Burden of Gender Based Violence in Ethiopia in case of High School Female Students: Systematic review and Meta-analysis

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Research Article

Keywords: Gender Based Violence,Meta-analysis, High School, Female students, Ethiopia

Posted Date: September 2nd, 2022

DOI: https://doi.org/10.21203/rs.3.rs-2002445/v1

Abstract

Background

Gender-based violence (GBV) violates human rights, has terrible repercussions on the educational system, and is remarkably underreported. The primary objective of this systematic review and meta-analysis was to determine the combined prevalence of gender-based violence (GBV) and its determinants among female students in high schools in Ethiopia.

Methods

Data base search were conducted through PubMed, Science Direct, HINARI. Web of Science,and Cochrane Library. Essential data were extracted using a Microsoft Excel format and analyzed by using STATA Version 17.0. Heterogeneity were checked by using heterogeneity I^2 test and p-values at (I^2 = 98.9%, p < 0.001). To depict publication bias, the funnel plot was utilized, and Egger's and Begg's tests were used to examine it statistically. Subgroup analysis was performed to assess the variation of primary research

Result

The pooled prevalence of lifetime GBV was 50% (95% CI: 41, 59). The pooled prevalence of life time sexual violence, physical violence and psychological violence were found to be 33% (95% CI: 24, 42), 39% (95% CI: 33, 45), and 30% (95%CI: 14, 46) respectively. Alcohol use (AOR: 3.32; 95% CI, 1.70, 6.46), having boyfriend (AOR: 2.61; 95% CI, 1.01, 6.77), being rural residence (AOR: 1:89; 95% CI, 1.52, 2.35) and smoking cigarette (AOR: 7.88; 95% CI: 5:76, 10.77) were found to be determinants of gender based violence.

Conclusion

High school students in Ethiopia struggle greatly with gender-based violence. This issue needs to be addressed by both governmental and non-governmental entities.

Plain English Summary

Gender-based violence in schools (SRGBV) is violence or abuse that targets students based on their sex, sexual orientation, or gender identity or that is motivated by gender stereotypes. Millions of children, families, and communities worldwide are impacted by this phenomena, which transcends social, cultural, and economic boundaries.

The academic performance is negatively impacted by school-related gender-based violence (SRGBV), which also causes high absenteeism, high dropout rates, and rising illiteracy rates. SRGBV is subsequently becoming more widely acknowledged as a significant barrier to the delivery of a high-quality education for all children, with a particular adverse impact on gender equality in education.

Although schools are acknowledged in Ethiopia as places for education, growth, and empowerment, violence and discrimination against female students are all too common there. The prevalence of SRGBV ranged from 13.2% to 74%, however it was unknown what the overall prevalence of gender-based violence among high school students was. As a result, the primary goals of this systematic review and meta-analysis were to calculate the combined prevalence of school-related gender-based violence (SRGBV) in Ethiopia and to determine its determinants. For policymakers, human rights activists, proponents of gender equality, and other stakeholders working on these reproductive health issues, the findings of this study may provide crucial evidence.

For the purpose of this study, data base search were conducted through PubMed, Science Direct, HINARI. Web of Science and Cochrane Library and analyzed by using STATA Version 17.0. Heterogeneity were checked by using heterogeneity I^2 test and p-values at (I^2 = 98.9%, p <0.001). To depict publication bias, the funnel plot was utilized, and Egger's and Begg's tests were used to examine it statistically.

The pooled prevalence of lifetime GBV was 50% when we looked at our findings. The combined prevalence of physical violence, psychological violence, and sexual violence over the course of a lifetime was determined to be 33%, 39%, and 30%, respectively. The usage of alcohol, having a boyfriend, living in a rural area, and smoking cigarettes were discovered to be predictors of gender-based violence. In conclusion, gender-based violence poses a serious problem in Ethiopian high schools and is worrisomely on the rise.

Background

Gender-based violence (GBV) is a pervasive social and public health issue that leads to major physical, psychological and social harm[1, 2].It has been increasingly recognized around the world as a grave challenge for public health and development and as a violation of human rights[3]. GBV is commonly occurs among women and young girls than men, and it has several sexual and reproductive health complications like STIs including HIV/AIDS, unwanted pregnancy, abortion and other complications[4, 5].

School-Related Gender-Based Violence (SRGBV) Violence or abuse that is based on gendered stereotypes or that target students on the basis of their sex, sexuality, or gender identities [6]. School-related gender-based violence (SRGBV) is a phenomenon that affects millions of children, families and communities around the world without cultural, geographic and economic differences in societies[7]. It has been growing social and scientific concern about in recent years [8].Every form of violence has devastating effects on the school system such as physical and psychological effects, educational damage and societal breakdown[9]. Adolescents who experience school violence were more frequently showed a higher risk for feeling of sadness, depression and suicidal ideation [9, 10].

