Magnitude and determinants of unmet need for family planning in Ethiopia from 2013- March 2020: Meta-analysis and systematic review

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Abstract

Unmet need for family planning is a major problem in developing countries. Millions of women want to delay or avoid pregnancy but are not using Contraception. Addressing the unmet need for family planning provides an opportunity for policymakers to respond to existing choice problems. Simultaneously improving maternal and child health, slowing the rate of population growth, and contributing to the achievement of national goals.

This study aimed to determine the pooled Magnitude and determinants of unmet need for family planning in Ethiopia. Ten articles with 19312 study participants were identified through electronic search of reputable databases: Google Scholar, PubMed, Cochrane library, MIDLINE, EMBASE, and Ovid Maternity and Infant Care Databases. 10 studies were selected based on a comprehensive list of inclusion and exclusion criteria. The analysis was done by using STATA 14 statistical software. To assess heterogeneity, the Cochrane Q test statistic and I2 tests were used and a random effect model was also used to estimate the pooled prevalence of perinatal mortality rate.

The pooled prevalence of the unmet need of modern family planning among reproductive-age women in Ethiopia was 19.99,95% CI(16.53,23.45).Age at first marriage less than 18, OR = 1.37, 95 CI :(1.04–1.18),discussion with husbands, OR = 0.24, 95%CI :(0.12–0.49), having two and less children OR = 0.49,95CI:(0.35–0.67), illiterate partner OR = 3.61, 95 %(2.63–4.95), good attitude of partner OR = 0.11,95% CI:(0.05–0.26), history of discussion with health care worker OR = 0.31,95%CI: (0.14–0.68), a poor knowledge OR = 3.15,95% CI:(1.75–5.69) were significantly associated with unmet need for family planning.

Unmet need for planning in Ethiopia is high as compared to world unmet need according to the United Nations World family planning report of 2017 which states one in ten reproductive age women have an unmet need for family planning but this study revealed one in five the same age group women had an unmet need for it. Early marriage, women's discussion with husbands and health care workers about family planning, having children greater than two, education status and attitudes of husband, and knowledge of women about family planning were significantly associated with unmet need for family planning. So great effort is needed from all stakeholders to involve males in family planning decisions, alleviate early marriages, and structured health education interventions for both husbands and women to reduce the unmet need for family planning.

Background

Family planning has many benefits. It reduces maternal and child mortality as well as reduces poverty; empowers women by lightening the burden of excessive childbearing and it reduces environmental degradation by reducing the population of the planet [1, 2]

Women with unmet need are those who are fecund and sexually active but are not using any method of contraception, and report not wanting any more children or wanting to delay the next child [3]

More than 100 million women in less developed countries, or 17 percent of all married women, would prefer to avoid a pregnancy but are not using any form of family planning[4]

Unintended pregnancy-related to unmet need is a worldwide problem that affects women and their families and societies at large. About 40 % of all births that occurred globally in 2012 were unwanted that causes hardships for families and health problems in millions of women and children [5]

Serving all women in developing countries who currently have an unmet need for

modern methods would prevent an additional 54 million unintended pregnancies, including, 26 million abortions (of which 16 million would be unsafe), 21 million unplanned births, and seven million miscarriages; this would also prevent 79,000 maternal deaths and 1.1 million infant deaths[6]

This study aimed to determine the pooled prevalence of unmet needs for family planning and to identify the determinants of unmet needs for family planning in Ethiopia.

Methods

Study design and search strategy

We developed this protocol by following the Preferred Reporting Items for Systematic Review and Meta-analysis Protocols (PRISMA-P) statement [7]. We have used the Preferred Reporting Items for Systematic review and Meta-analyses (PRISMA-2009) statement to report the findings [8].

We have been developed an appropriate and comprehensive search strategy with relevant search terms and pilot test it before the final search. We have been searched PubMed, Google Scholar, MEDLINE, EMBASE, and Ovid Maternity and Infant Care Databases. We included articles published from the start of 2013to March 2020.

“Prevalence of unmet need for family planning **OR** magnitude of unmet need for family planning **OR** factors associated with Unmet need for family planning **OR** determinants of unmet need for family planning OR predictors of unmet need for family planning **AND** Ethiopia" were used separately and combined as keywords to search eligible articles. To ensure comprehensiveness, we consulted an expert librarian. We utilized snowballing to screen the references of identified articles for potentially relevant studies. The searched records were managed by EndNote X7 software. Articles were searched from March to April 2020 and all the articles which fulfilled the inclusion criteria from 2013 to March 2020 were included in this systematic review and meta-analysis to get current and updated study outcome which will be vital for policymakers and other stakeholders for intervention

Study selection and eligibility criteria:

The following criteria were used to decide the eligibility of the studies

Inclusion criteria

Those articles which come across with the following criteria were included in the study. **Population**: Articles conducted among reproductive age groups (15-49 years) women’s.

Study area: Only articles conducted in Ethiopia were deliberated.

Study design: Original studies that reported both the magnitude and determinant factors of

Unmet needs for family planning irrespective of study design

Personnel: reproductive age group, married or in-union women in Ethiopia were considered.

Language: Only articles published in the English language.

Study and publication year: studies conducted and published after 2013 to start of this study

Publication condition: Studies that met the eligibility criteria were included regardless of their publication status (published, unpublished)

All included 10 studies are published in peer-reviewed journals.

Exclusion criteria

Studies conducted in specific target groups like women's with a disability, HIV/AIDS care in ART clinic, intellectual disability, etc. were excluded

Studies did not report study outcome of interest and incomplete articles were also left out.

Outcome of interest

The primary outcome of interest in this systematic review and analysis was pooled prevalence of unmet need for family planning and the secondary outcome of this study was determinants of unmet need for family planning in reproductive age women's

either married or in the union in Ethiopia from 2013 to March 2020

Quality assessment

Three authors (DS, SD, and AT) independently conducted a quality assessment of included studies, by using the checklist of the adapted version of NOS for cross-sectional studies. Based on NOS, we awarded studies a maximum of five stars within the selection, two stars for comparability, and three Stars with outcome categories [9]

The qualities of the articles were assessed based on the criteria; those with a medium sore (50% of Quality assessment criteria) and high quality (≥6 out of 10 scales) were considered for this study. The quality score of the study was determined by taking an average of three reviewers to mean score

Data extraction and management

Using the Joanna Briggs Institute (JBI) data extraction form for experimental/observational studies[10]. We extracted relevant data and pretested the data extraction form on four studies of each type, to ensure that it adequately facilitates the collection of all necessary data required for an effective systematic review and meta-analysis. Three review authors (DS, AT, and SD) extracted the data independently using a standardized data extraction form prepared in Microsoft Excel spreadsheet 2013. Discrepancies between data extractors had been discussed to reach consensus and the fourth reviewer (YT) consulted for those difficult to reach consensus. . For each included articles, we recorded the first author's last name, year of study, year of publication, the setting where the study was conducted, study design, study period, sample size, the response rate, the sample size, outcome and study quality score

Heterogeneity and publication bias

To examine the possible risk of publication bias, we used funnel plots and Egger's test [11]. A p-value < 0.10 be considered indicative of statistically significant publication bias. We assessed heterogeneity by using the chi-squared test on Cochran's Q statistic with a 5% level of statistical significance [12] and I2 statistic, assuming that I2 value of 25%, 50%, and 75% is representative of low, moderate, and high heterogeneity, respectively[13]. We used a fixed-effect model for the studies that had low heterogeneity and a random effect model for moderate and high heterogeneity.

