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Meta Analysis
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The Associations between Parity, Family Income, Residence, and Abortion Incidence: A Meta-Analysis

Annessa Marknalia Sasqia Putri[1)], Mira Mashita Soraya[1)], Jihan Rohadatul Aisy[1)], Bhisma Murti[1)], Siti Mar'atul Munawaroh[2,3)]

[1)]Master's Program in Public Health, Universitas Sebelas Maret
[2)] Doctoral Program in Public Health, Universitas Sebelas Maret
[3)] School of Health Sciences of Mamba'ul Ulum Surakarta

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ABSTRACT

Background: Abortion is a complex and controversial issue found across the country. The decision to terminate a pregnancy involves many aspects in terms of medical, ethical, moral, religious, social, economic, and legal. Understanding the factors that influence the incidence of abortion is critical to developing strategies to effectively address this issue. This study aims to analyze and estimate the magnitude of the effects of parity, family income, and residence with the incidence of abortion.
Subjects and Method: Systematic review and meta-analysis studies were conducted according to the PRISMA flowchart and PICO model. Population: women of childbearing age. Intervention: multipara, high income, and urban residence. Comparison: primapara, low income, and rural residence. Outcome: The incidence of abortion. The basic data used involved Google Scholar, PubMed, BMC, Elsivier, ScienceDirect, and Springer Link. The inclusion criteria are full-text articles with observational study design using multivariate analysis that attaches aOR values and is published from 2014-2023. Data analysis using Review Manager 5.3 application.
Results: Ten case control studies and nine cross-sectional studies from the Americas, Africa, and Asia were selected for the meta-analysis. Multiparous (aOR= 1.12; CI 95%= 0.54 to 2.34; p= 0.750), high family income (aOR= 0.55; CI 95%= 0.22 to 1.34; p= 0.190), and urban dwellings (aOR= 1.17; CI 95%= 0.88 to 1.55; p = 0.270) increases the risk of abortion in women of childbearing age, but is not statistically significant.
Conclusion: Multipara, high family incomes, and urban residences increase the risk of the likelihood of having an abortion in women of childbearing age, but are not statistically significant.

Keywords: parity, family income, shelter, abortion, women of childbearing age.

Correspondence:
Annessa Marknalia Sasqia Putri. Master's Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: marknaliaannessa@gmail.com. Mobile: +6281326247966.

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BACKGROUND

Globally, the incidence of unwanted pregnancies in 2015 – 2019 is reported to reach 121 million annually, or equivalent to 64 pregnancies per 1000 women aged 15 – 29 years and most of them end in abortion

(Bearak et al., 2020). Abortion is a complex and controversial issue found across the country. The decision to terminate this pregnancy involves many aspects in terms of medical, ethical, moral, religious, social, economic, and legal (Nita and Goga, 2020). Understanding the factors that influence the incidence of abortion is critical to developing strategies to effectively address this issue. A study found that parity, family income, and place of residence are significant determinants of the high incidence of abortion (Abebe et al., 2022).

Parity refers to the number of previous pregnancies a woman has had, while family income and housing are socioeconomic factors that can affect access to health services and support networks. Women with higher parity, i.e. those who had experienced multiple pregnancies, had a greater risk of having an abortion (aOR=4.70; 95% CI= 1.80 to 12.70) compared to women with lower parity (Megersa et al., 2020).

Family income is known to play a significant role in the choice of abortion. Previous study has shown that women from low-income households (aOR=11.46; 95% CI= 6.29 to 20.87) face more barriers to accessing health services, including reproductive health services (Tilahun et al., 2017). In addition, the incidence of abortion is higher among low-income women because the woman may not be financially ready to raise their unborn child and be able to influence future opportunities (Chae et al., 2017).

The effect of residence on the incidence of abortion has been explored, women living in urban areas (aOR=4.90; 95% CI= 2.10 to 11.30) generally have greater access to health facilities, including abortion services, than women in rural areas (Binayew et al., 2022). However, access to abortion services also varies in urban areas, depending on factors such as proximity to clinics and transportation options.

Abortion is a sensitive act that has a major impact on women's health and well-being (Reardon, 2018). Study has shown that the impact of abortion is not just a direct medical procedure, but also affects various factors such as mental health, socioeconomic status, and family dynamics (Frederico et al., 2018). The American Psychiatric Society has distinguished two types of post-abortion complication-related disorders into PAD (post-abortion distress) and PAS (post-abortion syndrome) (Zareba et al., 2020). Moreover, the economic impact of abortion cannot be ignored.

Women who choose to terminate pregnancies may face challenges in terms of financial stability and social support systems especially from family welfare (Dickey et al., 2022). The cultural and legal aspects of abortion also play an important role in shaping experiences and outcomes for women seeking a choice of reproductive care methods. Understanding the impact of abortion is critical for policymakers, health care providers to make informed decisions and provide appropriate support for women in the face of these decisions (Sorhaindo and Lavelanet, 2022).

The importance of conducting comprehensive study to highlight the various factors associated with the incidence of abortion. Taken together, these determinants point to women's complex and varied decision-making attitudes regarding abortion. This study is expected to provide new knowledge related to the magnitude of the effect of high parity, low family income, and living in urban areas on the incidence of abortion in women of childbearing age.

SUBJECTS AND METHOD

1. Study Design

This study is a systematic review and meta-analysis guided by PRISMA flowcharts. The databases used involve Google Scholar, PubMed, BMC, ScienceDirect, Elsivier, and Springer Link. The keywords used are ("determinant" OR "risk factor") AND "incidence of abortion" AND "parity" AND "income" AND "urban" AND "rural" AND ("multivariate" OR "odds ratio"). The population in the study was women of childbearing age; interventions are multipara, high family income, and urban residence; The comparison is primipara, low family income, and rural residence. The observed result was the incidence of abortion.

