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Persuasive Health Education on Iron Supplement Adherence Among Working Pregnant Women with Anemia: A Mixed-method Approach

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Abstract

Iron deficiency anemia in pregnancy remains a major maternal health problem, particularly among women who combine pregnancy with paid work. Work schedules, fatigue, stress and limited access to individualized counseling may reduce adherence to iron supplementation. This study evaluated whether persuasive health education could improve iron supplement adherence among working pregnant women with anemia in Sidoarjo, Indonesia. A convergent parallel mixed-method design was used. The quantitative component applied a quasi-experimental pretest-posttest control group design involving 120 working pregnant women with mild to moderate anemia, with 60 participants in the intervention group and 60 participants in the control group. Random allocation was not feasible because the education sessions were delivered through workplace and community health units. Therefore, matched allocation was used to reduce baseline imbalance. The intervention consisted of four small-group sessions designed from the Elaboration Likelihood Model and Social Cognitive Theory. These sessions used message relevance, visual explanation, storytelling, role-play, feedback, goal setting, peer support and WhatsApp reminders. Quantitative data were collected at baseline and four weeks after the intervention. Semi-structured interviews were conducted with 20 participants from the intervention group. ANCOVA and paired tests showed significant improvements in adherence, hemoglobin level, self-efficacy and perceived stress in the intervention group compared with the control group. Cohen's d values ranged from 0.58 to 0.82, indicating moderate to large effects. Qualitative themes explained these results through message relevance, emotional resonance, self-efficacy, practical routine formation and peer support. The findings suggest that theory-based persuasive health education can strengthen short-term adherence behavior among working pregnant women with anemia.

Keywords: Iron Supplementation, Maternal Anemia, Persuasive Health Education, Self-efficacy, Working Pregnant Women.

Introduction

Iron deficiency anemia during pregnancy remains a major public health concern because it can increase fatigue, reduce maternal work capacity and contribute to adverse birth outcomes such as preterm birth and low birth weight (1, 2). Daily iron and folic acid supplementation are recommended as part of antenatal care to reduce maternal anemia and improve pregnancy outcomes (3, 4). However, adherence remains uneven across settings, especially where women face occupational pressure, limited time, side effects, forgetfulness and low perceived urgency toward supplementation (5–7). Working pregnant women represent a specific but under-examined group in maternal anemia research. Their health behavior is shaped not only by knowledge, but also by shift patterns, workplace routines, social expectations, fatigue and access to health education at convenient times. Recent studies have shown that education and counseling can improve iron-folic acid adherence, but many interventions still focus on general pregnant populations and provide limited explanation of how message design changes behavior in employed pregnant women (7–10). This gap justifies a more context-sensitive approach to maternal health education. Persuasive health education offers one possible response to this problem. Rather than delivering information as one-way instruction, persuasive education uses personally relevant messages, emotional engagement, practical rehearsal, peer modeling, feedback and confidence-building strategies (11–13). Evidence from health communication and maternal health research

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indicates that narrative messages, visual materials, teach-back methods and structured counseling can support behavior change when the message fits the audience and reduces practical barriers (3, 8, 14–16). The present study applies this logic to iron supplementation among working pregnant women with anemia.

The novelty of this study lies in three aspects. First, it targets working pregnant women with anemia, a group that has been less visible in intervention studies despite having distinctive occupational constraints. Second, it integrates two behavioral communication theories into the design of the intervention and into the selection of measured variables. Third, it uses a mixed-method design to examine not only whether adherence improved, but also how participants interpreted the messages and adapted supplementation into daily work routines.

A mixed-method design was appropriate because iron adherence is both measurable and experiential. Quantitative data were needed to estimate changes in adherence, hemoglobin, self-efficacy and perceived stress. Qualitative data were needed to explain why the intervention worked or did not work from the participants' perspective, especially because workplace barriers and emotional responses cannot be fully captured by scores alone. The integration of these two forms of evidence strengthens the interpretation of intervention effectiveness.

Theoretical Framework

The intervention was guided by the Elaboration Likelihood Model and Social Cognitive Theory (17, 18). The Elaboration Likelihood Model explains how people process persuasive messages through a central route when the message is personally relevant and cognitively engaging, or through a peripheral route when cues such as credibility, emotion and social influence guide acceptance (6, 18). In this study, message relevance was built by linking anemia risks to the daily experiences of working pregnant women, including fatigue at work, fetal health concerns and difficulty maintaining a routine. Visual aids, brief stories and discussion prompts were used to support deeper message processing.

