



**PREMARITAL SEXUAL PRACTICE AND ITS PREDICTING FACTORS  
AMONG YOUTH: Meta-Analysis**

**Authors:**

**Ananda Fadila Nisa<sup>1</sup>, Askuri<sup>2</sup>**

<sup>1,2</sup>Faculty of Health Sciences Master of Midwifery Program Aisyiyah University Yogyakarta

Corresponding Email: [nisa.anandaf@gmail.com](mailto:nisa.anandaf@gmail.com)

**About the Author**

1. 1st Author : Ananda Fadila Nisa, S.Tr.Keb., Bdn.  
Affiliation : Faculty of Health Sciences Master of Midwifery Program Aisyiyah University Yogyakarta.  
Mailing address : Universitas 'Aisyiyah Yogyakarta, Jl. Ringroad Barat No.63, Area Sawah Nogotirto, Kec. Gamping, Kab. Sleman, Daerah Istimewa Yogyakarta, Telp/Fax (0274) 4469199 55592  
Email of author : nisa.anandaf@gmail.com  
Orcid ID : <https://orcid.org/0009-0007-9824-5610>  
Google Scholar URL : <https://scholar.google.com/citations?hl=id&user=q7C1ve4AAAAJ>  
Phone number : 0895414280044
- 2nd Author : Dr. Askuri, M.Si.  
Affiliation : Faculty of Health Sciences Master of Midwifery Program Aisyiyah University Yogyakarta.  
Mailing address : Universitas 'Aisyiyah Yogyakarta, Jl. Ringroad Barat No.63, Area Sawah Nogotirto, Kec. Gamping, Kab. Sleman, Daerah Istimewa Yogyakarta, Telp/Fax (0274) 4469199 55592  
Email of author : askuri@unisayogya.ac.id  
Orcid ID : <https://orcid.org/0000-0002-5428-4542>  
Google Scholar URL : <https://scholar.google.com/citations?user=NnRIRDIAAAAJ&hl=en>  
Phone number : 08122940894

**ABSTRACT**

**Background:** Youth aged 15-24 is a critical period when sexually active, increasing the risk of STIs, HIV/AIDS, and unintended pregnancies. Hormonal changes during this time make adolescents more prone to risky behaviors. **Objective:** To estimate the effect of age, gender, alcohol, smoking, pornography, and residence on the prevalence of premarital sexual practice among youth. **Method:** The study included 23 cross-sectional studies published between 2014 and 2024, with a total sample size of 18,764 participants. Articles were sourced from Google Scholar, PubMed, BMC, ScienceDirect, and Springer Link. The analysis followed the PICO framework: Population: youth Intervention: 20-24 years, male, alcohol consumption, smoking, pornography, and rural. Comparison: 15-19 years, female, no alcohol, no smoking, no pornography, and urban. Outcome: Premarital sexual practice. Data analysis was conducted using Review Manager 5.3 software. **Results:** The analysis showed that premarital sexual practice was significantly associated with the following factors: Age 20-24 (aOR=3.11; 95% CI=2.23 to 4.34; p<0.001). Male gender (aOR=1.98; 95% CI=1.14

to 3.43;  $p < 0.001$ ). Smoking ( $aOR = 2.23$ ; 95% CI = 1.17 to 4.25;  $p < 0.001$ ). Alcohol consumption ( $aOR = 2.98$ ; 95% CI = 0.93 to 9.53;  $p < 0.001$ ). Urban residence ( $aOR = 0.84$ ; 95% CI = 0.57 to 1.26;  $p = 0.001$ ). Pornography exposure ( $aOR = 2.70$ ; 95% CI = 1.67 to 4.36;  $p = 0.001$ ) **Conclusion:** Premarital sexual practices among youth are influenced by factors like age, gender, smoking, alcohol consumption, residence, and pornography exposure. Addressing these factors through targeted public health interventions can reduce risky sexual behaviors and mitigate the risks of STIs, HIV/AIDS, and unintended pregnancies in vulnerable populations.

*Keyword :* premarital sexual practice, youth, gender, age, residence.

## ABSTRAK

**Latar Belakang:** Remaja 15-24 tahun merupakan masa kritis untuk aktif secara seksual sehingga meningkatkan risiko terjadinya IMS, HIV/AIDS, dan kehamilan tidak diinginkan. Perubahan hormonal pada masa ini membuat remaja lebih rentan melakukan perilaku berisiko. **Tujuan:** Untuk memperkirakan pengaruh usia, jenis kelamin, konsumsi alkohol, merokok, pornografi, dan tempat tinggal terhadap prevalensi perilaku seks pranikah pada remaja. **Metode:** Penelitian ini mencakup 23 studi cross-sectional yang diterbitkan antara tahun 2014 dan 2024, dengan total ukuran sampel 18,764 partisipan. Artikel bersumber dari Google Cendekia, PubMed, BMC, ScienceDirect, dan Springer Link. Analisisnya mengikuti kerangka PICO: Populasi: pemuda Intervensi: 20-24 tahun, pria, konsumsi alkohol, merokok, pornografi, dan pedesaan. Perbandingan : 15-19 tahun, perempuan, tidak minum alkohol, tidak merokok, tidak pornografi, dan perkotaan. Hasil: Praktek seksual pranikah. Analisis data dilakukan dengan menggunakan perangkat lunak Review Manager 5.3. **Hasil :** Analisis menunjukkan bahwa praktik seksual pranikah berhubungan signifikan dengan faktor-faktor berikut: Usia 20-24 tahun ( $aOR = 3.11$ ; CI 95% = 2.23 hingga 4.34;  $p < 0.001$ ). Jenis kelamin laki-laki ( $aOR = 1.98$ ; 95% CI = 1.14 hingga 3.43;  $p < 0.001$ ). Merokok ( $aOR = 2.23$ ; 95% CI = 1.17 hingga 4.25;  $p < 0.001$ ). Konsumsi alkohol ( $aOR = 2.98$ ; 95% CI = 0.93 hingga 9.53;  $p < 0.001$ ). Tempat tinggal perkotaan ( $aOR = 0.84$ ; 95% CI = 0.57 hingga 1.26;  $p = 0.001$ ). Paparan pornografi ( $aOR = 2.70$ ; CI 95% = 1.67 hingga 4.36;  $p = 0.001$ ) **Kesimpulan:** Praktik seksual pranikah di kalangan remaja dipengaruhi oleh faktor-faktor seperti usia, jenis kelamin, merokok, konsumsi alkohol, tempat tinggal, dan paparan pornografi. Intervensi kesehatan Masyarakat harus ditargetkan dapat mengurangi perilaku seksual berisiko dan memitigasi risiko IMS, HIV/AIDS, dan kehamilan yang tidak diinginkan pada populasi rentan.

Kata kunci: praktik seksual pranikah, remaja, jenis kelamin, usia, tempat tinggal.

## INTRODUCTION

The United Nations reported that in 2015, young people aged 15–24 accounted for 1.2 billion of the global population of 7.6 billion, with this figure projected to rise by 7%, reaching nearly 1.3 billion by 2030 (United Nations, 2015). This age 15–24 group, often defined as youth, is a period when many individuals become sexually active, underscoring the need for comprehensive sexual health awareness to promote long-term well-being (Girmay & Mariye, 2019). Evidence shows that a substantial proportion of young individuals engage in premarital sexual practices before their twenties (Taye & Asmare, 2016). Premarital sex, defined as consensual sexual activity between unmarried individuals, is on the rise globally, posing significant health concerns due to inadequate reproductive health knowledge, including STIs and HIV prevention (Akibu et al., 2017; Arega et al., 2019).

The rates of premarital sexual activity among youth in Asia show considerable variation. Studies in major cities found that male adolescents aged 15–24 engaging in premarital sex were 7.1% in Hanoi, 16.1% in Shanghai, and 37.7% in Taipei, while female rates were 2.2%, 8.5%, and 29.4%, respectively (Mundhiro et al., 2021). In Jakarta, Indonesia, approximately 23% of adolescent respondents had premarital sex (Fajarningtiyas, 2022; O'Donnell et al., 2020). Engaging in sexual activity at a young age poses risks, such as sexually transmitted infections (STIs) including HIV/AIDS, and unintended pregnancies (Mundhiro et al., 2021). By 2019, youth aged 15–19 in low- and middle-income countries experienced 21 million pregnancies annually, with nearly half unintended, resulting in about 12 million births, and 55% of unintended pregnancies among teenage girls aged 15–19 ending in unsafe abortions (WHO, 2024). In Indonesia, youth aged 10–24 make up

65 million individuals, or 30% of the population, with 15–20% of school-aged youth reporting premarital sexual activity (Andriani, R., Suhrawardi, 2022).

Hormonal changes are a significant internal factor in adolescents' engagement in premarital sexual behavior, as they regulate the transition from childhood to adulthood, influencing both physical maturation and shifts in social roles within families and communities. Prior research identifies age and male gender as predictors of premarital sexual activity (Teferi Mengistu et al., 2022). Early sexual initiation often associated with alcohol use (Regassa et al., 2016) and other risk behaviours, including smoking and drug use (Manaf et al., 2014).

