Research Square

Preprints are preliminary reports that have not undergone peer review.
They should not be considered conclusive, used to inform clinical practice,
or referenced by the media as validated information.

Video-Based Disaster-Mitigation Psychoeducation Substantially Reduces Perinatal Depressive Symptoms: A Quasi-Experimental Study

Rafika Oktova

oktovarafika01@gmail.com

Lincoln University College

Chun Hoe Tan

Lincoln University College

Article

Keywords: disaster mitigation, EPDS, perinatal depression, pregnancy, psychoeducation, quasi-experimental study, video-based intervention

Posted Date: November 23rd, 2026

DOI: https://doi.org/10.21203/rs.3.rs-11311217/v1

License: This work is licensed under a Creative Commons Attribution 4.0 International License.
Read Full License

Additional Declarations: No competing interests reported.

Video-Based Disaster-Mitigation Psychoeducation Substantially Reduces Perinatal Depressive Symptoms: A Quasi-Experimental Study

Rafika Oktova[1,2*] and Chun Hoe Tan[1]

[1]School of Nursing and Applied Sciences, Lincoln University College, Jalan SS 6/12, 47301 Petaling Jaya, Selangor, Malaysia
[2]Department of Midwifery, Faculty of Medicine, Universitas Andalas, Kampus Limau Manis, Pauh, Padang, 25163, West Sumatra, Indonesia

***Corresponding Author:** Rafika Oktova, Department of Midwifery, Faculty of Medicine, Universitas Andalas, Kampus Limau Manis, Pauh, Padang 25163, West Sumatra, Indonesia. Email: oktovarafika01@gmail.com. ORCID: 0000-0002-0190-3047

Co-Author: Chun Hoe Tan, School of Nursing and Applied Sciences, Lincoln University College, Jalan SS 6/12**,** 47301, Petaling Jaya, Selangor, Malaysia. Email: chunhoe@lincoln.edu.my. ORCID: 0000-0002-1730-6650

Abstract

Background & Aim: Perinatal depression is a critical mental health burden in disaster-prone regions, yet accessible interventions remain limited. This study aimed to evaluate the effectiveness of video-based disaster-mitigation psychoeducation (MITAMIL, Indonesian version: Mitigasi Bencana pada Ibu Hamil) in reducing perinatal depressive symptoms among pregnant women in disaster-affected areas of West Sumatra, Indonesia. Design: A longitudinal controlled quasi-experimental study with non-equivalent groups and repeated measurements.
Methods: The study included 120 pregnant women with Edinburgh Postnatal Depression Scale (EPDS) scores ≥9, allocated non-randomly using balanced geographical quotas. The intervention group (n=60) received an 8-week MITAMIL program (one 70-minute weekly video-based Zoom session). The control group (n=60) received weekly digital information on postpartum depression. EPDS scores were measured at baseline (T0) and weekly (T1–T8). Data were analyzed using mixed-design repeated-measures ANOVA with Greenhouse-Geisser correction.
Results: Baseline EPDS scores did not differ significantly between the MITAMIL and control groups (11.27 ± 1.57 vs. 11.62 ± 1.63; $p = 0.117$). Significant effects were observed for group ($F(1,118) = 273.443$, $p < 0.001$, partial $\eta^2 = 0.699$), time ($p < 0.001$, partial $\eta^2 = 0.923$), and group-by-time interaction ($p < 0.001$, partial $\eta^2 = 0.657$). At week 8, the MITAMIL group's mean EPDS score was significantly lower (0.52 ± 0.57) than that of the control group (5.10 ± 1.81) (mean difference, −4.58; 95% CI, −5.07 to −4.09; $p < 0.001$).
Conclusion: MITAMIL was associated with a substantially greater reduction in perinatal depressive symptoms compared to the information-only control. These findings highlight the potential of structured, digital psychoeducation as a feasible and impactful tool for integration into routine community-based antenatal care and disaster preparedness protocols.

Trial Registration: Thai Clinical Trials Registry (TCTR): TCTR20260804002 (registered retrospectively on August 3, 2026).

Keywords: disaster mitigation; EPDS; perinatal depression; pregnancy; psychoeducation; quasi-experimental study; video-based intervention

Summary

Impact

Perinatal mental-health support is frequently underrepresented in disaster-preparedness programs, despite the heightened vulnerability of pregnant women. A structured video intervention delivered through existing digital platforms was associated with a greater weekly reduction in EPDS scores than information-only control material. The program could be integrated into antenatal EPDS screening and clear referral pathways, but stronger randomized, F longer-term evaluations are needed.

Patient and Public Contribution

Pregnant women participated as research participants, but they were not formal partners in designing the research question, outcomes, allocation, or statistical analysis. Community midwives, coordinating midwives, health cadres, and primary-care staff supported recruitment logistics, scheduling, technical assistance, reminders, and referral procedures.

1. Introduction

Pregnancy is a reproductive transition phase that triggers fundamental physiological and emotional changes in women (1). These changes not only impact physical health but also significantly influence the mother's mental health status and the child's development (2). Perinatal mental health is now a crucial global public health concern. A World Health Organization report indicates that globally, approximately 10% of pregnant women and 13% of postpartum women experience mental health disorders, particularly depression (3). Perinatal depression is a significant mental health problem that occurs in areas prone to natural disasters (4). Specifically, the prevalence of perinatal depression is estimated to reach 11.9% worldwide (5). If this condition is not identified and treated appropriately, perinatal depression has the potential to cause harmful systemic impacts, such as an increased risk of preeclampsia, preterm delivery, low birth weight, and long-term cognitive and emotional impairment in children due to disruption of the psychological bond between mother and infant (6)(7).

The burden of disease due to perinatal depression is unevenly distributed and is much higher in developing countries. In Sub-Saharan Africa, the prevalence of this condition has been reported to reach 50% (7). Meanwhile, in Indonesia, limited studies have recorded very high rates of antenatal depression, reaching 59.7% in certain urban areas (8). In West Sumatra, the prevalence of perinatal depression after natural disasters reached 52% (9). This high incidence is often underdiagnosed and undertreated due to high social stigma and the lack of

integration of mental health services into routine antenatal care in primary health care facilities (10).