Social Cognitive Theory explains behavior change through self-efficacy, observational learning, reinforcement, outcome expectations and reciprocal interaction between individual behavior and environment (19, 20). In the intervention, self-efficacy was strengthened through role-play, goal setting, tailored feedback, peer sharing and reminder planning (21). These theoretical elements informed the measured variables: iron adherence represented the primary behavior; self-efficacy represented the central psychological mechanism; perceived stress represented an occupational barrier; hemoglobin level represented the physiological outcome; and qualitative themes captured message relevance, emotional resonance, peer support and routine adaptation (22–24).

The study was guided by the following questions:

(a) Does persuasive health education improve adherence to iron supplementation among working pregnant women with anemia?
(b) How do participants perceive and respond to persuasive education when they face occupational and psychological barriers?
(c) Which persuasive elements are associated with stronger adherence outcomes?

Methodology

This study used a convergent parallel mixed-method design. The quantitative component used a quasi-experimental pretest-posttest control group design, while the qualitative component used semi-structured interviews. Both components were conducted during the same study period. Quantitative and qualitative findings were integrated at the interpretation stage through a joint display linking outcome changes with interview themes (25, 26).

The study was conducted in Sidoarjo Regency, East Java, Indonesia (approximate GPS coordinates: 7.4478° S, 112.7183° E), a semi-urban industrial area where many women work in manufacturing, retail and service sectors. The target population was working pregnant women aged 20 to 40 years who had been clinically diagnosed with mild to moderate iron deficiency anemia during antenatal visits at community health centers and affiliated midwifery clinics.

Purposive sampling was used in collaboration with midwives and occupational health officers.

Eligibility Criteria

(a) hemoglobin level between 8.0 and 10.9 g/dL,
(b) active employment of at least 20 hours per week,
(c) gestational age between 13 and 28 weeks and

(d) willingness to attend education sessions and follow-up assessment.

Exclusion Criteria

(a) severe anemia requiring hospitalization,
(b) cognitive or language barriers that prevented informed consent or interview participation,
(c) prior exposure to similar structured education and
(d) concomitant medical conditions such as gestational diabetes, hypertension, or thyroid disorders.

The total sample included 120 participants, with 60 participants in the intervention group and 60 participants in the control group. The sample size was estimated using G*Power software (version 3.1) with a medium effect size of 0.5, alpha of 0.05, statistical power of 0.80 and an additional allowance for possible attrition. Randomization was not used because education was delivered through existing workplace and community health units and separating participants randomly within the same unit could increase contamination. To reduce selection bias, participants were matched by age, occupation type and baseline hemoglobin level. Baseline equivalence was also tested statistically before outcome analysis.

The intervention lasted four weeks and consisted of four structured small-group sessions. Each group included six to eight participants and each session lasted 60 to 75 minutes. Trained midwives and licensed health educators facilitated the sessions at community centers or workplace health units. The control group received standard antenatal education without the persuasive components.

The four-week interval was selected to capture short-term behavioral change and early physiological response. Adherence can change soon after counseling when reminders and routine planning are introduced. Hemoglobin response may begin within several weeks when iron intake improves, although complete correction of anemia usually requires longer follow-up. Therefore, the four-week outcome was interpreted as an early response indicator rather than evidence of sustained anemia correction, as shown in Table 1.

Table 1: Structure of the Persuasive Health Education Intervention

Session	Theme	Theoretical basis	Key components	Persuasive Techniques
1	Understanding anemia	ELM: message relevance and central-route processing	Definition, risks, maternal-fetal impact, work-related fatigue	Visual explanation and personally relevant risk framing
2	Importance of iron supplementation	ELM: emotional resonance and credible cues	Benefits, side effects, myths, dosage guidance	Storytelling, myth correction and provider credibility
3	Daily integration strategies	SCT: self-efficacy and behavioral capability	Routine planning, workplace adaptation and reminder systems	Role-play, tailored feedback and problem-solving
4	Motivation and peer support	SCT: reinforcement and observational learning	Goal setting, peer sharing and WhatsApp reminders	Peer modeling, group support and self-efficacy reinforcement

Note: ELM = Elaboration Likelihood Model, SCT = Social Cognitive Theory. The table shows how each session translated theory into intervention content.

