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Social Perception Among Husbands of Women Diagnosed with Primary Infertility: A Qualitative Study in Semarang City, Central Java

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ABSTRACT

Introduction: Primary infertility is a significant reproductive health issue that not only affects women but also their husbands. However, most health education programs still focus predominantly on women, leaving men's perceptions underexplored. Understanding husbands' social perceptions is crucial for developing inclusive interventions that address both partners' needs. This study aimed to explore the social perceptions of husbands whose wives have primary infertility, focusing on their views regarding health education, psychological well-being, and support systems.

Methods: This qualitative study used a phenomenological approach and was conducted in Semarang City, Central Java. Participants were recruited purposively, consisting of husbands whose wives were clinically diagnosed with primary infertility. Data were collected through in-depth interviews using a semi-structured guide and analyzed thematically.

Results: Findings showed that husbands of women diagnosed with primary infertility were aged > 45 years old 13 persons (65%) and had education levels ranging bachelor school 9 persons (45%). They worked most as private sector employees 13 persons (65%). Most lived with their wives 11 persons (55%). Health education programs mostly targeted the wives, with minimal psychological support for husbands. Education on healthy behaviors was delivered generally, and mental health topics were addressed only upon request. No program specifically designed for husbands existed. Several husbands had low knowledge and attitudes about infertility and felt excluded from reproductive health discussions.

Conclusion: Current reproductive health education programs inadequately address the needs of husbands of women with primary infertility. Developing husband-inclusive interventions that integrate physical and psychological health components is essential.

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INTRODUCTION

Primary infertility is defined as the inability of a couple to conceive after 12 months or more of regular, unprotected sexual intercourse, without a previous pregnancy. This condition is recognized as a global reproductive health problem, with prevalence varying across regions and influenced by biological, psychological, and socio-cultural factors (1).

In Indonesia, infertility is often perceived as a woman's issue, resulting in limited attention to the role and experiences of husbands (2). In many cases, the social and cultural environment shapes perceptions of infertility, influencing emotional well-being, marital relationships, and help-seeking behaviors (3). Husbands' understanding and attitudes toward infertility are critical in determining the couple's adaptation process and engagement with healthcare services (4).

Previous studies indicate that health education programs for infertile couples predominantly target women, focusing on medical treatments, lifestyle modifications, and reproductive anatomy (3). However, aspects related to men especially their psychological health and social perspectives are rarely addressed (5). In most cases, discussions about infertility involve husbands only when they are willing to attend consultations, leading to minimal male participation in structured health education programs (6).

Given that infertility s both partners, there is a pressing need to develop interventions that include husbands as active participants (7). Understanding their social perceptions how they interpret, respond to, and cope with primary infertility can provide insights for designing comprehensive, culturally sensitive reproductive health programs (8).

METHOD

This study employs a clear and systematic approach to ensure the reliability and validity of the findings. Below are the components of the methodology:

Research Type

This study employed a qualitative design using a phenomenological approach to explore the social perceptions of husbands whose wives diagnosed with primary infertility. The research was conducted in Semarang City, Central Java, Indonesia, at healthcare facilities providing infertility services, including hospitals and specialized reproductive health clinics.

Population and Sample/Informants

The sampling technique used was the purposive sampling technique for 20 husbands of wives diagnosed with primary infertility

Research Location

The study was conducted in Adhyatma Hospital in Central Java, Indonesia.

Instrumentation or Tools

The instrument used was an interview guide that had been expertly tested and declared suitable for use in research.

Data Collection Procedures

Participants were selected using purposive sampling, with inclusion criteria as follows: 1) husbands whose wives had been clinically diagnosed with primary infertility, 2) aged 30 – > 45 years old, 3) willing to participate voluntarily, and 4) able to communicate effectively in Bahasa Indonesia. Recruitment was facilitated through healthcare professionals at infertility clinics, who introduced the study to eligible husbands. Written informed consent was obtained before participation.

