

Determinants of Antenatal Care Service Satisfaction among Women in Ethiopia: A systematic Review and Meta-Analysis

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Systematic Review

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Abstract

Background: Antenatal care service satisfaction is a measure of the degree to which a woman seeking care is happy with the antenatal care service provided to her. It is important to increase woman utilization of antenatal care service and to improve maternal health. Thus, the aim of this study is to identify factors that determine antenatal care service satisfaction in Ethiopia.

Method: PubMed, Hinari, and Google Scholar were systematically searched for eligible studies. The author also conducted gray literature search (e.g., in Google) and hand searched the reference lists of all included studies. All articles reported in the English language irrespective of their duration of publication were included. The Joanna Briggs Institute's (JBI) critical appraisal tools were used to assess the quality of included articles. The Cochrane Q-statistics and I^2 tests were used to assess heterogeneity among included studies. Publication bias was assessed using Egger's tests.

Results: Of the 274 articles identified through systematic search of literatures, 13 studies fulfilling inclusion criteria were included in this meta-analysis. First antenatal care visit (AOR = 0.62 and 95% CI: 0.40, 0.96), women waited <60 min (AOR: 1.87 and 95% CI: 1.40-2.50), women whose privacy was maintained (AOR: 3.91 and 95% CI: 1.97-7.77), women treated respectfully (AOR: 5.07 and 95% CI: 2.34-10.96), and unplanned pregnancies (AOR = 0.28 and 95% CI: 0.10-0.77) were significantly associated with antenatal care service satisfaction.

Conclusion: The study assessed determinants of antenatal care service satisfaction in Ethiopia. First antenatal care visit, waiting time (<60 min) to see care provider, maintenance of privacy, respectful treatment, and pregnancy unplanned were found to be determinants of antenatal care service satisfaction. Counselling a woman to comply with minimum required antenatal care visit and compassionate and respectful maternity care will increase maternal satisfaction with antenatal care service.

Background

Patient satisfaction is a measure of the degree to which a health care seeking client or patient is happy with the care given by the health care provider to them. It is important to define the success of a health care facility (1). A mother's dissatisfaction with the health care service hinders her from receiving modern health care (2). Poor quality of care contributes to maternal morbidity and mortality (3). Maternity is the state or quality of being a mother (4). Maternal care is care given to a woman during pregnancy, child birth, and the postpartum period (5). It is a care that provides an opportunity to regularly go for check-ups to assess risks, to screen for and treat conditions that could affect both the woman and her baby during antenatal care and that ensures the effective management of obstetric emergencies during childbirth process, and also ensures postpartum care that is important for detecting and treating postpartum complications (6). The use of skilled maternity care can be deterred by the fear of disrespecting and mistreatment in maternity care providing health facility (7).

Patient satisfaction is an indirect indicator of the quality of health care service (8). It is also an important indicator of accessibility and quality of care which in turn shows the performance of the health care system

(9). Deficient health service leads to patient dissatisfaction and dissatisfied patients do not patronize the same institution. This will affect the organization too in terms of the economic view (10).

Antenatal care is a care provided to pregnant women and adolescent girls by skilled health care professionals to ensure the best health conditions for both baby and mother during pregnancy. Risk prevention, identification, and management of pregnancy-related or coexisting diseases, and health education and promotion are the components of antenatal care (11). The World health organization recommends quality antenatal care for all women to ensure positive pregnancy outcome (12). The quality of antenatal care is important and settings with low resources, shortages in essential equipment, medicines, and skilled staff are barriers to offering high-quality antenatal care (13). A number of studies have been conducted to identify determinants of antenatal care service satisfaction in Ethiopia. But those studies were limited to certain areas and their findings were variable, inconsistent, and nationally non representative. In this regard, the absence of a nationwide study was identified as a significant gap. Thus, this systematic review and meta-analysis meant to summarize the determinants of antenatal care service satisfaction among women in Ethiopia. The findings from this study will help antenatal care providers, policymakers, and concerned bodies to know antenatal care's dissatisfying factors and modifying or intervening them.

Methods

Search strategy

The study protocol was registered in the International Prospective Register of Systematic Reviews (PROSPERO), the University of York Centre for Reviews and Dissemination (ID number: (CRD42019137013). This review and meta-analysis were conducted according to the guidelines of Preferred Reporting Items for Systematic reviews and Meta-Analysis (PRISMA) (16) (**Additional file 1**).

Eligibility Criteria

Inclusion criteria

Setting

Only quantitative studies done in Ethiopia were included in this systematic review and meta-analysis.

Language

Only articles published in English were retrieved for review, given language restrictions will not affect the outcome of the study.

Publication condition

Both published and unpublished articles were considered for this review.

Exclusion Criteria

Studies for which we are unable to get the necessary details after contacting the authors were excluded. Studies on intranatal care were also excluded.

Information sources and search strategy

The following databases were searched to find potentially relevant articles: PubMed, Hinari, and Google Scholar. No date limit was applied. Google hand search and National University Digital Libraries such as electronic library of Addis Ababa University were searched to include gray literature. Hand search strategies of the reference lists of all included studies were also conducted. Afterward, the identified articles were directly transferred to Endnote citation manager software. Search terms like "*magnitude, or "prevalence", or "determinants", "or "associated factors," and "antenatal care," or "prenatal care," and "satisfaction"*" were used. Examples of search strategy fit for all the databases searched are available in the supporting information (**Additional file 2**).

The following procedures were followed in this systematic review. First, the electronic databases search results were imported into the reference management software (Endnote citation manager) and all duplicates were removed. In the second step, all articles were screened by their title, abstract, and full text for eligibility against the predefined inclusion and exclusion criteria. Third, a full document manuscript review was conducted and studies were removed through the predefined exclusion criteria. Finally, included articles were evaluated based on the Joana Brigg's Institute (JBI) quality assessment tool (17, 18).

Data Extraction

Data charting process was done independently by using a Microsoft excel format. The data extraction form included the name of the author, year of publication, regions where the study was conducted, sample size, response rate, setting, and type of study design. The log odds ratios with 95% confidence interval for included variables were extracted in a binary format.

Risk of bias

The quality of each article was appraised by using the Joana Brigg's Institute (JBI) critical appraisal checklist for cross-sectional studies having eight checklist items.