Quantitative data were collected at baseline (T0) and four weeks after the intervention (T1). Iron supplement adherence was measured using the Iron Adherence Index, a validated self-report scale assessing frequency, consistency and motivational aspects of adherence. Pill count was verified by comparing participant diaries with midwife records. Hemoglobin level was measured from venous blood samples using an automated hematology analyzer. Self-efficacy was measured using the General Self-Efficacy Scale and perceived stress was measured using the Perceived Stress Scale-10. Demographic data included age, education, income, occupation type and weekly working hours.

The instruments were evaluated for validity and reliability before analysis. The Iron Adherence Index was developed from previous adherence studies and WHO recommendations. Content validity was reviewed by three experts in maternal health and communication. Construct validity was examined using exploratory factor analysis and reliability was acceptable with Cronbach's alpha of 0.82. The adapted General Self-Efficacy Scale showed a Cronbach's alpha of 0.85, while the

Indonesian Perceived Stress Scale showed a Cronbach's alpha of 0.78.

For the qualitative component, 20 participants were purposively selected from the intervention group to represent variation in occupation type and adherence response. Interviews explored initial attitudes toward iron supplementation, experiences with persuasive messages, emotional responses, workplace barriers, social support and motivation for behavioral change. Interviews were conducted in Bahasa Indonesia, audio recorded, transcribed verbatim and translated into English for reporting.

Quantitative data were analyzed using IBM SPSS Statistics for Windows, Version 26.0 (IBM Corp., Armonk, NY, USA). Descriptive statistics summarized baseline characteristics. Independent t-tests and chi-square tests examined baseline differences between groups. Paired t-tests assessed within-group changes and ANCOVA examined post-test differences while controlling for baseline values. Before inferential testing, assumptions were checked using visual inspection of Q-Q plots, Shapiro-Wilk tests for normality, Levene's tests for homogeneity of variance and tests of homogeneity of regression slopes for ANCOVA. No substantial violation was observed. Missing data were addressed using multiple imputation and statistical significance was set at $p < 0.05$. Effect sizes were interpreted using Cohen's d, where values around 0.50 indicate moderate effects and values around 0.80 indicate large effects.

Qualitative data were analyzed using the six-phase reflexive thematic analysis procedure: familiarization, coding, theme generation, theme review, theme definition and reporting. Two researchers independently checked the codes to improve credibility. NVivo 12 was used to organize the codes and visualize thematic patterns. Triangulation was performed by connecting qualitative themes with quantitative outcomes in a joint display. For example, the increase in adherence scores was interpreted alongside interview accounts describing reminder use, peer encouragement and stronger confidence in managing supplementation during working days.

Ethical approval was obtained from the Institutional Review Board of Universitas Muhammadiyah Gresik. All participants provided written informed consent before enrollment. Confidentiality was protected through anonymized coding and participants could withdraw at any time without penalty. The study followed national ethical standards for research involving human participants and the principles of the Declaration of Helsinki.

Results

Quantitative Findings

The baseline characteristics of the 120 participants are described in Table 2. The intervention and control groups were comparable in age, education level, occupation type, baseline hemoglobin, work hours, perceived stress and self-efficacy. No statistically significant baseline differences were detected across these variables.

Table 2: Baseline Characteristics of Participants

Variable	Intervention Group (n = 60)	Control Group (n = 60)	Total (N = 120)	p-value
Age, years (mean +/- SD)	28.4 +/- 4.2	28.1 +/- 4.5	28.3 +/- 4.3	0.72
High school education, %	40.0	41.7	40.8	0.84
Diploma/Bachelor's education, %	60.0	58.3	59.2	
Manufacturing occupation, %	46.7	45.0	45.8	0.91
Retail/service occupation, %	53.3	55.0	54.2	
Baseline hemoglobin, g/dL (mean +/- SD)	9.4 +/- 0.6	9.3 +/- 0.5	9.4 +/- 0.6	0.58
Work hours/week (mean +/- SD)	32.1 +/- 5.3	31.8 +/- 5.1	32.0 +/- 5.2	0.67
Perceived Stress Scale score (mean +/- SD)	18.6 +/- 3.7	18.9 +/- 3.5	18.7 +/- 3.6	0.61
General Self-Efficacy Scale score (mean +/- SD)	26.2 +/- 4.1	25.9 +/- 4.3	26.1 +/- 4.2	0.74