2. Steps of Meta-Analysis

The meta-analysis is carried out through the following 5 steps:

1) Formulate problems using the PICO (Population, Intervention, Comparison, and Outcome) model
2) Search for major study articles through databases such as Google Scholar, PubMed, BMC, ScienceDirect, Elsivier, and Spinger Link
3) Determine inclusion and exclusion criteria, conduct screening and critical assessment of primary studies
4) Data extraction and entering data into RevMan 5.3
5) Interpreting values and drawing conclusions.

3. Inclusion Criteria

The criteria for study inclusion are English-language articles with cross-sectional studies and case-control studies published between 2014-2023. The analysis used is a multivariate analysis with an adjusted odds ratio (aOR). The subjects of the study were women of childbearing age and the results analyzed were the incidence of abortion.

4. Exclusion Criteria

Study exclusion criteria are RCT (randomized controlled trials) studies, quasi-experiments, study protocols, preliminary studies, no-full text articles.

5. Operational Definition of Variables

The incidence of abortion is the termination of pregnancy before the fetus can live outside the womb.

Parity is the number of pregnancies or the number of times a woman has been pregnant.

Family income is the total amount of money received by an individual or household in a monthly period.

A residence is an area that has both urban and rural characteristics, such as population density, infrastructure, and access to various public services.

6. Study Instruments

Primary studies that have been screened will undergo a critical appraisal or review of studies to determine feasibility. The assessment instrument uses the Critical Appraisal Cross-sectional Study and Case-control Study for Meta-analysis Study published by the Master of Public Health, Sebelas Maret University Surakarta (2023).

7. Data analysis

Article search results are collected with the help of PRISMA diagrams. Main articles that fit the inclusion criteria were analyzed using the RevMan 5.3 application to calculate effect size and study heterogeneity. The results of data processing are presented in the form of aOR, 95% confidence interval (CI), p-value, forest plots and funnel plots.

RESULTS

1. Study Characteristics

The baseline data resulted in 7,526 potentially relevant articles. PRISMA's literature search flowchart and its results are reported in figure 1 based on selection criteria, a total of 1,722 articles were identified for further full-text assessment. In the end, 19 full-text articles were included for meta-analysis with 10 case control studies and 9 cross-sectional studies.

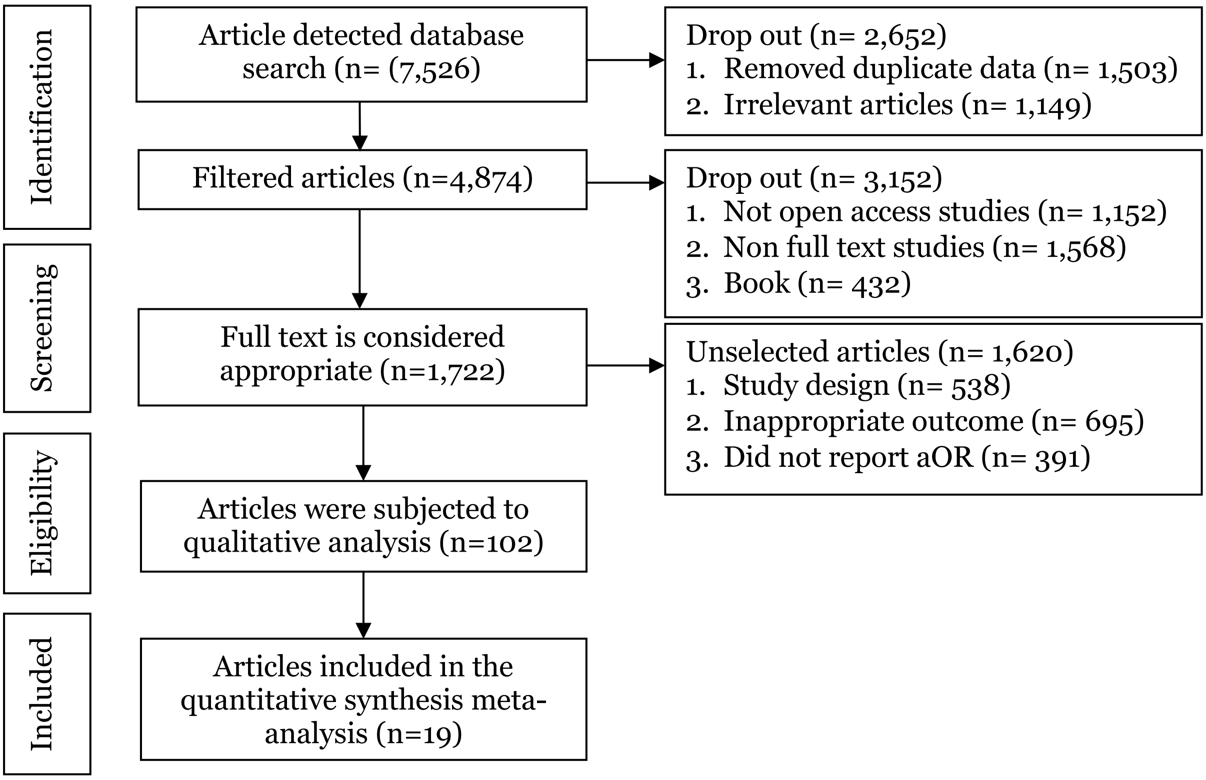

Figure 1. PRISMA Flow Diagram Results

Figure 2 shows a map of the study locations used in the meta-analysis, consisting of the Americas, Africa, and Asia. Furthermore, in table 1 and table 2 researchers assess the quality of study articles. Table 3 describes the articles included in the meta-analysis.

