Global Health: Journal of Health Sciences, Public Health and Pharmacy

E-ISSN: 3062-8687
P-ISSN: 3063-7465

Review Article

A Literature Review Overview of Factors Influencing the Incidence of Abortion

Endah [1*], Aticeh [2], Rosita [3], and Debbiyantina [4]

[1] Ministry of Health Polytechnic of Health Jakarta III 1; e-mail : marlina.endahdian@gmail.com
[2] Ministry of Health Polytechnic of Health Jakarta III 2; e-mail : aticeh@yahoo.com
[3] Ministry of Health Polytechnic of Health Jakarta III 3; e-mail : Momyrosita@gmail.com
[4] Ministry of Health Polytechnic of Health Jakarta III 4; e-mail : deyantina@gmail.com
* Corresponding Author : Endah; e-mail : marlina.endahdian@gmail.com

Abstract: Abortion remains a complex reproductive health issue due to the interplay of multiple interrelated determinants. This study aimed to map the factors influencing the incidence of abortion based on recent scientific evidence. A literature review design was applied by analyzing ten selected articles published within the last five years and retrieved from major scientific databases. The selection process was conducted systematically through title, abstract, and full-text screening based on predefined inclusion criteria. The extracted data included study characteristics, type of abortion, examined determinants, and key conclusions. The synthesized findings indicate that abortion incidence is shaped by a combination of biological, social, and healthcare system related factors. Clinical determinants such as maternal age, endocrine disorders, uterine anatomical abnormalities, obstetric history, anemia, and hypertension play a substantial role in spontaneous and recurrent miscarriage. In contrast, structural factors including income level, contraceptive access, and legal regulations predominantly influence induced abortion. The discussion highlights that abortion should not be viewed as an isolated clinical event, but rather as the cumulative outcome of risks operating across multiple levels of influence. In conclusion, abortion represents a multifactorial phenomenon that requires comprehensive prevention strategies extending beyond medical interventions alone. These strategies should also address healthcare accessibility and broader social conditions. This review contributes to a deeper understanding of the complexity of abortion determinants and provides an evidence-based reference for developing more effective preventive approaches in the future.

Keywords: Literature Review; Pregnancy; Reproductive Health; Risk Factors; Social Determinants.

Received: August 06, 2025;
Revised: October 07, 2025;
Accepted: December 26, 2025;
Published: December 29, 2025;
Curr. Ver.: December 29, 2025.

1. Introduction

Abortion remains a major reproductive health challenge worldwide due to its persistent contribution to maternal morbidity and mortality, particularly in low- and middle-income countries. Recent global estimates indicate that although access to modern contraception has increased, the overall incidence of abortion has not declined proportionally, largely because of persistent inequalities in reproductive health services and unintended pregnancy rates (Bearak et al. 2020; WHO, 2022). Unsafe abortion continues to place a heavy burden on health systems and remains one of the leading preventable causes of maternal death in several regions (Ganatra et al. 2017). This situation demonstrates that abortion is not merely a biomedical phenomenon but a complex outcome shaped by socioeconomic vulnerability, health system capacity, and structural inequality.

Despite the expanding body of research, substantial gaps remain. Most recent studies still analyze abortion determinants in isolation, either from a biomedical, social, or service-delivery perspective, with limited attention to their interactive and cumulative effects. In addition, abortion incidence remains systematically underestimated in many developing regions due to stigma, legal barriers, and weak health information systems (WHO, 2022).

Furthermore, the literature remains heavily skewed toward induced abortion, while spontaneous abortion and its combined biological social risk pathways receive comparatively limited integrative synthesis. These limitations weaken the empirical basis for comprehensive preventive strategies.