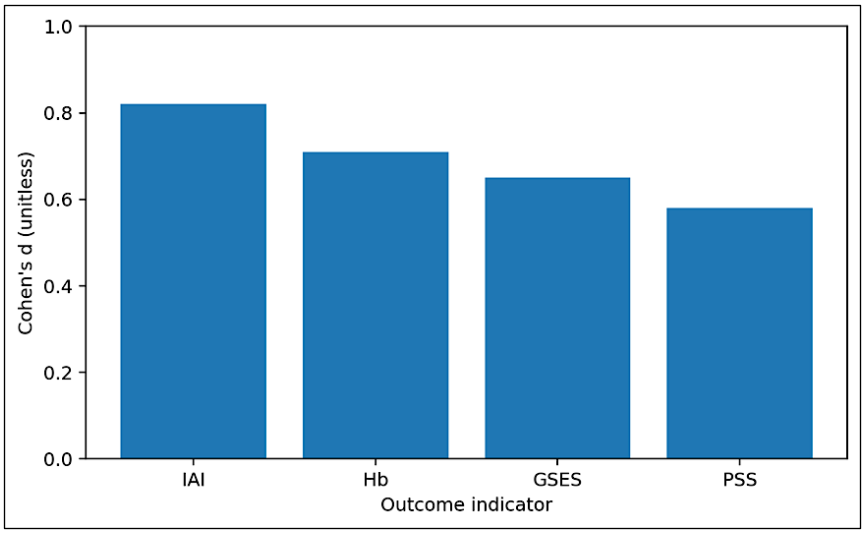
Note: Values are presented as mean +/- SD or percentage. p-values were derived from independent t-tests or chi-square tests. The absence of significant differences indicates baseline group comparability.

The pretest-posttest outcome analysis is presented in Table 3. The intervention group showed larger improvements than the control group across adherence, hemoglobin level, self-efficacy and perceived stress. The largest standardized effect was found for adherence, followed by hemoglobin, self-efficacy and perceived stress.

Table 3: Pretest and Posttest Outcomes

Outcome	Intervention group (mean +/- SD)	Control group (mean +/- SD)	Between-group difference	p-value	Cohen's d
Iron Adherence Index score	T0: 4.2 +/- 1.1; T1: 7.6 +/- 1.3	T0: 4.1 +/- 1.0; T1: 5.0 +/- 1.2	Delta = 2.6	< 0.001	0.82
Hemoglobin level, g/dL	T0: 9.4 +/- 0.6; T1: 10.6 +/- 0.7	T0: 9.3 +/- 0.5; T1: 9.8 +/- 0.6	Delta = 0.8	< 0.001	0.71
General Self-Efficacy Scale score	T0: 26.2 +/- 4.1; T1: 30.1 +/- 3.9	T0: 25.9 +/- 4.3; T1: 27.0 +/- 4.2	Delta = 3.1	< 0.001	0.65
Perceived Stress Scale score	T0: 18.6 +/- 3.7; T1: 15.2 +/- 3.4	T0: 18.9 +/- 3.5; T1: 17.8 +/- 3.6	Delta = -2.6	< 0.001	0.58

Note: T0 = baseline, T1 = four weeks after intervention. ANCOVA controlled for baseline values. Cohen's d values of 0.58 to 0.82 indicate moderate to large effects, supporting the practical relevance of the intervention.



Note: IAI = Iron Adherence Index, Hb = hemoglobin; GSES = General Self-Efficacy Scale, PSS = Perceived Stress Scale. Higher Cohen's d values indicate stronger standardized intervention effects. For PSS, the effect represents stress reduction.

Figure 1: Standardized Effects of the Persuasive Health Education Intervention

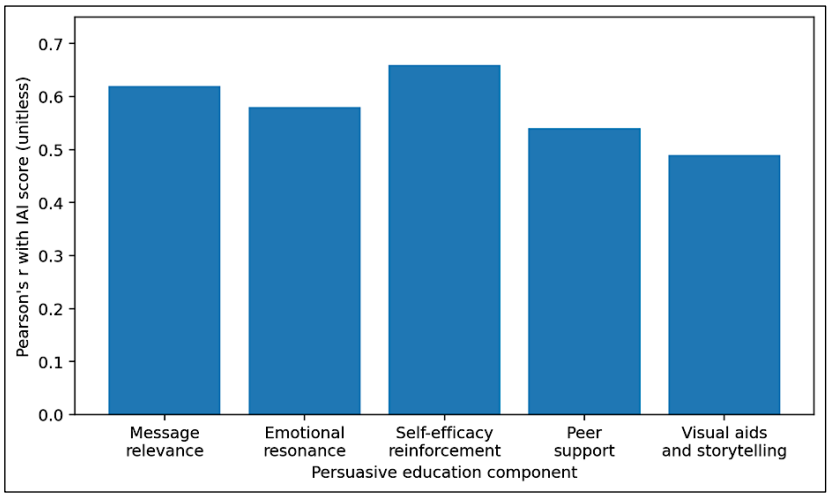
Figure 1 shows the standardized effect sizes for the four outcomes. The X-axis presents the outcome indicators, while the Y-axis presents Cohen's d values as unitless standardized effect sizes.