Cross-sectional studies: were assessed using JBI Critical Appraisal Checklist for Analytical Cross-Sectional Studies (17). The checklist has 8 parameters: 1) were the criteria for inclusion in the sample clearly defined, 2) were the study subjects and the setting described in detail, 3) was the exposure measured in a valid and reliable way, 4) were objective, standard criteria used for the measurement of the condition, 5) were confounding factors identified, 6) were strategies to deal with confounding factors stated, 7) were the outcomes measured in a valid and reliable way, and 8. Was appropriate statistical analysis used? All articles had a high score and all of them were included in the study.

Data synthesis

The odds ratio for determinant data were computed by pooling odds ratios reported in the original studies and standard errors (SE) for natural logarithm of odds ratios (ln OR) were calculated using the formula

$$SE (\ln OR) = \sqrt{\frac{1}{a} + \frac{1}{b} + \frac{1}{c} + \frac{1}{d}}$$

The heterogeneity of reported pooled odds ratios was assessed by computing Cochrane Q-statistic and I^2 statistics. I^2 test statistic results of 25%, 50%, and 75% were declared as low, moderate, and high heterogeneity, respectively (19). STATA version 14 software (StataCorp LP.2015, College Station, TX: USA) was used for all statistical analyses.

Publication bias

Egger's test was used to assess publication bias. A P-value of less than 0.05 was used to declare the publication bias.

Results

Selection of sources of evidence

A total of 274 articles were retrieved through our primary search. Of these, 111 remained after excluding 163 articles for duplication reasons. Then, their titles and abstracts were examined and 70 studies retained after confirming their relevance to this review. Full texts of the remaining 40 studies were reviewed and 27 studies were primarily excluded because of being not antenatal care service satisfaction. Finally, 13 articles that fulfilled the eligibility criteria were included in the final analysis (Fig. 1).

Characteristics of the included studies

Thirteen studies are included in this review. All of them are cross-sectional by design. Six of the included studies were from Southern Nation Nationalities And Peoples Region (SNNPR) (15, 20–24), four from Oromia (25–28), one from Amhara region (29), one from Harari (30), and one from Addis Ababa city (31). With regard to the response rate, all studies had a good response rate (> 88%) (Table 1).

Determinants Of Antenatal Care Service Satisfaction

Association between maternal age and antenatal care service satisfaction

The association between maternal age and antenatal care service satisfaction was examined based on the findings from three studies (22, 26, 31). The pooled odds ratio (AOR: 0.91 and 95% CI: 0.66–1.25) showed that antenatal care service satisfaction was not affected by the age of the mother. The studies showed moderate heterogeneity ($I^2 = 49.2\%$ and $p = 0.140$) (Fig. 2). Hence, a fixed effects model was employed to do the final analysis.

Association between maternal education and antenatal care service satisfaction

Seven studies (20, 22, 24–26, 30, 31) reported the association between women’s education and antenatal care service satisfaction. The pooled result of these studies showed that antenatal care service satisfaction is not affected by women’s educational status. The pooled odds ratio of the study is (OR: 0.84 and 95% CI: 0.58–1.22). The studies showed heterogeneity test results of 74.55 and $p = 0.001$. Egger’s test revealed the absence of publication bias ($p = 0.41$) (Fig. 3).

Association between number antenatal care visit and antenatal care service satisfaction

The meta-analysis to test the association between antenatal care service satisfaction and the number of antenatal care visits was based on the result of nine studies (20, 21, 23, 24, 26, 27, 29–31). The pooled odds ratio (AOR = 0.62 and 95% CI: 0.40, 0.96) showed that pregnant women having first ANC were 38% less likely to be satisfied than women having more than one visit. The I^2 test showed the existence of high heterogeneity ($I^2 = 84.3\%$ and $p = 0.000$). Egger’s test revealed the absence of publication bias with the p -value of 0.85 (Fig. 4).

Association of waiting time and antenatal care service satisfaction

This study assessed the association between waiting time to see antenatal care provider and antenatal care service satisfaction using three studies (25, 27, 31). The result of this meta-analysis showed that the waiting time of < 60 min was positively associated with antenatal care service satisfaction. The pooled odds ratio indicated that women who waited < 60 min had 1.87 times (AOR: 1.87 and 95% CI: 1.40–2.50) higher odds of ANC satisfaction as compared to their counterparts. The included studies showed the absence of heterogeneity ($I^2 = 0.0\%$ and $p < 0.547$) (Fig. 5).

Privacy and antenatal care service satisfaction

This study measured the association between the maintenance of privacy and antenatal care service satisfaction using four studies (22, 24, 27, 29). Moreover, it showed that the maintenance of privacy was positively associated with antenatal care service satisfaction. The pooled odds ratio displayed that women whose privacy was maintained had 3.91 times (AOR: 3.91 and 95% CI: 1.97–7.77) higher odds of ANC satisfaction than those whose privacy is not maintained. The included studies showed high heterogeneity ($I^2 = 90.4\%$ and $p = 0.000$). Hence, the random effects meta-analysis was employed (Fig. 6).

Respect and antenatal care service satisfaction

This study also assessed the association between the respectful treatment of women and antenatal care service satisfaction using four studies (24, 25, 27, 31). The pooled result of this meta-analysis exhibited that the respectful treatment of clients was positively associated with antenatal care service satisfaction. The pooled odds ratio showed that women who were treated respectfully had 5.07 times (AOR: 5.07 and 95% CI: 2.34–10.96) higher odds of ANC satisfaction than that of their counterparts. The included studies showed

high heterogeneity ($I^2 = 81.4\%$ and $p = 0.001$). Hence, the random effects meta-analysis was employed (Fig. 7).

Place of residence and antenatal care service satisfaction

This meta-analysis evaluated the associations between the place of residence and antenatal care service satisfaction based on four studies (22, 24–26). The pooled result of the odds ratio revealed the absence of association between maternal place of residence and antenatal care service satisfaction (AOR: 1.41 and 95% CI: 0.67–2.96). The studies displayed high heterogeneity ($I^2 = 85.8\%$ and $p = 0.000$). Hence, the random effects meta-analysis was employed (Fig. 8).

Type of pregnancy and antenatal care service satisfaction

The association between the type of pregnancy and ANC service satisfaction was examined using three studies (15, 25, 32). The pooled odds ratio exhibited that women who had unplanned pregnancies had 72% times (AOR = 0.28 and 95% CI: 0.10–0.77) lower odds of ANC service satisfaction than that of women who had planned pregnancies. The studies demonstrated high heterogeneity ($I^2 = 92.1\%$ and $p = 0.000$). Hence, the random effects meta-analysis was employed (Fig. 9).