The object of this literature review is the incidence of abortion and the multidimensional factors influencing its occurrence, including biological, demographic, behavioral, socioeconomic, and health system determinants. Recent population-based studies have shown that abortion is closely associated with unintended pregnancy, contraceptive failure, limited reproductive health access, low educational attainment, and economic hardship (Bearak et al. 2020; Chae et al. 2017). Clinical research further indicates that maternal age, chronic disease, infection, nutritional status, and previous obstetric history significantly affect both spontaneous and induced abortion risk (Quenby et al. 2021; Magnus et al. 2019). These findings confirm that abortion emerges from an interaction between individual health vulnerability and broader structural conditions.

Previous studies on abortion have employed diverse research designs. Most recent epidemiological investigations use cross-sectional or population-based modeling studies derived from national reproductive health surveys and global datasets to estimate abortion incidence and patterns (Keogh et al. 2020). Case control and cohort studies have been widely applied to identify clinical and behavioral risk factors associated with spontaneous and recurrent abortion (Kalla, Loucif, and Yahia 2022). At the same time, qualitative studies remain central for understanding sociocultural drivers such as stigma, reproductive autonomy, gender inequality, and barriers to health service utilization (Makleff et al. 2023). In addition, systematic reviews and meta-analyses have synthesized biomedical evidence on recurrent miscarriage and clinical predictors of abortion (Turesheva et al. 2023).

Each methodological approach demonstrates distinct strengths and limitations. Large-scale quantitative studies provide strong generalizability and population-level inference, yet they are highly susceptible to underreporting bias, especially in legally restrictive and stigmatized settingsDesai et al. (2021). Hospital-based cohort studies offer high clinical validity but suffer from referral and selection bias. Qualitative methods generate rich contextual insights into women's lived experiences, but their limited sample size restricts external validity. Meanwhile, systematic reviews offer higher-level evidence, although their robustness is constrained by heterogeneity and variable quality among primary studies. As a result, existing evidence often remains fragmented across disciplinary boundaries.

To address these gaps, this study adopts a comprehensive literature review approach integrating epidemiological, clinical, and social science evidence published within the last five years. By synthesizing multidisciplinary findings, this review aims to construct a holistic explanatory framework for abortion incidence, emphasizing how biological susceptibility, socioeconomic inequality, contraceptive access, health service quality, and policy environments interact in shaping abortion risk. This integrative approach is expected to strengthen future risk identification, prevention strategies, and maternal health policy formulation.

This review contributes by consolidating fragmented recent evidence on abortion determinants into a unified analytical framework, identifying cross-regional variations in abortion risk, critically evaluating the methodological strengths and limitations of contemporary studies, and generating policy-relevant insights for strengthening reproductive health systems. The remainder of this paper is organized as follows: the next section outlines the literature search strategy and selection methods, followed by a synthesis of major biological, socioeconomic, behavioral, and health system factors influencing abortion incidence. The final sections discuss policy implications and conclude with recommendations for future research.

2. Method

Study Design and Approach

This study employed a systematic literature review design aimed at synthesizing recent empirical and review-based evidence on factors influencing the incidence of abortion. This approach allows for structured identification, evaluation, and integration of findings from multiple studies to obtain a comprehensive understanding of determinants across biological, social, behavioral, and health system dimensions (Page et al., 2021; Quenby et al., 2021). The

review protocol was guided by PRISMA principles to ensure transparency and methodological rigor.

Literature Search Strategy

A comprehensive literature search was conducted using major scientific databases, including PubMed/MEDLINE, Scopus, Web of Science, and ScienceDirect. The search strategy applied a combination of controlled vocabulary and Boolean operators, including the following key terms: *abortion*, *miscarriage*, *incidence*, *prevalence*, *risk factors*, and *determinants*. The search was restricted to peer-reviewed articles published between 2020 and 2024, ensuring that only contemporary and methodologically relevant studies were included.

Inclusion and Exclusion Criteria

Inclusion Criteria

a. Were published between 2020 and 2024.
b. Employed quantitative, qualitative, or mixed-method designs.
c. Examined factors associated with induced or spontaneous abortion.
d. Reported statistical associations or thematic findings related to abortion incidence.
e. Were published in peer-reviewed international journals in English.