Table 4 reports exploratory correlations between persuasive education components and post-intervention adherence. These findings indicate associations only and should not be interpreted as causal effects. Self-efficacy reinforcement had the strongest correlation with adherence, followed by message relevance and emotional resonance.

Table 4: Exploratory Correlations Between Persuasive Components and Adherence

Persuasive Component	Correlation With IAI Score (R)	p-value
Message relevance	0.62	< 0.001
Emotional resonance	0.58	< 0.001
Self-efficacy reinforcement	0.66	< 0.001
Peer support and group dynamics	0.54	< 0.001
Visual aids and storytelling	0.49	< 0.01

Note: IAI = Iron Adherence Index. Pearson's r values are correlational and do not establish causality.



Note: Values represent Pearson's r between each persuasive component and the Iron Adherence Index. The figure summarizes associations only and does not imply causal prediction.

Figure 2: Correlations Between Persuasive Components and Iron Adherence

Figure 2 displays the same correlation pattern graphically. The X-axis presents the persuasive education components, while the Y-axis presents Pearson's r values with the IAI score.

Qualitative Findings

Three themes emerged from the interview analysis: message relevance and emotional resonance; behavioral control and self-efficacy; and contextual adaptability with peer support. Participants reported that practical examples, visual materials and short narratives made the health message more personally meaningful. One participant stated that seeing how anemia could affect fetal growth made supplementation feel urgent rather than optional. Another explained that the story-based discussion helped her connect the tablet routine with her responsibility as a mother and worker.

Self-efficacy appeared as a central mechanism. Participants described that role-play, reminder planning and tailored feedback helped them overcome forgetfulness and schedule pressure. Several women reported using phone alarms, WhatsApp reminders and peer messages to maintain daily intake. These accounts aligned with the quantitative increase in self-efficacy and adherence scores.

The workplace context also shaped the response to the intervention. Small-group sessions were considered useful because participants shared similar work demands and could exchange realistic strategies. Peer support reduced the feeling that adherence was an individual burden. This theme helped explain why group dynamics and peer support were positively correlated with adherence in Table 5.

Table 5: Joint Display of Quantitative and Qualitative Findings

Quantitative Result	Related Qualitative Theme	Integrated Interpretation
IAI increased more strongly in the intervention group	Reminder use, routine planning and peer encouragement	Adherence improved because participants converted the message into practical daily routines.
Self-efficacy score increased	Role-play, tailored feedback and mastery experience	Confidence grew when participants rehearsed how to handle forgetfulness and workplace constraints.
Perceived stress decreased	Small-group sharing and emotional support	The intervention reduced stress by normalizing common barriers and building shared coping strategies.
Persuasive components correlated with IAI	Message relevance and emotional resonance	Relevant and emotionally meaningful messages were associated with stronger adherence behavior, although causal inference cannot be made from correlation.

Note: This joint display explains how qualitative themes helped interpret quantitative outcomes and strengthened triangulation.

Discussion

This study found that persuasive health education improved iron supplement adherence among working pregnant women with anemia. Compared with the control group, the intervention group showed greater improvements in adherence, hemoglobin level, self-efficacy and perceived stress. The effect size range of 0.58 to 0.82 indicates moderate to large practical effects, suggesting that the intervention was not only statistically significant but also meaningful for maternal health education practice.

The findings support the relevance of integrating the Elaboration Likelihood Model and Social Cognitive Theory into maternal anemia education. Message relevance and emotional resonance may have encouraged deeper processing of anemia-related information, while self-efficacy reinforcement helped participants translate awareness into action. The qualitative findings clarified this mechanism by showing that participants used reminders, peer support and workplace-specific routines after the sessions.