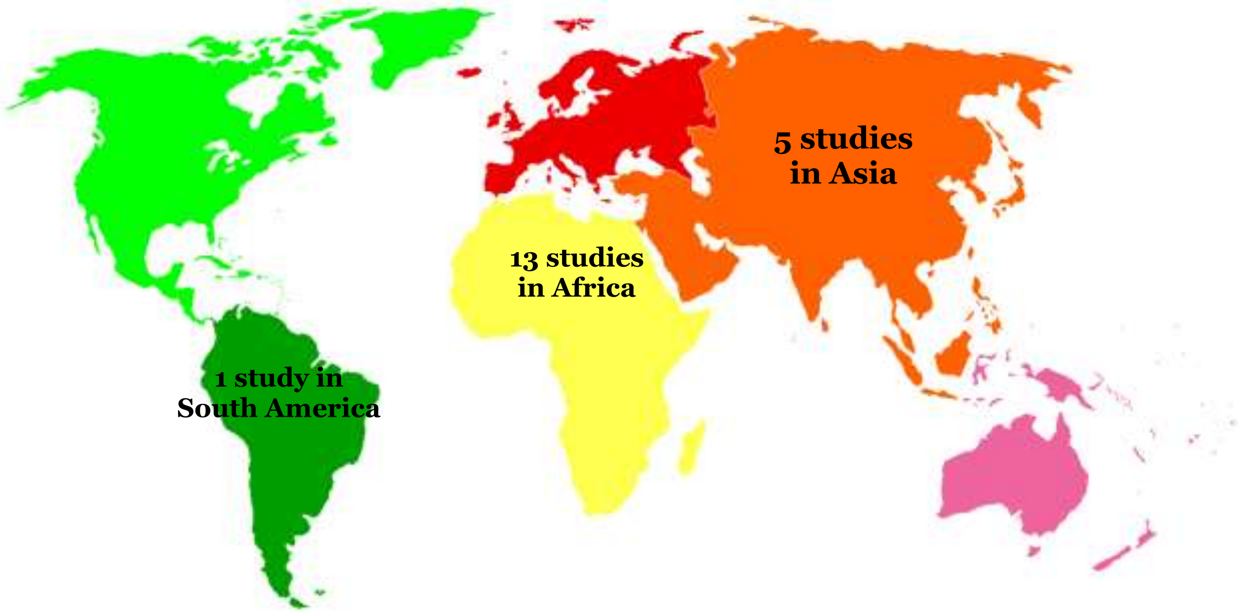

Figure 2. Map of the research area study of the relationship of parity, family income, and residence to the incidence of abortion

Table 1. Critical appraisal for cross-sectional study of family income and residence relationship to abortion incidence

Author (Year)	1a	1b	1c	1d	2a	2b	3a	3b	4	5	6a	6b	7	Total
Huneeus et al. (2020)	2	2	2	2	2	2	2	2	2	2	2	2	2	26
Ratovoson et al. (2020)	2	2	2	2	2	2	2	2	2	2	2	2	2	26
Adjei et al. (2015)	2	2	2	2	2	2	2	2	2	2	2	2	2	26
Boah et al. (2019)	2	2	2	2	2	2	2	2	2	2	2	2	2	26
Ahinkorah et al. (2021)	2	2	2	2	2	2	2	2	2	2	2	2	2	26
Rahaman et al. (2022)	2	2	2	2	2	2	2	2	2	2	2	2	2	26
Geda et al. (2020)	2	2	2	2	2	2	2	2	2	2	2	2	2	26
Yogi et al. (2018)	2	2	2	2	2	2	2	2	2	2	2	2	2	26
Ziraba et al. (2015)	2	2	2	2	2	2	2	2	2	2	2	2	2	26

Description of the question criteria cross-sectional study:

1. Formulation of study questions on PICO

a. Is the population in the primary study the same as the population in the PICO meta-analysis?
b. Is the operational definition of the intervention, i.e. exposed status in the primary study the same as the definition intended in the meta-analysis?
c. Is the comparison, i.e. unexposed status used by the primary study the same as the definition intended in the meta-analysis?
d. Are the outcome variables studied in the primary study the same as the definitions intended in the meta-analysis?

2. Methods for choosing a study subject

a. In cross-sectional analytical studies, do researchers randomly select samples from the population (random sampling)?
b. Alternatively, if in an analytically cross-sectional study the sample is not randomly selected, do researchers select the sample based on outcome status or based on intervention status?

3. Methods for measuring exposure (intervention) and outcome variables (outcome)

a. Were both exposure and outcome variables measured with the same instruments in all primary studies?
b. If variables are measured on a categorical scale, are the cutoffs or categories used the same between primary studies?

4. Design-related bias

If the sample is not randomly selected, has the researcher made efforts to prevent bias in choosing the study subject? For example, in selecting subjects based on outcome status not affected by exposure status (intervention), or in selecting subjects based on exposure status (intervention) not affected by outcome status?

5. Methods for controlling confusion (confounding)

Has the primary study researcher made efforts to control for the influence of confusion (e.g., performed a multivariate analysis to control for the influence of a number of confounding factors)?

6. Statistical analysis methods

a. Did the researchers analyze the data in this primary study with multivariate analysis models (e.g., multiple linear regression analysis, multiple logistic regression analysis)?
b. Does the primary study report effect sizes or relationships between the results of the multivariate analysis (e.g., adjusted OR, adjusted regression coefficient)?

7. Conflict of interest

Is there no possibility of conflict of interest with the study sponsor, which causes bias in concluding study results?

Assessment Instructions:

1. Total number of questions = 13 questions. A "Yes" answer to each question gives a score of "2". The answer "Undecided" gives a score of "1". The answer "No" gives a score of "0"
2. Maximum total score= 13 questions x 2= 26
3. Minimum total score= 13 questions x 0= 0. So, the total score value ranges for a primary study between 0 and 26.
4. If the total score of a primary study >= 22, then the study can be included in the meta-analysis. If the total score of a primary study is <22, then the study is excluded from the meta-analysis.