Psychological vulnerability during pregnancy is further exacerbated by environmental stressors, particularly the increasing frequency and intensity of natural disasters due to global climate change (11). Natural disasters can threaten lives, cause the loss of family members, damage property, displace people, and disrupt access to basic and antenatal health services. However, the severity of a disaster's psychological impact is not solely determined by the event itself, but is also influenced by an individual's level of exposure, perception of threat, and availability of coping resources (12). Natural disasters have been shown to cause devastating short- and long-term psychological impacts (13). Exposure to traumatic stress from disasters has been empirically shown to trigger increased symptoms of depression, both during pregnancy and after childbirth (14).

As a country located at the intersection of active tectonic plates, Indonesia faces a very high risk of natural disasters (15). Specifically, West Sumatra Province is categorized as a high-risk area with constant threats of earthquakes, tsunamis, volcanic eruptions, and flash floods (16) (17). The psychological burden of repeated disaster exposure in this region triggers a high incidence of post-traumatic stress disorder, depression, and anxiety among affected populations (18), with pregnant women being one of the most vulnerable populations (19). Despite the regular occurrence of disaster threats, national disaster preparedness policies have so far focused on short-term physical assistance and infrastructure, while long-term mental health protection for vulnerable populations has been neglected. Despite the regular occurrence of disaster threats, national disaster preparedness policies have so far focused on short-term physical assistance and infrastructure, while long-term mental health protection for vulnerable populations has been neglected (20) (21). Consequently, while the MITAMIL intervention evaluated in this study spans an acute eight-week period, it serves as a critical exploratory and foundational phase. It is intended to serve as the initial step within a broader, multi-year framework to establish more permanent, adaptive monitoring systems to track maternal experiences and child developmental health models in disaster-affected regions.

To mitigate these psychological impacts, developing psychological preparedness, which includes mental, emotional, and behavioral readiness to respond adaptively to emergencies, is crucial (22). Preventive interventions, in the form of disaster-mitigation psychoeducation, are designed to improve individuals' knowledge, mental preparedness, and cognitive coping strategies (23). In general, providing psychoeducation has been shown to be effective in alleviating anxiety and depressive symptoms in the perinatal population (24). In

the digital era, video-based psychoeducation offers advantages in efficiency, accessibility, and the standardization of information delivery (13). Based on these needs, a digital intervention was developed in the form of a psychoeducational video on MITAMIL, which includes four integrated topics: the concept of disasters and maternal vulnerability, the relationship between disasters and perinatal depression, practical mitigation measures (emergency plans and emergency bags), and strengthening mental resilience and stress management. Conceptually, the MITAMIL intervention is based on the Transactional Theory of Stress and Coping (25) and Social Cognitive Theory (26)(27). The Transactional Theory of Stress and Coping explains that an individual's psychological response is determined by the assessment of threats (primary appraisal) (25) and the evaluation of existing coping resources (secondary appraisal) (28). The provision of disaster and depression materials in MITAMIL aims to form a more accurate threat assessment (29), while practical mitigation materials are designed to increase self-efficacy and perceptions of (30). On the other hand, Social Cognitive Theory emphasizes that delivering materials through video demonstrations and providing practical examples can facilitate the observational learning process (26). Regular repetition of material can also help strengthen individuals' confidence in implementing preparedness behaviors and emotion regulation techniques independently (27). The effectiveness of using digital media in supporting learning and behavior change has also been demonstrated in technology-based intervention research (31).

Although the components of these interventions have been extensively studied, a review of the existing literature reveals significant scientific gaps (32). A study by Yasunari et al. evaluated a face-to-face disaster preparedness education program for pregnant women and reported increased preparedness behaviors. However, the study did not assess mental health outcomes such as depression, did not measure physiological stress, and did not include a sample of pregnant women with indications of depression (29). Conversely, Chan et al. examined the effectiveness of smartphone-based psychoeducation on reducing postpartum depression. However, the intervention did not include disaster mitigation materials and was not targeted to populations living in disaster-prone areas (31). Furthermore, research by Forsell et al. demonstrated the efficacy of internet-based cognitive behavioral therapy (iCBT) in reducing symptoms of major depression in pregnant women. However, this study had a relatively small sample size focused on an individual clinical therapy approach, and did not integrate disaster preparedness materials for populations facing recurrent disaster threats (33)

In general, previous research has been divided into two main areas: disaster preparedness education without measuring maternal mental health indicators (29) and digital perinatal

mental health interventions that ignore the disaster context (34). Technology-based perinatal mental health interventions have largely focused on addressing depression and anxiety through cognitive behavioral therapy, psychoeducation, and other psychological approaches (35). To date, scientific evidence remains very limited on the effectiveness of video-based interventions integrating disaster preparedness and perinatal mental health literacy (32). Evidence regarding interventions that simultaneously improve self-efficacy and adaptive coping strategies for at-risk pregnant women in disaster-prone areas is also limited (36). This limited evidence is particularly evident in developing countries and disaster-prone areas, such as Indonesia (35). Furthermore, few studies have implemented experimental designs with standardized active comparison groups (32). Research using repeated measures to observe patterns of change in depressive symptoms during the intervention period is also limited (34). To address these literature gaps, this study aims to evaluate the effectiveness of a video-based psychoeducational intervention, MITAMIL, delivered online, in reducing perinatal depression scores among pregnant women in disaster-affected areas of West Sumatra. Specifically, this study evaluated whether pregnant women receiving MITAMIL video-based psychoeducation experienced a greater reduction in EPDS scores over 8 weeks than pregnant women receiving weekly information-only control material, while analyzing the trajectory of gradual changes in depressive symptoms over the eight-week intervention.

2. Materials and Methods

2.1. Study Design and Reporting

This study used a longitudinal, controlled, quasi-experimental design with non-equivalent groups and repeated measurements. It formed part of a four-group parent study comprising MITAMIL psychoeducation, dhikr therapy, a combined MITAMIL-plus-dhikr intervention, and an information-only control. Each parent-study group included 60 participants. The present article reports the prespecified comparison between the MITAMIL and control groups (n = 120). Reporting was structured with reference to the Transparent Reporting of Evaluations with Nonrandomized Designs (TREND) statement.

2.2. Setting and Study Period

The study was conducted in eight community health-center catchment areas in Tanah Datar Regency and Padang City, West Sumatra, Indonesia: Sungai Tarab I, Sungai Tarab II, Lima Kaum I, Lima Kaum II, Rambatan II, Seberang Padang, Nanggalo, and Pauh. Sites were purposively selected because they had experienced recurrent or high-impact natural disasters

during the 2 years before recruitment. Screening and recruitment were conducted from 6 October 6 to December 13, 2025. Baseline measurement occurred on December 21, 2025. Weekly interventions and follow-up measurements were conducted from December 28, 2025 to February 15, 2026.