These results are consistent with recent evidence showing that education and counseling can improve iron-folic acid adherence and anemia-related outcomes (1, 2, 7–9). The present study adds to that evidence by focusing on employed pregnant women and by specifying how persuasive message components were linked to theoretical mechanisms and measured outcomes. This responds to a gap in prior interventions that often-reported education effects without explaining the behavioral communication pathway.

Moreover, the simultaneous decline in work-related stress and improvements in compliance highlight the crucial importance of tackling the specific socio-ecological realities faced by working pregnant women. Pregnant women are always working and have different structural challenges, from fixed shift rotations to extreme fatigue caused by work, thereby increasing the clinical manifestation of anemia in pregnancy (4). The effectiveness of conventional antenatal education is frequently lacking in the industrial or service sectors, as it does not consider the pragmatic daily compromises these women have to make between productivity in the workplace and adherence to clinical recommendations (27).

The persuasive health education – based on the integrative framework of the Elaboration Likelihood Model and Social Cognitive Theory – successfully reconstructs the perception of iron supplementation from an onerous medical mandate to a manageable micro-habit supported by the workplace ecosystem (28). This behaviorally adjusted alignment effectively addresses the high non-adherence patterns widely reported in global literature for working populations where time constraints and occupational fatigue are not addressed (29).

The correlational results should be interpreted carefully. The positive relationships between persuasive components and adherence indicate that participants who perceived stronger message relevance, emotional resonance, self-efficacy support, peer support, or visual storytelling value also tended to report higher adherence. However, these correlations do not prove that any single component caused the adherence improvement. The causal evidence in this study comes from the group comparison design, while the correlation analysis provides exploratory insight into which intervention elements may be important for refinement.

The study has practical implications for midwifery practice, workplace health promotion and public health policy. Antenatal education for working pregnant women should not rely only on general information about anemia. It should also address work schedules, side effects, fatigue, forgetfulness and confidence in maintaining a routine. Midwives, workplace health officers and employers can support adherence by providing short group-based sessions, reminder systems and peer support structures that fit women's working conditions.

Several limitations should be considered. First, randomization was not feasible because of workplace and community delivery constraints, so residual selection bias remains possible despite matching and baseline testing. Second, the four-week follow-up measured short-term change and early hemoglobin response, not long-term adherence or pregnancy outcomes. Third, the study was conducted in one semi-urban industrial setting, which may limit generalizability. Future studies should use longer follow-up, cluster

randomization where feasible and broader workplace sectors.

Conclusion

Persuasive health education improved short-term iron supplement adherence among working pregnant women with anemia. The intervention also improved hemoglobin level and self-efficacy while reducing perceived stress. These findings indicate that maternal anemia education should combine accurate clinical information with persuasive, emotionally relevant and behaviorally practical strategies.

The study contributes a theory-based and context-sensitive model for maternal health education in working populations. By linking the Elaboration Likelihood Model and Social Cognitive Theory to intervention content, measured variables and qualitative interpretation, the study explains not only whether the intervention worked but also why participants responded to it. Further research should test scalability, sustainability and maternal-fetal outcomes across different employment sectors and cultural contexts.

While this enquiry is very effective in the context of the current trial frame, it is hampered by the non-randomized allocation, four-week observation window and regional focus of a singular semi-urban industrial hub. To fill these gaps, complex future research should use cluster randomized designs, monitor health indices through delivery and evaluate multi-sector scalability in diverse socio-cultural settings and dynamic occupational contexts.

Abbreviations

ANCOVA: Analysis of Covariance, ELM: Elaboration Likelihood Model, GSES: General Self-Efficacy Scale, Hb: Hemoglobin, IAI: Iron Adherence Index, IRB: Institutional Review Board, PSS: Perceived Stress Scale, SCT: Social Cognitive Theory, WHO: World Health Organization.

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Author Contributions

Siti Mudlikah: Conceptualization, Study Design, Intervention Development, Sulasthia: Data Interpretation, Manuscript Drafting, Diani Octaviyanti Handajani: Methodology, Data Collection Coordination, Qualitative Analysis, Manuscript Revision. Both authors reviewed and approved the final manuscript.

Conflict of Interest

The authors declare no conflict of interest.

Data Availability

The datasets generated and analyzed during the current study are available from the corresponding author upon reasonable request, subject to ethical approval and participant confidentiality requirements.

Declaration of Artificial Intelligence (AI) Assistance

During manuscript revision, AI-assisted language editing support was used to improve grammar, clarity, structure and formatting. The authors reviewed, verified and approved all scientific content, data interpretation, references and final wording. The authors take full responsibility for the content's originality, interpretation and accuracy.