Existing studies on premarital sexual practices primarily focus on isolated factors such as age or gender, without considering the cumulative effect of multiple socio-behavioural determinants. Furthermore, there is a lack of comprehensive quantitative analyses that synthesize findings across diverse contexts and populations, particularly in Asian regions. While some research has identified individual risk behaviours, few studies have conducted meta-analyses to calculate the combined impact of factors like age, gender, smoking, alcohol consumption, pornography exposure, and residence on premarital sexual practices. This study fills that gap by providing a holistic, evidence-based analysis of how these determinants interact to influence youth behavior, offering critical insights for public health interventions aimed at reducing risky sexual practices among adolescents.

## **METHOD**

### *Study design*

This research utilized a systematic review and meta-analysis approach to evaluate the determinants of premarital sexual practices among youth. The databases consulted included Google Scholar, PubMed, BMC, ScienceDirect, and Springer Link. The PRISMA flow diagram was used to ensure a systematic and transparent article selection process. The search strategy incorporated keywords such as “determinants” OR “risk factors” AND “age” AND “gender” AND “smoking” AND “alcohol consumption” AND “pornography” AND “residence” AND “premarital sexual practice” AND (“multivariate” OR “odds ratio”) to identify relevant studies.

### *Step to Meta-Analysis*

The research was conducted in a five-step process as follows:

- 1) Define research questions using the PICO framework.
- 2) Retrieve primary research articles from both electronic and non-electronic databases.
- 3) Screen and critically assess each primary research article for relevance and quality.
- 4) Extract data and synthesize effect estimates using RevMan 5.3 software.
- 5) Interpret the findings and draw conclusions based on the results.

### *Inclusion criteria*

This study included English-language articles featuring cross-sectional studies published between 2014 and 2024. The analysis focused on unmarried, reproductive-aged youth, assessing various factors contributing to premarital sexual practices. Only studies that conducted multivariate analysis and provided adjusted odds ratios (aOR) were included to evaluate the statistical associations between premarital sexual behavior and its predictors.

### *Exclusion criteria*

The exclusion criteria for this study consisted of randomized controlled trials (RCTs), non-full text articles, quasi-experimental studies, preliminary studies, and research protocols.

### *Instruments*

The instrument in this study was the PRISMA Flow Diagram using primary study quality assessment for a cross sectional meta-analysis research design. A quality assessment tool for cross-sectional studies was also employed to ensure that only high-quality primary studies were included in the meta-analysis.

### *Data Extraction and Quality Assessment*

The data extraction process involved collecting detailed information on study characteristics, sample sizes, outcomes, and statistical measures. Each study's quality was assessed using a validated checklist, focusing on methodological rigor, sample representation, and reporting transparency. Studies with significant biases were excluded or given less weight in the final analysis.

### *Data analysis*

The study data analysis process was conducted using the Review Manager 5.3. The software generated forest plots and funnel plots to visually represent the meta-analysis results. Statistical measures such as  $I^2$  and Cochran's Q test were used to evaluate heterogeneity across studies. The analysis assessed the effect of age, gender, smoking, alcohol consumption, pornography exposure, and residence on premarital sexual practices.

### *Addressing Biases*

To mitigate potential biases, the study implemented the following measures:

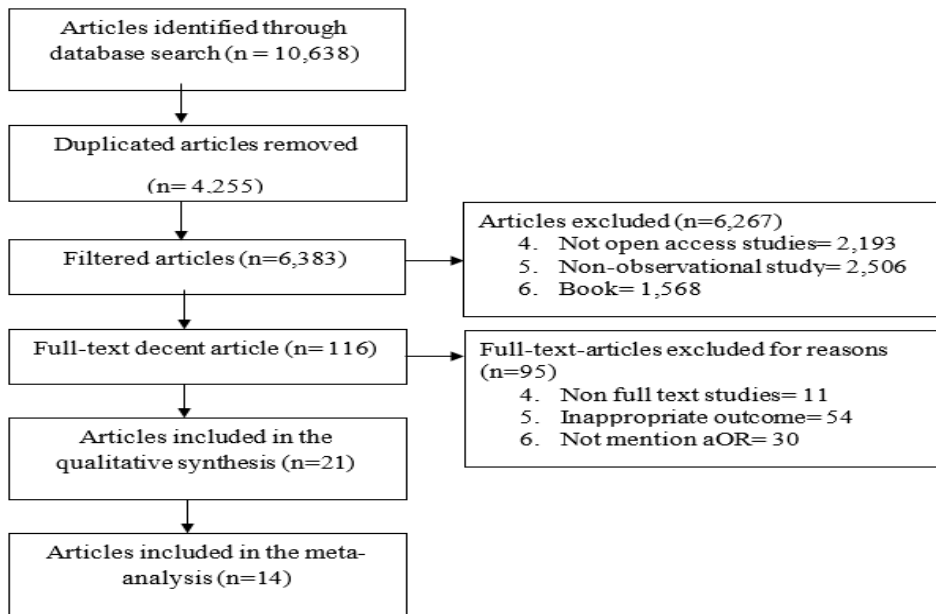
- Conducted sensitivity analyses to test the robustness of the findings.
- Used trim-and-fill methods to address publication bias.
- Ensured double-blind screening and data extraction to minimize reviewer bias.

### *Enhancements*

While the methodology is comprehensive, further improvements could include a more detailed discussion on how quality assessments influenced study selection and how potential biases were addressed in the meta-analysis. Additionally, specifying the tools used for bias detection and explaining how missing data were handled would strengthen the credibility of the findings.

## **RESULTS AND DISCUSSION**

The process of searching for synthesized articles, reviewing and selecting articles using the PRISMA Flow Diagram are presented in Figure 1. The initial search process resulted in 10,638 articles. After removing duplicates, 6,383 unique articles remained. These were then screened for relevance based on their titles and study designs, narrowing the selection to 116 articles. Following a review against the inclusion and exclusion criteria, 27 articles were shortlisted, and in the end 14 articles were included in this meta-analysis.



**Figure 1. PRISMA Flow diagrams**

*Characteristics of study data*

Figure 2 showed the observed 14 study articles that come from the Asia continent (Indonesia, Malaysia and cambodia) and Africa continent (Ethiopia and Africa).



**Figure 2. Research distribution map**

**Tabel 1**  
*Critical Appraisal for Cross Sectional Study*

Publication (Author and Year)	Checklist Question													Total
	1a	1b	1c	1d	2a	2b	3a	3b	4	5	6a	6b	7	
Budu et al. (2023)	2	2	2	2	2	2	2	2	2	2	2	2	2	26
Abegaz (2022)	2	1	2	2	2	2	2	2	2	2	2	2	2	25
Mengistu et al. (2022)	2	2	2	2	2	2	2	2	2	2	2	2	2	26
Mundhiro et al. (2021)	2	2	2	2	2	2	2	2	2	2	2	2	2	26
Mai et al. (2019)	2	2	2	2	0	2	2	2	2	2	2	2	2	24
Girmay & Mariye (2019)	2	2	2	2	2	2	2	2	2	2	2	2	2	26

Gebreyesus et al. (2019)	2	2	2	2	2	2	2	2	2	2	2	2	2	26
Arega et al. (2019)	2	2	2	2	2	2	2	2	2	2	2	2	2	26
Nawi et al. (2017)	2	2	2	2	2	2	2	2	2	2	2	2	2	26
Akibu et al. (2017)	2	1	2	2	2	2	2	2	1	2	2	2	2	24
Behulu et al., (2017)	2	2	2	2	2	2	2	2	2	2	2	2	2	26
Regassa et al. (2016)	2	2	2	2	2	2	2	2	2	2	2	2	2	26
Manaf et al. (2014)	2	2	2	2	2	2	2	2	2	2	2	2	2	26
Bogale & Seme (2014)	2	2	2	2	2	2	2	2	2	2	2	2	2	26

Table 1 presents the quality appraisal of 14 cross-sectional studies using a standardized checklist to ensure the reliability and validity of the studies included in this meta-analysis. Each study was evaluated across 13 criteria, resulting in a maximum possible score of 26 points. The studies included scored between 24 and 26, indicating high methodological quality and minimal risk of bias. The practical implications of these findings extend beyond statistical significance to inform public health policies and educational interventions aimed at reducing risky sexual behaviours among youth. Below is a discussion of the practical relevance of each predictor.

Table 2 summarizes primary research findings on the influence of gender, age, smoking, alcohol consumption, place of residence, and pornography on the prevalence of premarital sexual practices. The meta-analysis incorporated 14 studies conducted in Africa, Ethiopia, Indonesia, Cambodia, and Malaysia. The findings provide insights into the demographic and behavioral factors that contribute to the prevalence of premarital sexual activities among youth. Below is a detailed interpretation of the results in relation to the hypotheses stated, along with a discussion of their practical significance.