Data synthesis and analysis

We performed a narrative description of the study population, the studies included, the risk factors identified, and the magnitudes of unmet need for family planning as well as the outcome characteristics. We used tables and figures to summarize the selected studies and results. By using Microsoft Excel spreadsheet 2013 and STATA 14 statistical software, we carried out the data entry and statistical analysis respectively. We determined the pooled magnitude and determinant factors of unmet need for family planning in Ethiopia from 2013 to March 2020.

Result

Selection of eligible studies

Three authors (SD, AT, and DS) reviewed the studies, based on inclusion and exclusion criteria. The review had been followed three stages. During the first stage, we had assessed the titles of the studies identified from the search. In the second stage, abstract screening and the third stage abstracts of these selected titles had been included for the final stage of full-text screening. During the full-text screening, we screened the full texts of abstracts selected in the previous stage. In the review, we included those studies approved by three authors.

The authors resolved the disagreements through discussion or consultation with a fourth reviewer (YT). We provided a reason for exclusion for all excluded studies.

From the outset, we searched a total of 11,126 records by the electronic search through a search engine of PubMed, MEDLINE Google Scholar, EMBASE, the worldwide web of science, and Cochrane Library, 562 of them were removed due to duplication from

the inclusion. After the remaining 10,564 retrievals, Then from the remaining 10564 records, 10524 were excluded since they were not related to the study in general. Then in the last 40 full-text studies were considered and tested for eligibility based on the pre-set eligibility criteria. The last 10 studies were considered to be eligible and included in this meta-analysis and systematic review analysis and all included studies have been published in peer-reviewed journals. From a total of 40 full-text studies accessed, we removed 30 of them because they were based on a single exposure to study outcome articles, in detail see (additional file, figure 1)

Characteristics of original studies

A total of 19312 reproductive-age women were included in this systematic review and meta-analysis to determine the pooled prevalence and associated factors of unmet need for family planning in Ethiopia from 2013 to March 2020. All included studies were crossectional study design and conducted in community-based. Three studies were done in the Amhara region, two studies in the Oromia region, two studies in the Tigre region, one study in the SNNP region, and two studies were done nationally. Higher unmet need was reported from the Tigre region done in refugee camps and the highest was reported from a study done in a national-level survey. The response rate of included studies had a minimum of 98.1 %, in detail see Table 1.

Table 1: Characteristics of original articles included in studies

Author	Publication year	Study year	Design	Study area	Region	Sample	Response rate	Prevalence (95% CI)	Quality sore (10pt)
Dejenu et al	2013	2013	crossectional	Enemy district	Amhara	770	98.1	25.6	8
Gebre et al	2016	2014	crossectional	shire town	Tigre	510	100	21.4	7
Lakew et al	2017	2016	crossectional	All regions	All	7494	100	16.2	8
Duressa et al	2018	2016	crossectional	Sibu sire	Oromia	616	100	20.94	7
Getnet et al	2015	2014	crossectional	Dangila town	Amhara	551	99.1	17.4	7
Tadele et al	2019	2016	crossectional	National	All region	7552	99.2	16.2	8
Gebrecherkos et al	2018	2016	crossectional	Tigray refugee camp	Tigray	400	100	41.8	6
Solomon et al	2019	2017	crossectional	Tiro Afeta	Oromia	348	100	26.1	6
Chafo et al	2014	2013	crossectional	Misha district	SNNP	660	99.3	26.5	7
Worku et al	2019	2018	crossectional	Debre Berhan town	Amhara	411	100	30.9	7

Meta-analysis

The pooled prevalence of unmet need for family planning in Ethiopia from 2013- March 2020

The pooled prevalence of the unmet need of modern family planning among reproductive-age women's in Ethiopia was 19.99,95% CI(16.53,23.45), in detail (additional file, see figure 2)

Determinants of unmet need for family planning

We investigated factors associated with the unmet need for family planning among reproductive-age women. Age of women, age at first marriage, residence, exposure to media, history of abortion, discussion with husbands, education status of both women and husband, occupation of respondent, parity, ever discussion with health care workers, knowledge of women about family planning, number of living children, husband attitude about family planning and ever use of family planning were assed for effect with unmet need for family planning

But only age at first marriage, discussion with partners, number of living children, education status of the husband, ever discussion with health care workers, knowledge of women about family planning and husband attitude about family planning were significantly associated with unmet need for family planning

Age at first marriage

Association of age at first marriage with unmet need was reported in three articles [14-16]. A women's with age at first marriage less than 18 years were 1.37 times more likely to had an unmet need for family planning as compared to women's with age at first marriage equal to 18 years and above, OR=1.37,95 CI :(1.04-1.18), in detail see (additional file, figure 3)

Discussion with husbands

Discussion with husbands was reported in four studies [14, 15, 17, 18]. Women's who discussed family planning with their husbands were 76% less likely to had an unmet need for family planning, OR=0.24, 95%CI :(0.12-0.49), in detail see (additional file, figure4)

Education status of the partner or husband

Significant association of Educational status of partner with unmet need for family planning was reported in two studies [14, 15]. A likelihood hood of unmet need for family planning in women with an illiterate partner was around 3.6 times more likely than a women's with a partner of primary and above educational status, OR=3.61, 95 %(2.63-4.95). in detail see (additional file,figure5)

History of (ever) discussion with a health worker

Ever discussion with health worker was reported in six articles [14-17, 19, 20], Women's with a history of discussion with health care worker about family planning were around 70% less likely to had unmet for family planning utilization as compared to a woman with no history of discussion with health care worker about family planning, OR=0.31,95%CI: (0.14-0.68), in detail see (additional file, figure 6)

Partner or husband attitude

Association of partner attitude and unmet need were reported in five studies [14, 15, 18-20].odds of unmet need for family planning in women's with good attitude partner about family planning were 90% less likely unmet need for family planning use as compared to women's with positive attitude partner, OR=0.11,95% CI:(0.05-0.26), in detail see (additional file, figure 7)