Discussion

This meta-analysis assessed factors determining antenatal care service satisfaction among women in Ethiopia. It demonstrates that frequencies of antenatal care visit, waiting time, privacy maintained, respectful treatment of mothers, and unplanned pregnancies were found to determine maternal satisfaction with antenatal care service.

This study found that antenatal care service satisfaction among women having one visit is lesser than women having more than one. The awareness of the importance of ANC service may increase with repeated visits. The service, advice, and building of a relationship between the client and antenatal care provider as the number of visits increases may increase satisfaction with antenatal care service. Repeated visits may offer the woman a chance to ask her concerns and increase awareness of its importance. The development of a positive relationship between providers and client, increasing client needs, and effective response to this need by the healthcare professional may also increase maternal satisfaction with antenatal care service (20, 30).

This study also indicated that ANC service satisfaction is also influenced by the length of time a woman spent to see the health care provider. In this study, women who waited for < 60 min to see the antenatal care provider had 1.87 times higher odds of ANC satisfaction than that of women who waited more. A woman may feel that her time is wasted and she is left disregarded when she waits for a long time. This is supported by studies from Myanmar (33), Ghana (34), Kenya, and Namibia (35), which concluded that long waiting time to see the doctor was among the services that reduces client satisfaction. The study also indicated that the efficiency of services refers to the promptness of the care given to patients, and short waiting time to see

the health care provider was linked with high satisfaction, whereas a longer waiting time was linked with low level of client satisfaction (36).

This meta-analysis also identified that the maintenance of privacy and antenatal care service satisfaction has a positive relationship. The woman whose privacy is maintained may get the freedom to discuss about her concerns with both male and female health care providers. But the presence of another person in the ANC room may make a woman feel insecure during consultation (27, 29) .

This study revealed that the respectful treatment of a woman has a positive relationship with antenatal care service satisfaction. In this study, women who were treated respectfully had 5.07 times higher odds of ANC satisfaction than their counterparts. The probable explanation is that women who feel respected (e.g., greeted warmly and counselled) may think the service/care is good and that may make her to continue to seek health care in the future also. This is supported by a study conducted in Malawi, which stated that a woman will not seek care services if she is disrespected (37).

This study showed a negative association between antenatal care service satisfaction and unplanned pregnancy. The possible explanation is that a woman who had an unplanned pregnancy may be too sensitive in terms of confidentiality and privacy due to possible stigma if the pregnancy is out of the marriage. Women who had an unplanned pregnancy may also experience greater relationship instability than women whose pregnancies were intended (28). Another possible explanation is that women who had an unplanned pregnancy may request the termination of pregnancy, which is not supported by Ethiopian abortion laws.

Conclusion

Antenatal care service satisfaction is an indicator of quality of antenatal care. Low satisfaction or dissatisfaction with antenatal care service hinders the women from going to a health facility to receive prenatal care. Factors like decreased frequency of visits, long waiting time to see the care provider, privacy unmaintained, disrespectful treatment, and unplanned pregnancy causes low satisfaction with antenatal care service. In the future, I hope the findings of this research will lead to improvements of quality of antenatal care service. If we cannot avoid those factors, antenatal care dissatisfaction will make the women flee the health institution and we will continue to have low antenatal care utilization.

Hence, antenatal care service providers should counsel the women to finish all the recommended visits, should be friendly, and treat mothers cordially and respectfully whenever they come for the service. In addition, reproductive health counselling shall be provided to all reproductive age women to prevent unplanned pregnancies.

Declarations

Author contribution statement

K. Seyoum: Conceived and designed the experiments; performed the experiments; analyzed and interpreted the data; contributed reagents, materials, analysis tools, or data; and wrote and derived the manuscript.

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Data availability statement

Data will be made available on request.

Declaration of interests statement

No conflict of interest.

Additional information

No additional information is available for this paper.

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Figures

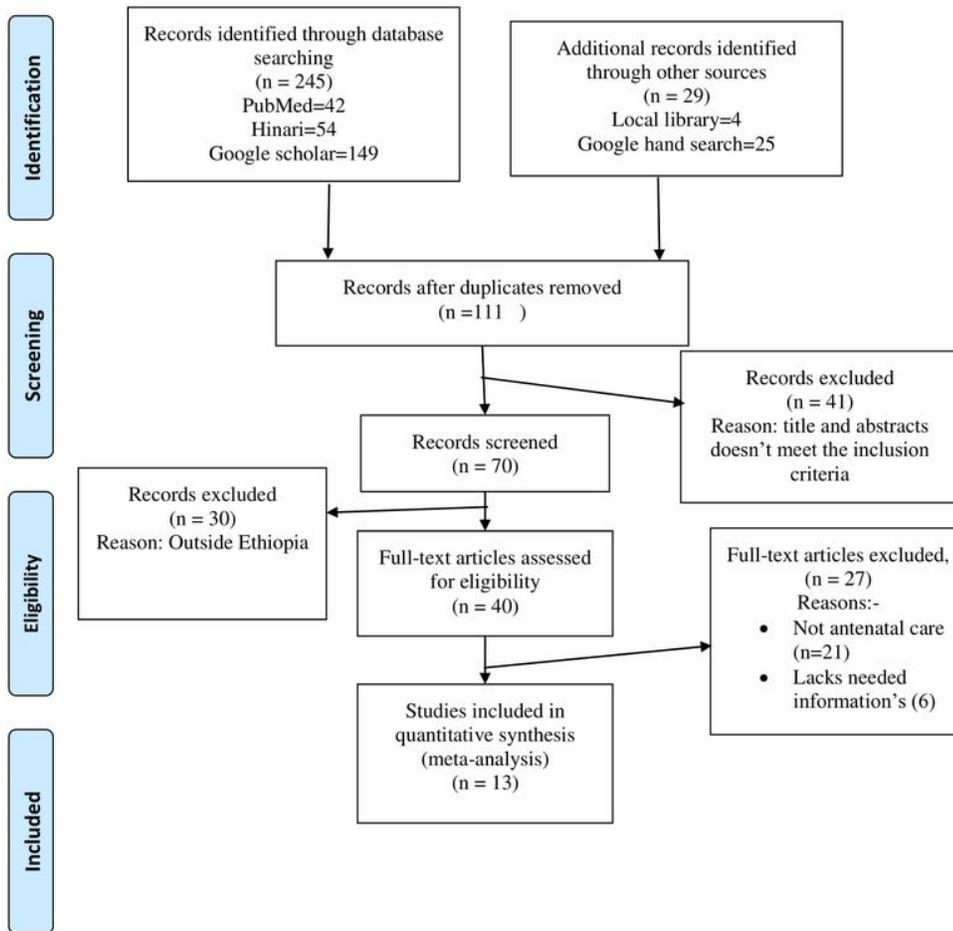


Figure 1. PRISMA flow diagram of study selection for systematic review and meta-analysis of determinants of antenatal care service satisfaction among women in Ethiopia.