**Table 2.**

*Description of the effect of gender, age, smoking, alcohol consumption, place of residence, and pornography on the prevalence of premarital sexual practice (cross sectional study).*

Author	Country (sample) Study Design	Population	Intervention	Comparison	Outcome
Budu et al. (2023)	Africa (87,924) Cross-sectional	15-24 year old never married young women	1. 20-24 age 2. Rural	1. 15-19 age 2. Urban	Premarital Sexual Practice
Abegaz (2022)	Ethiopia (324) Cross-sectional	non-married students age 15-25	1. 20-24 age 2. Male 3. Rural 4. Pornography	1. 15-19 age 2. Female 3. Urban 4. No Pornography	Premarital Sexual Practice
Mengistu et al. (2022)	Ethiopia (414) Cross-sectional	unmarried Adolescents aged <20-25	1. 20-24 age 2. Alcohol Consumption 3. Pornography	1. 15-19 age 2. No alcohol consumption 3. No pornography	Premarital Sexual Practice

			4.	Smoking	4.	No smoking	
Mundhoro et al. (2021)	Indonesia (22,583 ) Cross-sectional	unmarried teenagers aged 15-24 years.	1. 2. 3.	20-24 age Smoking Alcohol Consumption	1. 2. 3.	15-19 age No Smoking Alcohol Consumption	Premarital Sexual Practice
Mai et al. (2019)	Cambodia (4,972) Cross-sectional	unmarried young individuals aged 15-24 years	1. 2. 3. 4.	20-24 age Male Smoking Rural	1. 2. 3. 4.	15-19 age Female No Smoking Urban	Premarital Sexual Practice
Girmay & Mariye (2019)	northern Ethiopia (498) Cross-sectional	non-married students aged 15-24 years	1.	Pornography	1.	No Pornography	Premarital Sexual Practice
Gebreyesus et al. (2019)	northern Ethiopia (536) Cross-sectional	adolescent aged 14-24 years	1. 2. 3.	20-24 age Male Alcohol consumption	1. 2. 3.	14-19 age Female No Alcohol consumption	Premarital Sexual Practice
Arega et al. (2019)	North West Ethiopia (480) Cross-sectional	youths aged 13-24 years	1. 2. 3. 4. 5.	20-24 age Male Alcohol consumption Rural Pornography	1. 2. 3. 4. 5.	14-19 age Female No Alcohol consumption Urban No Pornography	Premarital Sexual Practice
Nawi et al. (2017)	Malaysia (306) Cross-sectional	youths aged 16 years	1.	Male	1.	Female	Premarital Sexual Practice
Akibu et al. (2017)	Ethiopia (604) Cross-sectional	unmarried young individuals aged 18-25 years	1. 2. 3.	Male Rural Pornography	1. 2. 3.	Female Urban No Pornography	Premarital Sexual Practice
Behulu et al., (2017)	north west Ethiopia (600) Cross-sectional	unmarried young individuals aged 15-18 years	1.	Male	1.	Female	Premarital Sexual Practice
Regassa et al. (2016)	Ethiopia (604) Cross-sectional	unmarried young individuals aged 15-24 years	1. 2. 3. 4.	20-24 age Male Alcohol consumption Pornography	1. 2. 3. 4.	15-19 age Female No Alcohol consumption No Pornography	Premarital Sexual Practice

Manaf et al. (2014)	Malaysia (1328) Cross-sectional	youths aged 18 years	1. Male 2. Smokin g 3. Alcohol consum ption 4. Pornogr aphy	1. Female 2. No Smoking 3. Alcohol consumpt ion 4. No Pornogra phy	Premarital Sexual Practice
Bogale & Seme (2014)	North Western Ethiopia (826) Cross-sectional	unmarried young individuals aged 15–24 years	1. 20-24 age 2. Male 3. Alcohol consum ption 4. Pornogr aphy	1. 15-19 age 2. Female 3. No Alcohol consumpt ion 4. No Pornogra phy	Premarital Sexual Practice

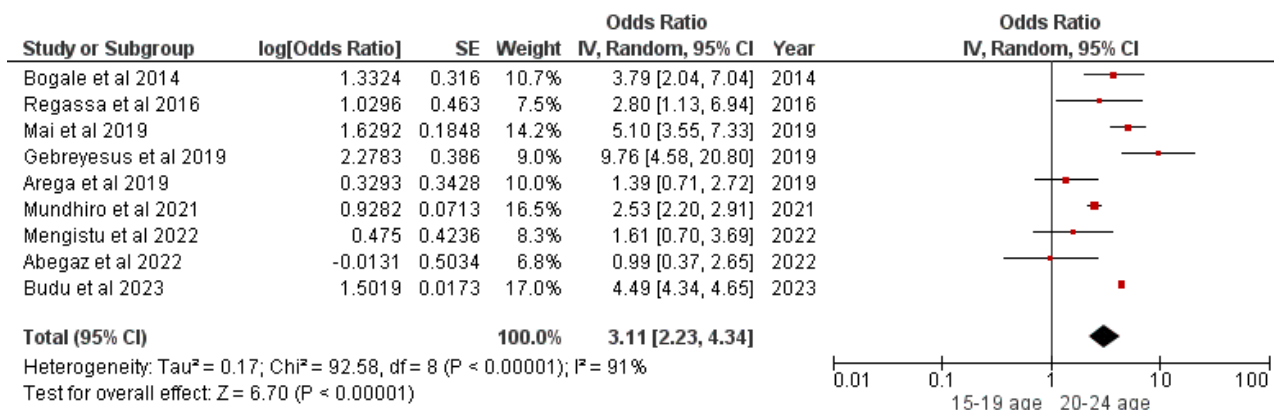
The detailed interpretation of the primary research findings highlights the multifaceted nature of premarital sexual practices among youth. The practical significance of these findings lies in their potential to inform public health policies and interventions that promote safer sexual behaviours. By addressing key predictors such as gender, age, substance use, and place of residence, stakeholders can develop more effective strategies to support the well-being of young individuals across diverse regions.

### 1. Correlation of the effect of age on premarital sexual practice among youth

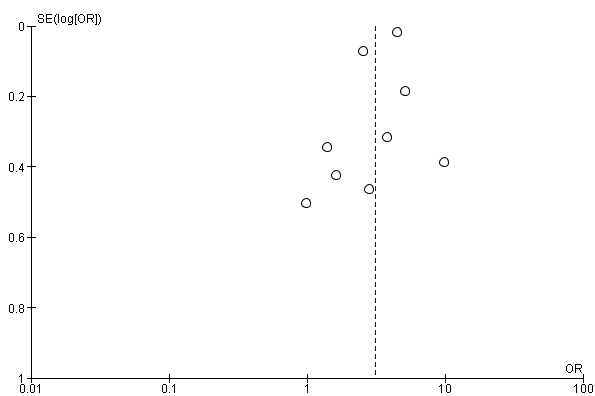
**Table 3. aOR value of the effect of age on premarital sexual practice**

Publication (Author and Year)	aOR	95% CI	
		Lower Limit	Upper Limit
Bogale et al 2014	3.79	2.04	7.04
Regassa et al 2016	2.80	1.13	6.94
Mai et al 2019	5.10	3.55	7.33
Gebreyesus et al 2019	9.76	4.58	20.80
Arega et al 2019	1.39	0.71	2.72
Mundhiro et al 2021	2.53	2.20	2.91
Mengistu et al 2022	1.61	0.70	3.69
Abegaz et al 2022	0.99	0.37	2.65
Budu et al 2023	4.49	4.34	4.65

Table 3, the meta-analysis reveals a consistent pattern across the primary studies that age significantly influences the likelihood of engaging in premarital sexual practices, with older youth being at a higher risk. The adjusted odds ratio (aOR) values range from 0.99 to 9.76, indicating substantial variability in the effect sizes reported by different studies.



**Figure 3. Forest plot the effect of age on premarital sexual practice**



**Figure 4. Funnel plot the effect of age on premarital sexual practice**

The forest plot in Figure 3 indicates that individuals aged 20–24 have 3.57-fold higher likelihood of engaging in premarital sexual activity than those aged 15–19, with statistical significance (aOR = 3.57; 95% CI = 2.23–4.34;  $p < 0.001$ ). Figure 4 shows the effect estimates for age and premarital sexual behavior, with a balanced pattern on both sides of the mean vertical line, indicating no evidence of publication bias.

The study by Gebreyesus et al. (2019) reported the highest aOR of 9.76 (95% CI: 4.58–20.80), indicating that individuals aged 20–24 years are 9.76 times more likely to engage in premarital sexual activities compared to those in the younger age group (15–19 years). In contrast, the study by Abegaz et al. (2022) reported an aOR of 0.99 (95% CI: 0.37–2.65), indicating no significant association between age and premarital sexual practices.