Women's knowledge about family planning

A significant association of women's knowledge about family planning and an unmet need was reported in two studies [14, 17]. A likelihood hood of unmet need for family planning in women with poor knowledge of family planning was 2.85 times higher than a woman having good knowledge, OR=3.15,95% CI:(1.75-5.69), in detail see (additional file, figure 8)

Number of living children

A number of living children was reported in two articles [14, 20]. A woman having two and less than two was around 50% less likely unmet need for contraceptive as compared to a woman having greater than two children, OR=0.49,95CI:(0.35-0.67), in detail see (additional file, figure 9)

Discussion

This systematic and meta-analysis was conducted to estimate the pooled prevalence of unmet need of family planning and determinants in Ethiopia. The pooled prevalence of unmet need for family planning was 19.99, 95% CI (16.53, 23.45). This finding is in line with the study done in Nigeria which is 21.4 % [21] and Cameroon which is 20.5% [22] but less than from study done in Iraq which is 29.3% [23], Tamilu Nadu which is 39% [24], Burkina Faso which is 40.7% [25]. On the other hand, this study finding was greater than the study done in Sudan which is 15.08 [26], Kenya which is 16.5 [27], and the United Nations World family planning 2017 report which 10% [28].

The possible difference and controversy in a general point of view might be due to study method difference, year of study, socio-demographic variations, culture, and way of attitude and knowledge share media variations for behavioral change across the nations.

Women with age at first marriage less than 18 years were 1.37 times unmet need for family planning as compared to the first age of marriage greater or equal to18 years. This finding is supported by a study done in Uganda and Sudan [26, 29] respectively. Also, a study done in Jorda shows high in women's married less than 18 years [30], and another study has shown high unmet needs in lower age groups of women [31]. The possible reason may be due to age less than 18 years are under the control of the family and this is a barrier to their choice of family planning. Another possible justification may be the knowledge gap of family planning among young ages. Since age is one source of social interaction and knowledge.

This study revealed that Joint discussion with their partners decreased the unmet need of family planning by 76 % as compared to women who did not discuss it. This finding is consistent with a study done in Bangladesh, Kenya, Lucknow, and Ghana [27, 31-33] respectively. Unmet has been high in never discussed contraception [29]. This may be due to partners' support and a good attitude of encouraging women to get an appropriate choice of contraceptive. Since the culture of male dominance in the household decision has a great impact.

The finding of this systematic review and meta-analysis showed that poor Knowledge of women about family planning was 3.15 times higher unmet need as compared to women's having good knowledge. This finding is supported by other studies, lack of knowledge about contraceptives has increased unmet need [24, 34]. Interventional education done has decreased the unmet need of family planning [35] and also study done in Burkina Faso has shown that health education is an important factor to increase knowledge and reduced the unmet need for contraceptives[25]. The possible reason might be knowledge about family planning helped them to understand from the existence of service up to the identification of possible advantages, disadvantages, and side effects of their contraceptive choices.

This study identified that women having less than or equal to two living children were approximately 50% less likely unmet need for family planning as compared to women having greater than two live children. This finding is supported by a study done in Lucknow [31], having many children who have been associated with the high unmet need [36]. This indicates wanting no more children with live existing children increases unmet need.

This study revealed that positive Partners attitude about family planning was 90% less likely of unmet need as compared to women's having negative attitude partner. This finding is supported by many studies as shown that Husband's discouraging behavior towards utilization of contraceptive has increased unmet need [31]. A study done in Uganda has shown that partner opposition has caused about 20 % unmet in rural, 12% in urban, and 15 % overall unmet need for family planning [37]. A study conducted in Nigeria also has shown husband's disapproval as the main constraint for contraceptive utilization[21] and a study done in Burkina Faso has indicated husband's approval significantly reduced the unmet need for contraceptive utilization [25]. Social disapproval also has shown a significant increase in unmet needs [34]. This implies that males involvement has a great role in contraceptive utilization and decision making.

This study indicated that the Educational status of illiterate partners was 3.6 times more likely unmet need than women's having primary and above educational status partners. This finding is consistent with a study done in Sudan [26]. similarly, in a study done in Nepal, the educational status of partners has shown increased uptake of contraceptives [38] and another study also showed that literacy of husbands decreased unmet need[39]. As the above findings, the attitude of partner and joint discussion, education is vital for access of information, knowledge, awareness and decision making and this may influence decreasing unmet need.

This study revealed that women with a history of discussion with a health worker about family planning were 70% less likely to have unmet needs as compared to women with never discussed family planning. This finding is supported by a study done in Pakistan and India [40, 41] respectively. This might be a discussion with health worker creates awareness about family planning choices, reduces rumors and perceived risks.

Conclusion And Recommendation

The unmet need for family planning in Ethiopia was high as compared to the United Nations World family planning report of 2017. Age at first marriage, discussion with husbands, number of living children, education status of partner, ever discussion with health care workers, knowledge of women about family planning, and husband attitude about family planning were significantly associated with unmet need for family planning. Effective health educational intervention and involvement of husbands during family planning service are important for reducing the unmet need for family planning.

Abbreviations

PRISMA: Preferred Reporting Items of Systematic Reviews and Meta-Analysis, toxoid, SNNP: Southern Nations, Nationalities and Peoples, WHO: World Health Organization, USA: United States of America, EDHS: Ethiopian demographic health survey, NOS: Newcastle -Ottawa scale.

Declarations

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Availability of data and materials

Data will be available upon request.

Authors' contributions

DS: Conception of research protocol, literature review, study design, data

Extraction, data analysis, interpretation, and drafting of the manuscript. SD, AT, and YT: Data extraction, analysis, and reviewing the manuscript.

Consent to publish

Not applicable

Quality assessment. All authors read and approved the manuscript.

Ethics approval and consent to participate

Not applicable.

Competing interests

The authors declare that they have no competing interests.