Figure 1

PRISMA flow diagram of study selection for systematic review and meta-analysis of determinants of antenatal care service satisfaction among women in Ethiopia.

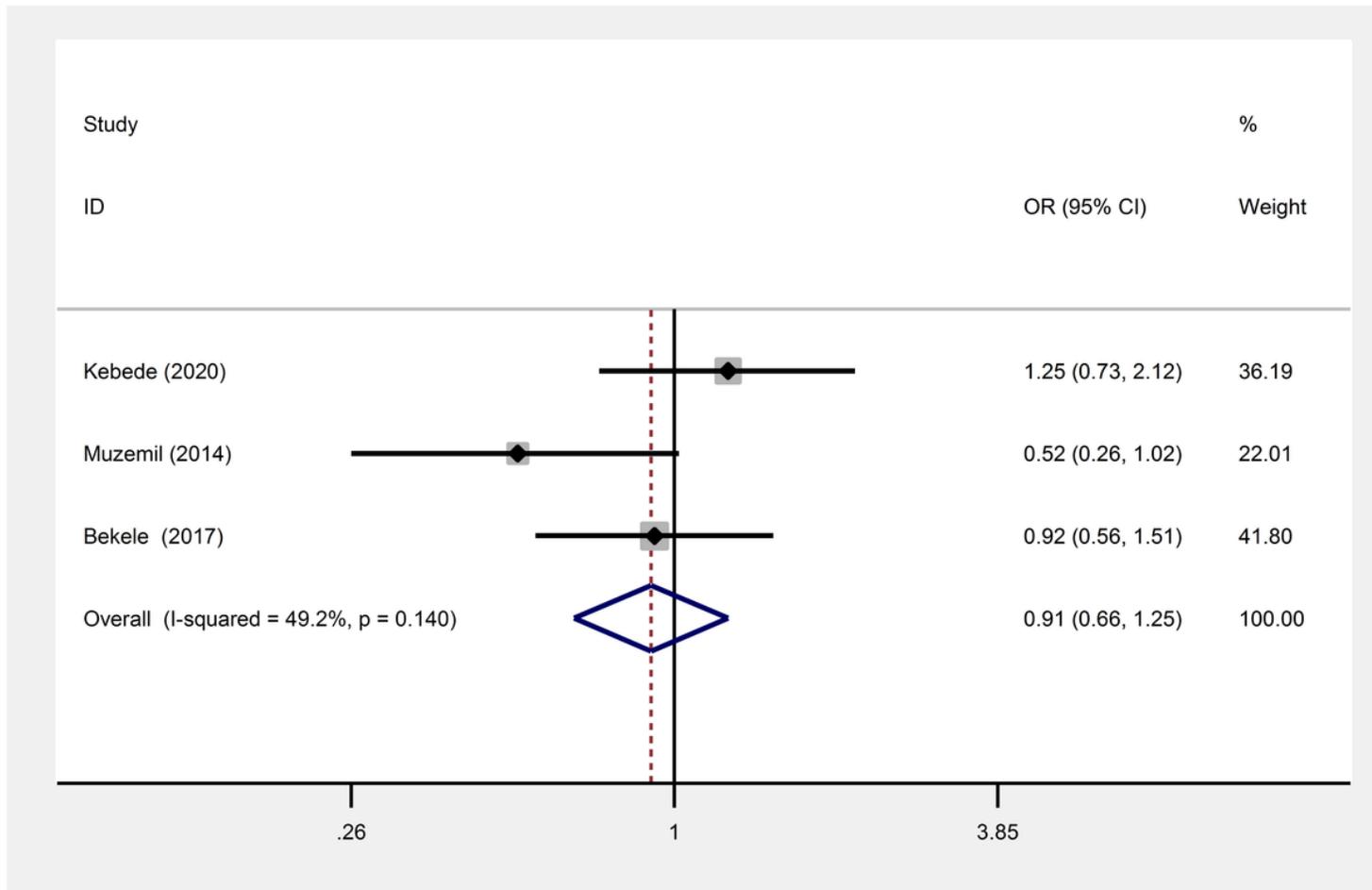


Figure 2

Forest plot exhibiting the pooled odds ratio of the association between maternal age and antenatal care service satisfaction among women in Ethiopia.