Age showed a significant correlation with premarital sexual behavior with a  $p$ -value of  $< 0.001$  (Mundhiro et al., 2021). Bogale & Seme, (2014) identified that the 20-24 age group significantly influences premarital sexual behavior among individuals aged 15-19, reporting an aOR of 3.79 with a 95% CI of 2.04 to 7.02. This finding aligns with other research, showing that individuals aged 20-24 are roughly as likely to participate in premarital sex. Consistently, Regassa et al., (2016) they indicated that being under 18 years old served as a protective factor against premarital sexual activity. This age group often experiences greater autonomy and social freedom, which can lead to increased opportunities for sexual encounters. In contrast, adolescents aged 15–19, while still engaging in premarital sexual activity, do so at a lower frequency, often influenced by factors such as parental supervision and societal expectations (Teferra et al., 2015).

Moreover, the attitudes towards premarital sexual relationships play a crucial role in this disparity. Young adults aged 20–24 are more likely to hold accepting views of premarital sex, which is linked

to greater participation in such activities (Rahmani et al., 2016). Additionally, educational factors also contribute to the differences in sexual behavior between these age groups. Research has indicated that higher are linked to more open attitudes regarding sex, which subsequently affect the propensity to engage in premarital sexual activities (Kalu Tololu, 2017; Singh et al., 2020). Young adults in the 20–24 age bracket often have more exposure to educational environments that promote discussions about sexual health and relationships, leading to increased sexual activity compared to their younger peers who may still be in secondary education and subject to more restrictive environments (Teferra et al., 2015; Young et al., 2018).

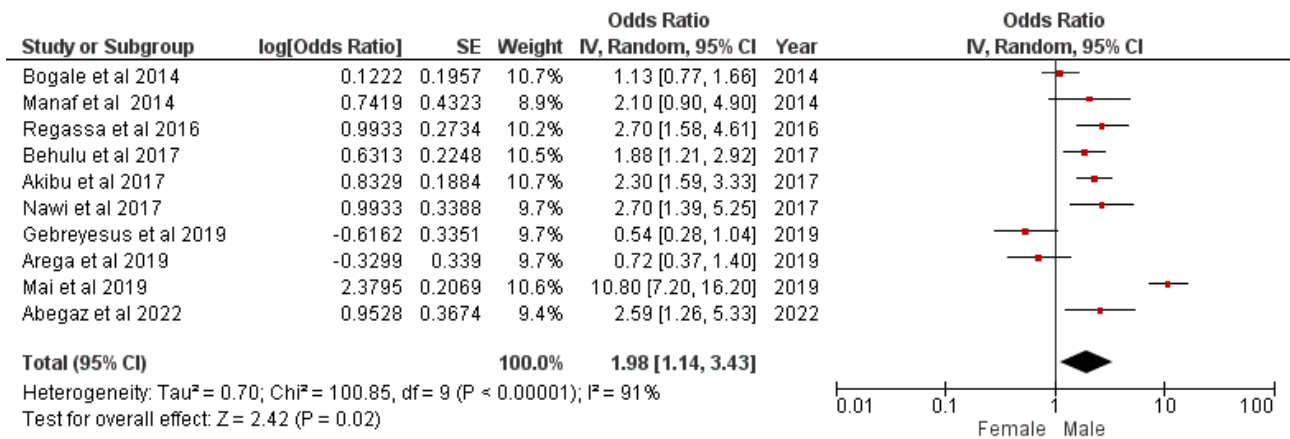
The meta-analysis findings confirm the hypothesis that age is a significant predictor of premarital sexual practices among youth. The higher aOR values for older age groups indicate that interventions should target youth at various stages of adolescence and young adulthood, with a focus on age-specific risk factors and preventative measures. Practical programs addressing education, peer influence, and access to reproductive health services are essential to mitigate the risks associated with premarital sexual engagement.

## 2. Correlation of the effect of gender toward premarital sexual practice among youth

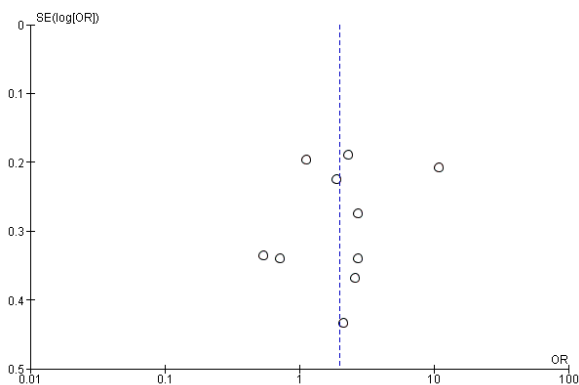
**Tabel 4.** aOR value of the effect of gender on premarital sexual practice

Publication (Author and Year)	aOR	95% CI	
		Lower Limit	Upper Limit
Bogale et al 2014	1.13	0.77	1.66
Manaf et al 2014	2.10	0.90	4.90
Regassa et al 2016	2.70	1.58	4.61
Behulu et al 2017	1.88	1.21	2.92
Akibu et al 2017	2.30	1.59	3.33
Nawi et al 2017	2.70	1.39	5.25
Gebreyesus et al 2019	0.54	0.28	1.04
Arega et al 2019	0.72	0.37	1.40
Mai et al 2019	10.80	7.20	16.20
Abegaz et al 2022	2.59	1.26	5.33

Table 4 presents the adjusted odds ratio (aOR) values from 10 primary studies, indicating how gender (male vs. female) influences premarital sexual practice. The largest aOR is 10.80, reported by Mai et al. (2019), suggesting that males were 10.8 times more likely than females to engage in premarital sexual activity. Conversely, Gebreyesus et al. (2019) reported the lowest aOR of 0.54, indicating that females had a higher likelihood than males in that specific context.



**Figure 5. Forest plot the effect of gender on premarital sexual practice**



**Figure 6. Funnel plot the effect of gender on premarital sexual practice**

The forest plot in Figure 5 reveals that males have a 1.98-fold higher likelihood of engaging in premarital sexual activity than females, with this finding being statistically significant (aOR = 1.98; 95% CI = 1.14–3.43;  $p < 0.001$ ). The  $p$ -value of  $< 0.001$  confirms that this finding is statistically significant. The forest plot confirms that gender is a significant predictor of premarital sexual practices, with males being at a nearly two-fold higher risk than females. The funnel plot indicates no publication bias, enhancing the reliability of this finding. Gender-sensitive interventions that address sociocultural norms, peer influence, and risk behaviors are essential for reducing risky sexual practices among youth.

Figure 6 illustrates the effect estimates of gender on premarital sexual behavior, showing a symmetrical distribution on both sides of the mean vertical line, suggesting no publication bias. The absence of small study effects (where smaller studies disproportionately report higher effect sizes) further reinforces the robustness of the meta-analysis findings.

Mai et al., (2019) identified a notable connection between male influence and premarital sexual behavior among females, reporting an odds ratio (OR) of 10.80 with a 95% confidence interval (CI) of 7.20–16.15. This finding aligns with earlier studies, indicating that females are approximately 10.80 times more likely to engage in premarital sexual activity under male influence. Similarly, prior research has consistently shown higher rates of premarital sexual behavior among males. For instance, Teferi Mengistu et al. (2022) found that 64.5% of male students and 35.5% of female students reported engaging in premarital sexual activities (Teferi Mengistu et al., 2022).

One critical aspect is the role of male peer influence and societal expectations. Studies have shown that females are often pressured by male peers to engage in premarital sexual activities, reflecting

broader societal norms that view male sexual exploration as acceptable while placing constraints on female sexual behavior. For instance, females may feel compelled to conform to the sexual expectations set by their male counterparts, leading to earlier sexual initiation and increased likelihood of engaging in premarital sex (Tegegne, 2022). This pressure is exacerbated in environments where male permissiveness towards premarital sex is prevalent, creating a context in which females may feel that engaging in such behavior is necessary to gain acceptance or approval from their male peers (Raj Paudel, 2019). Basit Abdul (2017) study involving 450 respondents aged between 15 and 24, it was found that 37% of male respondents admitted to planning to engage in sexual intercourse during dating, while 39% of female respondents reported being frequently persuaded to engage in sexual intercourse during dating.

Moreover, the dynamics of intimate relationships also play a crucial role in creating female sexual behavior. Research indicates that females often perceive their male partners as having more control over sexual decisions, which can lead to a situation where they feel less empowered to assert their own preferences or boundaries (Martins et al., 2018). This dynamic is particularly pronounced in cases where males exhibit dominant behaviors, which can create an environment of coercion rather than mutual consent (Zhao et al., 2017). The implications of this are profound, as females may engage in premarital sexual activities not solely out of desire but also out of a perceived obligation to satisfy their male partners (Li et al., 2016).