Ethics Approval

Ethical approval was obtained from the Institutional Review Board of Universitas Muhammadiyah Gresik with the approval number 002/EC-V/2026. Written informed consent was obtained from all participants.

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References

1. Atmadani R, Akrom A, Urbayatun S, Tuwar MN. Counseling intervention on iron-folic acid adherence and clinical outcomes among pregnant women and women planning to be pregnant : a scoping review. J Public Hlth Dev. 2024;22(1):320–35. https://doi.org/10.55131/jphd/2024/220124
2. Bandung community health centers : knowledge , therapy adherence , hemoglobin and iron intake. J Ilmu Kefarmasian Indones. 2024;22(2). doi:10.35814/jifi.v22i2.1559
3. Shen F, Sheer VC, Li R. Impact of Narratives on Persuasion in Health Communication : A Meta-Analysis Impact of Narratives on Persuasion in Health Communication : A Meta-Analysis. J Advert. 2015;44(2):105–13. doi: 10.1080/00913367.2015.1018467
4. Viteri JPP, De-Regil, Dowswell LM, Therese, EF. Daily oral iron supplementation during pregnancy. Cochrane Database Syst Rev. 2012.

https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD004736.pub4/abstract
5. Zakiyah S, Muna I, Setyowati D, Prasetyo B, Frety EE. Effect of Knowledge and Counseling on Adherence to Iron Supplementation in Pregnant Women : A Systematic Literature Review. World J Adavnced Res Rev. 2023;17(1):180–8. doi:10.30574/wjarr.2023.17.1.0014
6. Siev JJ, Williams S, Petty RE. Elaboration Likelihood Model. Int Encycl Heal Commun. 2022;1–6. doi: 10.1002/9781119678816.iehc0657
7. Shao Y, Meng C, Liang Y zhi. Digital Versus Non-digital Health Interventions to Improve Iron Supplementation in Pregnant Women : A Systematic Review and Meta-analysis. Front Med. 2024;30(11):1375622 doi: 10.3389/fmed.2024.1375622
8. Rahman RA, Idris IB, Isa ZM, Rahman RA. The Effectiveness of A Theory-Based Intervention Program For Pregnant Women With Anemia: A Randomized Control Trial. PLoS One. 2022;17(12): 1–16. http://dx.doi.org/10.1371/journal.pone.0278192
9. Engidaw MT, Lee P, Fekadu G, Mondal P, Ahmed F. Effect of Nutrition Education during Pregnancy on Iron-Folic Acid Supplementation Compliance and Anemia in Low- and Middle-Income Countries: A Systematic Review and Meta-analysis. Nutr Rev. 2025;83(7):1472–87. doi: 10.1093/nutrit/nuae170
10. Corchero-Falcón M del R, Gómez-Salgado J, García-Iglesias JJ, Camacho-Vega JC, Fagundo-Rivera J, Carrasco-González AM. Risk Factors for Working Pregnant Women and Potential Adverse Consequences of Exposure: A Systematic Review. Int J Public Health. 2023;68:1–14. doi: 10.3389/ijph.2023.1605655
11. Tavananezhad N, Bolbanabad AM, Ghelichkhani F, Effati-Daryani F, Mirghafourvand M. The Relationship Between Health Literacy and Empowerment in Pregnant Women: A Cross-Sectional Study. BMC Pregnancy Childbirth. 2022;22(1):351. doi: 10.1186/s12884-022-04686-z
12. Triharini M, Mar'Ah Has EM, Nofita G. Determinant Factors of Anemia in Pregnancy Based on Health Belief Model: A Correlational Study. J Ners. 2023;18(1):40–6. doi: 10.20473/jn.v18i1.43704
13. Njiru H, Njogu E, Gitahi MW, Kabiru E. Effectiveness of Public Health Education on The Uptake of Iron and Folic Acid Supplements Among Pregnant Women: A Stepped Wedge Cluster Randomised Trial. BMJ Open. 2022;12(9):1–7. doi:10.1136/bmjopen-2022-063615
14. Mare KU, Aychiluhm SB, Mulaw GF, *et al*. Non-Adherence to Antenatal Iron Supplementation And Its Determinants Among Pregnant Women In 35 Sub-Saharan African Countries: A Generalized Linear Mixed-Effects Modeling with Robust Poisson Regression Analysis. BMC Pregnancy Childbirth. 2024;24(1):1–11. doi: 10.1186/s12884-024-07105-7