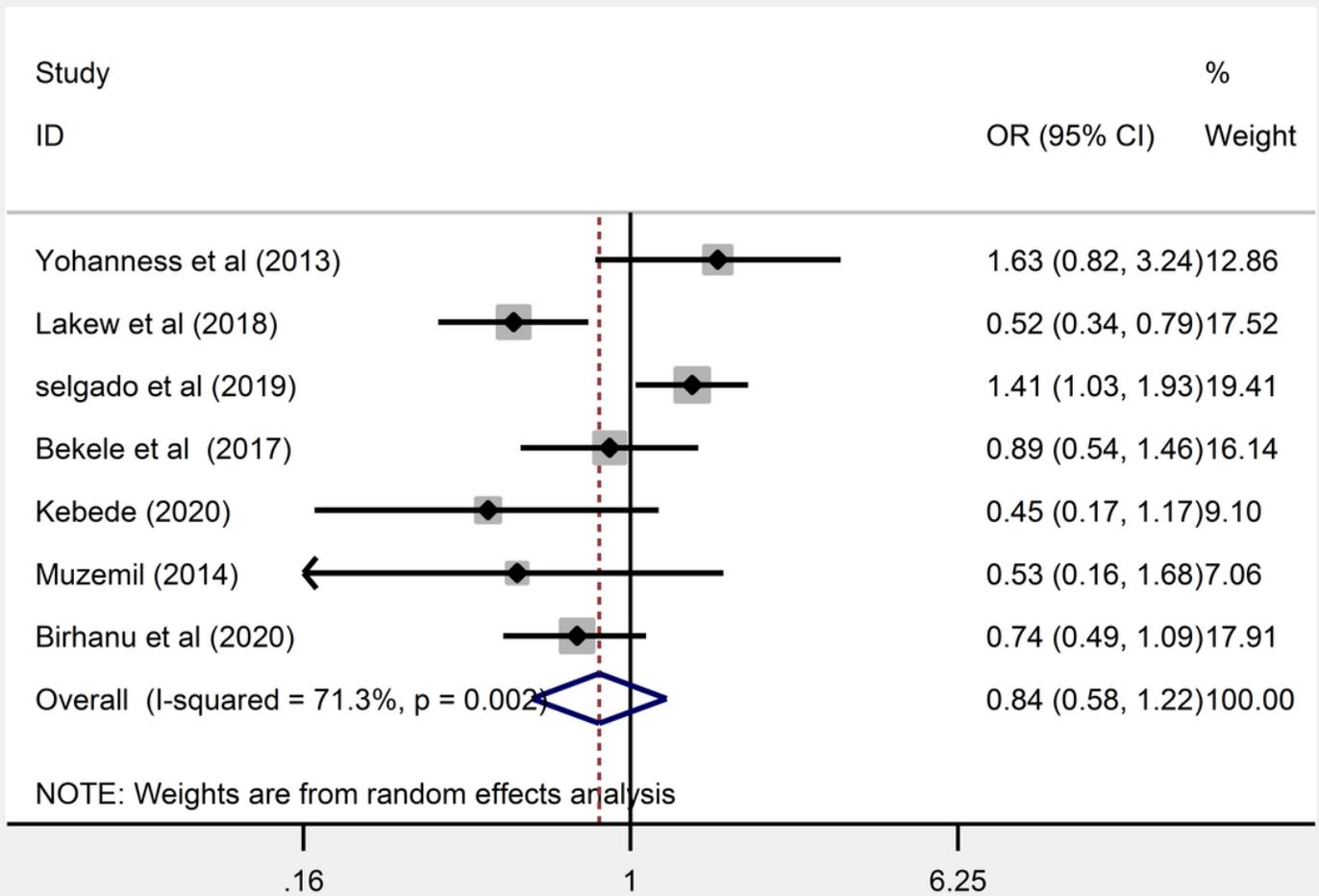


Figure 3

The pooled odds ratio of the association between maternal education and antenatal care service satisfaction among women in Ethiopia.

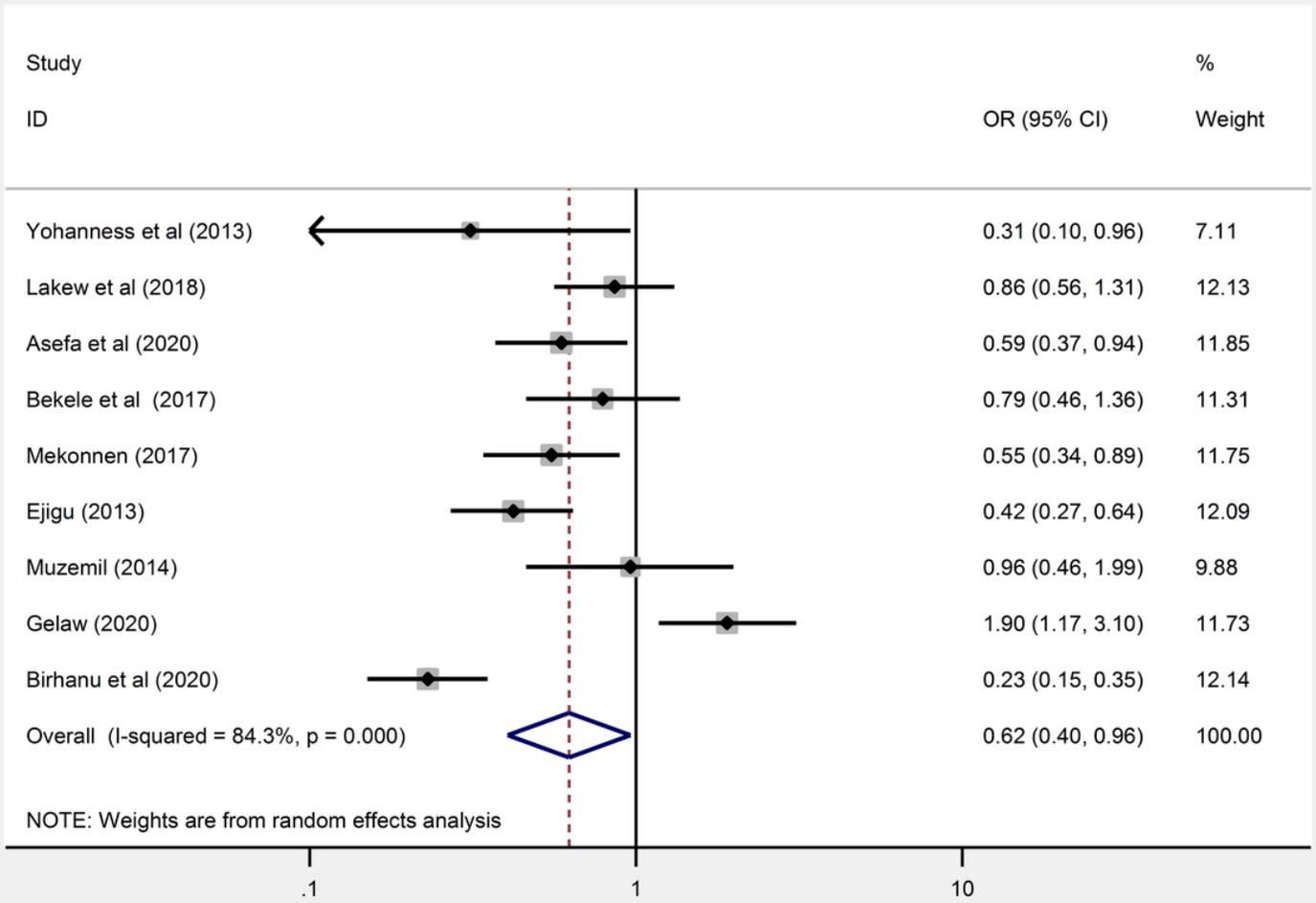


Figure 4

Forest plot showing the pooled odds ratio of the association of number of antenatal care visits and antenatal care service satisfaction among women in Ethiopia.