The effect of gender on premarital sexual practice varies significantly across studies, with males generally at higher risk. The largest effect size by (Mai et al. 2019) highlights the influence of cultural norms in Cambodia, while lower values in studies by (Gebreyesus et al. 2019; Arega et al. 2019) suggest shifting gender dynamics in some regions. Gender-sensitive interventions addressing cultural differences are essential for promoting safer sexual behaviors among youth.

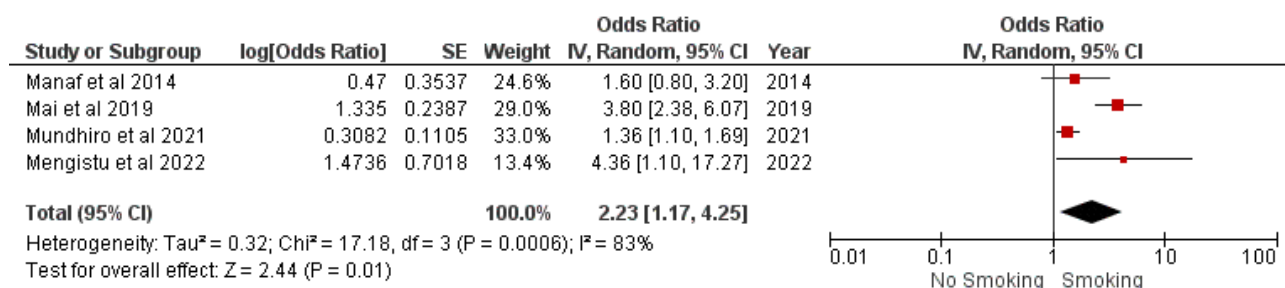
### 3. *Correlation of the effect of smoking on premarital sexual practice among youth*

**Table 5. aOR value of the effect of smoking on premarital sexual practice**

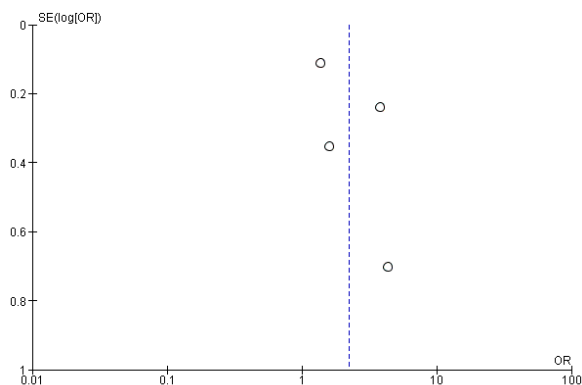
Publication (Author and Year)	aOR	95% CI	
		Lower Limit	Upper Limit
Manaf et al 2014	1.60	0.80	3.20
Mai et al 2019	3.80	2.38	6.07
Mundhiro et al 2021	1.36	1.10	1.69
Mengistu et al 2022	4.36	1.10	17.27

Table 5 shows the effect sizes the effect of smoking on premarital sexual practice, with the largest adjusted odd ratio conducted by Mengistu et al. (2022) at 4.36 and the lowest aOR conducted by Mundhiro et al. (2022) at 1.36.

The study by (Mengistu et al. 2022), conducted in Ethiopia, shows that smoking significantly increases the likelihood of engaging in premarital sex. This result may reflect the strong association between smoking and risk-taking behaviors in younger populations. Additionally, smoking may serve as a proxy indicator for other risky behaviors, such as alcohol consumption and peer pressure, which further influence sexual decisions. While, study by Mundhiro et al. (2021), conducted in Indonesia, reports the lowest aOR value at 1.36, suggesting a weaker association between smoking and premarital sexual activity in this context. This lower value may be due to cultural norms or prevention programs that discourage both smoking and premarital sexual activities in Indonesian youth.



**Figure 7. Forest plot the effect of smoking on premarital sexual practice**



**Figure 8. Funnel plot the effect of smoking on premarital sexual practice**

The forest plot in Figure 7 indicates that smoking raises the risk of premarital sexual activity by 2.23 times compared to non-smoking, with statistical significance (aOR = 2.23; 95% CI = 1.17–4.25;  $p < 0.001$ ). In contrast to alcohol, Figure 8 shows a relatively symmetrical distribution of effect estimates on both sides of the mean vertical line, suggesting no evidence of publication bias in the studies examining smoking and premarital sexual behavior.

Teferi Mengistu et al., (2022) reported that smokers were 10.4 times more likely to engage in premarital sexual activity, potentially due to substance addiction leading to interactions with a wider range of individuals. This finding aligns with earlier research, which identified a significant association between smoking and premarital sexual intercourse (AOR = 1.361; 95% CI = 1.096–1.690) (Mundhiro et al., 2021). Similarly, a study among high school students in South Korea revealed that students who smoked 10 cigarettes daily and consumed over seven glasses of alcohol weekly were 22,245 times more likely to be sexually active (Kim & Cho, 2019). Previous studies also highlight that using addictive substances, such as cigarettes, can catalyze engaging in risky sexual behaviors (Charrier et al., 2019).

The effect of smoking on premarital sexual practice is consistently positive across all studies, with aOR values ranging from 1.36 to 4.36. The strongest effect was reported by Mengistu et al. (2022), indicating that smokers are more likely to engage in premarital sex. These findings suggest that smoking serves as a marker for risk-taking behaviors, and public health initiatives targeting smoking prevention could play a crucial role in reducing risky sexual practices among youth.

#### 4. Correlation of the effect of alcohol consumption on premarital sexual practice among youth

**Tabel 6. aOR value of the effect of alcohol consumption on premarital sexual practice**

Publication (Author and Year)	aOR	95% CI	
		Lower Limit	Upper Limit

Study	aOR	95% CI	Year
Bogale et al 2014	1.54	0.98, 2.42	2014
Manaf et al 2014	1.10	0.50, 2.42	2014
Regassa et al 2016	2.30	1.31, 4.04	2016
Arega et al 2019	9.43	2.86, 31.09	2019
Gebreyesys et al 2019	1.99	1.20, 3.30	2019
Mundhiro et al 2021	19.89	16.13, 24.53	2021
Mengistu et al 2022	1.32	0.31, 5.69	2022

Table 6 shows the effect sizes the effect of alcohol consumption on premarital sexual practice, with the largest adjusted odd ratio conducted by Mundhiro et al. (2021) at 19.89 and the lowest aOR conducted by Manaf et al. (2014) at 1.10.

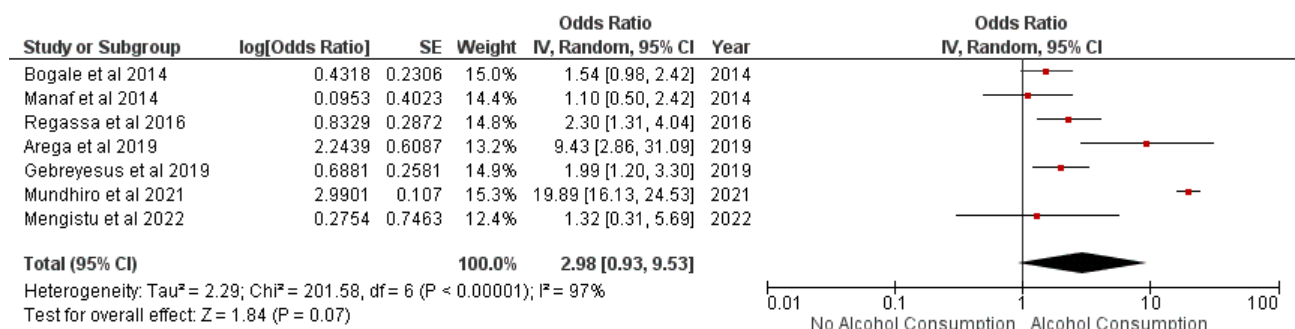


Figure 9. Forest plot the effect of smoking on premarital sexual practice

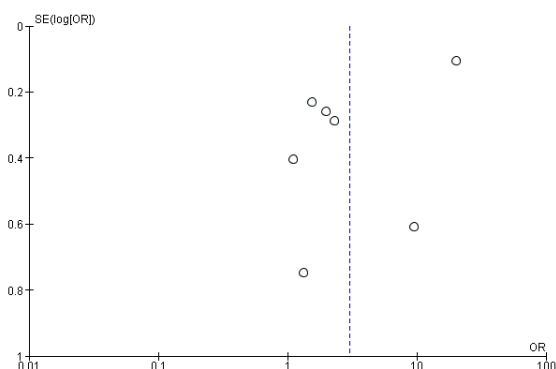


Figure 10. Funnel plot the effect of alcohol consumption toward premarital sexual practice

Figure 9 shows that alcohol consumption increases the likelihood of premarital sexual activity by 2.98 times compared to non-consumption, a statistically significant finding (aOR = 2.98; 95% CI = 0.93–9.53; p < 0.001). Figure 10 presents a funnel plot displaying the distribution of effect estimates for alcohol consumption and premarital sexual activity. The plot reveals a concentration of estimates on the left side, implying publication bias. This left-skewed bias suggests that the true effect of alcohol consumption on premarital sexual activity may be underestimated.