2.3. Participants

The accessible population consisted of 490 pregnant women registered in antenatal care registers at eight selected community health centers. Inclusion criteria included being pregnant; residing in a work area affected by a natural disaster in the previous 2 years; being 1–32 weeks' gestation; having an EPDS screening score of at least 9; being able to communicate, read, and write in Indonesian; having access to a smartphone and adequate internet connectivity for WhatsApp and Zoom; being willing to participate for 8 weeks; and being willing to provide written informed consent after receiving an explanation. Exclusion criteria included clinically diagnosed severe psychiatric disorders, current psychiatric treatment or use of psychotropic medications, substance abuse or dependence in the past 6 months, hearing impairment that prevented participation in the video sessions, or an acute mental health condition requiring immediate clinical assessment. The EPDS screening indicated the presence of depressive symptoms and was not used for clinical diagnosis.

2.4. Sample Size and Recruitment

The parent study used a finite-population precision calculation based on an accessible population of 490, a 95% confidence level, a 5% margin of error, a 50% response distribution, and a 10% loss to follow-up. The resulting parent-study target was 240 participants, allocated as 60 participants per group. This calculation was not based on the expected intervention effect or the group-by-time interaction; this limitation is considered when interpreting statistical precision and generalizability.

All 490 women in the sampling frame were approached for EPDS screening and eligibility assessment. Of these, 235 were ineligible, and 15 declined. All 240 eligible women who consented were enrolled in the parent study. The present analysis includes the 60 participants assigned to MITAMIL and the 60 assigned to the control group.

2.5. Group Assignment and Masking

Participants were assigned individually by the research team without random sequence generation or allocation concealment. The team used balanced geographical quotas so that each

study group had the same health-center composition: Sungai Tarab I, 6; Sungai Tarab II, 5; Lima Kaum I, 5; Lima Kaum II, 5; Rambatan II, 8; Seberang Padang, 12; Nanggalo, 9; and Pauh, 10. Participants did not select their group. Because the assignment was non-random and researchers involved in delivery or measurement participated in the assignment process, selection bias and residual confounding cannot be excluded. Participants and facilitators could not be blinded. Group codes were withheld from the analyst until the primary analysis was completed.

2.6. MITAMIL Intervention

MITAMIL is a standardized video-based psychoeducational intervention developed for pregnant women in disaster-affected settings. Three content experts in psychiatry, midwifery, and religion reviewed the material before implementation. The video covered four themes: (1) disaster concepts and the importance of mitigation during pregnancy; (2) disaster impacts and perinatal depression; (3) disaster-preparedness strategies for pregnant women, including an emergency bag; and (4) psychological resilience and stress management during pregnancy. Participants received one online session per week for 8 consecutive weeks. Each approximately 70-minute Zoom session included attendance and opening activities (5 minutes), the standardized MITAMIL video (50 minutes), facilitated discussion and clarification (10 minutes), and EPDS completion through Google Forms (5 minutes). A dedicated WhatsApp group provided schedules, Zoom links, reminders, technical instructions, and administrative information. Attendance, session completion, duration, connectivity problems, discussion participation, measurement completion, and protocol deviations were recorded. Participants received ethics-approved reimbursement for internet costs directly related to participation. High participant engagement and 100% retention were facilitated by close coordination with community health cadres and village midwives, who provided technical assistance and weekly attendance reminders. The videos are available on YouTube (https://www.youtube.com/@Mitamil_1210).

2.7. Control Condition

The control group received a weekly digital pamphlet containing standard information about postpartum depression from the Indonesian Maternal and Child Health Handbook. The material was distributed through a separate WhatsApp group once weekly for 8 weeks. Control participants did not receive the MITAMIL video, disaster-mitigation content, resilience training, dhikr therapy, or a 70-minute interactive Zoom session. The comparator was therefore

information-only rather than attention-matched. Separate communication channels were used to reduce contamination.

2.8. Outcome and Measurement Instrument

The primary outcome of this article was the change in the total EPDS score from T0 to T8. The primary inferential test was a group-by-time interaction, assessing whether the EPDS score trajectories differed between the MITAMIL and control groups. The pattern of EPDS score change from T1 to T8 and the interaction between group and time were analyzed as secondary longitudinal outcomes. The proportion of participants with an EPDS score ≥9 at each time point was treated as an exploratory categorical outcome. Demographic and obstetric characteristics were collected using a structured personal information questionnaire. Variables included age, education level, employment status, family income, gestational age, gravida, parity, number of living children, and history of miscarriage.

The EPDS is a 10-item self-report instrument designed to screen for depressive symptoms during the perinatal period. Each item is scored from 0 to 3, yielding a total score of 0 to 30. Participants responded based on their experiences over the past seven days. Higher scores indicate more severe depressive symptoms (37). This study used the Indonesian version of the EPDS, which has been assessed as valid and reliable with a Content Validity Index (CVI) of 0.98 (38). An EPDS score≥9 was used as the eligibility threshold per the study protocol. Broad screening to identify all depressed women in the population with a lower threshold of EPDS score ≥9 would be better and more sensitive (39)(37). The optimal EPDS score threshold of ≥9 has a sensitivity and specificity of 94.4% and 90.8%, respectively (40). This threshold indicates symptoms indicative of depression that require further attention or assessment, but is not interpreted as a clinical diagnosis. Item 10 of the EPDS, which measures thoughts of self-harm, was examined separately from the total score. Any response other than “never” triggers safety and referral procedures, regardless of the total EPDS score.

The primary outcome was the total EPDS score measured at baseline (T0) and at eight weekly follow-ups (T1–T8). The EPDS is a 10-item self-report screening instrument with item scores from 0 to 3 and a total score from 0 to 30; Higher scores indicate more severe depressive symptoms (41). The validated Indonesian adaptation has demonstrated strong content validity and acceptable internal consistency in pregnant women (42). A score of at least 9 was used for eligibility according to the study protocol. This threshold was treated as an indicator requiring attention rather than a clinical diagnosis. Any response other than “never” to the EPDS self-harm item activated the safety and referral procedure.