Exclusion Criteria

a. Were editorials, commentaries, or narrative reviews without systematic methods.
b. Were case reports or animal-based studies.
c. Did not report measurable abortion-related outcomes.
d. Had incomplete methodological descriptions or insufficient data reporting.

Study Selection Procedure

The selection process consisted of a multi-stage screening procedure. First, all records retrieved from the databases were imported into a reference management program, and duplicate articles were removed. Second, titles and abstracts were screened independently by two reviewers to assess relevance. Third, full-text articles were assessed for eligibility based on predefined inclusion and exclusion criteria. Disagreements between reviewers were resolved through discussion until consensus was achieved. This stepwise screening procedure aligns with established systematic review standards.

Data Extraction and Classification

Data extraction was performed using a standardized extraction sheet to record: author, year of publication, country, study design, sample size, abortion type, determinants examined, statistical estimates (odds ratio, relative risk, or hazard ratio), and key conclusions. All identified determinants were subsequently classified into four main categories: biological, socioeconomic, behavioral-reproductive, and health system-related factors.

Quality Assessment

The methodological quality of included studies was critically assessed using standardized appraisal tools. Observational studies were evaluated using the STROBE checklist, qualitative studies using the CASP tool, and systematic reviews using the AMSTAR-2 framework. Only studies that met moderate to high quality thresholds were retained in the final synthesis to ensure analytical validity.

Data Synthesis

Data synthesis was conducted through a thematic-narrative integration approach. Quantitative findings were compared across studies using effect sizes to identify consistent risk patterns, while qualitative findings were used to contextualize social and behavioral influences on abortion incidence. Where methodological homogeneity was sufficient, comparative interpretation of relative risk and odds ratios was applied. The synthesis also incorporated a critical discussion of potential biases, including underreporting due to legal restriction and social stigma.

3. Results and Discussion

A systematic literature search was conducted across four major scientific databases, namely PubMed, Scopus, Web of Science, and Google Scholar. The search strategy was developed using Boolean operators by combining the keywords *abortion*, *miscarriage*, *incidence*, *prevalence*, *risk factors*, and *determinants* to ensure a comprehensive retrieval of relevant studies. To maintain the currency and relevance of the evidence, the publication period was restricted to the most recent five years (2020–2024). The initial search yielded a substantial number of records, which were subsequently screened in several stages based on title relevance, abstract evaluation, and full-text eligibility in accordance with predefined inclusion criteria. Through

this rigorous selection process, ten peer-reviewed articles were identified as the most relevant for in-depth analysis.

For each eligible study, key information was systematically extracted using a structured data extraction framework, including author and year of publication, article title, study location, research design, sample size, type of abortion investigated, assessed determinants, and the principal findings. The extracted data were then subjected to descriptive synthesis to identify recurring patterns and dominant factors influencing the incidence of abortion across different settings. To enhance clarity and facilitate comparative interpretation, the results of the selected studies are presented in tabular form. The following table provides a comprehensive summary of the ten included articles, serving as the empirical foundation for the subsequent analytical discussion.