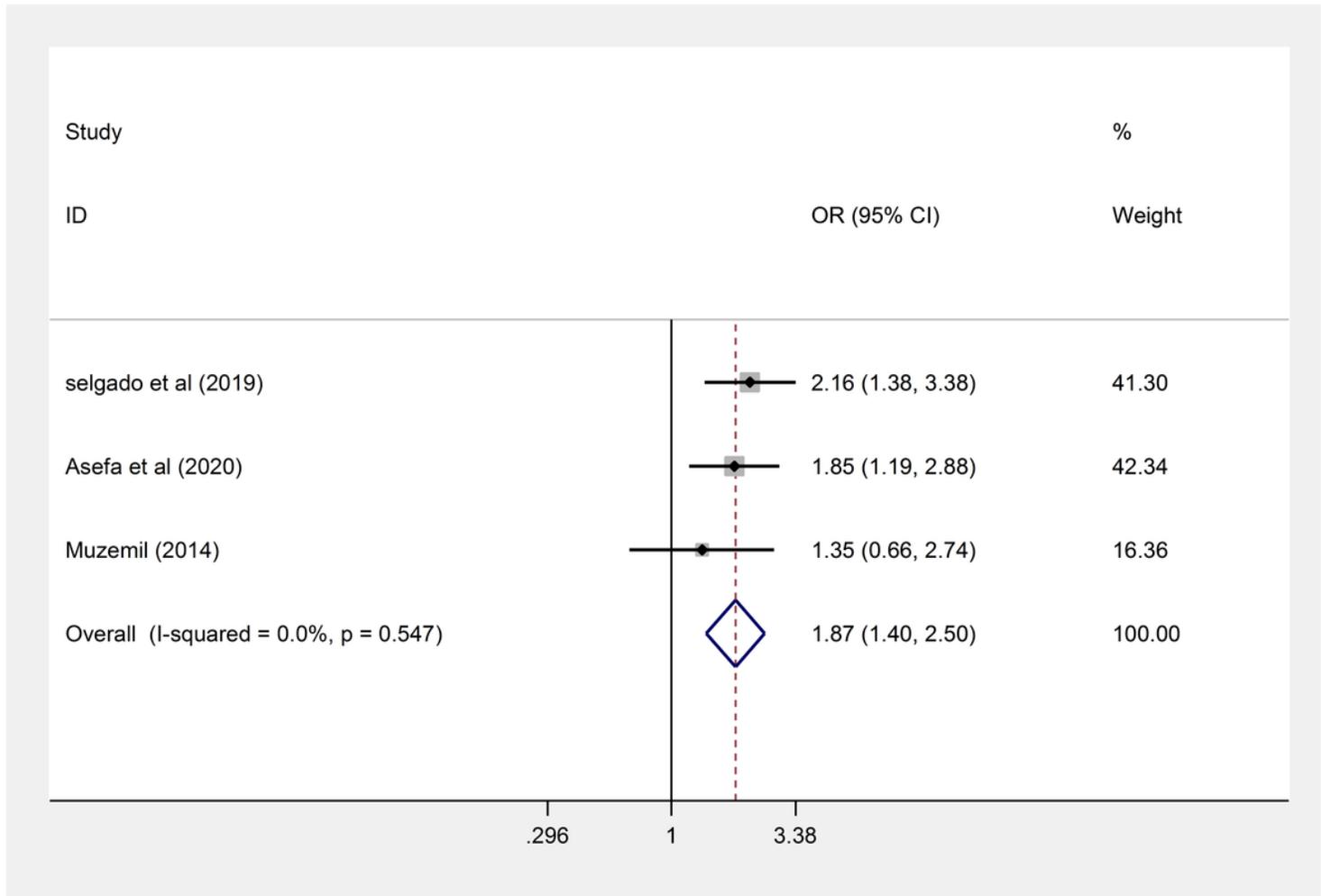


Figure 5

Forest plot displaying the pooled odds ratio of the association of waiting time and antenatal care service satisfaction among women in Ethiopia.

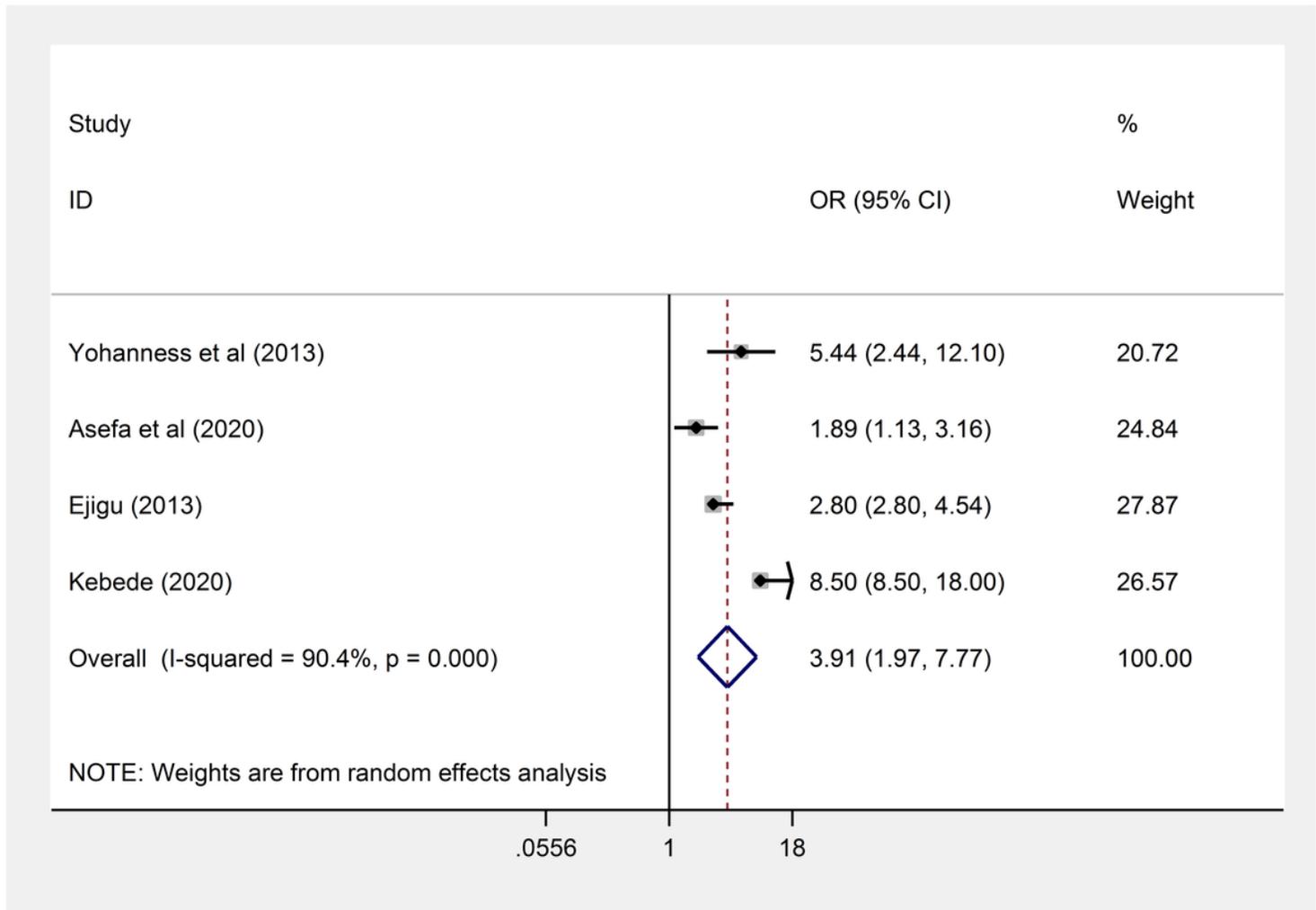


Figure 6

The pooled odds ratio of the association of maternal privacy and antenatal care service satisfaction among women in Ethiopia.

