed response to each point below.

#Comments

Comment	Responses
<p>Comments to the Author: Please leave your comments for the authors below: This is a well-organized analysis study .</p> <p>Please go over the very first line under the introduction. It needs to be rewritten.</p>	<p>Thank you.</p> <p>We rewrite in the following way</p> <p>“Pregnancy termination is a sensitive and contentious issue with religious, moral, cultural, and political dimensions.”</p>

Response to Reviewer 2

Title of the research article: Prevalence and predictors of pregnancy termination in Ethiopia: A systematic review and meta-analysis

Dear Reviewer,

Thank you for providing your comments and suggestions to further develop our manuscript. We have carefully considered each of your points and have made the necessary revisions.

#Comments

Comment	Responses
<p>Thank you for addressing some of my initials comments.</p>	<p>Thank you for reviewing our manuscript.</p>
<p>The p-values in your abstract don't agree with the 95% CI. Please double check.</p>	<p>Thank you for your great concern regarding in alignment of p-value and confidence intervals in the forest plot of factors. The p-value generated in the forest plot of factors is not for the effect size. The significance of the effect</p>

	<p>size is measured using the corresponding confidence intervals only.</p> <p>The p-value in the forest plot of factors is used for the assessment of the heterogeneity in addition to the I^2 values. The p-values below 0.05 showed significant heterogeneity and above 0.05 showed insignificant heterogeneity. Therefore, the p-values used for heterogeneity and confidence intervals are for assessment of significance of effect sizes.</p> <p>Both have different and independent functions as displayed in the forest plot so both of them not expected to be inclined together as we mention p-value and confidence intervals in the output have different roles.</p>
<p>The authors also are missing additional recent published paper on this topic. Please do an additional thorough literature search.</p>	<p>Thank you for your comment. We couldn't find additional published article. Previous mentioned article was used similar data with this article.</p> <p>https://doi.org/10.1371/journal.pone.0235382</p>
<p>Please provide a clear justification why this study was not registered.</p>	<p>The main reason is, after we decide and collect the necessary materials for conducting a review on the chosen topic, the second round of conflict in northern Ethiopia erupted, leading to the termination of internet services, thereby preventing us from registering the study as initially planned. Nonetheless, we persevered in writing the manuscript amidst these challenging circumstances.</p>
<p>Usually for meta-analyses subgroup analysis shouldn't be used as Table 1. Table with study authors, sample sizes, and type of study etc is usually Table 1.</p>	<p>Thank you, Yes, but the table is more than two pages. Therefore, the data extraction detail table included the supplementary file</p>
<p>You are still missing. You are missing some detailed information such as data extraction, how you combine the ORs, how the effect estimates were first log transformed.</p>	<p>We would like to apologize for the inconvenience.</p> <p>In “Quality assessment and data extraction” section we included the following paragraph</p> <p>The extraction sheet contains name of authors, study year, publication year, region of study, study design, sample size, prevalence in percentage or proportion, odd ratio of factors,</p>

confidence intervals both the upper and lower bound of each corresponding odds ratio. The odd ratio of each factors are transformed as log (OR). The lower and upper confidence intervals are log transformed as log (upper confidence interval), and log (lower confidence interval). The standard error for the proportion was also created as: Standard error = $\sqrt{\frac{p(1-p)}{n}}$. And then the standard error of the confidence intervals were also estimated using the log transformed upper and lower limits which is calculated as SE= (logUCL-logLCL)/3.92. Finally for pooled prevalence estimation, the proportion and its corresponding standard errors were used. For factors, the log transformed odd ratios and the standard error of their corresponding confidence intervals were used to estimate the effect sizes.