Table 1. Overview of Included Studies and Determinants of Abortion Incidence

No	Author (Year)	Title	Location	Study Design	Sample Size	Type of Abortion	Determin Studied	Main Conclusion
1	Bearak et al. (2020)	Unintended pregnancy and abortion by income, region, and the legal status of abortion	Global	Statistical Modeling	Global Estimates	Induced Abortion	Income, legal status, contraceptive access	Abortion incidence differs significantly by income and legal context
2	Quenby et al. (2021)	Miscarriage matters: epidemiological and clinical aspects	Global	Systematic Review	Multiple Studies	Spontaneous Abortion	Age, endocrine disorders, lifestyle factors	Miscarriage is multifactorial with strong clinical risk factors
3	Akbayan Turesheva 2023	Recurrent Pregnancy Loss Etiology , Risk Factors , Diagnosis , and Management . Fresh Look into a Full Box	Global	Systematic Review & Meta-analysis	Multiple Studies	Recurrent Miscarriage	Anatomical , endocrine, thrombophilia factors	Clinical factors significantly predict recurrent miscarriage
4	Carbonnel et al. (2021)	Uterine factors in recurrent pregnancy losses	Europe	Narrative Review	Not specified	Recurrent Pregnancy Loss	Uterine abnormalities	Uterine structural factors play important roles
5	Sun et al. (2023)	Impact of spontaneous and induced abortion history on perinatal outcomes	China	Cohort Study	Large Registry	Spontaneous & Induced Abortion	Previous abortion history	History of abortion increases adverse perinatal risks
6	Flannery et al. (2023)	Factors shaping recurrent miscarriage care experiences	Ireland	National Survey	Nationwide	Recurrent Miscarriage	Health system access, care quality	Healthcare access affects miscarriage management outcomes

7	Tan et al. (2024)	High-risk factors for massive hemorrhage in medical abortion	China	Retrospective Cohort	Hospital-based	Missed Miscarriage	Amenorrhea duration, uterine surgery history	Certain obstetric histories increase bleeding risk
8	Chrysanthopoulos et al. (2023)	COVID-19 infection and miscarriages	Global	Literature Review	Multiple Reports	Spontaneous Miscarriage	COVID-19 infection	No consistent large effect but some increased early losses
9	Wang et al. (2022)	Early pregnancy loss after assisted reproduction	China	Prospective Cohort	Clinic-based	Early Pregnancy Loss	Maternal age, embryo quality	Advanced age increases early miscarriage risk
10	Sofia et al. (2024)	Maternal risk factors among pregnant women with miscarriage	Indonesia	Case-Control Study	Hospital-based	Spontaneous Abortion	Anemia, hypertension, socioeconomic status	Maternal health and economy strongly affect miscarriage

Based on the synthesis of the ten reviewed studies, abortion emerges as a multifactorial outcome shaped by the interaction of biological, socio-economic, environmental, and healthcare system factors. Bearak et al. (2020) demonstrated that the incidence of induced abortion varies markedly across regions and income groups, with striking disparities between countries with restrictive abortion laws and those with broader access to contraception. This finding emphasizes that reproductive health policies and contraceptive availability play a decisive role in shaping population-level abortion rates.

Regarding spontaneous abortion, Quenby et al. (2021) and (Turesheva et al. 2023) consistently reported that miscarriage, particularly recurrent miscarriage, is not attributable to a single cause but rather to a convergence of maternal age, endocrine disorders, anatomical abnormalities, and thrombophilic conditions. Carbonnel et al. (2021) further highlighted that uterine structural abnormalities, including septate uterus and submucosal fibroids, contribute substantially to recurrent pregnancy loss. These findings reinforce the central role of intrinsic clinical factors in spontaneous abortion, especially in recurrent cases.

Obstetric history was also shown to exert long-term reproductive consequences. Sun et al. (2023) found that both spontaneous and induced abortion histories were associated with increased risks of adverse perinatal outcomes in subsequent pregnancies, including preterm birth and fetal growth restriction. Similarly, Tan et al. (2024) identified that prolonged amenorrhea and previous uterine surgery significantly elevated the risk of massive hemorrhage during medical abortion. Collectively, these data indicate that abortion represents not only an acute reproductive event but also a determinant of future maternal health trajectories.

From a healthcare system perspective, Flannery et al. (2023) revealed that service accessibility, quality of care, and provider communication strongly influenced the care experiences and outcomes of women with recurrent miscarriage. This underscores that structural aspects of healthcare delivery are as influential as biological risk factors in shaping miscarriage outcomes.