Figure 10, shows a skewed distribution of effect estimates, with a concentration on the left side of the plot. This skewed pattern suggests potential publication bias, meaning that studies showing a weaker association between alcohol consumption and premarital sexual practices may be underreported or excluded from the meta-analysis. The left-skewed funnel plot suggests that the true effect of alcohol consumption on premarital sexual practices may be stronger than the reported pooled estimate of 2.98.

Data indicate that young individuals who consume alcohol are considerably more likely to engage in premarital sex than those who abstain from alcohol. Previous studies indicate that alcoholic teenagers who became intoxicated had a significantly higher likelihood of engaging in premarital sexual intercourse (AOR = 19.888) compared to those who abstained from alcohol (Mundhiro et al., 2021). Alcohol consumption is strongly associated with premarital sexual activity, likely due to the loss of self-control resulting from intoxication (Teferi Mengistu et al., 2022).

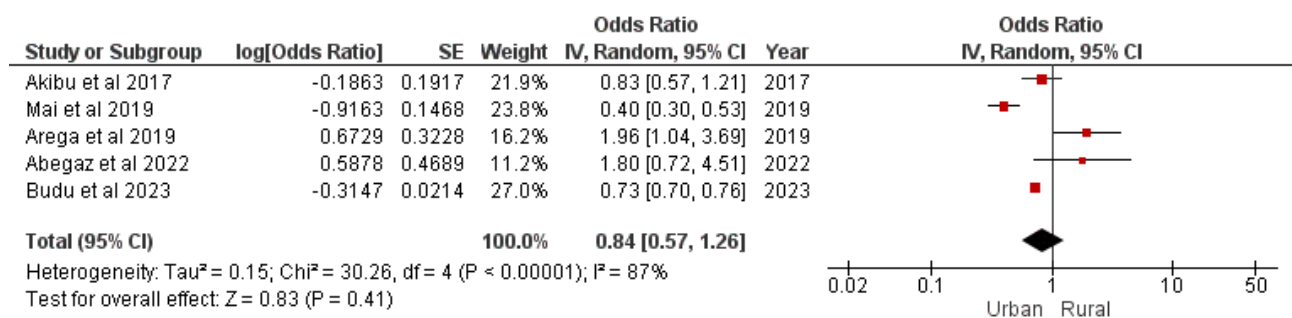
This finding is echoed by Biratu et al., (2022) who reported similar results, noting that adolescent students who consumed alcohol were about four times more likely to practice premarital sex. The authors attribute this increased risk to the loss of self-control associated with alcohol intoxication, which can lead to unplanned and unprotected sexual encounters (Biratu et al., 2022). A systematic review by Berry and Johnson highlighted that alcohol impairment affects personal risk perception and influences sexual decision-making, leading to higher rates of risky sexual behavior (Berry & Johnson, 2019). This is particularly concerning as intoxication can result in a failure to negotiate safe sex practices, increasing the risk of sexually transmitted infections and unintended pregnancies.

5. Correlation of the effect of residence toward premarital sexual practice among youth

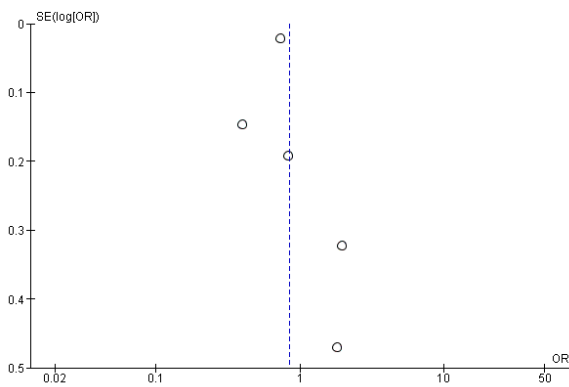
**Table 7. aOR value of the effect of residence on premarital sexual practice**

Publication (Author and Year)	aOR	95% CI	
		Lower Limit	Upper Limit
Akibu et al 2017	0.83	0.57	1.21
Mai et al 2019	0.40	0.30	0.53
Arega et al 2019	1.96	1.04	3.69
Abegaz et al 2022	1.80	0.72	4.51
Budu et al 2023	0.73	0.70	0.76

Table 7 shows the effect sizes of residence on premarital sexual practice, with the largest adjusted odd ratio conducted by Arega et al. (2019) being 1.96, and the lowest aOR conducted by Mai et al. (2019) being 0.40.



**Figure 11. Forest plot the effect of residence on premarital sexual practice**



**Figure 12. Funnel plot the effect of residence on premarital sexual practice**

The forest plot in Figure 11 highlights the impact of the living environment on premarital sexual activity. Urban residents face a 0.84 times greater risk of engaging in premarital sex compared to those living in rural areas (aOR = 0.84; 95% CI = 0.57–1.26;  $p = 0.001$ ). Similarly, Figure 12 presents a funnel plot examining the impact of the living environment on premarital sexual behavior. The funnel plot shows a symmetrical distribution of effect estimates around the mean vertical line, suggesting no significant publication bias.

A review of five studies conducted in various countries explored the relationship between place of residence and premarital sexual behavior among youth, all employing a cross-sectional design. The results revealed a significant association, showing that youth in rural areas are significantly less likely to engage in premarital sex compared to those in urban.

Several factors that influence promiscuity behavior include social status and living environment (Kumalasari, 2016). Specifically, unmarried young individuals residing in rural areas are 60% less likely to engage in premarital sexual intercourse than their urban counterparts areas ( $p = 0.000$ ) (Mai et al., 2019). Contrary to the findings of Budu et al., (2023) reported that young women living in rural areas had lower OR of engaging in premarital sex compared to those in urban areas.

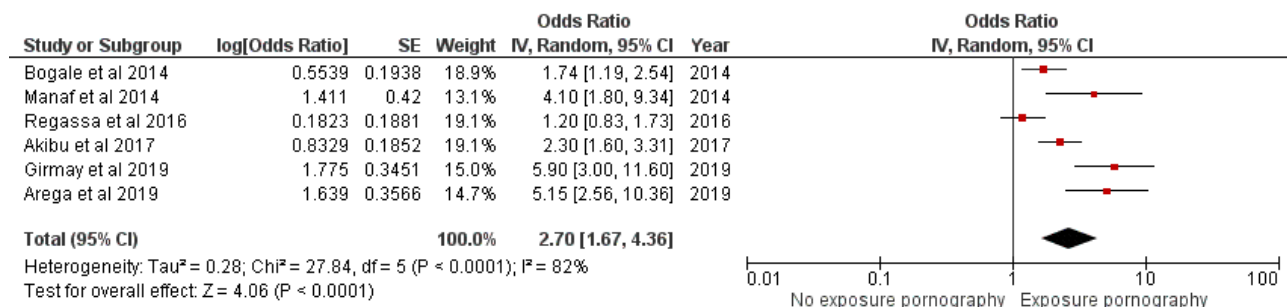
Place of residence remains a critical factor in shaping premarital sexual behavior among unmarried youth. The current study's finding that rural residents are less likely to engage in premarital sex contrasts with certain previous studies (Folayan et al., 2015). A possible explanation could be the lower standard of living in rural areas may reduce the likelihood of transactional sex for financial support (Stoebenau et al., 2016). In contrast, urban residents may have greater opportunities for socialization, entertainment, and peer interactions, increasing their exposure to risky behaviors and likelihood of initiating sexual activity (Mai et al., 2019). Public health strategies should account for environmental differences when designing sexual health interventions, with a greater emphasis on urban populations, where risks are higher due to greater exposure to risky influences.

#### 6. Correlation the effect of pornography on premarital sexual practice among youth

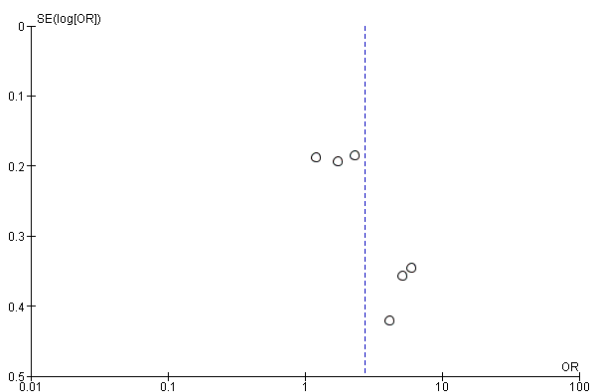
**Tabel 8.aOR value of the effect of pornography on premarital sexual practice**

Publication (Author and Year)	aOR	95% CI	
		Lower Limit	Upper Limit
Bogale et al 2014	1.74	1.19	2.54
Manaf et al 2014	4.10	1.80	9.34
Regassa et al 2016	1.20	0.83	1.73
Akibu et al 2017	2.30	1.60	3.31
Girmay et al 2019	5.90	3.00	11.60
Arege et al 2019	5.15	2.56	10.36

Table 8 shows the effect sizes the impact of pornography on premarital sexual practice, with the largest adjusted odd ratio conducted by Girmay et al. (2019) at 5.90 and the lowest aOR conducted by Regassa et al. (2016) at 1.20.