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Figures

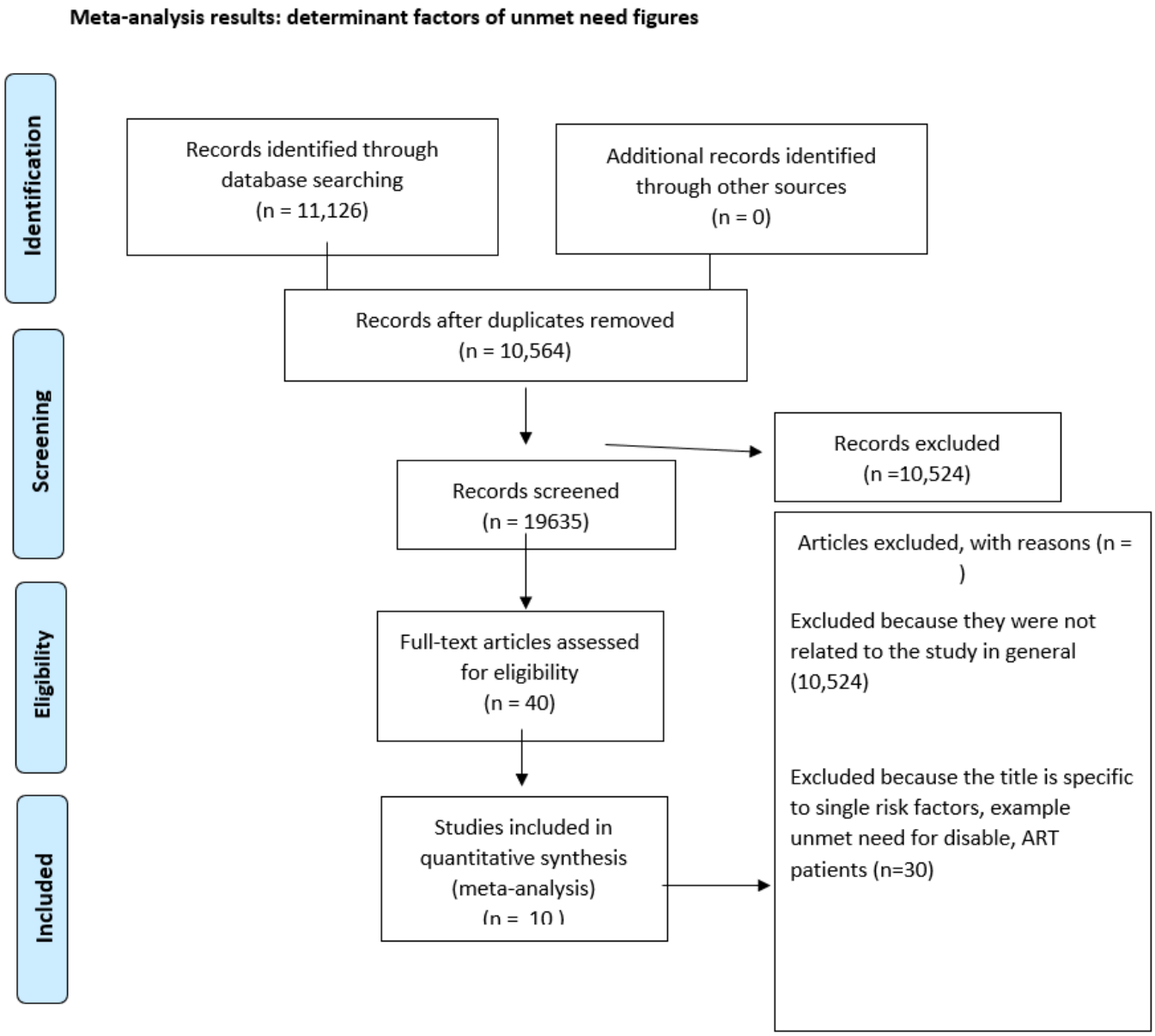

Figure 1

study selection process

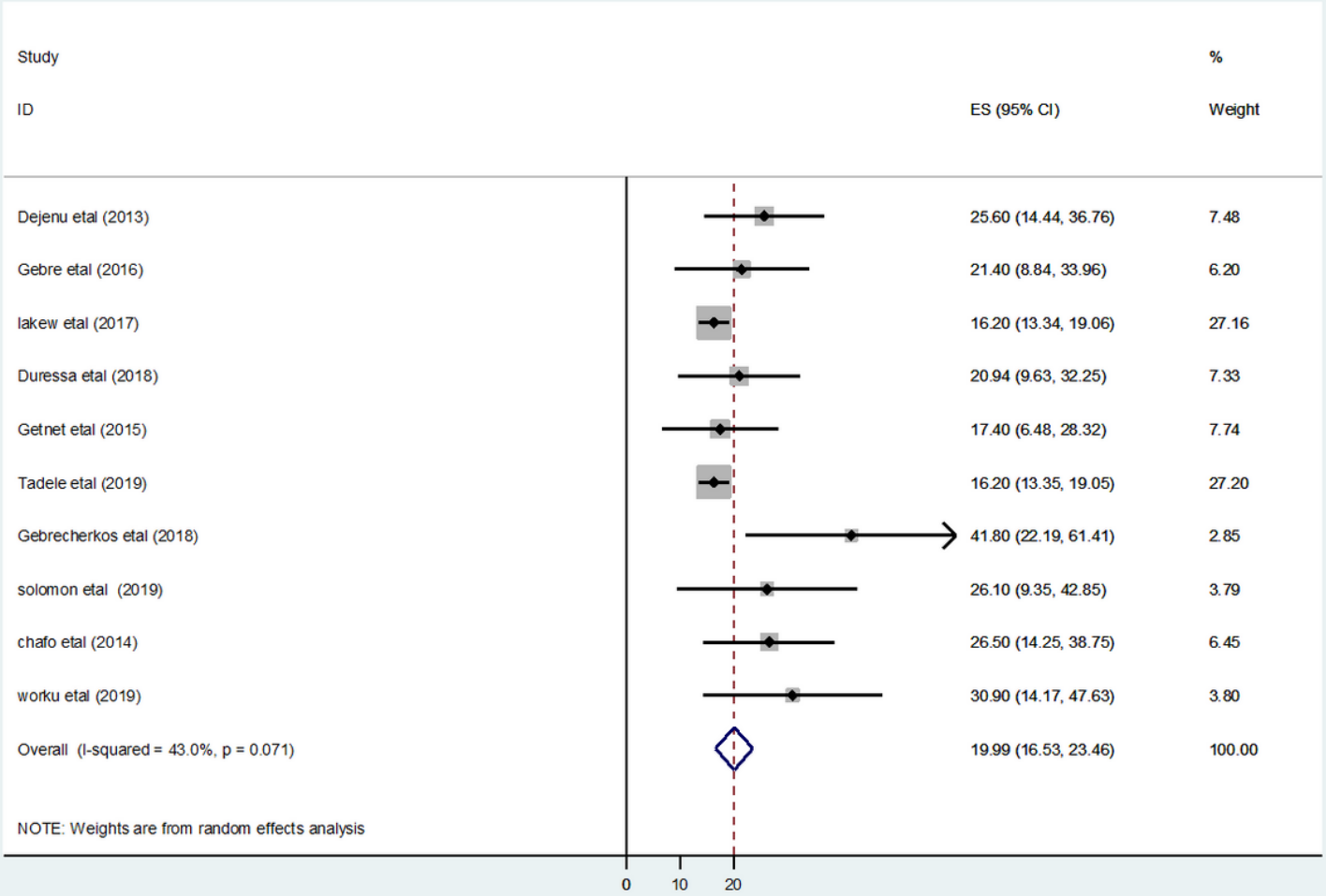

Figure 2

pooled prevalence of unmet need of family planning among married reproductive age group women's in Ethiopia from 2013-2019