School-related gender-based violence (SRGBV) has negative effects on the academic performance and which led to absenteeism, high levels of dropouts, and increased rates of illiteracy[11, 12]. SRGBV is therefore increasingly recognized as a major obstacle to the achievement of a quality education for all children, and particularly negatively affects gender equality in education[13].

In Ethiopia, although schools are recognized as places of learning, personal development and empowerment, they are too often places of discrimination and violence, particularly against female students[7, 14]. The

prevalence of SRGBV was vary from 13.2% [15] to 74%[3]. Violence against women[16] and sexual violence in higher institution[17] were combined, but it wasn't clear how common gender-based violence was among high school students. Therefore, the primary goals of this systematic review and meta-analysis were to determine the causes of school-related gender-based violence (SRGBV) in Ethiopia and to estimate the combined prevalence of this type of violence. The results of this study may be crucial evidence for decision-makers, human rights advocates, proponents of gender equality, and other stakeholders involved in reproductive health issues.

Methods

Search strategy and study setting

Preferred Reporting Items for Systematic Reviews and Meta-Analyses criteria were used to conduct the review. Gender-based violence and its related elements among Ethiopian high school female students were researched in both published and unpublished studies. PubMed, Science Direct, HINARI . Web of Science,and Cochrane Library were searched for papers relevant to high school female students' gender-based violence. Google and Google Scholar were used to find unpublished studies in the gray literature.

Search terms used included a combination of the following: “females OR female OR girls OR girl OR high school students OR high school student OR Female [MeSH Terms] OR women [MeSH Terms] AND Ethiopia OR federal democratic republic of Ethiopia OR Ethiopia[MeSH Terms] AND Gender based violence OR Rape OR Female genital cutting OR Domestic Violence OR Gender Violence OR Sexual Harassment OR Unwelcome Touching OR Verbal Joking OR Forceful Sexual Intercourse OR (Physical Violence OR Sexual Exploitation OR Sexual Abuse OR Sexual harassment OR Psychological assault OR Gender Based Violence [MeSH Terms] OR Violence, Gender-Based [MeSH Terms]”. The presence of disagreements regarding the included articles was resolved by talking and reaching an agreement in the presence of the third author (TMD), after the two authors (SDH &ABM) independently searched the primary articles. (SDH &ABM) used conventional Microsoft Excel spreadsheets to extract data from the included papers, which they then imported into Stata version 17.0 for management and analysis. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) [18] was used to format this systematic review and meta-analysis.

Selection criteria

Inclusion: Studies were included if they (1) were conducted in Ethiopia; (2) were observational studies (cross-sectional, cohort, and case controls); (3) were published in English; (4) included high school female students (grade 9-10 or 11-12 or 9-12); (5) At least reports life time gender based violence.

Exclusion: Excluded studies were those that were not fully accessed throughout the selection process. However, prior to the articles being excluded, many attempts were made to contact the original author via email.

Data extraction

The twowriters (ABMand SDH) used an identical data extraction format generated in Microsoft Excel^{TM} to extract all of the essential data. The first author, study period, study year, publication year, study design, data collection method, study setup, age of participant, region and area in the country where the studies were

conducted, sample size, response rate, and prevalence of life time gender based violence were all included in the data extraction format for the primary outcome.

Each variable had its own data extraction format for independent variables (residence urban or rural, marital status currently married or not, having boyfriend yes or no, living with family or no, khat chawing yes or no, smoking yes or no, alcohol consumption yes or no). These characteristics were chosen because they were referenced frequently in the meta-analysis' studies.

Quality assessment

To measure study quality, we used the Newcastle-Ottawa Scale adapted for cross-sectional studies quality rating. The tool has three main portions of indicators, the first of which has a five-star rating and assesses each study's methodological excellence. The tool's second section looks at how well the studies are comparable. The final portion of the tool evaluates the original articles' statistical analysis quality [19] .

Outcome measurements

Two important conclusions emerged from this review and meta-analysis. The main objective was to track the prevalence of gender-based violence against female high school students in Ethiopia. The study's second objective was to identify the variables that affect gender-based violence. The prevalence was obtained by dividing the number of perpetrators of gender-based violence by the total number of study participants (sample size).

The two-by-two tables were used to determine the odds ratio for related factor variables from the primary studies.