**Figure 13. Forest plot the effect of residence on premarital sexual practice**



**Figure 14. Funnel plot the effect of pornography on premarital sexual practice**

The forest plot in Figure 13 illustrates the impact of pornography on premarital sexual activity, showing that exposure to pornography increases the likelihood of premarital sex by 2.70 times compared to non-exposure. This finding is statistically significant (aOR = 2.70; 95% CI = 1.67–4.36; p = 0.001). Meanwhile, Figure 14 assesses the effect of pornography on the risk of premarital sexual behavior. The plot indicates a relatively symmetrical distribution of effect estimates around the average vertical line, suggesting no significant publication bias.

A review of six studies conducted across multiple countries investigated the link between pornography exposure and premarital sexual behavior among young people, utilizing a cross-sectional design in each study. The findings revealed a significant correlation between pornography exposure and engagement in premarital sexual activities among youth. The data indicate that young individuals exposed to pornography are considerably more likely to participate in premarital sex compared to those who are not exposed. Youth who watched pornography films were 5.15 times more likely to practice premarital sex as compared to those who didn't [AOR = 5.15, 95% CI (2.56, 10.37)] (Arega et al., 2019). Similarly, respondents exposed to pornography were six times more likely to engage in risky sexual behaviors (Girmay & Mariye, 2019).

Students who were addicted to pornography films were more likely to practice premarital sex. One possible explanation is that pornography films may influence youths' physiological and psychological motivations for sexual activity (Arega et al., 2019). Another reason for the discrepancy could be that

some students may learn ways to avoid risky sexual behaviors. In contrast, others may feel compelled to imitate what they see in the films without using protection (Girmay & Mariye, 2019). Additionally, the use of pornography is linked to more permissive sexual attitudes and increased engagement in casual sex behaviors (Peter & Valkenburg, 2016). This permissiveness can lead to an increased likelihood of engaging in premarital sex, as adolescents may come to view such behaviors as acceptable or even expected. Additionally, the compulsive use of pornography can create a cycle of addiction that further exacerbates risky sexual behaviors. Hoagland & Grubbs (2021) highlight that compulsive consumption of pornography can adversely affect sexual functioning and overall sexual well-being, often driving individuals to pursue riskier sexual experiences in an attempt to recreate the excitement or novelty they encounter in pornographic content. The rise in behaviors such as pornography consumption can be attributed to the widespread availability of sexual content through mass media. The advancement of technologies like videos, cassettes, VCDs, mobile phones, and the internet has made it increasingly difficult to regulate these behaviors (Suharti et al., 2016). The easy access to information, especially among teenagers, often leads to exposure to inappropriate or pornographic content through websites or unsolicited emails (Kristianingrum et al., 2022).

The evidence indicates a robust link between pornography exposure and premarital sexual practices among youth. The forest plot shows that individuals exposed to pornography are significantly more likely to engage in premarital sexual activity compared to those not exposed, with no notable publication bias detected. The reviewed studies highlight that pornography consumption influences permissive sexual attitudes, increases the likelihood of risky sexual behaviors, and may create addictive tendencies that further drive premarital sexual engagement. The widespread availability of explicit content through digital media complicates efforts to regulate exposure, particularly among adolescents, underscoring the need for targeted interventions to mitigate these risks.

## **CONCLUSIONS AND SUGGESTIONS**

The findings of our meta-analysis on premarital sexual practices among young individuals highlight several key predictors of engagement in premarital sexual intercourse. Young individuals in the higher age group (20–24 years), males, and those who consume alcohol, smoke cigarettes, are exposed to pornography, or reside in urban areas exhibit a significantly greater likelihood of engaging in premarital sexual activities compared to their counterparts. These results suggest that particular demographic and behavioral factors are strong indicators of premarital sexual involvement among youth.

Given the implications for public health, it is essential for government bodies and health authorities to implement targeted interventions focusing on sexual health education and the prevention of high-risk behaviors within university and community settings. Enhancing access to comprehensive reproductive and sexual health information services, particularly within educational institutions, could effectively address these predictors and support informed, safer behavioral choices among young people. Additionally, incorporating peer education programs and leveraging digital platforms to disseminate accurate sexual health information may further strengthen preventive efforts.

Future research should explore the underlying social and cultural influences driving these behaviours, including the role of family dynamics, peer pressure, and media exposure. Investigating the effectiveness of various intervention strategies in different demographic settings could provide valuable insights for tailoring public health policies and programs to the specific needs of diverse youth populations. By addressing these gaps, researchers can contribute to developing more effective, evidence-based approaches to reduce risky sexual behaviors and promote healthier lifestyles among young people.

## ETHICAL CONSIDERATIONS

### Funding Statement.

None of the above.

### Conflict of Interest Statement

The authors confirm that there were no commercial or financial relationships during this research that could be seen as potential conflicts of interest.

## REFERENCES

- Abegaz, S. B. (2022). Pre marriage sexual practices and associated factors among students at Woldia University, north eastern Ethiopia. *African Journal of Reproductive Health*, 26(11), 129–140. <https://doi.org/10.29063/ajrh2022/v26i11.12>
- Akibu, M., Gebresellasie, F., Zekarias, F., & Tsegaye, W. (2017). Premarital sexual practice and its predictors among university students: Institution based cross sectional study. *Pan African Medical Journal*, 28, 1–11. <https://doi.org/10.11604/pamj.2017.28.234.12125>
- Andriani, R., Suhrawardi, & H. (2022). Hubungan Tingkat Pengetahuan Dan Sikap Remaja Dengan Perilaku Seksual Pranikah. *Jurnal Inovasi*, 2(10), 3441– 3446. <https://stp-mataram.e-journal.id/JIP/article/view/1341>
- Areaga, W. L., Zewale, T. A., & Bogale, K. A. (2019). Premarital sexual practice and associated factors among high school youths in Debretabor town, South Gondar zone, North West Ethiopia, 2017. *BMC Research Notes*, 12(1), 1–7. <https://doi.org/10.1186/s13104-019-4348-3>
- Basit Abdul. (2017). Hubungan antara Perilaku Seksual dengan Tingkat Pengetahuan Agama Islam pada Siswa Sekolah Menengah Kejuruan (SMK). *Aisyah: Jurnal Ilmu Kesehatan*, 2(2), 175–180. doi:<https://doi.org/10.30604/jika.v2i2.54>
- Behulu, G. K., Anteneh, K. T., & Aynalem, G. L. (2019). Premarital sexual intercourse and associated factors among adolescent students in Debre-Markos town secondary and preparatory schools, north west Ethiopia, 2017. *BMC Research Notes*, 12(1), 4–9. <https://doi.org/10.1186/s13104-019-4132-4>
- Berry, M. S., & Johnson, M. W. (2019). Systematic Review of Drug Administration Studies. *Pharmacology, Biochemistry, and Behaviour*, 125–138. <https://doi.org/10.1016/j.pbb.2017.08.009>.Does
- Biratu, B., Garoma, S., Getachew, M., & Desalegn, M. (2022). Drinking alcohol raises the chance of premarital sex by four folds among secondary school adolescent students in Jima Arjo, Southwestern Ethiopia, 2018: a school-based cross-sectional study. *Contraception and Reproductive Medicine*, 7(1), 1–9. <https://doi.org/10.1186/s40834-022-00171-2>
- Bogale, A., & Seme, A. (2014). Premarital sexual practices and its predictors among in-school youths of shendi town, west Gojjam zone, North Western Ethiopia. *Reproductive Health*, 11(1), 1–9. <https://doi.org/10.1186/1742-4755-11-49>
- Budu, E., Seidu, A. A., Armah-Ansah, E. K., Frimpong, J. B., Aboagye, R. G., Anin, S. K., Hagan, J. E., & Ahinkorah, B. O. (2023). Prevalence and predictors of premarital sexual intercourse among young women in sub-Saharan Africa. *Reproductive Health*, 20(1), 1–11. <https://doi.org/10.1186/s12978-023-01626-8>
- Charrier, L., Berchiolla, P., Dalmasso, P., Borraccino, A., Lemma, P., & Cavallo, F. (2019). Cigarette Smoking and Multiple Health Risk Behaviors: A Latent Class Regression Model to Identify a Profile of Young Adolescents. *Risk Analysis*, 39(8), 1771–1782. <https://doi.org/10.1111/risa.13297>
- Fajarningtiyas, D. N. (2022). The Utilization of Sexual and Reproductive Health Services Among Young Males in Indonesia: Does Their Knowledge of Reproductive Health Matter? *Jurnal Aisyah : Jurnal Ilmu Kesehatan*, 7(4), 1023–1032. <https://doi.org/10.30604/jika.v7i4.1284>
- Folayan, M. O., Adebajo, S., Adeyemi, A., & Ogungbemi, K. M. (2015). Differences in sexual