Data were collected through in-depth, face-to-face interviews conducted in a private setting to ensure confidentiality. Each interview lasted between 45 and 60 minutes and was audio-recorded with the participants' permission. Field notes were taken to capture non-verbal cues and contextual information.

The study was guided by the PRECEDE–PROCEED model, focusing on predisposing, enabling, and reinforcing factors that influence perceptions and behaviors. A semi-structured interview guide was developed based on this framework, covering domains such as knowledge, attitudes, psychological responses, support systems, and expectations for health education.

Data credibility was ensured through triangulation of sources and member checking, in which preliminary findings were shared with participants for verification. Dependability was maintained by documenting the research process in detail, while transferability was supported by providing a clear description of the study context.

Data Analysis

Audio recordings were transcribed verbatim in Bahasa Indonesia, and transcripts were analyzed using thematic analysis. The process involved reading the transcripts repeatedly, coding meaningful statements, grouping codes into categories, and identifying themes related to the social perceptions of husbands regarding primary infertility. Data analysis was carried out manually and iteratively until thematic saturation was achieved.

Ethical Approval

Ethical approval for this study was obtained from the Health Research Ethics Committee of Adhiyatma Hospital Central Java Provinsion, with approval number B/3229/010/V/2023. All participants received explanations about the study's objectives, procedures, potential risks, and benefits. Confidentiality was maintained by using codes instead of participants' names in transcripts and reports.

RESULTS

Research Respondent Characteristics

The respondent characteristics that research, table 1 shows the overall characteristics of the primary informants.

Table 1. Characteristics Of Interview Informants

Characteristics of Husbands (Primary Informants)	Frequency (%)
Age	
< 35 years old	2 (10%)
35-45 years old	5 (25%)
≥ 45 years old	13 (65%)
Educational	
Senior High School	7 (35%)
Diploma School	2 (10%)
Bachelor School	9 (45%)
Master's Degres	2 (10%)
Occupation	
Private Sector Employees	13 (65%)
Teachers	1 (5%)
Civil Servants	6 (30%)
Living Arrangement	
With Wives	11 (55%)
With Parents	9 (45%)

(Primary Data, 2023)

The husbands of women diagnosed with primary infertility in this study ranged in age > 45 years old 13 persons (65%), with educational backgrounds most bachelor school 9 persons (45%), Occupations most private sector employees 13 persons (65%). Most lived with their wives 11 persons (55%). The findings are presented according to eight thematic categories derived from participant responses.

Feelings in Facing Infertility

In developing this model, it is important to examine the psychological experiences of husbands during their journey with primary infertility. Most husbands reported feelings of sadness, efforts to remain strong, and a willingness to participate in medical examinations although attendance was sometimes inconsistent due to scheduling conflicts. Participation in joint examinations was often encouraged by medical advice. This was reflected in statements such as:

"*I always take part in the examinations, but I feel uncomfortable when sexual activity is scheduled. It is difficult to match the timing because I work outside Java, which sometimes causes me stress and frustration. However, my wife and I are both motivated and determined to have a child, so we continue to make every effort even when the timing does not always align." (S1, 41 years)*

"I keep motivating my wife by accompanying her to appointments, but I cannot attend my own examinations because I still work out of town. Coordinating the timing for scheduled intercourse is difficult." (S2, 45 years)

"Sad, confused, and anxious, but I try to remain calm so my wife does not overthink." (S19, 42 years)

Husbands' Responses During Infertility

When asked about their responses to prolonged infertility, most husbands described a sense of resignation, sadness, and efforts to remain calm. For example:

"I try to stay calm about this problem, leaving it all to fate after making every effort." (S14, 48 years)

"I mostly feel confused, anxious, and sad." (S17, 47 years)

"My response is to stay calm, support my wife, and avoid hurting each other's feelings, even though sometimes we have different opinions." (S7, 32 years)

Family Responses During Infertility

Family reactions varied widely. Many husbands noted differences of opinion within the family, and some expressed sadness when close relatives, such as their mothers, contributed to feelings of lacking support. Illustrative quotes include:

"The response has been mostly fine, though some relatives make it an issue. It's just differences of opinion, but they should not judge." (S3, 53 years)