Statistical analysis

The necessary data was retrieved in Microsoft Excel ^{TM} format and analyzed with Stata 17.0. (Software). The original articles were described using a table and a forest plot. We looked for heterogeneity in the reported prevalence of studies using the heterogeneity I^2 test and p-values.

A random effects meta-analysis approach was utilized to analyze the Der Simonian and Laird's pooled effect. To depict publication bias, the funnel plot was utilized, and Egger's and Begg's tests were used to examine it statistically.

Duval and Tweedie's Trim and Fill analyses were employed. Subgroup analysis was performed based on several variables to assess the variation of primary research.

Results

Explanation of the article identification and selection process

We searched Ethiopian peer-reviewed papers from 1986 to 2021 for research that discussed gender-based violence and related factors among female high school students. The search technique turned up 497 publications. We found 49 publications for full text evaluation after filtering for possibly suitable articles, of

which 15 were included in the final review. In order to evaluate the prevalence of gender-based violence and related risk factors, we performed a meta-analysis using data from the review (Fig. 1).

Details of original studies

All of the studies included in this review and meta-analysis were conducted in Ethiopia's four administrative regions and used a cross-sectional design. There were seven studies in the Southern Nations, Nationalities, and Peoples' Region (SNNPR)[20–26], four in Amhara [27–30], three in Oromia[31–33], and one in Dire Dawa[34]. The sample size for the primary study ranged from 140 at Debre Markos town in Amhara[27] to 1,199 at eastern Ethiopia in Oromia[31]. This systematic review and meta-analysis included 6, 948 female high school (10th -12th grade) students to assess the pooled prevalence of life time gender-based violence. The response rate of all primary study participants was 94.3% or higher. In primary studies, the highest and lowest lifetime rates of gender-based violence were 74 percent in Modjo & Bishoftu Oromia[3]and 13.2% in Dilla town[15], respectively (Table 1).

The quality of original papers was evaluated individually by reviewers and was determined to be between 7and 9 out of 10 points on the quality evaluation criteria).

Table 1
Characteristics of 14 studies reporting gender-based violence and its associated factors among high school female students: A systemic review and meta-analysis, 2022.

Authors	study year	pub/year	Participants	participant age	Study area	sample	Response rate (%)	Life time GBV (%)
Dogiso et al[25]	2018	2019	High School Students	16.92 ± 2.36	Aleta Wondo	370	96.7	68.2
Eshetu[32]	2012	2015	Grade 9–12 Students	17.17 + 1.67	Ambo District	414	94.3	35.5
Mekonnen et al[3]	2018	2019	Preparatory Students	17.83 + 1.07	Modjo & Bishoftu	323	100	74
Nimani et al[20]	2012	2015	High School Students	16.6 + 1.6	Butajira town	332	98.2	32.8
Worku et al[28]	1999	2002	High School Students	16.4+-1.47	Debark town	216	100	65.3
Tantu et al[26]	2017	2020	High school students	17.08 ± 1.5	Soddo town	633	95	63.2
Getachew et al.[27]	2014	2015	High school students	17.2 ± 1. 6	Debre Markos	140	88.6	67.7
Hailu et al[22]	2014	2020	Grades 9–10 Students	15.8 + 1.4	Soddo town	528	97.5	25.8
Letta et al [23]	2013	2014	Grades 9–12 Students	16.99 ± 1.56	Hadiya Zone	816	98.16	62.2
Tarekegn et al[21]	2015	2017	Grade 9–12 Students	16	Dilla town	280	97	13.2
Mulugeta et al[24]	2017	2017	High school student	N/A	Bench Maji zone	244	100	41.5
Mingude et al[29]	2020	2021	High school student	17.03 ± 1.49	Debre Berhan	350	98	47.2
Abera et al[34]	2021	2021	High school students	16.0 ± 1.5	Dire Dawa	794	98.8	48.9
Ashebir et al[30]	2018	N/A	high school students	16.89 ± 1.4	Debre Markos	309	95.8	47
Beyene et al[12]	2018	2021	High school Students	14–24	Eastern Harerhge	1,199	100	53.04

Review And Meta-analysis

The overall pooled prevalence of lifetime gender-based violence among Ethiopian high school female students was 50% (95% CI: 41, 59), sexual violence 33% (95%CI: 24, 42), physical violence 39% (95%CI: 33, 45), and psychological violence 30%. (95%CI: 14, 46) respectively (Fig. 2). Dueto statistically significant heterogeneity between studies, we used a random effect meta-analysis model to estimate the pooled effect of gender-based violence, sexual, physical and psychological violence among high school female students in Ethiopia. ($I^2 \geq$ 96.2%, $p < 0.001$). A subgroup analysis was carried out to evaluate the possible sources of heterogeneity (Table 2). To determine the publication bias, we used a funnel plot and Egger's tests. The funnel plot was symmetrical (Fig. 3). The Eggers test ($p > 0.839$) revealed that no small study effect(publication bias).