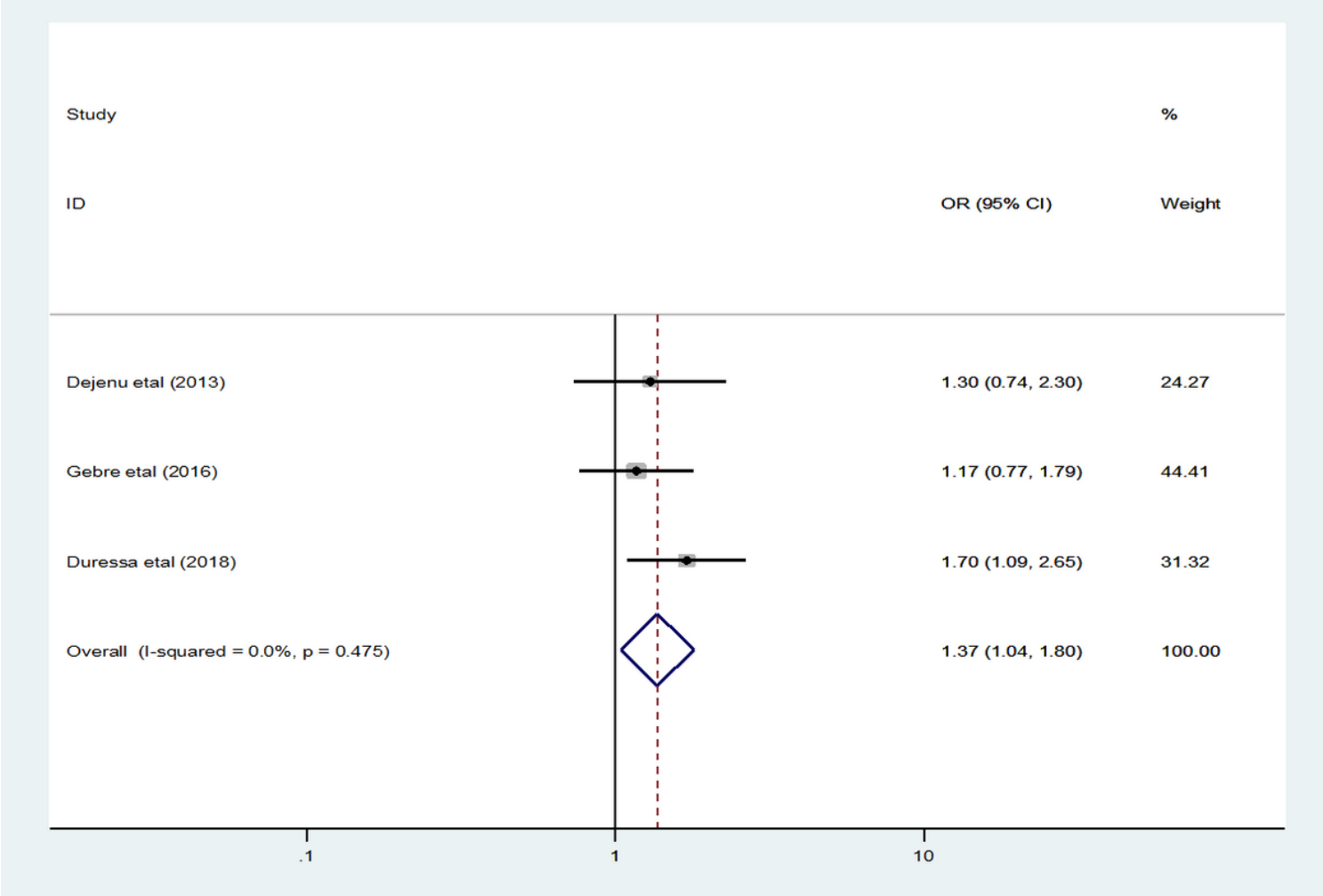

Figure 3

Age at first marriage

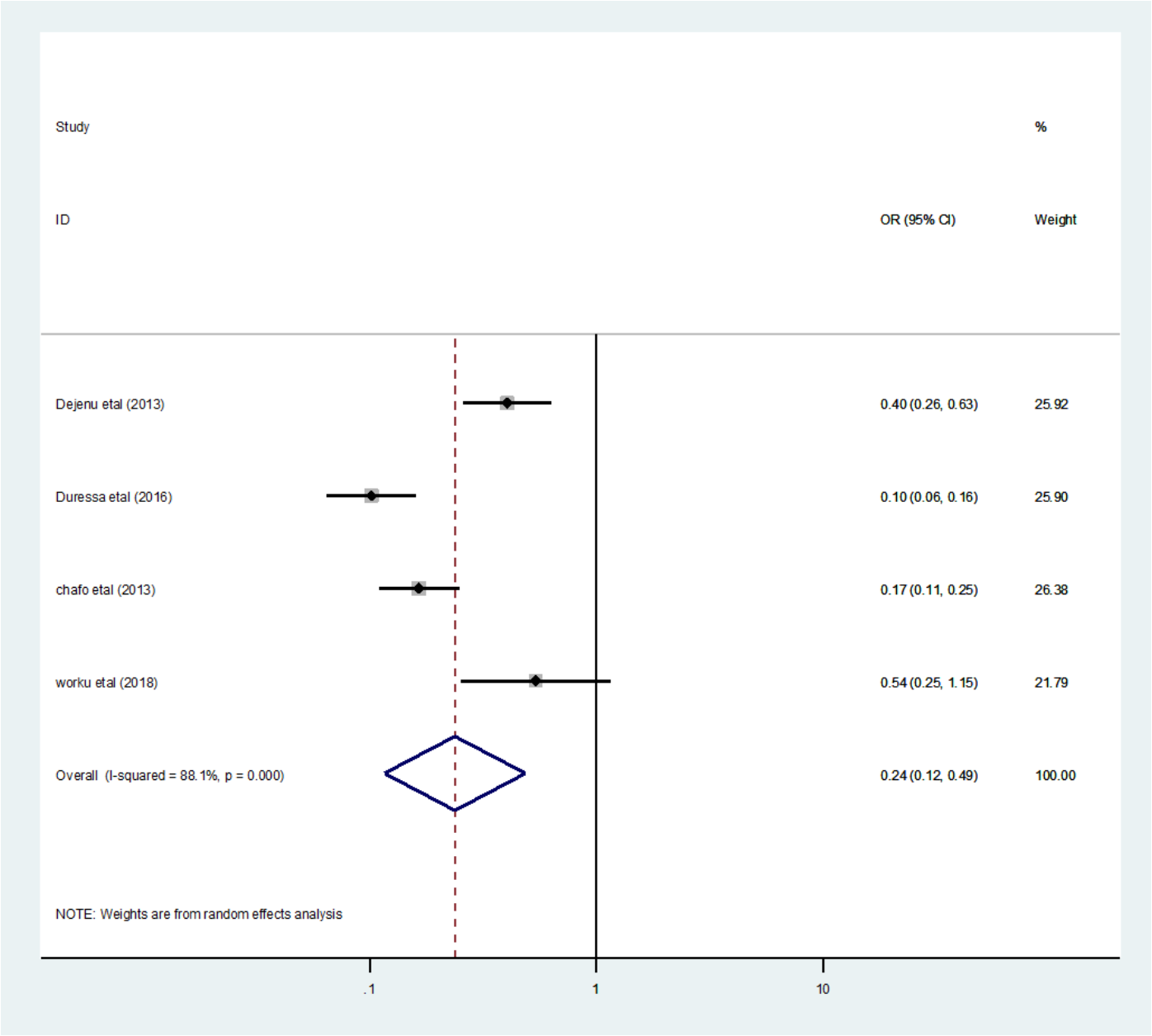

Figure 4

Discussion with husbands