"Sometimes my family judges, which makes me pity my wife. That's why I rarely bring her to large family gatherings to avoid hurt feelings." (S4, 48 years)

"My wife's family is supportive, but in my own family some have differing opinions, so I try to mediate to prevent my wife from feeling inferior." (S9, 43 years)

Maintaining Healthy Behaviors During Infertility

In terms of physical health, husbands described efforts such as reducing smoking, avoiding coffee, and limiting late nights. For example:

"I exercise regularly. I still smoke occasionally, but not often." (S1, 41 years)
"Regular exercise, reducing smoking and coffee, and ensuring enough rest." (S6, 35 years)
"I maintain a healthy routine with regular exercise, a balanced diet, and trying not to stay up late." (S14, 48 years)

Support from Mothers During Infertility

When discussing maternal or family support, husbands reported receiving advice, prayers, encouragement for child adoption, and reminders to be patient while also valuing relatives who avoided intrusive questions. For example:

"I ask my family to avoid frequently questioning my wife, as I don't want her to be upset." (S1, 41 years)

"I feel happy and comfortable when they respect our privacy without asking questions it's our business." (S2, 45 years)

"As long as the family supports whatever we do, their advice and prayers bring us peace." (S13, 46 years)

Approaches to Resolving Health Problems During Infertility

Most husbands addressed infertility related health issues through medical consultation and encouraging their wives to follow doctors' advice, acknowledging ongoing uncertainty about solving fertility problems:

"We usually just consult and have check-ups, sometimes together when both of us want to." (S11, 45 years)
"I seek medical advice, have check-ups, and join pregnancy programs doing my best." (S13, 46 years)
"I consult and check up only when there are symptoms, sometimes attending, sometimes not." (S16, 49 years)

Needs During Infertility

Husbands expressed a need for guidance in communicating with their wives and relatives to support healthy behaviors. Many noted that their wives could be sensitive to questions about pregnancy progress, leading them to remain silent in such situations. For example:

"Understanding from people around us without negative comments, so that we can keep supporting each other." (S10, 45 years)
"We need support and understanding to handle this problem so my wife is not easily offended." (S9, 43 years)
"I want to remain calm when facing hurtful comments from relatives, so we can keep living our lives especially for my wife's emotional well-being." (S15, 49 years)

Efforts Made During Infertility

Most husbands reported relying on prayer, resignation, and adherence to medical treatment recommendations, with the majority focusing on conventional medical approaches:

"I go to check-ups with my wife, but sometimes I can't join if I have work." (S9, 43 years)
"Pray, check-ups, join pregnancy programs." (S5, 30 years)
"We have tried many things: my wife's health checks, my own examinations including ultrasound and lab tests, and more." (S1, 41 years)

Thus, the summary of the husbands' responses were as follows:

On average, husbands of women diagnosed with primary infertility expressed feelings of sadness, tried to remain strong, and attempted to be involved during medical examinations, although often only because the doctor recommended attending together.

Many husbands reported feeling pity for their wives and stated that they tended to resign themselves to the situation, ignoring negative comments from others; however, what hurt them most were hurtful remarks from family members.

Most husbands mentioned that family members often had differing opinions, yet they did not truly understand what the couple was going through. Many husbands felt particularly saddened when close family members, such as their own mothers, failed to provide support.

Regarding healthy behavior, many husbands reported sometimes reducing smoking, avoiding coffee, and staying up late only when necessary for work. They also stated they never consumed alcohol or used illegal drugs.

Most husbands said they received support in the form of advice, prayers, and reminders to attend medical check-ups.

Many husbands felt they needed more understanding and guidance on how to communicate with their wives and surrounding family members, as their wives could be sensitive when asked about the progress of the pregnancy program. In such cases, husbands often chose to remain silent.

In dealing with the problem, most husbands sought consultation and encouraged their wives to undergo examinations and follow medical advice, as they still felt uncertain about how to address infertility issues.