2.9. Data Collection and Quality Control

The screening EPDS was used only to determine eligibility. The analytic baseline EPDS (T0) was completed on 21 December 2025, 1 week before the first intervention session. T1 was completed after the first session on 28 December 2025, and subsequent measurements were completed weekly through T8 on 15 February 2026. Participants were instructed to answer based on the preceding 7 days; consequently, T1–T8 represented weekly symptom patterns rather than an immediate response to the session just completed. The control group completed EPDS measurements within comparable weekly windows.

Demographic, obstetric, and EPDS data were collected electronically through Google Forms. Data were exported to a password-protected database and checked for duplicate records, invalid participant codes, out-of-range values, group-code inconsistencies, and missing data. Exposure, attendance, technical problems, and possible cross-group receipt of materials were recorded separately from outcome data.

2.10. Safety and Referral

Participants were informed that discussion of disasters, depression, and stressful experiences could cause emotional discomfort. They could pause or leave a session, decline to discuss personal experiences, omit a response to the discussion, or withdraw without affecting health care. A positive response to the EPDS self-harm item was reviewed on the same day by designated health personnel. Participants with self-harm thoughts, acute distress, concerning symptom escalation, or another urgent clinical condition were referred through the coordinating midwife to a psychologist, psychiatrist, health center, or hospital as clinically indicated. Safety contacts, adverse events, referrals, and follow-up were documented separately from the analysis dataset.

2.11. Statistical Analysis

Data were analyzed using IBM SPSS Statistics version 32.0 (43). All statistical tests were two-sided, with a significance level of $p < 0.05$. Data normality was assessed using the Shapiro-Wilk test. Normally distributed continuous variables were summarized as mean ± standard deviation (SD). Baseline equivalence between the intervention and control groups (Table 1) was evaluated using the Mann-Whitney U test for continuous variables and the Chi-square test for categorical variables. Longitudinal changes in Edinburgh Postnatal Depression Scale (EPDS) scores across time points (T0–T8) were analyzed using a mixed-design repeated-measures ANOVA, with group allocation as a between-subjects factor and measurement time

as a within-subjects factor. Sphericity was evaluated using Mauchly's test; when violated, degrees of freedom were adjusted using the Greenhouse-Geisser correction to control for Type I error inflation. Effect sizes were quantified using partial eta squared. Post hoc pairwise comparisons across time points were conducted using a Bonferroni correction with 95% confidence intervals. All 120 enrolled participants completed all follow-up assessments with zero attrition or missing data, eliminating the need for data imputation while maintaining optimal statistical power.

2.12. Ethical Considerations

The study was approved by the Research Ethics Committee of the Faculty of Medicine, Universitas Andalas (Ethics Approval No. 520/UN.16.2/KEP-FK/2025; approved August 13, 2025) and was conducted in accordance with the ethical principles of the Declaration of Helsinki. All participants received written and oral information about study procedures, duration, potential benefits and discomfort, confidentiality, internet-cost reimbursement, referral procedures, voluntary participation, and the right to withdraw. Written informed consent was obtained before research data collection. Identifying information and consent forms were stored separately from coded research data.

2.13. Trial Registration

The four-group parent study is being retrospectively registered in the Thai Clinical Trials Registry because participant recruitment began on October 6, 2025, and the study has been completed. The final manuscript must report the registry number and registration date transparently: TCTR20260804002; August 3, 2026; Clinical trial registration was conducted retrospectively due to administrative errors. The delay in registration did not affect the study's implementation, data collection, analysis, or reporting of results. Supporting documentation for the ethics approval and trial registration is provided in Supplementary Information 1.

2.14. Patient and Public Contribution

Community midwives, coordinating midwives, health cadres, and primary-care personnel supported operational planning, contact with participants, scheduling, reminders, technical problem-solving, and referral implementation. Pregnant women participated as study participants but were not formal partners in question development, outcome selection, group assignment, or statistical analysis.