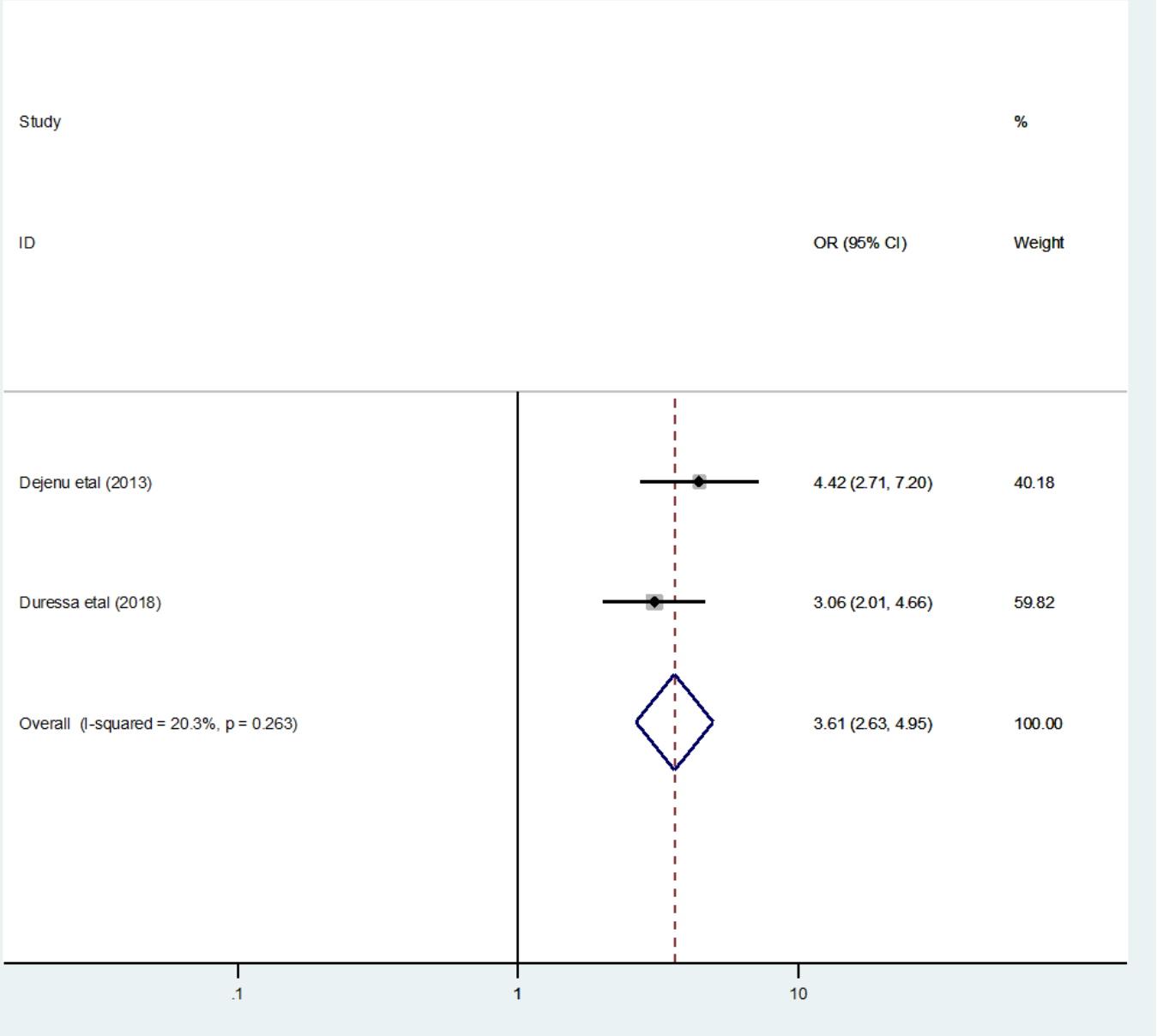

Figure 5

Education status of the partner

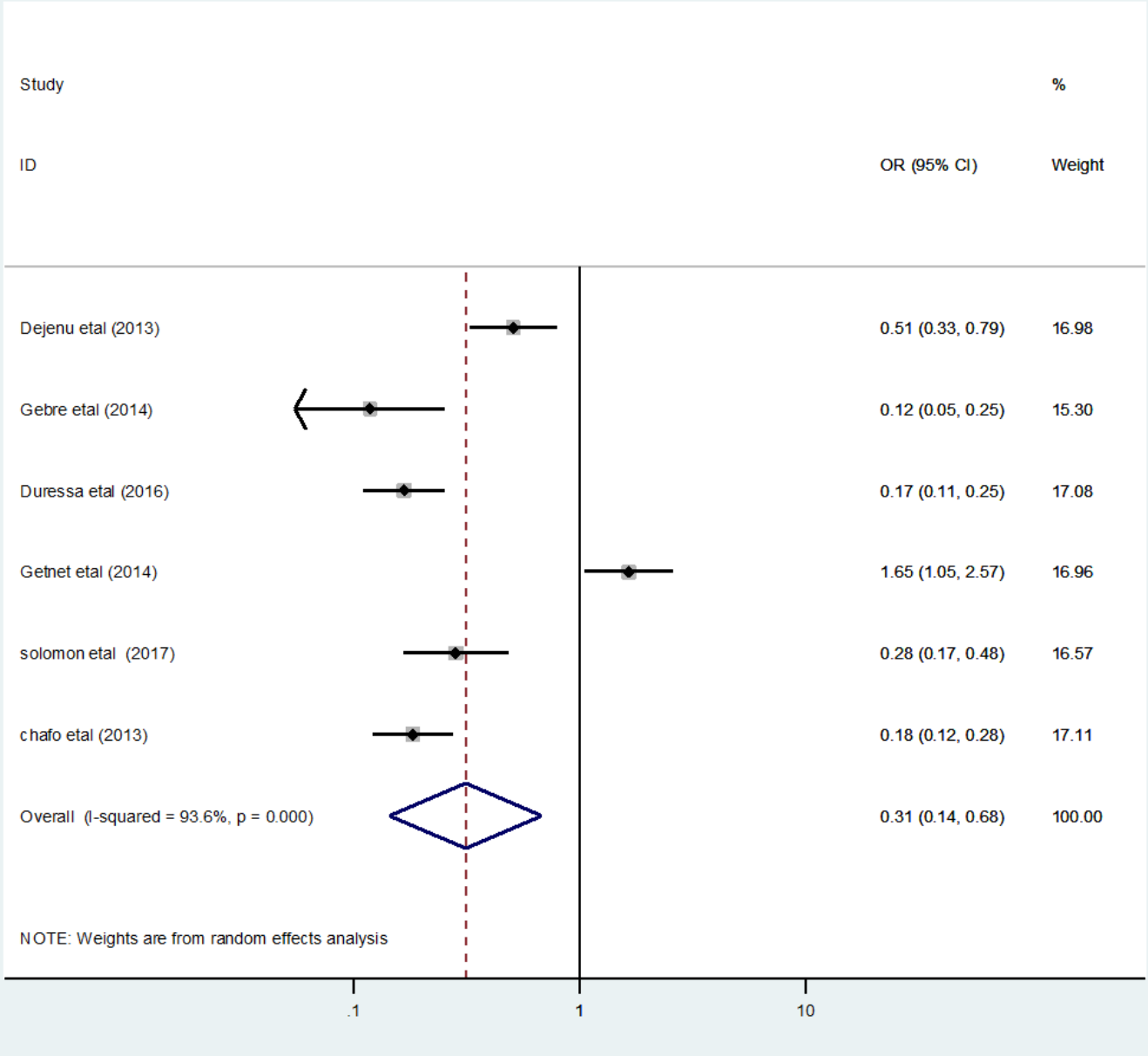

Figure 6