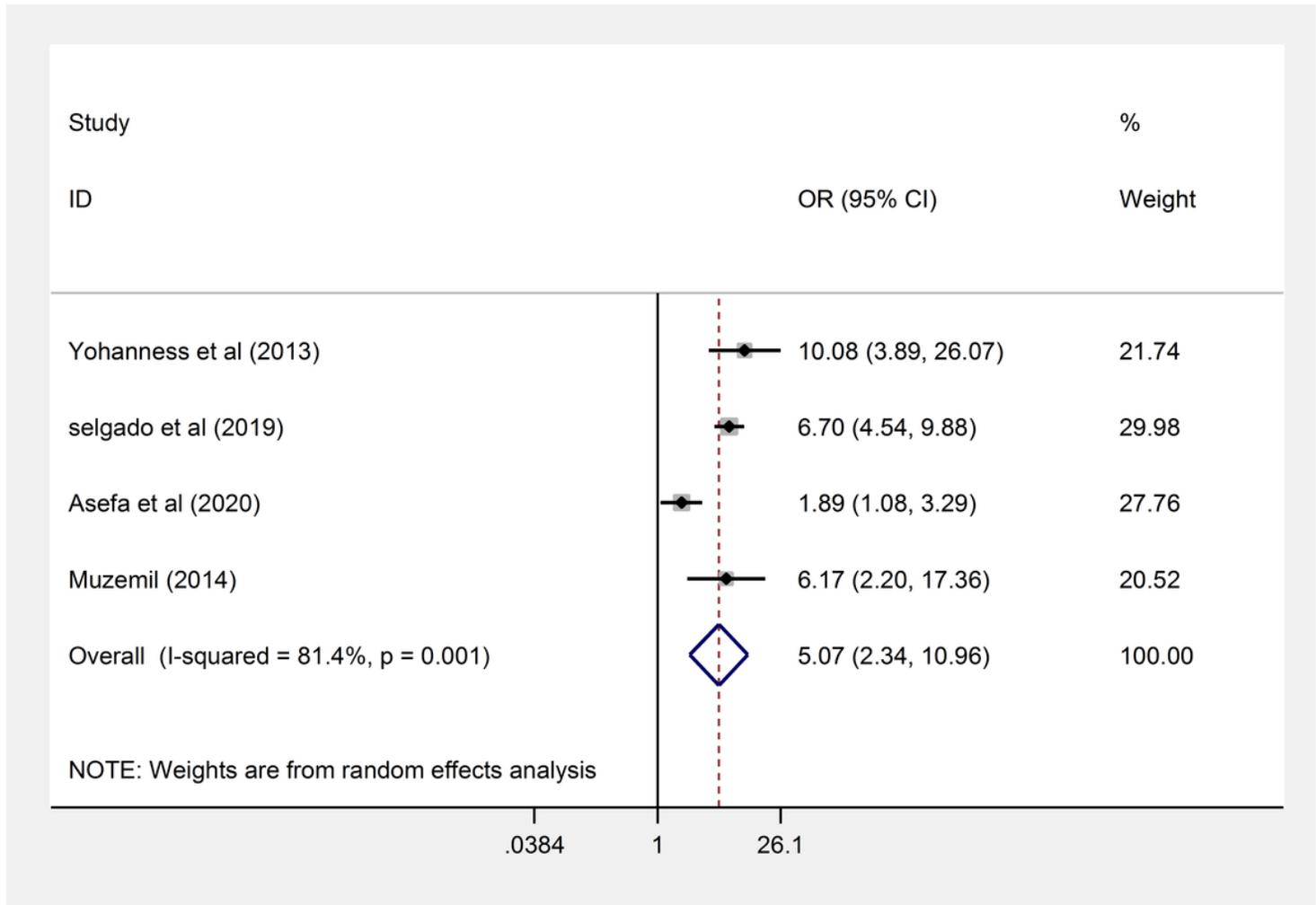


Figure 7

Forest plot demonstrates the pooled odds ratio of the association of respectful treatment and antenatal care service satisfaction among women in Ethiopia.