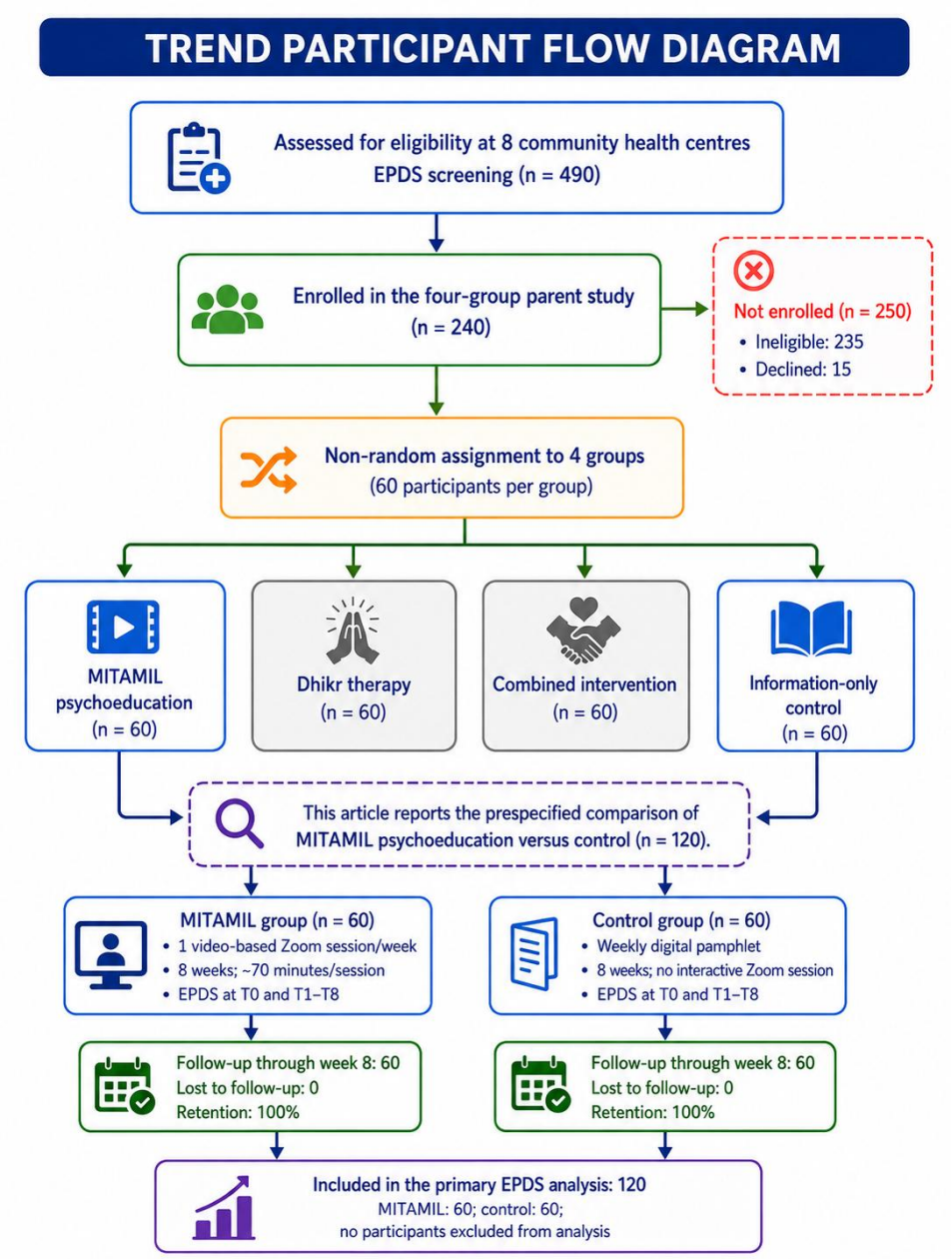


Figure 1. TREND participant flow diagram for the parent study and the two-group comparison. Only two groups (MITAMIL psychoeducation and control) were reported herein.

3. Results

3.1. Participant Flow and Retention

Of the 490 pregnant women screened, 235 did not meet the eligibility criteria, and 15 declined to participate. The remaining 240 women entered the four-group parent study. This article includes 120 participants: 60 in the MITAMIL group and 60 in the information-only control group. All 120 completed follow-up through T8 and were included in the EPDS analysis (Figure 1).

3.2. Baseline Characteristics

The groups were similar in age, education, occupation, family income, gestational age, parity, miscarriage history, and baseline EPDS score (all $p > 0.05$). Gravidity differed between groups ($\chi^2 = 6.296$, $p = 0.043$): primigravida participants comprised 33.3% of the MITAMIL group and 48.3% of the control group, whereas grand multigravida participants comprised 11.7% and 1.7%, respectively. Table 1 shows that the mean baseline EPDS scores were 11.27 ± 1.57 in the MITAMIL group and 11.62 ± 1.63 in the control group ($p = 0.117$).

There were differences in the distribution of gravida between the MITAMIL and control groups, possibly related to non-random allocation, which prevented balance across all baseline characteristics. The proportion of primigravida was higher in the control group, while grandemultigravida was more common in the MITAMIL group. This imbalance was present before the intervention and therefore cannot be attributed to it. The relatively small number of grandemultigravida participants means that sample variation may have influenced the statistical test results. An adjustment analysis confirmed that baseline gravidity did not alter the observed primary intervention effects.

Table 1. Demographic and obstetric characteristics at baseline (n = 120).

Characteristic	MITAMIL (n =60)		Control (n = 60)		Test statistic	p value
	n/Mean	%/SD	n/Mean	%/SD		
Age, years: mean ± SD	29.33 ±5.03		29.13 ± 5.22		-0.205	0.837[a]
Age, years: range	19–42		17–45		-	-
Education					**3.242**	**0.356[b]**
Elementary school	3	5.0	0	0.0		
Junior high school	6	10.0	5	8.3		
Senior high school	27	45.0	29	48.3		
College/academy	24	40.0	26	43.3		
Occupation					**3.173**	**0.205[b]**
Housewife	45	75.0	46	76.7		
Private employee	7	11.7	11	18.3		
Civil servant	8	13.3	3	5.0		
Monthly family income, IDR					**0.839**	**0.360[b]**
< 2,811,000	25	41.7	30	50.0		
≥ 2,811,000	35	58.3	30	50.0		
Gestational age					**0.667**	**0.716[b]**
0–13 weeks	9	15.0	7	11.7		
14–27 weeks	30	50.0	28	46.7		
28–32 weeks	21	35.0	25	41.7		
Gravidity					**6.296**	**0.043[b]**
Primigravida	20	33.3	29	48.3		
Multigravida	33	55.0	30	50.0		
Grand multigravida	7	11.7	1	1.7		
Parity					**4.059**	**0.131[b]**

Nullipara/no children	20	33.3	27	45.0		
1–2 children	31	51.7	30	50.0		
≥3 children	9	15.0	3	5.0		
History of miscarriage					**0.960**	**0.327[b]**
Ever	12	20.0	8	13.3		
Never	48	80.0	52	86.7		
EPDS at T0 (baseline): mean ± SD	11.27 ± 1.57		11.62 ± 1.63		-1.568	0.117[a]
EPDS at T0 (baseline): range	10–17		10–17		-	-

Note. EPDS = Edinburgh Postnatal Depression Scale; SD = standard deviation. *IDR = Indonesian Rupiah (regional minimum wage threshold = IDR 2,811,000).* [a] Mann-Whitney U test. [b] Chi-square test.

Mixed-design repeated-measures analysis showed significant effects of group ($F(1,118) = 273.443$, $p < 0.001$, partial $\eta^2 = 0.699$), time ($F(4.262,502.858) = 1408.046$, $p < 0.001$, partial $\eta^2 = 0.923$), and group-by-time interaction ($F(4.262,502.858) = 225.949$, $p < 0.001$, partial $\eta^2 = 0.657$). Greenhouse-Geisser correction was applied ($\varepsilon = 0.533$). These findings indicate that the trajectory of EPDS scores over 8 weeks differed between the groups (Table 2).

Table 2. Mixed-design repeated-measures ANOVA for EPDS scores by group and time (n = 120).

Source of variation	SS	df	MS	F	p-value	Partial eta squared
EPDS score						
Between-subject						
Group	2816.237	1	2816.237	273.443	< 0.001	0.699
Error	1215.304	118	10.299			
Within-subject						
Time	8433.119	4.262	1978.906	1408.046[a]	< 0.001	0.923
Time x Group	1353.263	4.262	317.555	225.949[a]	< 0.001	0.657
Error (Time)	706.730	502.858	1.405			

Note. [a] = Greenhouse–Geisser correction was applied because the assumption of sphericity was violated, with Greenhouse–Geisser epsilon = 0.533, SS = sum of squares; df = degree of freedom; MS = mean square; EPDS = Edinburgh Postnatal Depression Scale

Bonferroni-adjusted comparisons showed no significant baseline difference (mean difference −0.35, 95% CI −0.93 to 0.29; $p = 0.233$). EPDS scores were significantly lower in the MITAMIL group at every weekly follow-up (all $p < 0.001$). The largest between-group difference was observed at week 7 (−6.63, 95% CI −7.04 to −6.22), and the week-8 difference was −4.58 (95% CI −5.07 to −4.09) (Table 3 and Figure 2).