Ever discussion with health workers

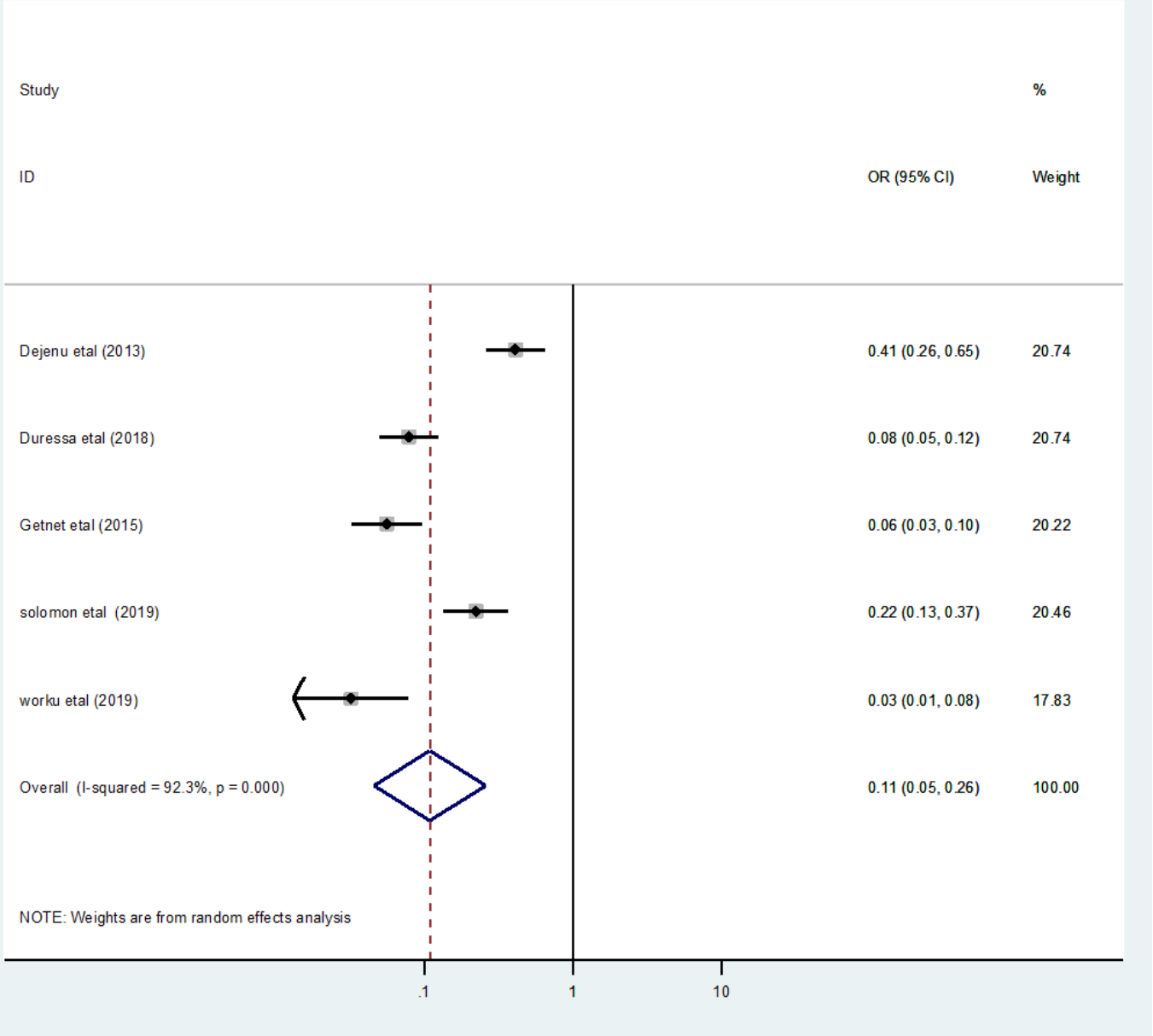

Figure 7

partner attitude about family planning

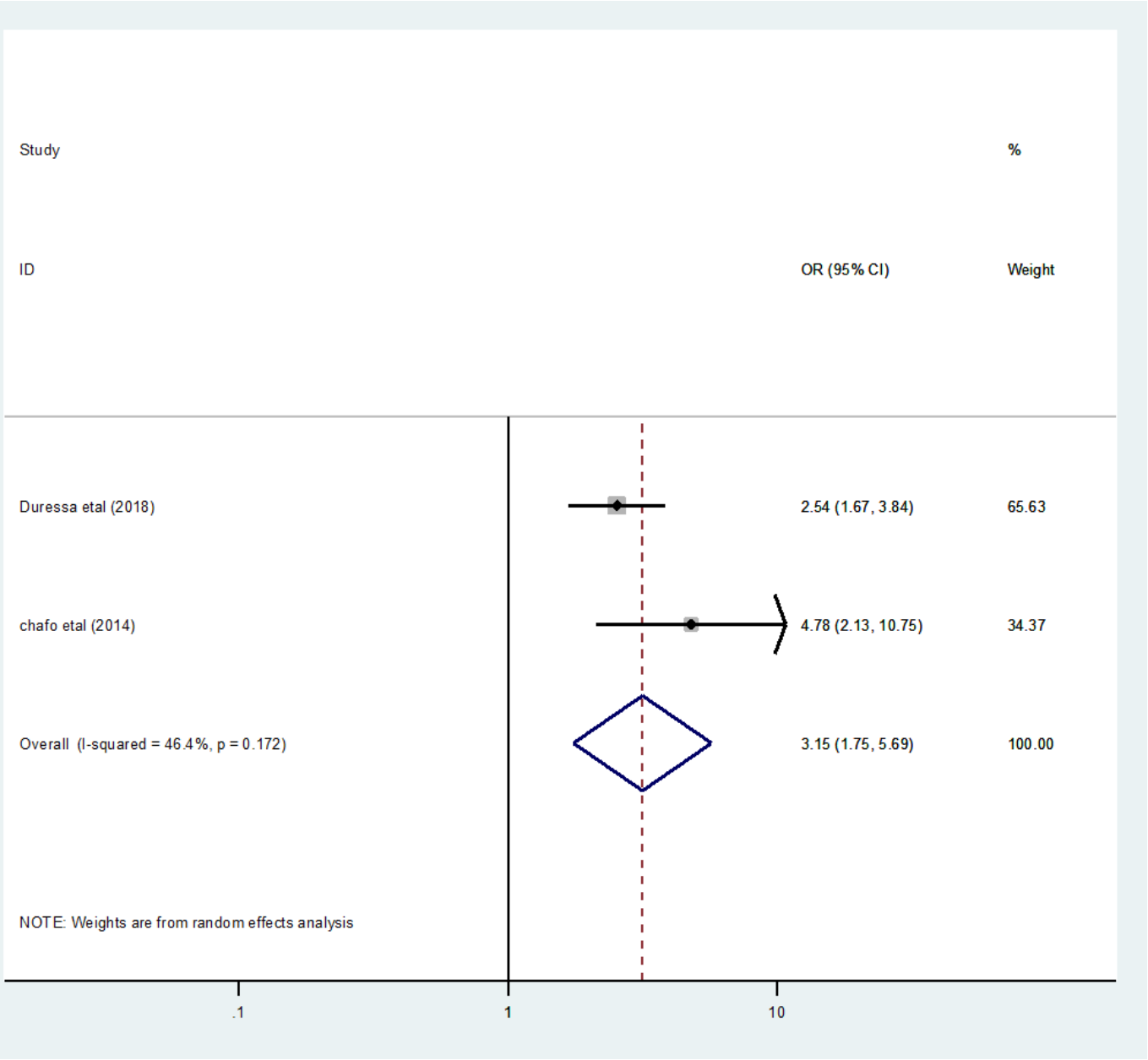