Overall, during the infertility period, most husbands relied on prayer, resignation, and compliance with medical treatments and recommendations from doctors, with the majority pursuing medical-based interventions.

DISCUSSION

The discussion section interprets the findings of this study within the context of existing research, explores their practical implications, evaluates the strengths and limitations, and provides recommendations for future research.

Interpretation of Key Findings

Based on the findings of this study using the PRECEDE–PROCEED approach, it was evident that health education efforts have primarily focused on wives diagnosed with primary infertility (9). Healthy behavior education is still delivered in general terms, while psychological health topics are rarely addressed and usually only discussed if the infertile couple requests consultation (10). Consequently, there is currently no specific program targeting husbands of women diagnosed with primary infertility (7).

The results indicate that husbands' knowledge and attitudes still require improvement, with their understanding and practice of healthy behaviors remaining limited (11). Nevertheless, there are some positive aspects. In several cases, close family members such as biological mothers or mothers-in-law provided motivation and support for couples diagnosed with primary infertility, and healthcare providers also played an encouraging role. However, it is important that husbands maintain open communication and build relationships both with family members and healthcare professionals (12). The main intcerpersonal influences on health promotion behaviors come from family (parents and siblings) and healthcare workers. Interpersonal influences such as social norms, social support (instrumental and emotional encouragement), and modeling (learning from others' experiences) can contribute significantly to addressing primary infertility (12). In addition, health promotion plays an important role in shaping communication that positively influences the surrounding environment (13).

Another challenge is the lack of specific funding for educational programs aimed at husbands, largely due to the high costs of clinical infertility treatment (14). There are also no structured health education services that include a focus on husbands to improve healthy behaviors, nor training for healthcare workers specifically on educating husbands (7). However, given existing hospital resources, such services could be implemented. This aligns with the support for reproductive health promotion, including primary infertility, as stated in Indonesia's Health Law No. 17 of 2023 (11).

In the hospital context, midwives who regularly attend clinical examinations could serve as educators for husbands by providing targeted information on healthy behavior and reproductive health, which could ultimately improve maternal and child health in the long term. However, the role of midwives as educators for husbands remains underdeveloped and needs to be strengthened (7). Training programs for healthcare providers to educate husbands could build their confidence and engagement. This is supported other research, who reported that 87% of infertile couples require improved knowledge, attitudes, actions, and comprehensive information, with an emphasis on understanding infertility and healthy behaviors (15). While obstetricians focus more on clinical management, competent healthcare providers can deliver non clinical educational interventions designed specifically for husbands to support their wives diagnosed with primary infertility (7).

Highlights that husbands of women diagnosed with primary infertility face distinct challenges requiring attention to physical, psychological, and social well being (16). Addressing these dimensions through collaboration between healthcare workers, close family members, and the husbands themselves can foster positive outcomes and motivation for healthier living (4). A husband's educational level and occupation can influence his perception and support for his wife's health. Technology-based interventions, including online methods, can also be effective in improving maternal health (17).

Furthermore, the study highlights that husbands' limited involvement is strongly shaped by prevailing social perceptions surrounding male identity and infertility. In many sociocultural settings, infertility is socially framed as a woman's issue, leading husbands to perceive their role as peripheral when their wives are diagnosed with primary infertility. This perception is deeply linked to masculine norms that associate manhood with reproductive capability, strength, and social authority. As a result, husbands may feel compelled to distance themselves from infertility-related discussions or treatment processes to avoid stigma, shame, or perceived threats to their masculine identity. The PRECEDE–PROCEED analysis demonstrates that such social perceptions function as substantial predisposing and reinforcing barriers. These beliefs reduce husbands' motivation to participate in counseling, limit their emotional

support for their wives, and weaken their involvement in shared decision-making regarding infertility treatment. Consequently, wives often navigate emotional distress and treatment pathways alone, reinforcing gender inequality in reproductive health responsibilities (18).

Addressing these ingrained social perceptions is therefore essential in designing effective, family-centered infertility education. Educational models must not only target knowledge improvement but also challenge cultural narratives that exclude men from reproductive health roles. Incorporating the active participation of husbands, reshaping gender norms, and strengthening couple-based communication can create more comprehensive and equitable support systems for women diagnosed with primary infertility (19).