Table 3. Bonferroni-adjusted between-group comparisons of EPDS scores at each measurement time (n = 120).

Time	MITAMIL		Control		Mean difference	95% CI	p value
	Mean ± SD	Decrease from baseline	Mean ± SD	Decrease from baseline			
T0: baseline	11.27 ± 1.57	0.00	11.62 ± 1.63	0.00	−0.35	−0.93 to 0.23	0.233
T1: week 1	10.32 ± 1.37	0.95	11.45 ± 1.40	0.17	−1.13	−1.63 to −0.63	<0.001
T2: week 2	9.62 ± 0.90	1.65	10.97 ± 1.29	0.65	−1.35	−1.75 to −0.95	<0.001
T3: week 3	8.95 ± 0.91	2.32	10.25 ± 1.02	1.37	−1.30	−1.65 to −0.95	<0.001
T4: week 4	7.15 ± 2.00	4.12	9.87 ± 0.95	1.75	−2.72	−3.29 to −2.15	<0.001
T5: week 5	4.72 ± 2.22	6.55	9.45 ± 0.62	2.17	−4.73	−5.32 to −4.14	<0.001
T6: week 6	2.75 ± 1.48	8.52	9.02 ± 0.83	2.60	−6.27	−6.70 to −5.83	<0.001
T7: week 7	1.55 ± 0.91	9.72	8.18 ± 1.33	3.44	−6.63	−7.05 to −6.22	<0.001
T8: week 8	0.52 ± 0.57	10.75	5.10 ± 1.81	6.52	−4.58	−5.07 to −4.10	<0.001

Note. CI = confidence interval; EPDS = Edinburgh Postnatal Depression Scale. Mean difference = MITAMIL minus control after Bonferroni adjustment.

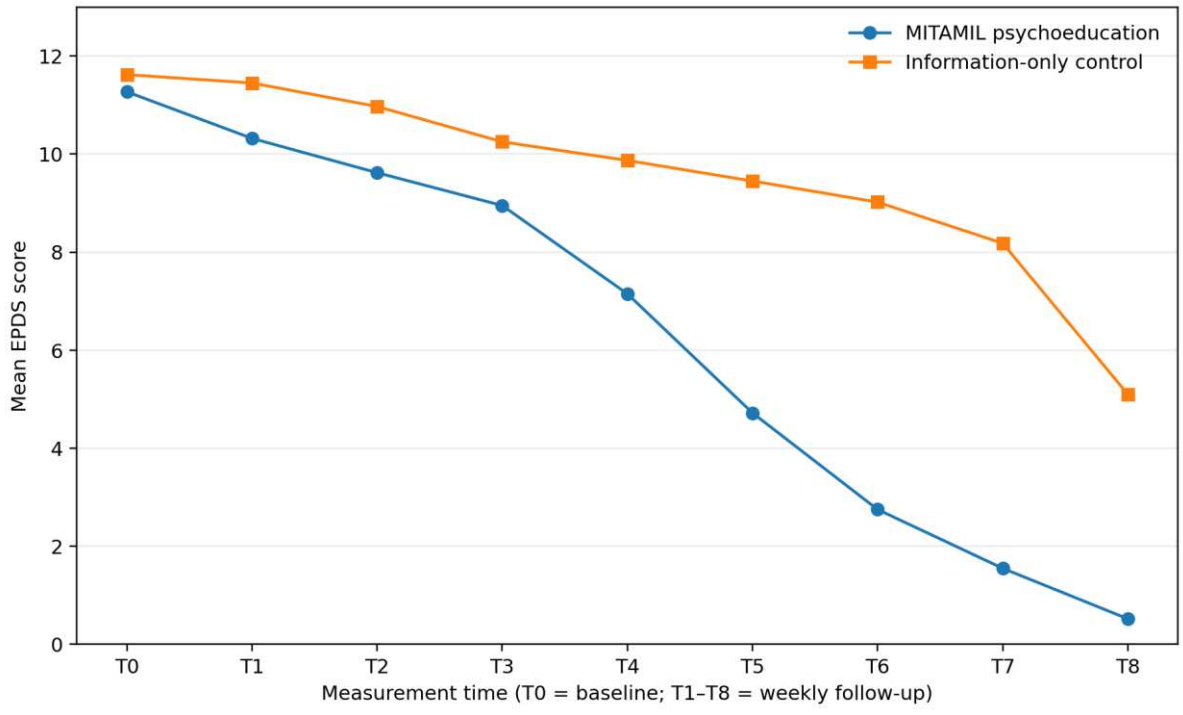


Figure 2. Mean EPDS score trajectory from baseline through week 8.

4. Discussion

The results of this study indicate that repeated disaster mitigation psychoeducation was effective in reducing symptoms of perinatal depression in the experimental group. This reduction in symptoms indicates that interventions provided continuously during pregnancy can strengthen pregnant women's understanding, psychological preparedness, and coping skills in facing disaster risks. This finding is consistent with a randomized controlled trial by (44), which reported that repeated psychoeducation resulted in a statistically significant reduction in EPDS scores. (45), also found that continuous psychoeducation during pregnancy can reduce mental health disorders, including perinatal depression, while improving maternal function.

The effectiveness of the MITAMIL intervention is robustly explained through its theoretical frameworks. Consistent with the Transactional Theory of Stress and Coping, the modules helped pregnant women accurately evaluate disaster threats and coping resources; acquiring these mastery skills alters stress appraisal, making environmental threats perceived as more controllable (46). Concurrently, grounded in Social Cognitive Theory (SCT), video demonstrations facilitated observational learning (47). Observing role models successfully navigate challenges builds self-efficacy, which subsequently improves cognitive, motivational, and affective processes(48) (49), and promotes adaptive self-regulation against perinatal stressors (50). Although direct mediation pathways linking video modeling to lowered EPDS scores via SCT constructs are often inferred rather than formally tested in perinatal populations (51)(52)(53), empirical evidence strongly supports these mediators. Digital interventions concurrently elevate maternal self-efficacy and perceived social support while significantly lowering depression symptoms (54)(55). Furthermore, video-based formats foster connection and empowerment, effectively reducing isolation and affective reactivity to stress (51)(53). Consequently, the synergy of enhanced cognitive control over stress appraisals and increased self-efficacy via video modeling provides a robust empirical explanation for the substantial EPDS reductions observed in the MITAMIL group.