Table 2. Critical appraisal for case-control study of the relationship of parity, family income, and residence to the incidence of abortion

Author (Year)	1a	1b	1c	1d	2a	2b	3a	3b	4a	4b	5	6a	6b	7	Total
Binayew et al. (2022)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	28
Abebe et al. (2022)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	28
Denberu et al. (2017)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	28
Arambepola et al. (2014)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	28
Tilahun et al. (2017)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	28
Klutsey et al. (2023)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	28
Arambepola et al. (2016)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	28
Harahap et al. (2022)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	28
Megersa et al. (2020)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	28
Wasihun et al. (2021)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	28

Description of the question criteria case control study:

1. Formulation of study questions on PICO

a. Is the population in the primary study the same as the population in the PICO meta-analysis?
b. Is the operational definition of the intervention, i.e. exposure status in the primary study the same as the definition intended in the meta-analysis?
c. Is the comparator, i.e. non-exposure status used by the primary study the same as the definition intended in the meta-analysis?
d. Are the outcome variables studied in the primary study the same as the definitions intended in the meta-analysis?

2. Methods for choosing a subject of study

a. Does the selected affordable population represent the target population?
b. Were case groups and control groups selected at the beginning of the study?

3. Methods for measuring exposure and outcome variables

a. Are exposure and outcome variables measured with the same instruments in all primary studies?
b. If variables are measured on a categorial scale, are the cut-offs or categories used the same between primary studies?

4. Design-related bias

a. Is there no possibility of recall bias in this primary study?
b. Have researchers made efforts to prevent or address such biases (e.g., reducing the duration of past exposure to make it easier for subjects to recall exposure, helping older subjects to recall exposure, or did researchers ask carefully if exposure was an unwelcome behavior, such as smoking habits that study subjects do not usually refer to for what they are)?.

5. Methods to control confusion

Has the primary study researcher made efforts to control for the influence of confusion (e.g., performing multivariate analyses to control for the influence of a number of confounding factors, or performing matching)?

6. Statistical analysis methods

a. Did the researchers analyze the data in this primary study with multivariate analysis models (e.g., multiple regression analysis, multiple logistic regression analysis)?
b. Does the primary study report the effect size or relationship of the multivariate analysis results (e.g. adjusted OR, adjusted regression coefficient)?

7. Conflict of interest

Is there no possibility of a conflict of interest with the study sponsor that causes bias in concluding study results?

Assessment Instruction:

1. If the study is case-control, the total number of questions = 14 question items
2. The answer "Yes" to each question is given a score of "2". The answer "Undecided" was given a score of "1". The answer "No" is given a score of "0".
3. Maximum total score = 14 questions x 2 = 28.
4. Minimum total score = 14 questions x 0 = 0. So, the total score ranges for a primary study between 0 and 28.
5. If the total score of a primary is ≥24, then the study can be included in the meta-analysis. If the total score of a primary study is <24, then the study is excluded from the meta-analysis.

Table 3. Description of primary studies included in the meta-analysis

Author (Year)	Country (Sample) Study Design	Population	Intervention	Comparison	Outcome
Huneeus et al. (2020)	Chili (2,493) Cross-sectional	Chilien youth aged 15-29 years	1. High socio-economy status 2. Urban	1. Low socioeconomy 2. Rural	Abortion
Ratovoson et al. (2020)	Madagas-Car (3,179) Cross-sectional	Women aged 18–49	1. Number of live births ≥ 1	1. Number of live births 0	Abortion
Adjei et al. (2015)	Ghana (3,554) Cross- sectional	Women cases of abortions	Household wealth (wealthies)	Household wealth (most poor)	Abortion
Boah et al. (2019)	Ghana (1,880) Cross- sectional	Women aged 15-49 years	Wealth index (highest)	Wealth index (lowest)	Abortion
Ahinkorah et al. (2021)	Ghana (18,114) Cross-sectional	Women aged 15-49 years	1. Parity >4 2. Urban	1. Not pregnant 2. Rural	Abortion
Rahaman et al. (2022)	India (9,113) Cross-sectional	Women aged 15–49 years	1. Wealth status (rich) 2. Urban	1. Wealth status (poor) 2. Rural	Abortion
Geda et al. (2020)	Ethiopia (741) Cross-sectional	Hawassa university female students	Urban	Rural	Abortion

Author (Year)	Country (Sample) Study Design	Population	Intervention	Comparison	Outcome
Yogi et al. (2018)	Nepal (2,395) Cross-sectional	Women with a terminated pregnancy	1. Wealth index (richest) 2. Residence (urban)	1. Wealth index (poorest) 2. Residence (rural)	Abortion
Ziraba et al. (2015)	Kenya (2,625) Cross-sectional	Women with abortion complications	1. Parity >5 2. Residence urban	1. Parity 1-2 2. Residence rural	Abortion
Abebe et al. (2022)	Southern ethiopia (413) Case-control	Women who received induced abortion care services	1. Number of alive children three and above 2. Monthly income (usd ≥101) 3. Urban	1. Number of alive children zero 2. Monthly income (USD <50) 3. Rural	Abortion
Binayew et al. (2022)	Ethiopia (350) Case-control	Women with induced abortions	Residence (urban)	Residence (rural)	Abortion
Denberu et al. (2017)	Ethiopia (330) Case-control	Women of age 15-24	Parity (having at least 1 child)	Parity 0	Abortion
Arambepola et al. (2014)	Sri lanka (771) Case-control	Women at the time of unintended pregnancy	Parity (Multi)	Parity (Primi)	Abortion
Tilahun et al. (2017)	Northwest ethiopia (525) Case-control	Reproductive age women	1. Gravidity (two and above pregnancy) 2. Income >500 ETB	1. Gravidity (one pregnancy) 2. Income ≤500 ETB	Abortion
Klutsey et al. (2023)	Ghana (380) Case-control	Women of reproductive age	1. Third of more pregnancies 2. Urban	1. First pregnancy 2. Rrural	Abortion
Arambepola et al. (2016)	Sri lanka (771) Case-control	Women with unintended pregnancy	Gravida (Non primi-gravida)	Gravida (Primi-gravida)	Abortion
Harahap et al. (2022)	Indonesia (862) Case-control	Mothers who experienced abortion	Parity (Risky >4x)	Parity (No at risk ≤4x)	Abortion
Megersa et al. (2020)	Ethiophia (542) Case-control	Women of reproductive age	1. Number of children ≥3 2. Monthly income (≥300 USD)	1. Number of children 0 2. Monthly income (<100 USD)	Abortion
Wasihun et al. (2021)	Northwest ethiopia (357) Case-control	Women 2nd trimester of pregnancy	Residence (urban)	Residence (rural)	Abortion