Comparison with Previous Studies

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Chakraborty (2022) highlights that husbands of women diagnosed with primary infertility face distinct challenges requiring attention to physical, psychological, and social well being (16). Addressing these dimensions through collaboration between healthcare workers, close family members, and the husbands themselves can foster positive outcomes and motivation for healthier living (4). A husband's educational level and occupation can influence his perception and support for his wife's health. Technology based interventions, including online methods, can also be effective in improving maternal health (17).

Educational interventions should include active monitoring to enhance positive health outcomes and prevent negative ones by improving knowledge, attitudes, and behaviors. This requires well-designed learning experiences that influence and strengthen voluntary healthy behaviors, making them part of daily routines(11). In the context of infertility, such programs for husbands could help establish lasting positive habits and should also involve close

family members, as they often have a strong influence on the couple's experience particularly in tracking clinical progress(20).

Karina (2017) suggests that practical guidelines for managing infertile couples should be easy for husbands to understand and should include strategies for engaging close family members in providing emotional and practical support (21). Structured programs that encourage dialogue between partners and shared reflection on experiences with infertility can improve acceptance, happiness, and coping among couples, especially those facing primary infertility (22). Other studies also indicate that limited knowledge, negative past experiences, low support from the community, and religious factors can reduce husbands' roles in health promotion (23).

Husbands' involvement is a key factor in infertility education because strong motivation from the husband can enhance the couple's willingness and confidence to adopt healthy behaviors together. Support from close family members, such as mothers or mothers-in-law, can also be a strong motivator, though differences in perspectives between parents and couples can sometimes cause discomfort (24). This highlights the need for awareness and understanding among close family members to avoid undermining healthy behavior efforts (25). The importance of tailored interventions that consider the unique experiences of men facing infertility, emphasizing the role of coping strategies and the influence of cultural factors on mental health and treatment decisions. By fostering an understanding of these complexities, healthcare providers can better assist men in navigating the challenges of infertility or help with wife diagnosed with primary infertility (26).

Partnerships between healthcare providers, mothers or mothers-in-law, and couples diagnosed with primary infertility are essential to achieving effective education. Leveraging the knowledge, experiences, and needs of couples and their close family members can strengthen collaboration. With support from healthcare workers and family, couples are more likely to engage regularly in healthy behaviors, making it easier for providers to deliver targeted educational interventions (27).

To enhance knowledge, attitudes, and healthy behaviors among couples diagnosed with primary infertility, infertility classes could be introduced. These classes would focus on improving understanding of healthy behaviors and could serve as a model for hospital based educational services. A comprehensive approach addressing spiritual, physical, psychological, and social health is necessary for effective management of primary infertility. Furthermore, occupational exposures (e.g., pesticides) and unhealthy behaviors such as smoking, alcohol consumption, and drug use can affect male fertility and reduce their capacity to support their wives (28). These issues should be included in educational materials for husbands to improve their role in supporting reproductive health. In addition, unhealthy behaviors such as smoking, alcohol consumption, and the use of illicit drugs can affect the husband's health in supporting the well-being of a wife diagnosed with primary infertility; therefore, these perceptions should be addressed through education for husbands of women diagnosed with primary infertility (28). The importance of men being acknowledged and included in the fertility treatment process and healthcare professionals need to recognize the impact of infertility on men aspiring to become fathers and their need to play a meaningful role during fertility treatment (29).