The effectiveness of the intervention in this study may be linked to the frequency and continuity of psychoeducation. Repeatedly provided material allows participants not only to receive information but also to remember it, understand it, and gradually apply it to their daily lives. This study aligns with (56), who implemented an eight-week psychoeducation program through weekly 50–90-minute sessions tailored to the participants' needs. The scheduled intervention structure provides participants with the opportunity to process experiences, identify emotional responses, and evaluate coping strategies. Thus, the repetition of the intervention is a critical component in producing more sustainable psychological changes.

Psychoeducation also plays a role in improving mental health literacy in pregnant women. Mental health literacy includes the ability to recognize symptoms of psychological disorders, understand their risk factors, understand available forms of help, and determine appropriate treatment strategies. (57) emphasized that structured mental health promotion through psychoeducation can improve mental health literacy at the individual level. Similar findings were reported by (58) who stated that psychoeducation is an intervention that can increase mental health knowledge. This increased knowledge is important because it can help pregnant women recognize symptoms of perinatal depression early and reduce misunderstandings and stigma surrounding psychological disorders.

In the context of disasters, psychoeducation can be seen as an early prevention strategy that is relatively easy to access and implement. This intervention provides information about psychological symptoms, the impact of traumatic experiences, normal responses to trauma, and strategies for coping with emotional distress. This information can help survivors understand that their psychological responses are part of a reaction to a traumatic event, thereby reducing fear and misunderstanding about their condition (56). Psychoeducation after a traumatic event can also reduce the negative impact of trauma by improving survivors' ability to manage thoughts, emotions, and behavior. This is supported by (41), who found a significant difference between the psychoeducation group and the control group in reducing depression levels, with a p-value < 0.05.

Perinatal psychoeducation programs are clinically relevant because they are relatively brief and can be delivered by adequately trained healthcare professionals, such as midwives or nurses (59). In maternal care, psychoeducation is generally structured as a curriculum that encompasses early recognition of perinatal depression, identification of risk factors, management of emotional responses, and development of problem-solving skills. The primary goal is to improve maternal psychological well-being, which, in turn, can positively affect fetal health and the quality of the pregnancy experience (60). Psychoeducation has also been recognized as an important form of recovery support for individuals with mental health problems and is used in various national and international mental health service guidelines (61).

The findings of this study specifically indicate that the MITAMIL video-based disaster mitigation psychoeducation model, delivered over eight weeks, can reduce symptoms of perinatal depression. This effectiveness demonstrates that video serves not only as a medium for conveying information but also as a means of modeling behavior and strengthening skills for dealing with emergency situations. Video-based modeling has been shown to be effective

in teaching safety skills, disaster evacuation, and post-disaster actions (62). Through visualization of situations, action steps, and appropriate responses, participants can gain a concrete understanding of how to deal with disaster threats. This has the potential to increase perceptions of control and reduce uncertainty, which often trigger anxiety and depressive symptoms in pregnant women who survive disasters.

Other advantages of MITAMIL psychoeducational videos include ease of access, flexibility of use, and cost-efficiency. Video modeling is a relatively low-cost intervention that can be implemented with simple devices, such as mobile phones or other video players (62). Video-based psychoeducation can be designed to be concise, easy to understand, and re-accessible as needed by participants. These characteristics are important for pregnant women in disaster-affected areas who may experience limited mobility, access to healthcare, and professional support. (56), stated that video-based psychoeducation has the potential to be a rapid, flexible, and cost-effective intervention to reduce symptoms of mental disorders and improve the quality of life of disaster survivors.

Digital psychoeducational interventions also allow participants to access the material repeatedly. Repetition of the material allows pregnant women to adapt the learning process to their physical and emotional state and level of understanding. A review of digital psychoeducational interventions suggests that videos can increase knowledge about mental health issues, strengthen coping skills, reduce psychological burden, and enhance understanding of available support (61). Digital health education also allows for faster information exchange, is time- and cost-efficient, and provides users with the opportunity to re-access needed information (63). (63). Therefore, repeated access to the MITAMIL video is thought to have contributed to the reduction in perinatal depressive symptoms in this study.

The results of this study also align with findings indicating that online delivery of psychoeducation can serve as a rapid and cost-effective support program for disaster survivors (42). Remote support enables interventions to be delivered on a broader scale when in-person services are limited by facility damage, geographic barriers, or emergency conditions. Online psychoeducation delivery has been shown to be time- and cost-efficient, representing a suitable form of remote support in post-disaster crisis contexts (64). Previous research also found that video-based psychoeducation is an easily accessible alternative in emergency situations and is effective in reducing symptoms of common mental health disorders, including depression (18). Ease of understanding the material is another factor that may explain the effectiveness of the MITAMIL intervention. Audiovisual information can combine verbal explanations, illustrations, demonstrations, and action modeling, making it easier to understand than text-

only information. (22) (reported that video-based digital psychoeducation is easily accessible, understandable, and immediately applicable for building emotional preparedness and cognitive control in a disaster context. Emotional preparedness helps individuals manage fear and psychological distress, while cognitive control helps individuals assess risk, determine actions, and avoid maladaptive responses. Both aspects are relevant for pregnant women, who have higher psychological vulnerability during and after disasters.

The reduction in depressive symptoms in the intervention group also supports the finding that psychoeducation can serve as initial psychological support for disaster survivors. The reduction in depressive symptoms in the intervention group also supports the finding that psychoeducation can serve as initial psychological support for disaster survivors. Significant reductions in depressive symptoms and traumatic stress have been reported in populations receiving psychoeducation (64), Furthermore, psychoeducational programs have been shown to result in selective improvements in depressive symptoms and increased adaptive cognitions related to trauma (65). These findings suggest that psychoeducation does not necessarily replace more intensive psychological or psychiatric interventions, but can be an initial support to address survivors' psychological needs, prevent symptom exacerbation, and direct at-risk individuals to professional services.