Subgroup Analysis

We conducted subgroup analysis to identify possible source of heterogeneity. Based on the study region, Amhara had the highest prevalenceof life time gender-based violence 57% (95%CI: 46, 67) while SNNPR had the lowest prevalence of life time gender-based violence at 44% (95%CI: 27, 60). The life time gender-based violence was more common in studies conducted after year of 2015 than 2015 or before. Changes within mean sample size did not significantly affect the life time gender-based violence (Table 2).

Table 2
Results of subgroup analysis of life gender-based violence in Ethiopia, 2022(n = 15)

Variables	Characteristics	Number of studies	Total participants	Prevalence with 95% CI
Region	SNNPR	7	3,203	44% (95%CI: 27, 60)
	Amhara	4	1,015	57% (95%CI: 46, 67)
	Oromia	3	1,936	54% (95%CI: 36, 73)
	Dire Dawa	1	794	49% (95%CI: 45, 52)
Period of study year	2015 and Before	7	2,726	43% (95%CI: 27, 59)
	After 2015	8	4,222	55% (95%CI: 48, 63)
Average sample size	< 463	10	2,978	49% (95%CI: 36, 63)
	≥ 463	5	3,970	51% (95%CI: 38, 63)

Factors associated with gender based violence

To identify factors associated with gender-based violence, we used ten primary research from a total of fifteen publications. Alcohol use, having boyfriend, being rural residence and smoking cigarette were all factors that contributed to gender based violence.

Girls who have used alcohol are more than three times as likely as non-alcohol users to experience lifetime gender-based violence (AOR = 3.32; 95% CI, 1.70, 6.46). When compared to those girls who have boyfriend with do not have boyfriends, girls who have boyfriends are 2.6 times more likely to experience lifetime gender-based

violence (AOR: 2.61; 95% CI, 1.01, 6.77). When compare urban and rural students, rural students are 89% more likely to experience lifetime gender-based violence (AOR: 1:89; 95% CI, 1.52, 2.35). Students who have experience of smoking were more than seven time more likely to life time gender-based violence (AOR: 7.88: 95% CI: 5:76, 10.77) as compared to non-smoker (Fig. 4).

Discussion

This systematic review and meta-analysis was pooled prevalence of Gender-based violence by incorporating all three types of gender-based violence namely sexual violence, physical violence, and psychological violence. This review identified that being from a rural residence, having a boyfriend, alcohol use, and smoking cigarette were associated factor for gender-based violence in Ethiopian school girls.

In this study,the overall pooled prevalence of lifetime Gender-based violence (GBV) among high school students was 50%. The highest prevalence was found in Amhara region(57%) and the lowest prevalce was in SNNPR (44%). Our finding is lower than the pooled prevalence of GBV reported in sub-Saharan Africa 52.83% and 67.7; specifically in Ethiopia[35]. The main variation might be due to the difference in target population.The review of GBV in sub-Saharan countries included all educational institution but our review was on high school students. The other difference might be due to the difference in access to information regarding reproductive issues. However;this finding is higher than the previous study conducted in Ethiopian 46.93% [16] and study conducted on intimate partner violence 37% [36]. This difference might be due to the difference in study population. The previous review of GBV in Ethiopia was focused on all women but our review was on high school students which the younger population were found. Youths are more susbtible for GBV than other women this might be inflate the result of our study.

When we see our finding by study period, the prevalence GBV was high(55%) in studies conducted after 2015. This finding indicates that GBV inschool girl is alarmingy increasing time to time.

In this review the pooled prevalence of lifetime sexual violence was 33% which is higher than a systematic review conducted in Sub-Saharan Africa 26.22% [35] but lower than study conducted in higher education institution of Ethiopia 49.4%[17] and Prevalence of Violence against Women in Ethiopia 39.33%[16]. This difference might be dueto the difference in study population, sample size and exposure to sexual risky behaviour.Fore example, the prevalence of study conducted in higher education institution of Ethiopia was 49.4%. This high prevalence might be dueto exposure to sexual risky behavior. The poolede prevalence of sexual risky behaviours in higher education institution was 41.62[37] because students in higher education institution were living far from their parent and more prone to sexual risky behaviours.