Limitations and Cautions

This study employed the comprehensive PRECEDE–PROCEED approach to identify predisposing, enabling, and reinforcing factors influencing the health behaviors of husbands with wives diagnosed primary infertility. It explored multidimensional aspects (physical, psychological, and social) and examined the contributions of family members and healthcare professionals in supporting healthy behaviors. The study also provides a clear illustration of the potential role of midwives as educators in promoting healthy behaviors among husbands, as well as the opportunity to utilize hospital services for specialized education for husbands. The findings are strengthened by references to various previous studies, both national and international, thus providing a solid theoretical foundation. However, the study has certain limitations. Educational interventions have so far been primarily focused on wives diagnosed with primary infertility, resulting in a lack of indepth practical exploration of the role and educational needs of husbands in the field. There is no specific budget allocation or structured program for husband focused education, meaning that implementing the recommendations will require strong policy support. Limited training for healthcare providers on husband-focused education may also reduce the effectiveness of interventions. Additionally, there is no infertility class program that integrates education for couples and families simultaneously. Social cultural

factors and differences in family perspectives (e.g., between parents and the couple) could not be fully controlled during the intervention.

Recommendations for Future Research

Recommendations include 1) Development of husband-specific educational programs create a structured program for husbands of women diagnosed with primary infertility, covering reproductive health, healthy lifestyle behaviors, psychological support, and effective family communication. It is important to consider how men and women may be affected differently when designing programs to address their infertility issues. 2) Healthcare provider training conduct specialized training for midwives and other healthcare workers as educators to deliver relevant and easily understandable educational materials for husbands. 3) Establishment of infertility classes initiate hospital-based infertility classes involving both partners and close family members, using face-to-face and technology-based (online platform) approaches. 4) Strengthening family support increase understanding and promote positive attitudes among parents in laws toward couples diagnosed with primary infertility through family counseling sessions. 5) Integration into health policy include husband focused education programs in hospital reproductive health services policies, in accordance with the mandate of the Indonesian Health Law No. 17 of 2023. 6) Multidimensional approach design interventions that address physical, psychological, social, and spiritual aspects for husbands, to ensure more comprehensive and sustainable support for their wives and considering the differences in psychological status between infertile women and men, paying attention to gender differences is crucial when formulating policies and planning strategies for implementing solutions(30).

CONCLUSION

This study emphasizes that health education for couples diagnosed with primary infertility remains predominantly focused on the wife, while the husband's role has not received optimal attention. Yet, husbands play a significant role in supporting their wives' healthy behaviors through physical, psychological, and social support. The involvement of close family members, especially parents, as well as healthcare providers, serves as a strong reinforcing factor. Interpersonal support, targeted health promotion, and practical, easy to understand guidance are key to enhancing the husband's role. Without a comprehensive intervention, achieving optimal improvement in healthy behaviors among couples diagnosed with primary infertility will be challenging.

AUTHOR'S CONTRIBUTION STATEMENT

D. Puspitaningrum: study design, funding acquisition, writing-review and editing. MZ Rahfiluddin: conceptualization, study design, coding and analysis, original draft, data collection. M. Irsam: conceptualization, writing-review and editing funding acquisition.

CONFLICTS OF INTEREST

There is no conflict of interest to declare.

DECLARATION OF GENERATIVE AI AND AI-ASSISTED TECHNOLOGIES IN THE WRITING PROCESS

During the preparation of this manuscript, the authors used generative AI tools, including ChatGPT 4.0 (OpenAI) and Grammarly, to assist with language editing, clarity improvement, and structure refinement. ChatGPT was also used for translating segments of interview quotations from Indonesia to English to enhance contextual accuracy and readability. Addionally, these tools were employed for grammar checking and plagiarism screening. All AI-assisted outputs were critically reviewed and edited by the authors to ensure accuracy, integrity, and adherence to academic standards.