2. Multiparous relationship to the incidence of abortion

Table 4 shows the aOR values and 95% confidence interval (CI) multiparous with the incidence of abortion. Figure 3 presents a forest plot showing the multiparous influence on the likelihood of having an abortion. The forest plot showed no significant association between multipara and primiparous abortion (aOR= 1.12; CI 95%= 0.54 to 2.34; p= 0.750). The forest plot also showed high heterogeneity (I2= 95%). Thus, the calculation of the average effect estimation uses a random effect model approach.

Figure 4 presents a funnel plot on the estimated distribution of multiparous effects on the likelihood of having an abortion. The funnel plot shows that the estimated distribution of effects is more or less balanced between the right and left of the average vertical line. Thus the funnel plot does not show any publication bias.

Table 4. The value of aOR and 95% CI of multiparous relationship with abortion incidence

Author (Year)	aOR	95% CI	
		Lower Limit	Upper Limit
Tilahun et al. (2017)	3.75	2.54	5.54
Abebe et al. (2022)	3.12	1.01	9.64
Megersa et al. (2020)	0.90	0.36	2.70
Harahap et al. (2022)	2.41	1.59	3.64
Arambepola et al. (2016)	0.45	0.23	0.88
Denberu et al. (2017)	0.74	0.32	1.71
Klutsey et al. (2014)	6.58	2.58	16.78
Arambepola et al. (2014)	0.59	0.38	0.91
Ahinkorah et al. (2021)	0.14	0.10	0.20
Ratovoson et al. (2020)	1.07	0.72	1.59
Ziraba et al. (2015)	0.97	0.63	1.49