15. Zych-Krekora K, Sylwestrzak O, Krekora M. The Critical Role of Iron in Pregnancy, Puerperium and Fetal Development. J Clin Med. 2025;14(10):3482. doi: 10.3390/jcm14103482
16. Wu N, Ye E, Ba Y, *et al*. The Global Burden of Maternal Disorders Attributable To Iron Deficiency Related Sub-Disorders in 204 Countries and Territories: An Analysis For the Global Burden of Disease Study. Front Public Heal. 2024;12:1406549. doi: 10.3389/fpubh.2024.1406549
17. Seddighi A, Khalesi ZB, Majidi S. Educational Interventions to Improve Breastfeeding Self-efficacy: A Systematic Review. Int J Women's Heal Reprod Sci. 2022;10(2):65–70. doi: 10.15296/ijwhr.2022.13
18. Lam C, Huang Z, Shen L. Infographics and the Elaboration Likelihood Model (ELM): Differences between Visual and Textual Health Messages. J Health Commun. 2022;27(10):737–45. https://doi.org/10.1080/10810730.2022.2157909
19. Hagger MS, Hamilton K. Social Cognition Theories and Behavior Change In COVID-19: A Conceptual Review. Behav Res Ther. 2022;154:104095. doi:10.1016/j.brat.2022.104095
20. Manjarres-Posada NI, Onofre-Rodríguez DJ, Benavides-Torres RA. Social Cognitive Theory and Health Care: Analysis and Evaluation. Int J Soc Sci Stud. 2020;8(4):132. doi: 10.11114/ijsss.v8i4.4870
21. Hashmi I Al, Omari O Al. Self-Efficacy in Relation To Adherence To Healthy Behaviours Among Pregnant Women: a Concept Analysis. Cent Eur J Nurs Midwifery. 2022;13(2):664–74. https://doi.org/10.15452/cejnm.2021.12.0003
22. Benjamin G, Mrema EJ, Nhumba N, Wakoli AB, Mwanga HH. Adherence to Iron Deficiency Interventions Among Pregnant Women Attending Antenatal Clinics in Ubungo Municipality, Dar Es Salaam, Tanzania. Bull Natl Res Cent. 2025;49(8). https://doi.org/10.1186/s42269-025-01301-x
23. Rohma S, Maharani AR, Putri MAR, *et al*. Analysis of Determinants of Pregnant Women's Compliance in Consuming Iron Supplement Tablets and Its Association with Pregnancy Anemia. Media Gizi Kesmas. 2025;14(1):35–44. https://doi.org/10.20473/mgk.v14i1.2025.35-44
24. Buckingham A, Kenneson A, Singh RH. Breastfeeding practices for infants with inherited metabolic disorders : A survey of registered dietitians in the United States and Canada. Mol Genet Metab Reports [Internet]. 2022;31:100865. https://doi.org/10.1016/j.ymgmr.2022.100865
25. Asram A, Riskiyani S, M. Thaha R. Validity and Reliability of the Indonesian Version of the Perceived Stress Scale (PSS) and Self-Reporting Questionnaire (SRQ) Questionnaire: Study of Stress Levels and Mental Health Conditions in Master Students of the Faculty of Public Health. Int J Chem Biochem Sci. 2024;25(19):721–6. 10.62877/84-ijcbs-24-25-19-84
26. Byrne D. A Worked Example of Braun and Clarke's Approach To Reflexive Thematic Analysis. Qual Quant. 2022;56:1391–412. https://doi.org/10.1007/s11135-021-01182-y
27. Liu T, Bai L, Id LH, Mao D. NP and 9311 are excellent population parents for screening QTLs of potassium-efficient rice. PLOS ONE. 2023;18(4): e0284510. http://dx.doi.org/10.1371/journal.pone.0284510
28. Tsegaye D, Tamiru D, Belachew T. Theory - based

nutrition education intervention through male involvement improves the dietary diversity practice and nutritional status of pregnant women in rural Illu Aba Bor Zone , Southwest Ethiopia : A quasi - experimental study. Matern Child Nutr. 2022;18(3): e13350. https://doi.org/10.1111/mcn.13350

29. Lydi-anne V, Beaulieu D, Turcotte S, *et al.* Association between Beverage Consumption and Sleep Quality in Adolescents. Nutrients. 2024;16(2):285. https://www.mdpi.com/2072-6643/16/2/285

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