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BIBLIOGRAPHY

1. Carson SA, Kallen AN. Diagnosis and Management of Infertility: A Review. JAMA - J Am Med Assoc [Internet]. 2021;326(1):65–76. Available from: https://doi.org/10.1001/jama.2021.4788
2. Priska MA, Kusumaningrum TAI. Parental Interpersonal Communication Skills on Adolescent Reproductive Health. J Promosi Kesehat Indones [Internet]. 2023;19(1):58–63. Available from: https://doi.org/10.14710/jpki.19.1.58-63
3. Yuan Y, Yang L, Hu J, Deng Y, Zhang H. Knowledge, attitude and practice on ovarian reserve function among women of childbearing age: a prospective cross-sectional study in Chongqing and surrounding regions. BMJ Open [Internet]. 2024;14(3):1–7. Available from: https://doi.org/10.1136/bmjopen-2023-080890
4. Mpono EP, Kobenge FM, Mengne GL, Belinga E, Kasia JM, Egbe TO. The Support Systems and Coping Strategies of Infertile Women Attending the Out-Patient Consultation Unit of CHRACERH Yaoundé , Cameroon : A Cross-Sectional Study. 2024;869–87. Available from: https://doi.org/10.4236/ojog.2024.146070
5. Ramadan SA, Said AR. Effect of an Educational Intervention for Infertile Women Regarding Natural Fertility Methods and Sexual Skills for Improving Sexual Function "Effect of an Educational Intervention for Infertile Women Regarding Natural Fertility Methods and Sexual Skills. Am J Nurs Res [Internet]. 2018;6(1):1–11. Available from: https://doi.org/10.12691/ajnr-6-1-1
6. Health KS, Satisfaction M. Association of Marital Satisfaction and Sexual Health Literacy with Fertility among Iranian Couples. 2024;12(1):145–52. Available from: https://doi.org/10.58209/hehp.12.1.145
7. Dewi CHT, Rahfiluddin MZ, Sriatmi A, Agushybana F. Exploring Husband Involvement in Antenatal Classes: A Mix-Method Approach on Demographic, Structural, and Psychological Dimensions. Public Heal Indones [Internet]. 2025;11(1):21–31. Available from: https://doi.org/10.36685/phi.v11i1.857
8. Golshani F, Hasanpour S, Mirghafourvand M, Esmaeilpour K. Effect of cognitive behavioral therapy-based counseling on perceived stress in pregnant women with history of primary infertility: a controlled randomized clinical trial. BMC Psychiatry [Internet]. 2021;21(1). Available from: https://doi.org/10.1186/s12888-021-03283-2
9. Crosby R, Noar SM. What is a planning model? An introduction to PRECEDE-PROCEED. J Public Health Dent. 2011;71(SUPPL. 1).
10. Glanz.K.Rimer.B.K & Viswanath.K. Health Behaviour And Health Education: Theory, Research And Practice. 4th Ed. San Francisco: Jossey-Bass; 2008.
11. Dewi CHT, Rahfiluddin MZ, Sriatmi A, Agushybana F. Impact of Online Husband Class on Pregnancy Care Behavior. Univers J Public Heal [Internet]. 2024;12(5):944–52. Available from: https://doi.org/10.13189/ujph.2024.120517
12. Shaluhiyah Z, Musthofa SB, Indraswari R, Kusumawati A. Health risk behaviors: Smoking, alcohol, drugs, and datingamong youths in Rural Central Java. Kesmas [Internet]. 2020;15(1):17–23. Available from: https://doi.org/10.21109/kesmas.v15i1.2864
13. Jadha Casmira O, Widjanarko B, Margawati A, Kesehatan Masyarakat F, Diponegoro U, Soedarto J. Promosi Kesehatan Melalui Media Sosial Instagram Sebagai Sarana Edukasi. Husada Mahakam J Kesehat. 2022;12(2):114–24.
14. Winarni S, Denny HM, Arifan F, Suwondo A, Kartini A. Risk Factors Of Infertility Cases Among Shallot Farmers. 2020;21(1):160–8.
15. Roberts L, Renati S, Solomon S, Montgomery S. Women and infertility in a pronatalist culture: Mental health in the slums of Mumbai. Int J Womens Health [Internet]. 2020;12. Available from: https://doi.org/10.2147/IJWH.S273149