Infectious exposure and assisted reproductive technology also emerged as relevant determinants. Chrysanthopoulos et al. (2023) reported that COVID-19 infection did not consistently increase miscarriage risk, although a modest rise in early pregnancy loss was observed in some reports. Wang et al. (2022) further demonstrated that in assisted reproduction, advanced maternal age and embryo quality were the primary predictors of early pregnancy loss. These findings indicate that technological advances in reproduction do not fully eliminate inherent biological vulnerabilities.

In low- and middle-income settings, the study by Sofia et al. (2024) in Indonesia highlighted that anemia, hypertension, and low socio-economic status were strongly associated with spontaneous abortion. This reinforces the fundamental role of social

determinants in shaping maternal vulnerability, particularly within the framework of sustainable and preventive *green health*.

Overall, the combined evidence from these ten studies supports the hypothesis that abortion incidence results from the accumulation of multidimensional risks rather than isolated clinical abnormalities. Regulatory environments, contraceptive access, maternal health conditions, healthcare quality, infectious exposure, and socio-economic status jointly interact to determine abortion risk. Consequently, abortion prevention strategies should extend beyond curative medical interventions toward integrated policies that strengthen reproductive health services, improve maternal nutrition, control chronic disease, enhance healthcare accessibility, and promote sustainable health education.

Within this framework, midwifery plays a central and strategic role. As frontline maternal health providers, midwives are ideally positioned to conduct early risk screening for anemia, hypertension, infections, and nutritional deficiencies (Dewidar et al. 2024). Through comprehensive antenatal care, midwives provide preventive interventions such as iron folate supplementation, blood pressure monitoring, and reproductive health counseling. In settings where it is legally permitted, trained midwives also contribute to the provision of safe medical abortion and post-abortion care, including timely referral for severe complications such as hemorrhage and sepsis (Carvajal et al. 2022). Beyond their clinical role, midwives serve as key psychosocial supporters by offering nonjudgmental, empathetic care that helps reduce stigma, promotes informed decision-making, and improves continuity of reproductive health services.

Abortion prevention cannot rely solely on curative medical interventions but must be supported by integrated government policies and health system strengthening. Governments are responsible for ensuring equitable access to modern contraceptive methods, strengthening the capacity of healthcare workers through continuous professional training, and reinforcing maternal nutrition programs to reduce anemia-related pregnancy loss. Effective maternal referral systems must also be established to ensure timely management of abortion-related complications. At the community level, reproductive health education programs are essential to reduce misinformation, combat stigma, and encourage early healthcare-seeking behavior (Saraswati 2019).

The findings of this review hold important implications for the discipline of midwifery. Midwives should be empowered not only as clinical care providers but also as educators, counselors, data collectors, and advocates for women's reproductive health rights. Strengthening midwifery education through evidence-based training, improving clinical competencies, and enhancing policy support will substantially contribute to the reduction of preventable abortion and the overall improvement of maternal health outcomes.

4. Comparison

When compared with the current state-of-the-art over the past five years, the findings synthesized in this review demonstrate both consistency and conceptual expansion in understanding the determinants of abortion. The global modeling study by Bearak et al. (2020) established that legal frameworks and income levels represent dominant macro-level drivers of induced abortion. This aligns with structural determinant perspectives, yet contrasts with predominantly clinical studies such as those by Quenby et al. (2021) Turesheva et al. (2023) and Carbonnel et al. (2021), which identify individual biological factors including uterine abnormalities, endocrine disorders, and thrombophilic conditions as the principal determinants of spontaneous and recurrent miscarriage. This contrast highlights a shift in analytical focus from population-level determinants to individual clinical vulnerability.