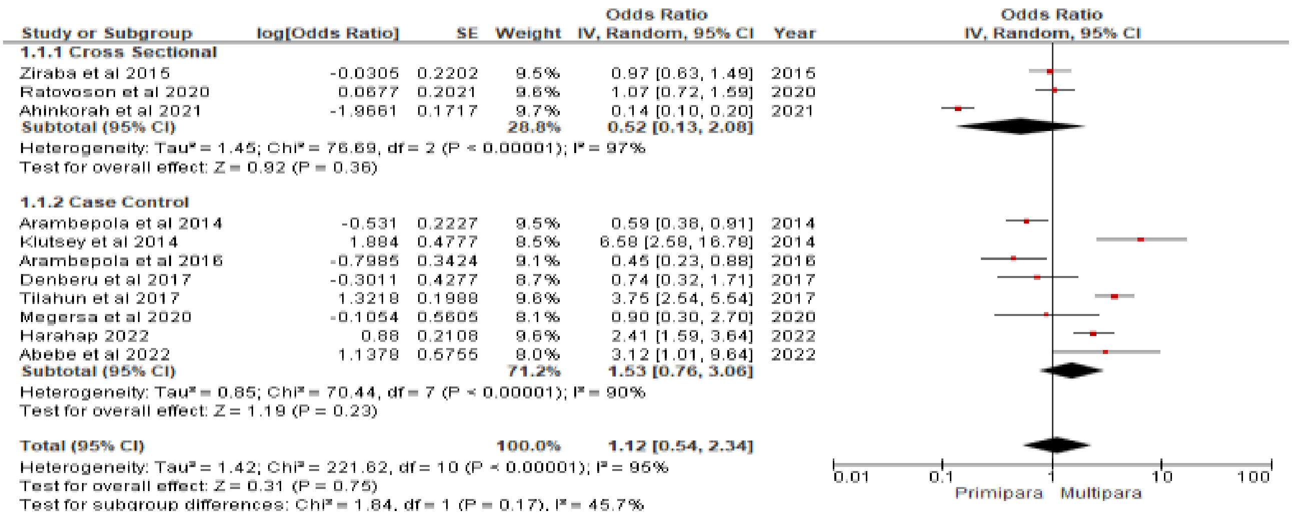

Figure 3. Forest plot of multiparous effect in the event of abortion

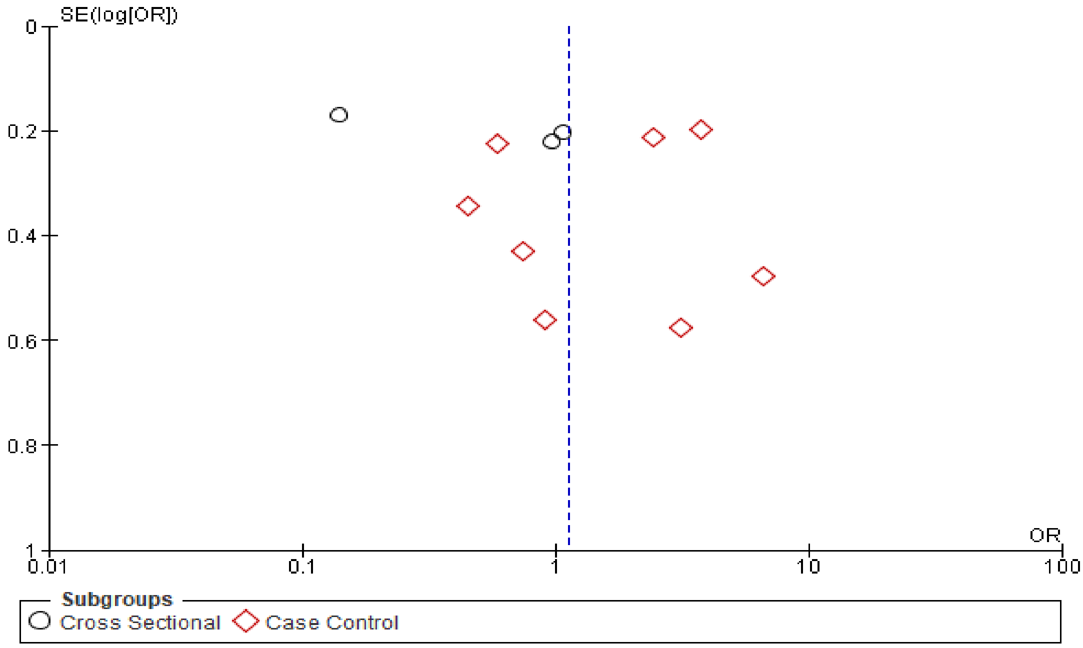

Figure 4. Funnel plot of multiparous effect in the event of abortion

3. The relationship of high family income with the incidence of abortion

Table 5 shows the aOR values and confidence intervals (CI) of 95% of high family income with the incidence of abortion. Figure 5 presents a forest plot showing the effect of high family income on the likelihood of having an abortion. The forest plot showed no significant association between high income and low income for abortion (aOR= 0.55; CI 95%= 0.22 to 1.34; p= 0.190). The forest plot also showed high heterogeneity (I^2= 94%). Thus, the calculation of the average effect estimation uses a random effect model approach.

Table 5. The aOR and 95% CI values relate high family income to the incidence of abortion

Author (Year)	aOR	95% CI	
		Lower Limit	Upper Limit
Abebe et al. (2022)	0.91	0.39	2.11
Megersa et al. (2020)	0.10	0.05	0.20
Boah et al. (2019)	1.03	0.51	2.08
Yogi et al. (2018)	0.10	0.04	0.25
Rahaman et al. (2022)	0.82	0.71	0.95
Tilahun et al. (2017)	0.09	0.05	0.16
Adjei et al. (2015)	4.02	1.29	12.53
Huneeus et al. (2020)	4.89	1.44	16.61

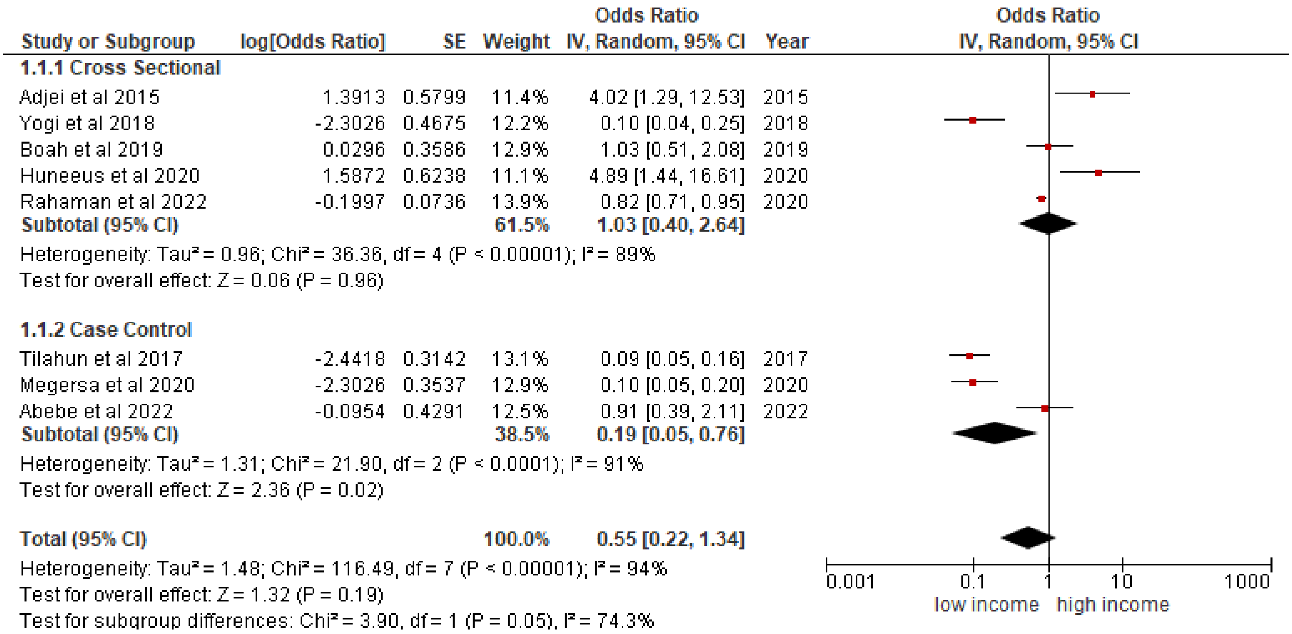

Figure 5. Forest plot of the effect of high family income on the incidence of abortion