16. Chakraborty, S., & Roy PK. Interpersonal Therapy in Primary Infertility, Life-Cycle Transitions, and Dysthymia: A Single Case Study. Clin Case Stud [Internet]. 2022;2(22):87–99. Available from: https://doi.org/10.1177/15346501211038275
17. Ganga K. Knowledge and Practice of Fertility Behavior among the Musahar Women in Nepal. Patan Pragya [Internet]. 2020;7(1):78–90. Available from: https://doi.org/10.3126/pragya.v7i1.35108
18. Roudsari RL, Goudarzi F. Barriers to the participation of men in reproductive health care : a systematic review and meta - synthesis [Internet]. BMC Public Health. BioMed Central; 2023. 1–37 p. Available from: https://doi.org/10.1186/s12889-023-15692-x
19. Simbar M, Ghasemi V, Taherian R, Kalhor M, Mohammadian F, Kiani Z. Prevalence of anxiety symptoms in infertile men : a systematic review and meta-analysis. BMC Public Health [Internet]. 2024;1805(24):1–15. Available from: https://doi.org/10.1186/s12889-024-19299-8
20. Shaluhiyah Z, Suryoputro A, Indraswari R. Factors influencing men's involvement in maternal and child health: men's experiences and religious leader's support in Central Java, Indonesia. J Heal Res [Internet]. 2023;37(5):349–55. Available from: https://doi.org/10.56808/2586-940X.1047
21. Shreffler KM, Greil AL, Tiemeyer SM, McQuillan J. Is infertility resolution associated with a change in women's well-being? Hum Reprod [Internet]. 2020;35(3):605–16. Available from: https://doi.org/10.1093/humrep/dez297
22. Manikkam B, Bhargavi V. Study of psychosocial aspects contributing to stress among women with primary infertility. Int J Community Med Public Heal [Internet]. 2020;7(5). Available from: https://doi.org/10.18203/2394-6040.ijcmph20201975
23. L. Kay Bartholomew Eldredge, Christine M. Markham, Robert A. C. Ruiter, Maria E. Fernández, Gerjo Kok GSP. Planning Health Promotion Programs, An Intervention Mapping Approach [Internet]. Wiley; 2016. 704 p. Available from: https://www.wiley.com/en-us/Planning+Health+Promotion+Programs:+An+Intervention+Mapping+Approach,+4th+Edition-p-9781119035497
24. Huang MZ, Sun YC, Gau ML, Puthussery S, Kao CH. First-time mothers' experiences of pregnancy and birth following assisted reproductive technology treatment in Taiwan. J Health Popul Nutr [Internet]. 2019;38(1). Available from: https://doi.org/10.1186/s41043-019-0167-3
25. García D, Brazal S, Rodríguez A, Prat A, Vassena R. Knowledge of age-related fertility decline in women: A systematic review. Eur J Obstet Gynecol Reprod Biol [Internet]. 2018;230:109–18. Available from: https://doi.org/10.1016/j.ejogrb.2018.09.030
26. Nouri P, Shariat P, Janatolmakan M, Andayeshgar B, Khatony A. Exploring Iranian men ' s experiences of infertility through qualitative content analysis. Discov Psychol [Internet]. 2024;4(196). Available from: https://doi.org/10.1007/s44202-024-00316-1
27. Ni Y, Tong C, Huang L, Zhou W, Zhang A. The analysis of fertility quality of life and the influencing factors of patients with repeated implantation failure. Health Qual Life Outcomes [Internet]. 2021;19(1). Available from: https://doi.org/10.1186/s12955-021-01666-3
28. Halimah AN, Winarni S, Dharminto. Paparan Rokok, Status Gizi, Beban Kerja Dan Infeksi Organ Reproduksi Pada Wanita Dengan Masalah Fertilitas Rsi Sultan Agung Semarang. J Kesehat Masy. 2018;6(5):202–8.
29. Sylvest R, Schmidt L, Pinborg A, Ziebe S. The emotional experience of men during fertility treatment in Denmark : a qualitative interview study on engagement , hope and loss. Reprod Biomed Online [Internet]. 2025;105217. Available from: https://doi.org/10.1016/j.rbmo.2025.105217
30. Khorasani F, Iranifard E. Gender differences in psychological status of infertile couples : a systematic review and meta-analysis. BMC Public Health [Internet]. 2025;25(2131):1–19. Available from: https://doi.org/10.1186/s12889-025-23314-x