Our result was also higher than a systematic review conducted on workplaces in Ethiopia which indicated that the prevalence of sexual violence was 22%[38]. This difference might be due to the difference in study populations and the sexual violence in students and the workplace might be not the same or has variation in occurrence. Women in work place have their own source of income, and might have adequate information about gender right.So, this might be decrease vulnerabilities to gender based violence.

In our study, physical violence was 39%. This finding is similar from the study conducted in Ethiopian women 38.15%[16]. This may be due to socio cultural and socio economic similarity or might be by chance. But, our

finding was higher than the study conducted in sub-saharan Africa 18.86%[35]. This variation might be due to the difference in culture and reproductive health information.

In our study the prevalence of psychological violence was 30%. This finding is lower than from the study conducted in Ethiopian women 39%[16] but higher than from the study conducted in Sub- Saharan Africa 27.06%[35]. This might be due to the difference in sample size, target group and study period.

Students who had use alcohol were 3.32 times more likely at riks for gender based violence than their counterpart (AOR: 3.32; 95% CI, 1.70, 6.46). This might be due to the effect of alcohol on perpetuation of gender based violence.Girls who drunk alcohol might not anticipate the potential risks, consequences and lack of conscious reflection towards GBV [39, 40]. The odd of gender based violence was 7.88 times higher among students who were smoking cigarette than their counter part (AOR: 7.88; 95% CI: 5:76, 10.77). This might be due to the fact that substance use like cigarette increased exposure to GB.This justification is suppoted by another study[41]. GBV Exposure Index was significantly associated with current smoking behavior (OR:1.62, 95% CI :1.21,2.17)[42].This finding is dilemmatic dueto the aruement that did cigarette smoking was the effect or cause of GBV because women who had history of GBV were highly at risk for cigarette smoking[43].

In our study finding, being rural residence was 89% increased the risk of gender based violence (AOR: 1:89; 95% CI, 1.52, 2.35).This might be due to the fact that rulural girls had less exposure to sexual and reproductive health information, and inaccessibility to legal services.Also,rural girls are more likely to remain silent about experiencing violence due to fear of stigma and discrimination. On the other side,urban girls might have greater opportunities to cope with violence more effectively in relation to tolerance, access to economic resources and institutional support.

In this review ,having boyfriend was 2.61 times increased the risk of GBV (AOR: 2.61; 95% CI, 1.01, 6.77).This might be due to the fact that one of the highest prevalence of GBV intimate partner violence[16].

Strength And Limitation Of This Review

In this systematic review and meta-analysis, the prevalence and contributing determinants of gender-based violence among Ethiopian high school students were quantitatively summarized. The first review of high school students was done here. All readily available and accessible electronic data bases were thoroughly searched. To ensure the findings' representativeness, the relevant quality assurance procedures were carried out.

Even with such a diligent effort, this evaluation may still have some limitations. All of the research in this analysis were cross-sectional since only quantitative studies were considered. To investigate student and community perceptions around GBV, qualitative studies may be crucial.

Conclusion And Recommendation

High levels of gender-based violence were present among Ethiopian high school students. This data also suggests that overall violence is on the rise. The usage of alcohol, having a boyfriend, living in a rural area, and

smoking cigarettes were discovered to be factors in gender-based violence. Therefore, the issue should be actively addressed by all parties involved, including government agencies, local officials, and youth facilities.

Declarations

Author's contribution :ABM and SDH was conducted database search**,** data extraction**,** conducts data analysis, wrote the paper. **TMD** wrote discussion, edit the paper. Finally, all the three authors read and approved the manuscript.

Competing interests: The authors declare that they have no competing interests.

Ethics approval: Not applicable

Consent to participate: Not applicable

Data availability statement: The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Funding: The authors received no financial support for this work

Conset to publication: Not applicable

Acknowledgments

We would like to acknowledge all of our friends who support us on the review and analysis period of this study.