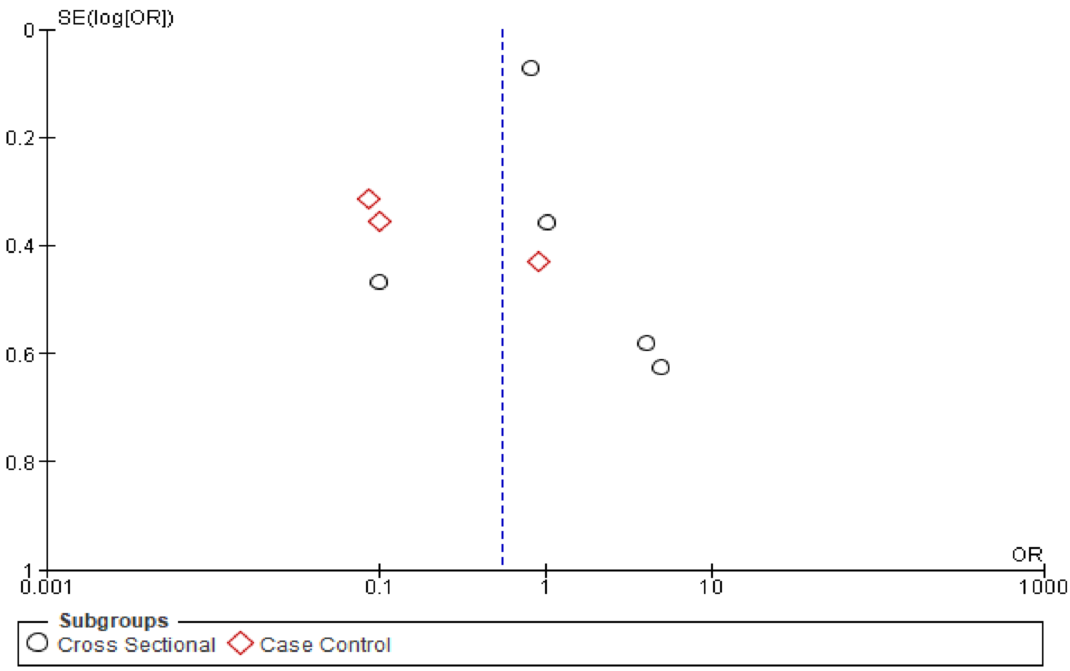

Figure 6. Funnel plot of revenue effect High families on the incidence of abortion

Figure 6. presents a funnel plot on the distribution of estimates of the effect of high family income on the likelihood of having an abortion. The funnel plot shows that the estimated distribution of effects is more or less balanced between the right and left of the average vertical line. Thus the funnel plot does not show any publication bias.

4. The relationship of urban living to the incidence of abortion

Table 6 shows the aOR values and confidence intervals (CI) of 95% of urban dwellings with abortion incidence. Figure 7 presents a forest plot showing the influence of urban dwellings on the likelihood of having an abortion. The forest plots showed no significant association between urban and rural abortions (aOR= 1.17; CI 95%= 0.88 to 1.55; p= 0.270). The forest plot also showed high heterogeneity (I^2= 82%). Thus, the calculation of the average effect estimation uses a random effect model approach.

Table 6. aOR and 95% CI values of the relationship of urban residence to the incidence of abortion

Author and Year	aOR	95% CI	
		Lower Limit	Upper Limit
Abebe et al. (2022)	1.69	0.87	3.28
Klutsey et al. (2014)	0.92	0.88	4.22
Binayew et al. (2020)	4.90	2.00	12.00
Wasihun et al. (2021)	0.53	0.31	0.93
Lentiro et al. (2019)	0.44	0.21	0.91
Ahinkorah et al. (2021)	1.31	1.15	1.51
Yogi et al. (2018)	2.09	1.06	4.12
Rahaman et al. (2022)	0.82	0.71	0.95
Ziraba et al. (2015)	1.21	0.83	1.76
Huneeus et al. (2020)	1.71	0.76	3.85
Geda et al. (2020)	0.72	0.41	1.29