- practices, sexual behavior and HIV risk profile between adolescents and young persons in rural and urban Nigeria. *PLoS ONE*, *10*(7), 1–14. <https://doi.org/10.1371/journal.pone.0129106>
- Gebreyesus, H., Berhe, T., Welegebriel, Z., Wubayehu, T., Hailemariam, G., Gebrekirstos, G., & Teweldemedhin, M. (2019). Premarital sexual practice and associated factors among adolescents in the refugee camps in Tigray, northern Ethiopia. *BMC Research Notes*, *12*(1), 1–7. <https://doi.org/10.1186/s13104-019-4459-x>
- Girmay, A., & Mariye, T. (2019). Risky sexual behavior practice and associated factors among secondary and preparatory school students of Aksum town, northern Ethiopia, 2018. *BMC Research Notes*, *12*(1), 1–7. <https://doi.org/10.1186/s13104-019-4714-1>
- Hoagland, K. C., & Grubbs, J. B. (2021). Pornography Use and Holistic Sexual Functioning: a Systematic Review of Recent Research. *Current Addiction Reports*, *8*(3), 408–421. <https://doi.org/10.1007/s40429-021-00378-4>
- Kalu Tololu, A. (2017). Premarital Sexual Practice and Associated Factors among Robe TVET Students at Robe Town, Bale Zone, Oromia Region, Southeast Ethiopia, 2016. *MOJ Public Health*, *5*(6). <https://doi.org/10.15406/mojph.2017.05.00147>
- Kim, S. J., & Cho, K. W. (2019). Interaction between smoking cigarettes and alcohol consumption on sexual experience in high school students. *Osong Public Health and Research Perspectives*, *10*(5), 274–280. <https://doi.org/10.24171/j.phrp.2019.10.5.03>
- Kristianingrum, N. D., Merdikawati, A. M., Choiriyah, M. C., & Kartika, A. W. (2022). The SHARING-AJA Website for Adolescent Reproductive Health Knowledge Levels. *Jurnal Aisyah : Jurnal Ilmu Kesehatan*, *7*(4), 1261–1266. <https://doi.org/10.30604/jika.v7i4.1359>
- Kumalasari, D. (2016). Hubungan Pengetahuan dan Sikap dengan Perilaku Seksual Pada Siswa SMK. *Jurnal Aisyah : Jurnal Ilmu Kesehatan*, *1*(1), 93–97. <https://doi.org/10.30604/jika.v1i1.13>
- Li, H. J., Bai, W. J., Dai, Y. T., Xu, W. P., Wang, C. N., & Li, H. Z. (2016). An analysis of treatment preferences and sexual quality of life outcomes in female partners of Chinese men with erectile dysfunction. *Asian Journal of Andrology*, *18*(5), 773–779. <https://doi.org/10.4103/1008-682X.159719>
- Mai, V., & Kittisuksathit, S. (2019). Factors influencing pre-marital sexual intercourse among unmarried young individuals in Cambodia. *Makara Journal of Health Research*, *23*(3), 143–149. <https://doi.org/10.7454/msk.v23i3.1157>
- Manaf, M. R. A., Tahir, M. M., Sidi, H., Midin, M., Jaafar, N. R. N., Das, S., & Malek, A. M. A. (2014). Pre-marital sex and its predicting factors among Malaysian youths. *Comprehensive Psychiatry*, *55*(SUPPL. 1), S82–S88. <https://doi.org/10.1016/j.comppsy.2013.03.008>
- Martins, D. C., Pesce, G. B., da Silva, G. M., & Fernandes, C. A. M. (2018). Sexual behavior and sexually transmitted diseases among the female partners of inmates. *Revista Latino-Americana de Enfermagem*, *26*. <https://doi.org/10.1590/1518-8345.2568.3043>
- Mundhiro, N., Fauzi, R., Maruf, M. A., & Nurfadhilah. (2021). Determinants of Premarital Sexual Behavior Amongst Adolescents in Indonesia. *Jurnal Biometrika Dan Kependudukan*, *10*(1), 86–93. <https://doi.org/10.20473/jbk.v10i1.2021.86-93>
- Nawi, A. M., Roslan, D., Idris, I. B., & Hod, R. (2017). Bullying and truancy: Predictors to sexual practices among school-going adolescents in Malaysia – A cross-sectional study. *Medical Journal of Malaysia*, *72*(5), 298–305.
- O'Donnell, J., Utomo, I. D., & McDonald, P. (n.d.). *Premarital sex and pregnancy in Greater Jakarta*. *Genus*, *76*(1).
- Peter, J., & Valkenburg, P. M. (2016). Adolescents and Pornography: A Review of 20 Years of Research. *Journal of Sex Research*, *53*(4–5), 509–531. <https://doi.org/10.1080/00224499.2016.1143441>
- Rahmani, A., Merghati-Khoei, E., Moghaddam-Banaem, L., Hajizadeh, E., & Montazeri, A. (2016). The viewpoints of sexually active single women about premarital sexual relationships: A qualitative study in the Iranian context. *International Journal of High Risk Behaviors and Addiction*, *5*(1). <https://doi.org/10.5812/ijhrba.23159>
- Raj Paudel, D. (2019). Attitude on Premarital Sex, Marriage and Family Size among Adolescents in

- Pokhara Valley. *Journal of Health and Allied Sciences*, 3(1), 60–63. <https://doi.org/10.37107/jhas.58>
- Regassa, T., Chala, D., & Adeba, E. (2016). Premarital Sex in the Last Twelve Months and Its Predictors among Students of Wollega University, Ethiopia. *Ethiopian Journal of Health Sciences*, 26(4), 351–358. <https://doi.org/10.4314/ejhs.v26i4.7>
- Singh, S. K., Vishwakarma, D., & Sharma, S. K. (2020). An Epidemiology of Premarital Sexual Behaviour in India: Exploring Gender Differences. *Journal of Health Management*, 22(3), 389–412. <https://doi.org/10.1177/0972063420937938>
- Stoebenau, K., Heise, L., Wamoyi, J., & Bobrova, N. (2016). Revisiting the understanding of “transactional sex” in sub-Saharan Africa: A review and synthesis of the literature. *Social Science and Medicine*, 168, 186–197. <https://doi.org/10.1016/j.socscimed.2016.09.023>
- Suharti, S., Kelumbayan, P., & Aisyah Pringsewu, Stik. (2016). Rendahnya Pengetahuan Kesehatan Reproduksi Sebagai Penyebab Perilaku Seks Bebas Pada Remaja Low Knowledge Is The Cause Of Reproductive Health Free Sex Behavior In Adolescent. *Jurnal Ilmu Kesehatan*, 1(1), 1–6.
- Taye, A., & Asmare, I. (2016). Prevalence of Premarital Sexual Practice and Associated Factors among Adolescents of Jimma Preparatory School Oromia Region, South West Ethiopia. *Journal of Nursing & Care*, 05(02). <https://doi.org/10.4172/2167-1168.1000332>
- Teferi Mengistu, G., Benti Terefe, A., Gemedo Gudeta, T., Kefale Mengistu, B., & Gobeze Mekonnen, B. (2022). Premarital sexual practice and associated factors among social science stream university students in Ethiopia. *International Journal of Africa Nursing Sciences*, 17(January), 100452. <https://doi.org/10.1016/j.ijans.2022.100452>
- Teferra, T. B., Erena, A. N., & Kebede, A. (2015). Prevalence of premarital sexual practice and associated factors among undergraduate health science students of Madawalabu university, bale goba, south east Ethiopia: Institution based cross sectional study. *Pan African Medical Journal*, 20, 1–11. <https://doi.org/10.11604/pamj.2015.20.209.4525>
- Tegegne, W. A. (2022). Self-esteem, peer pressure, and demographic predictors of attitude toward premarital sexual practice among first-year students of Woldia University: Implications for psychosocial intervention. *Frontiers in Psychology*, 13(August), 1–7. <https://doi.org/10.3389/fpsyg.2022.923639>
- United Nations. (2015). *Population facts*.
- WHO. (2024). *adolescent-pregnancy*. <https://www.who.int/news-room/fact-sheets/detail/adolescent-pregnancy>
- Young, H., Burke, L., & Nic Gabhainn, S. (2018). Sexual intercourse, age of initiation and contraception among adolescents in Ireland: Findings from the Health Behaviour in School-aged Children (HBSC) Ireland study. *BMC Public Health*, 18(1), 1–17. <https://doi.org/10.1186/s12889-018-5217-z>
- Zhao, Y. L., Kim, H., & Peltzer, J. (2017). Relationships among substance use, multiple sexual partners, and condomless sex: Differences between male and female U.S. High school adolescents. *Journal of School Nursing*, 33(2), 154–166. <https://doi.org/10.1177/1059840516635712>