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Figures

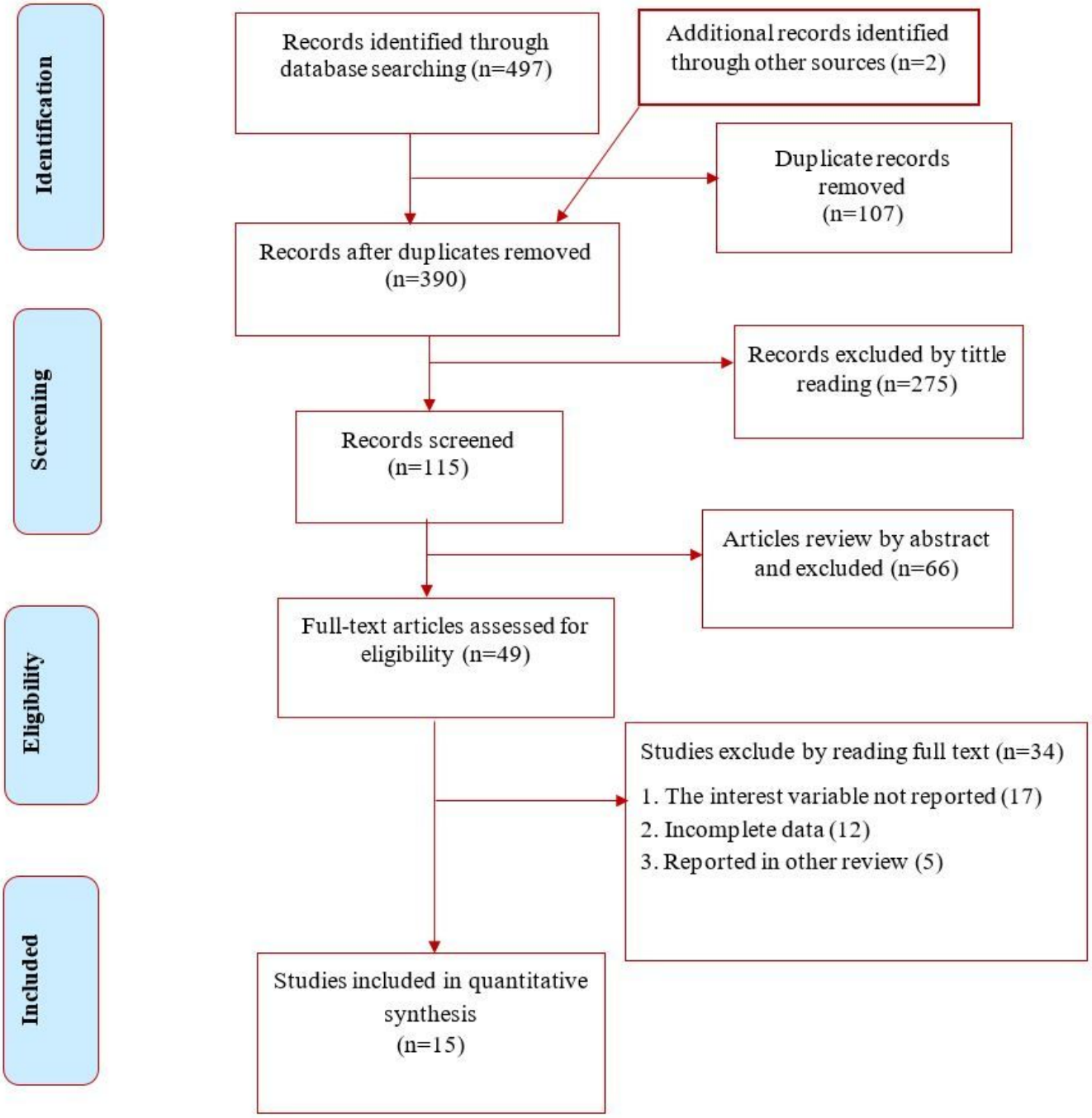

Figure 1

Flow diagram showing the procedure of selecting studies for meta-analysis of gender-based violence among high school female students', in Ethiopia, 2022.