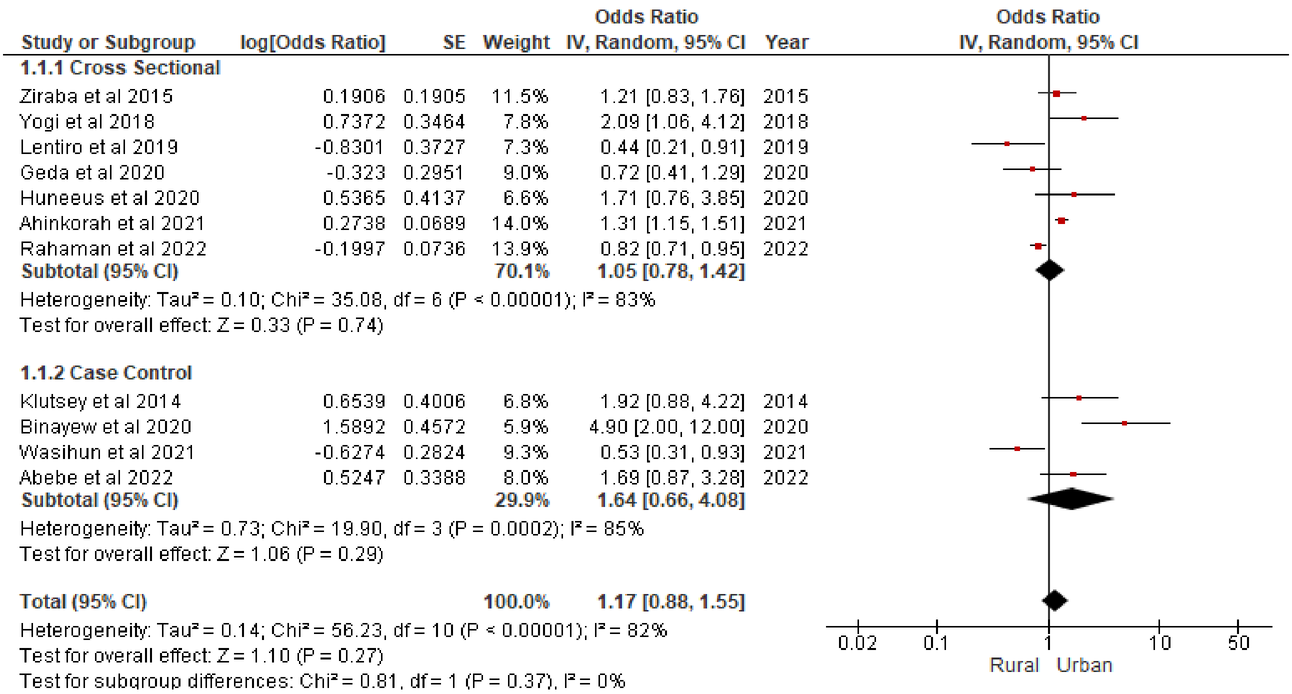

Figure 7. Forest plots of the urban dwelling effect in the event of abortion

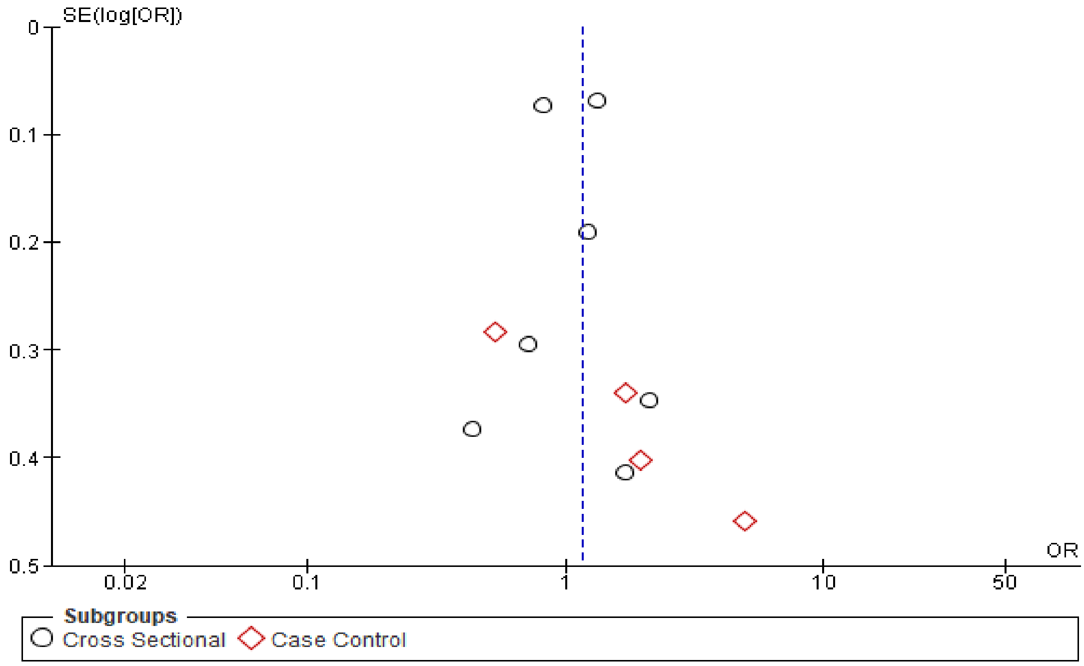

Figure 8. Funnel plot of the urban dwelling effect in the event of abortion

Figure 8 shows a funnel plot on the estimated distribution of urban housing effects on the risk of abortion incidence. The funnel plot shows that the distribution of effect estimates between studies tends to the right rather than to the left of the mean vertical line. Thus, the funnel plot shows a publication bias because the distribution of effect estimates is more on the right which is the same as the location of diamonds and stars in the forest plot, so the bias tends to overestimate the actual effect (overestimate).

DISCUSSION

1. Multiparous with the incidence of abortion

11 articles from several countries were used to measure the magnitude of the effect of parity on the incidence of abortion. The article consists of 2 study designs, namely 3 cross-sectional studies and 8 case-control studies. Studies have shown that there is no significant association between multiparous and primiparous abortion.

The relationship between parity and incidence of abortion can vary among different populations. A study in Ghana reports that women with more likely to experience an abortion incidence (Nyarko and Potter, 2020). However, study results that show no significant association between parity and incidence of abortion can be influenced by a variety of factors, such as reproductive health characteristics, metabolic health, and the diverse nature of different populations. Therefore, further studies are needed to comprehensively understand the relationship between parity and incidence of abortion.

2. High family income with the incidence of abortion

There are 8 articles from several countries used to measure the magnitude of the effect of income on the incidence of abortion. The article consists of 2 study designs, namely 5 cross-sectional studies and 3 case-control studies. Studies have shown that there is no significant association between high income and low income for experiencing the incidence of abortion.

A study in Ethiopia found that monthly income is associated with the incidence of abortion, with higher income levels positively correlated with the incidence of abortion (Alemayehu et al., 2019). In addition, a study on unsafe abortion in Ghana identified income status as a factor associated with unsafe abortion (Amhare et al., 2019). Studies that show no significant relationship between income and incidence of abortion can be influenced by a variety of factors. A study of unwanted pregnancies and abortions based on income, shows that they are influenced by access to reproductive health services, including contraception and abortion care (Bearak et al., 2020).

3. Urban dwellings with the incidence of abortion

There were 11 articles from several countries used to measure the magnitude of the effect of residence on the incidence of abortion. The article consists of 2 study designs, namely 7 cross-sectional studies and 4 case-control studies. Studies have shown no significant association between urban residences and rural residences for experiencing the incidence of abortion.

A study of travel distances to abortion facilities found that longer travel distances were associated with lower abortion rates (Thompson et al., 2021). In addition, studies have shown that urban areas often have better access to appropriate health facilities, which can lead to higher abortion incidence rates in urban environments. Urban areas may have higher abortion rates due to factors such as higher education levels and different lifestyle choices (Yokoe et al., 2019). Although the incidence of abortion is higher for those living in urban areas, this factor alone is not significant in relation to the overall incidence of abortion. Study results that show no significant relationship between residence and abortion incidence can be influenced by various factors, such as access to services, legal regulation, social attitudes, and demographic disparities (Wang and Jiang, 2022).

AUTHOR CONTRIBUTION

Annessa Marknalia Sasqia Putri as the main researcher of the chosen topic, conducts data collection, processes data, compiles results and discussions, and writes manuscripts. Mira Mashita Soraya collects, processes, analyzes data, conducts article quality assessments, and participates in compiling results. Jihan Rohadatul Aisy selects articles that match the criteria, reviews the results of the analysis, participates in compiling the results, and writes the manuscript. Bhisma Murti and Siti Mar'atul Munawaroh as supervisors and companions for article publication.

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CONFLICT OF INTEREST

There is no conflict of interest in this study.

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