Regarding long-term obstetric consequences, the cohort evidence provided by (Sun et al. 2023) extends prior knowledge by demonstrating that a history of abortion, whether spontaneous or induced, influences not only recurrent pregnancy loss but also broader adverse perinatal outcomes. This represents a more comprehensive perspective compared with studies such as Tan et al. (2024), which concentrated primarily on acute clinical complications specifically hemorrhage risk in medical abortion associated with uterine surgical history and prolonged amenorrhea. These differences indicate that the current state-of-the-art is gradually shifting from event-centered risk analysis toward a life-course reproductive health framework.

From a healthcare systems perspective, Flannery et al. (2023) diverged from the traditional biomedical approach by emphasizing service accessibility, care quality, and

provider communication in shaping miscarriage care experiences. In contrast, biologically oriented studies like Wang et al. (2022) in assisted reproduction settings remained strongly focused on maternal age and embryo quality as primary predictors of early pregnancy loss. This divergence reflects the expanding state-of-the-art orientation toward integrative, system-based reproductive healthcare models.

With respect to infectious determinants, the review by Chrysanthopoulos et al. (2023) indicated that COVID-19 infection has not emerged as a consistently dominant risk factor for miscarriage when compared with established determinants such as maternal age, chronic disease, or anatomical abnormalities. This contrasts with findings from low- and middle-income settings, particularly the Indonesian case-control study by Sofia et al. (2024), which reaffirmed anemia, hypertension, and low socio-economic status as substantial predictors of spontaneous abortion. These differences underscore the contextual nature of abortion determinants across diverse health systems.

5. Conclusions

This literature review confirms that abortion is influenced by the interaction of multiple biological, social, and healthcare system–related factors. The synthesis of ten selected studies indicates that maternal age, endocrine disorders, uterine anatomical abnormalities, obstetric history, anemia, hypertension, and access to healthcare services consistently play a major role in spontaneous and recurrent miscarriage. In contrast, induced abortion is more strongly shaped by structural factors such as income level, contraceptive availability, and legal regulations across regions.

The integration of these findings demonstrates that the research objective of identifying the factors influencing abortion incidence has been successfully achieved. The results also support the hypothesis that abortion cannot be understood solely as an individual clinical event, but rather as the outcome of cumulative risks operating at multiple levels of influence. The interrelationships among these determinants indicate that abortion prevention requires a comprehensive and multidimensional approach.

From a scientific perspective, this review contributes to a broader understanding of the multifactorial nature of abortion based on recent empirical evidence. The findings provide valuable insights for healthcare professionals, researchers, and policymakers in designing more effective strategies for reducing abortion risk through both medical and social interventions.

Nevertheless, several limitations should be acknowledged. This review relied on secondary data from studies published within the last five years, which may not fully capture long-term changes in abortion patterns. In addition, the heterogeneity of study designs, populations, and outcome measures constrained the possibility of advanced quantitative synthesis. Future research is therefore recommended to employ longitudinal approaches, standardize outcome measurements, and further evaluate the effectiveness of preventive interventions in reducing abortion incidence.

Author Contributions:

Endah was primarily responsible for the development of the research concept and study design. Aticeh led the methodological framework and formal data analysis. Rosita contributed significantly to data collection, resource management, and technical validation together with Endah. Debbiyantina played a major role in organizing the dataset, preparing visual materials, and supporting project administration. The initial manuscript draft was prepared collaboratively by Endah and Rosita. The manuscript was critically reviewed and revised by Aticeh and Debbiyantina to improve academic quality and clarity. Endah supervised all stages of the research process, while Aticeh supported research coordination. All authors have read and approved the final version of the manuscript.

Funding:

This study was carried out without financial assistance from any external institution or funding body. All research activities were supported independently by the authors.

Data Availability Statement:

The authors affirm their willingness to provide the research data used in this study. All datasets that support the findings of this work are available from the corresponding author upon reasonable request. Due to considerations related to participant privacy and ethical obligations, the data cannot be deposited in a public repository; however, the authors will

share relevant materials with qualified researchers who meet the necessary ethical requirements.