Figure 8

knowledge of women about family planning

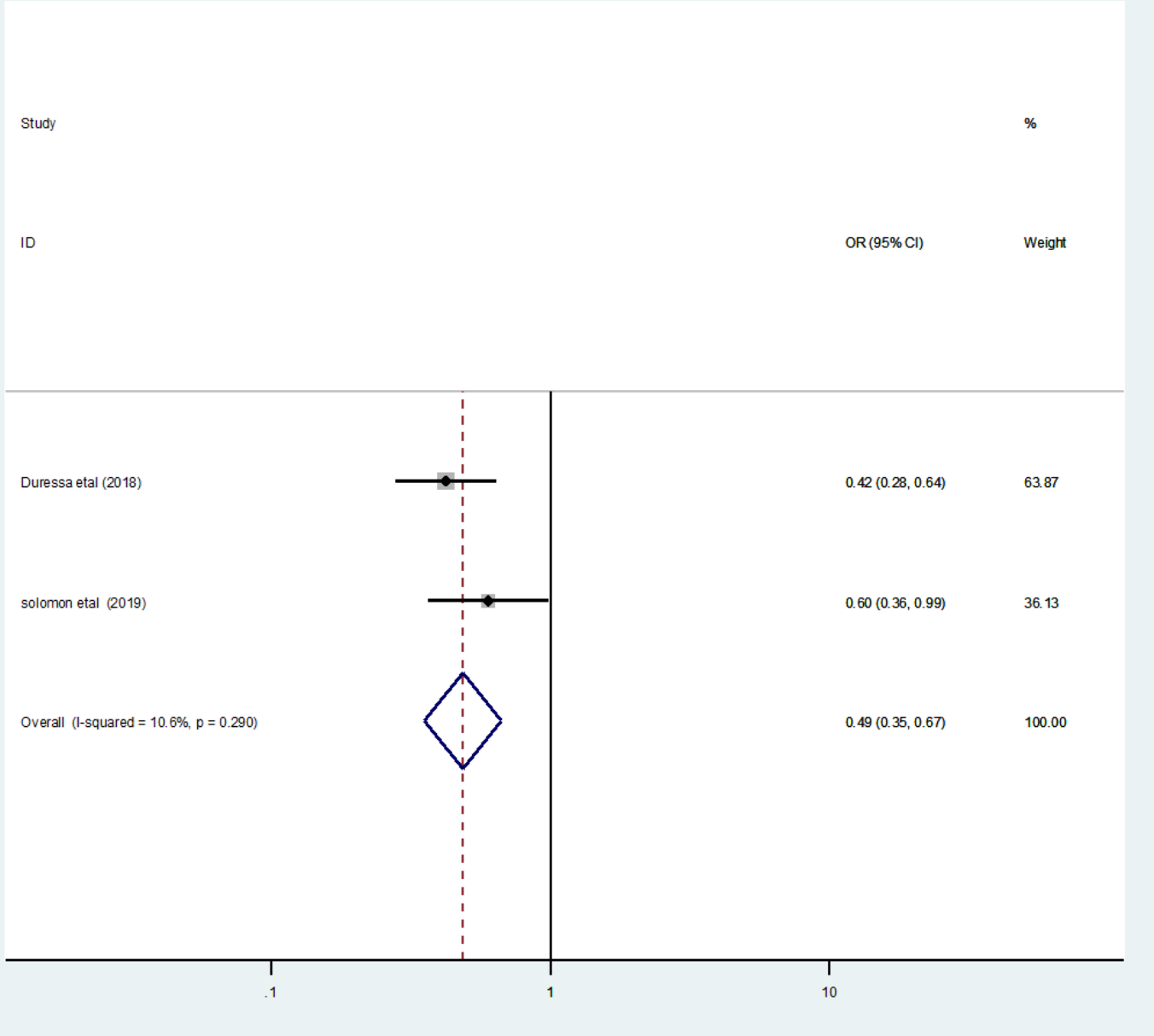

Figure 9

Number of living children