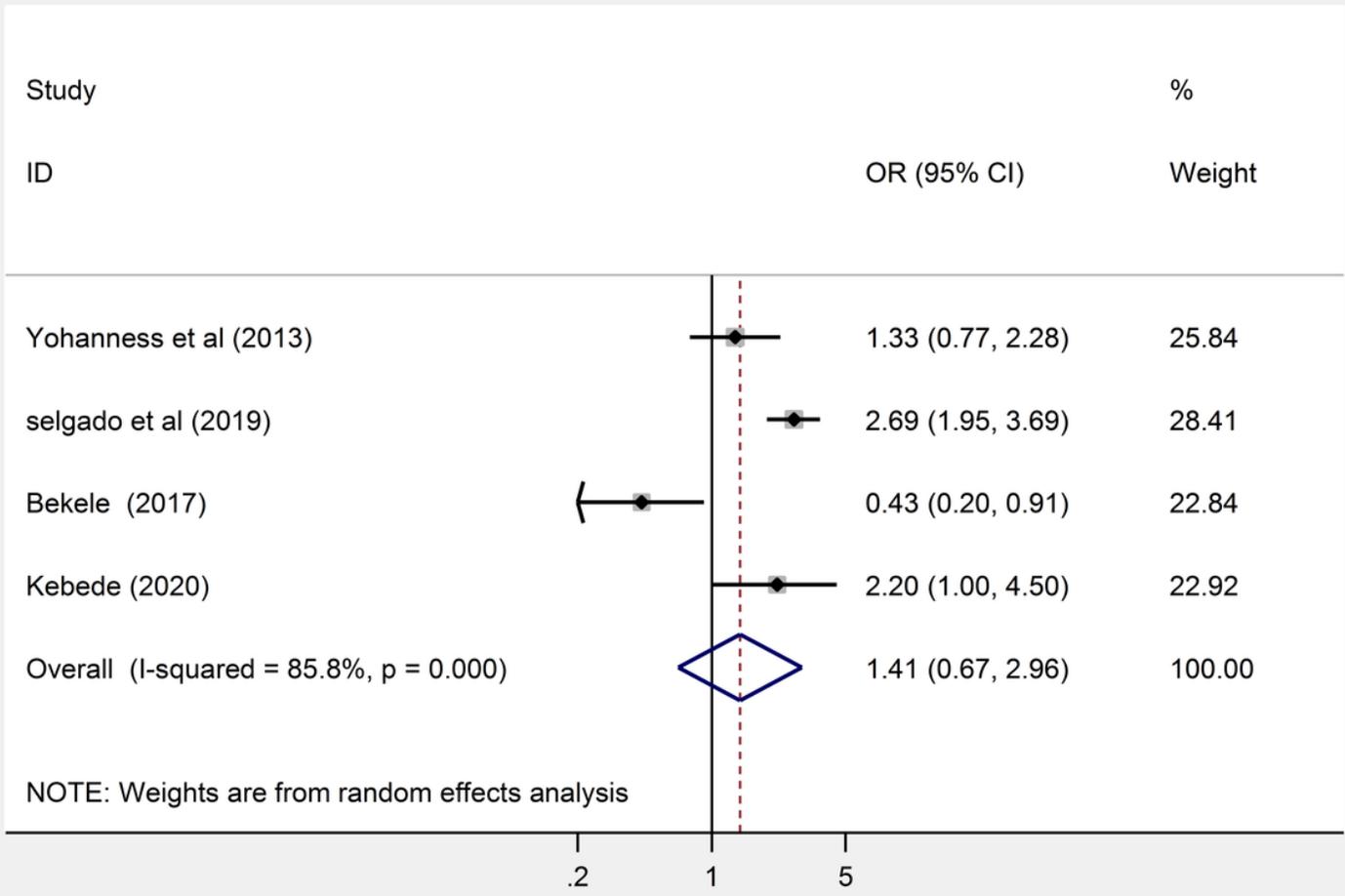


Figure 8

Forest plot shows the pooled odds ratio of the association of maternal place of residence and antenatal care service satisfaction among women in Ethiopia.

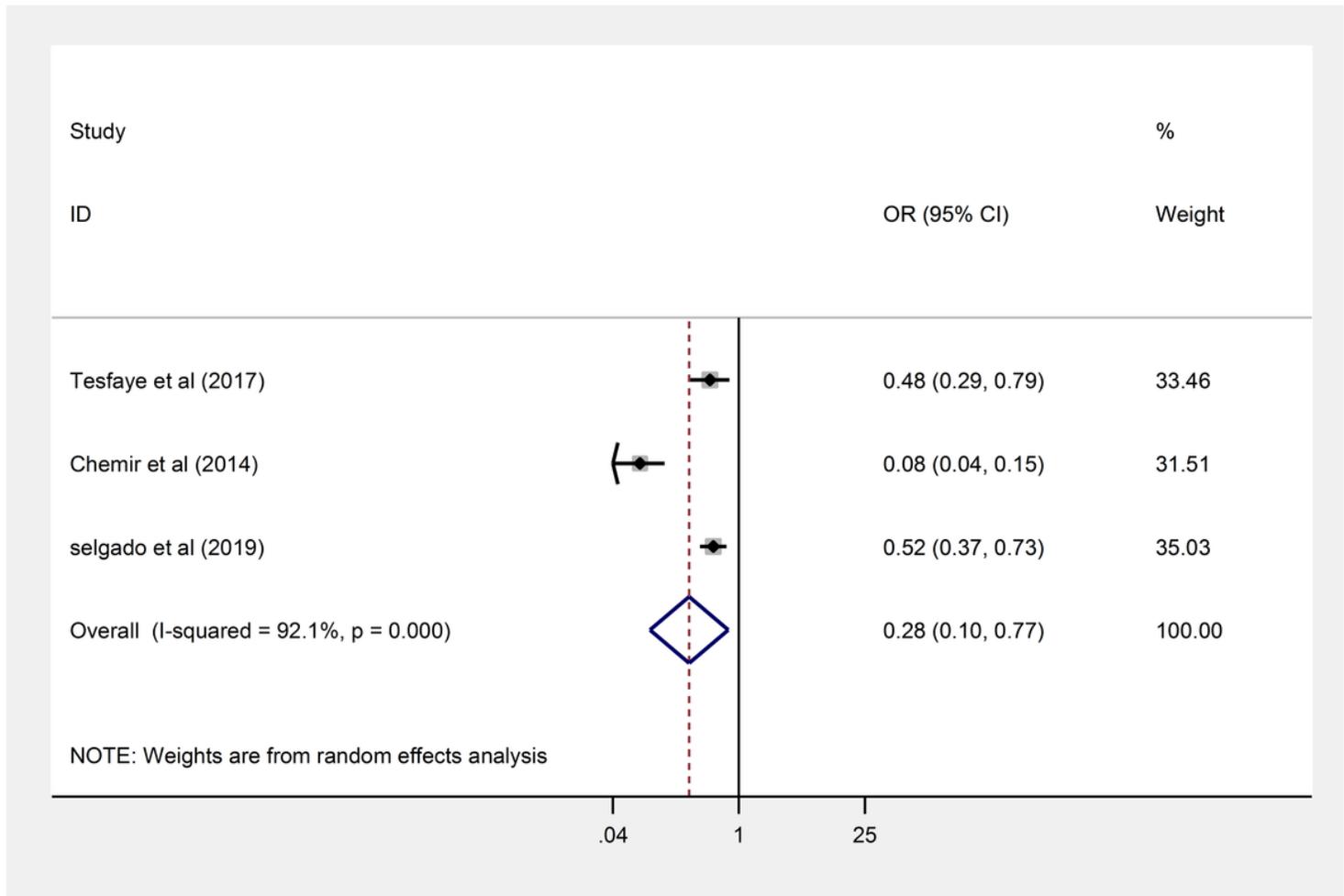


Figure 9

Forest plot displays the association of unplanned pregnancy with antenatal care service satisfaction among women in Ethiopia.

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

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- [additionalfile2.docx](#)