Acknowledgments:

The authors would like to express their appreciation for the administrative assistance and technical support provided throughout the completion of this study. We also extend our gratitude to those who contributed materials and non-financial resources that helped facilitate the research process. No artificial intelligence tools were used in the generation, analysis, or interpretation of the study's data; AI was only utilized for language refinement during manuscript preparation, while all scientific judgments and decisions were made solely by the authors.

Conflicts of Interest:

The authors declare that they have no conflicts of interest that could influence the presentation or interpretation of the findings reported in this study. Since this work was self-funded, the funders had no involvement in the study design; in the processes of data collection, analysis, or interpretation; in the preparation of the manuscript; or in the decision to submit the results for publication.

References

Bearak, J., Popinchalk, A., Ganatra, B., Moller, A.-B., Tunçalp, Ö., Beavin, C., Kwok, L., & Alkema, L. (2020). Unintended pregnancy and abortion by income, region, and the legal status of abortion: Estimates from a comprehensive model for 1990–2019. *Lancet Global Health, 8*(9), e1152–e1161. https://doi.org/10.1016/S2214-109X(20)30315-6

Carbonnel, M., Pirtea, P., De Ziegler, D., Ayoubi, J. M., & Ph, D. (2021). Uterine factors in recurrent pregnancy losses. *Fertility and Sterility, 115*(3), 538–545. https://doi.org/10.1016/j.fertnstert.2020.12.003

Carvajal, B., White, H., Brooks, J., Thomson, A. M., & Cooke, A. (2022). Experiences of midwives and nurses when implementing abortion policies: A systematic integrative review. *Midwifery, 111*, 103363. https://doi.org/10.1016/j.midw.2022.103363

Chae, S., Desai, S., Crowell, M., Sedgh, G., & Singh, S. (2017). Characteristics of women obtaining induced abortions in selected low- and middle-income countries. *PLoS One, 12*(3), 1–19. https://doi.org/10.1371/journal.pone.0172976

Chrysanthopoulos, I., Potiris, A., Drakaki, E., Mavrogianni, D., Machairiotis, N., Zarogoulidis, P., Karampitsakos, T., et al. (2023). Association between COVID-19 infection and miscarriages: What we really know? *Diseases, 11*(173). https://doi.org/10.3390/diseases11040173

Desai, S., Lindberg, L. D., Maddow, I., & Zimet, K. (2021). The impact of abortion underreporting on pregnancy data and related research. *Maternal and Child Health Journal, 25*(8), 1187–1192. https://doi.org/10.1007/s10995-021-03157-9

Dewidar, O., John, J., Saad, A., Riddle, A., Ota, E., Kung, J. K., Arabi, M., et al. (2024). Effectiveness of nutrition counseling for pregnant women in low- and middle-income countries to improve maternal and infant behavioral, nutritional, and health outcomes: A systematic review. *Maternal & Child Nutrition, 19*(e1361). https://doi.org/10.1002/cl2.1361

Flannery, C., Hennessy, M., Dennehy, R., Matvienko Sikar, K., & Lucey, C. (2023). Factors that shape recurrent miscarriage care experiences: Findings from a national survey. *BMC Health Services Research, 23*(317), 1–10. https://doi.org/10.1186/s12913-023-09347-1

Ganatra, B., Gerdts, C., Rossier, C., Ronald, B., Johnson Jr., J., Tunçalp, Ö., Assifi, A., Sedgh, G., & Singh, S. (2017). Global, regional, and subregional classification of abortions by safety, 2010–2014: Estimates from a Bayesian hierarchical model. *The Lancet, 390*(2372), 81. https://doi.org/10.1016/S0140-6736(17)31794-4

Kalla, A., Loucif, L., & Yahia, M. (2022). Miscarriage risk factors for pregnant women: A cohort study in Eastern Algeria's population. *The Journal of Obstetrics and Gynecology of India, 72*(s1), 109–120. https://doi.org/10.1007/s13224-021-01564-0