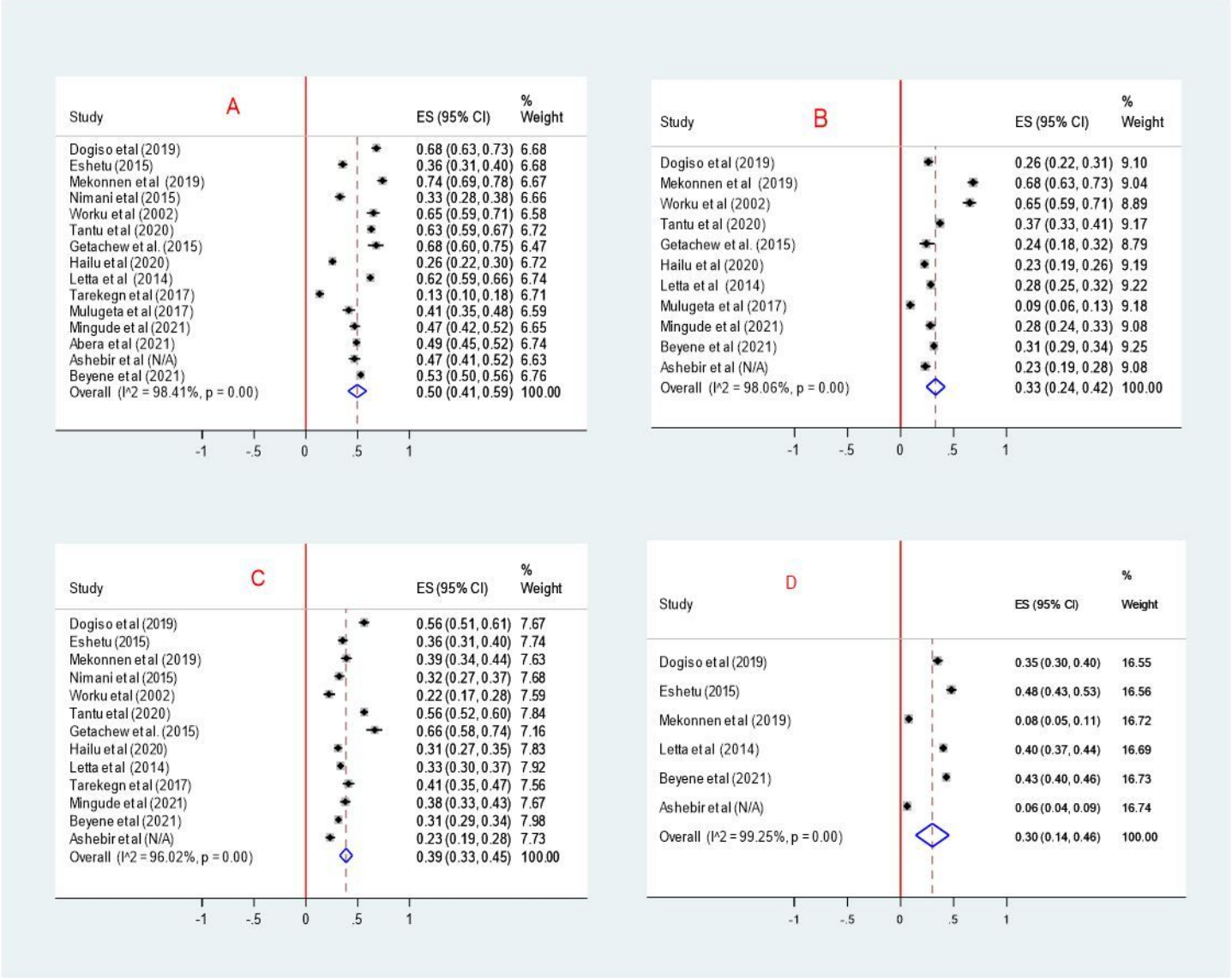

Figure 2

Forest plot of pooled prevalence of gender-based violence (A=life time gender-based violence, B=sexual violence, C=physical violence, D=psychological violence).