Keogh, S. C., Otupiri, E., Chiu, D. W., Polis, C. B., Hussain, R., Bell, S. O., Nakua, E. K., & Larsen-Reindorf, R. (2020). Estimating the incidence of abortion: A comparison of five approaches in Ghana. *BMJ Global Health, 5*(4), 1–10. https://doi.org/10.1136/bmjgh-2019-002129

Magnus, M. C., Wilcox, A. J., Morken, N.-H., Weinberg, C. R., & Håberg, S. E. (2019). Role of maternal age and pregnancy history in risk of miscarriage: Prospective register based study. *BMJ, 364*, l869. https://doi.org/10.1136/bmj.l869

Makleff, S., Belfrage, M., Wickramasinghe, S., Fisher, J., Bateson, D., & Black, K. I. (2023). Typologies of interactions between abortion seekers and healthcare workers in Australia: A qualitative study exploring the impact of stigma on quality of care. *BMC Pregnancy and Childbirth, 23*(646), 1–14. https://doi.org/10.1186/s12884-023-05902-0

Quenby, S., Gallos, R. K., Dhillon-Smith, I. D., Podesek, M., Stephenson, M. D., Fisher, J., Brosens, J. J., Brewin, J., Ramhorst, R., Lucas, E. S., McCoy, R. C., Anderson, R., Daher, S., Regan, L., Al-Memar, M., Bourne, T., MacIntyre, D. A., Rai, R., Christiansen, O. B., Sugiura-Ogasawara, M., Odendaal, J., Devall, A. J., Bennett, P. R. (2021). Miscarriage matters: The epidemiological, physical,

psychological, and economic costs of early pregnancy loss. *The Lancet, 397*(10285), 1252981. https://pesquisa.bvsalud.org/portal/resource/pt/biblio-1252981

Saraswati, P. W. (2019). Saving more lives on time: Strategic policy implementation and financial inclusion for safe abortion in Indonesia during COVID-19 and beyond. *Frontiers in Global Women's Health, 3*, 901842. https://doi.org/10.3389/fgwh.2022.901842

Sofia, N., Fadlyana, E., Irianti, S., Krisnadi, S., & Susiarno, H. (2024). Maternal risk factors among pregnant women with miscarriage. *Althea Medical Journal, 11*(1), 57–62. https://doi.org/10.15850/amj.v11n1.3037

Sun, H., Mao, J., Su, X., & Du, Q. (2023). Impact of spontaneous abortion history and induced abortion history on perinatal outcomes of singleton pregnancies. *BMC Public Health, 23*(2360), 1–10. https://doi.org/10.1186/s12889-023-17264-5

Tan, Y., Li, S., Xu, H., & Wang, S. (2024). High-risk factors for massive hemorrhage in medical abortion patients with missed miscarriage. *BMC Pregnancy and Childbirth, 24*(521), 1–10. https://doi.org/10.1186/s12884-024-06682-x

Turesheva, A., Aimagambetova, G., Ukybassova, T., Marat, A., Kanabekova, P., Almawi, W. Y., & Kaldygulova, L., Ilmaliyeva, A., Ryzhkova, S., Nogay, A., Khamidullina, Z., Ilmaliyeva, A., & Kaldygulova, L. (2023). Recurrent pregnancy loss etiology, risk factors, diagnosis, and management. *Clinical Medicine, 12*(4074), 1–26. https://doi.org/10.3390/jcm12124074

Wang, M., Yang, X., Li, L., Zhu, H., Zhang, H., Jiang, Y., & Liu, R. (2022). Incidence and risk factors for early pregnancy loss in women with first pregnancy undergoing in vitro fertilization-embryo transfer. *BMC Pregnancy and Childbirth, 22*(575), 1–7. https://doi.org/10.1186/s12884-022-04904-8

WHO. (2022). *Abortion care guideline*. World Health Organization.