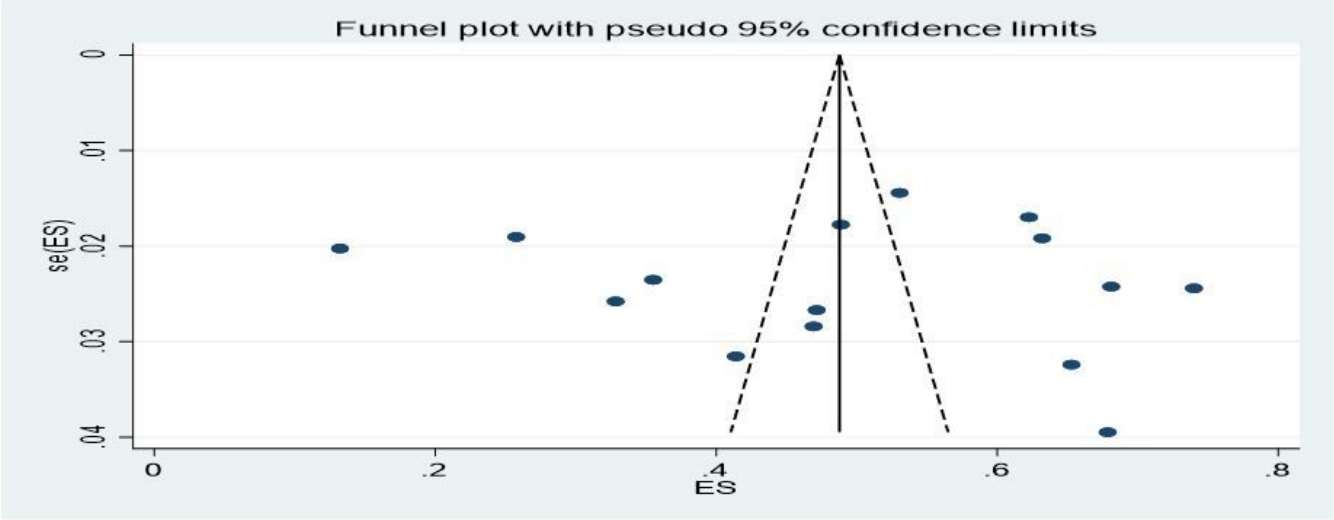

Figure 3

Funnel plots to test publication bias of 15 studies, 2022

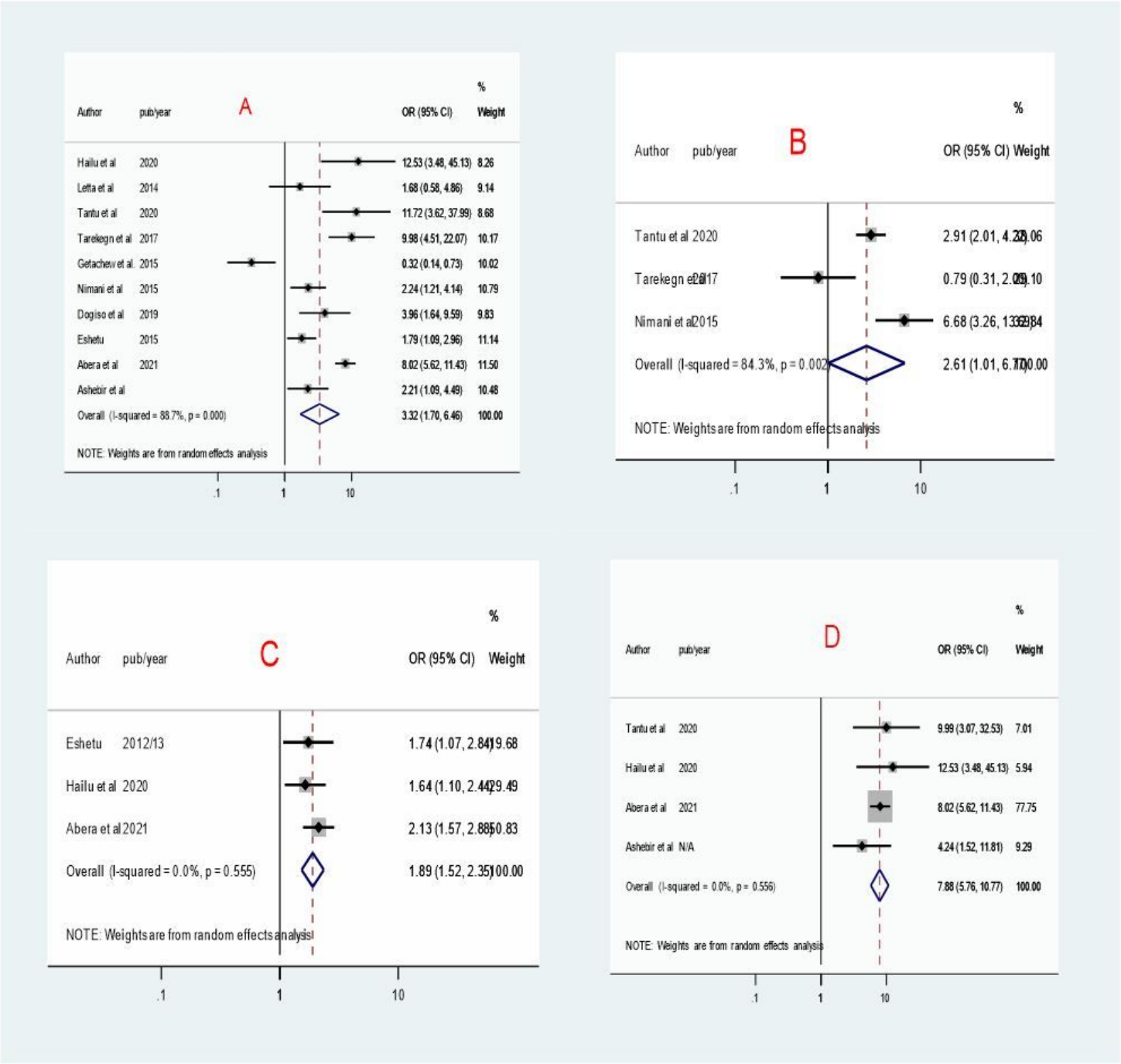

Figure 4

Forest plot depicting pooled odds ratio (log scale) of the associations between life time gender-based violence and its associated factors (A: alcohol consumption, B: having boyfriend, C: rural residence D: smoking).

Supplementary Files

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- qualityassessmenttools.docx