However, the effectiveness of psychoeducation needs to be supported by a systematic mental health screening process. Screening for depressive symptoms in post-disaster mental health assessments is crucial for identifying pregnant women at higher risk and requiring further intervention (66). The use of standardized instruments, such as the EPDS, can help healthcare providers detect changes in symptoms, evaluate response to interventions, and determine the need for referral. Video-based psychoeducation will provide optimal benefits when integrated with routine screening, regular monitoring, family support, and a clear mental health referral system.

Overall, the results of this study strengthen the evidence that video-based disaster mitigation psychoeducation is a practical, accessible, and potentially effective intervention in reducing perinatal depressive symptoms in pregnant women who have survived disasters. This intervention can help bridge the gap in mental health services during and after disasters, especially when access to professional services is limited. The effectiveness of the intervention is expected to be higher if it is provided early, repeated, using structured materials, and accompanied by monitoring of participants' psychological condition (18). Therefore, the MITAMIL psychoeducational video has the potential to be developed as a cost-effective

alternative educational medium for integration into antenatal care, disaster preparedness programs, and maternal mental health services in disaster-prone areas.

5. Limitations

This study has several limitations. First, non-random assignment introduced a risk of selection bias and residual confounding; gravidity differed significantly at baseline, although covariate adjustment confirmed the stability of the primary findings. Second, participants and facilitators were not blinded, and EPDS outcomes were self-reported, which introduces potential social desirability or expectation bias in weekly response scoring. Third, the comparator was an information-only pamphlet rather than an attention-matched control, meaning the effects of video content cannot be completely isolated from interactive Zoom contact time. Fourth, all participants had smartphones and internet access, which limits applicability to digitally excluded populations. Fifth, follow-up ended at week 8 of pregnancy; the persistence of benefit during late pregnancy and the postpartum period remains unknown. Sixth, participants were recruited from disaster-affected areas within a single Indonesian province, which limits generalizability to other culturally or geographically distinct regions. Finally, the sample-size calculation was based on precision rather than expected intervention effect, and the very large observed effect sizes require replication in a randomized controlled trial with allocation concealment and longer follow-up.

6. Conclusion and Recommendations

MITAMIL video-based disaster-mitigation psychoeducation was associated with a substantially greater reduction in weekly EPDS scores than information-only control material among pregnant women in disaster-affected areas of West Sumatra. The program is potentially suitable for integration into antenatal education through community health centers, provided it is paired with systematic EPDS screening, same-day review of self-harm responses, and a clear mental health referral pathway. A larger randomized controlled trial with allocation concealment, an attention-matched comparator, independent outcome assessment, process evaluation, and postpartum follow-up is needed before routine effectiveness can be concluded.

Data Availability Statement

The de-identified dataset and analytic materials supporting the conclusions of this article are available from the corresponding author upon reasonable request, subject to institutional ethics committee approval and participant confidentiality agreements.

Disclosure

All authors approved the final manuscript and agree to be accountable for the work.

Declaration of AI

The authors acknowledge the use of ChatGPT Sol 6 (accessed August 2026) to support language polishing and suggest paragraph reorganization for clarity and flow. All AI-generated suggestions were reviewed, revised, and approved by the authors, who take full responsibility for the accuracy and integrity of the work.

Conflicts of Interest

The authors declare that there is no conflict of interest regarding the publication of this article.

Author Contributions

RO contributed to the conceptualization, methodology, formal analysis, investigation, data curation, and writing-original draft. CHT contributed to the supervision, review, and editing. All authors reviewed and approved the final version of the manuscript and agreed to be accountable for the accuracy and integrity of the work.

Funding

This work was supported by Universitas Andalas through a study-leave doctoral grant funding [grant number 2829/UN16.WR.3/KP/2023]. The funder had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript.

Acknowledgments

The authors thank all participants, the community health-center teams, coordinating midwives, health cadres, enumerators, and the Faculty of Medicine, Universitas Andalas, for supporting the study.

References

1. Shimoya, K. et al. Clinical guide for women with mental health problems during the perinatal period. J Obstet Ginaecology Res [Internet]. 2021;48:20–33. Available from: https://obgyn.onlinelibrary.wiley.com/doi/10.1111/jog.15068
2. Mudiyanselage SB, Dona SWA, Angeles MR, Majmudar I, Marembo M, Tan EJ, et al. The impact of maternal health on child's health outcomes during the first five years of child's life in countries with health systems similar to Australia: A systematic review.

PLoS One [Internet]. 2024;19(3 March):1–19. Available from: http://dx.doi.org/10.1371/journal.pone.0295295

3. World Health Organization. Perinatal mental health. [Internet]. Guide for integration of perinatal mental health in maternal and child health services. Geneva; 2022. Available from: https://www.who.int/publications/i/item/9789240057142

4. Oktova R, Tan CH. Perinatal Post-Natural Disaster Depression Screening Among Pregnant Women in West Sumatra, Indonesia. Int J Biotechnol Biomed [Internet]. 2026;3(1):17–26. Available from: https://ejournal.lucp.net/index.php/ijbb/article/view/5410

5. Wang TH, Pai LW, Tzeng YL, Yeh TP, Teng YK. Effectiveness of nurses and midwives-led psychological interventions on reducing depression symptoms in the perinatal period: A systematic review and meta-analysis. Nurs Open. 2021;8(5):2117–30.

6. Voit FAC, Kajantie E, Lemola S, Räikkönen K, Wolke D, Schnitzlein DD. Maternal mental health and adverse birth outcomes. PLoS One. 2022;17(8 August):1–18.

7. Goyal D, Rabemananjara KM, Lara-Cinisomo S, Le HN. Healthcare worker's understanding of perinatal depression and maternal mental health service needs in rural Kenya. Ment Heal Prev [Internet]. 2023;29:200260. Available from: https://doi.org/10.1016/j.mhp.2023.200260

8. Misrawati & Afiyanti Y. Antenatal depression and its associated factors among pregnant women in Jakarta, Indonesia. Enferm Clin [Internet]. 2020;30(6):96–101. Available from: https://www.sciencedirect.com/science/article/abs/pii/S1130862120304708

9. Oktova R, Tan CH. Relevance of Sociodemographic Status to the Potential for Perinatal Depression Post-Natural Disasters. 2026;4(01):123–31. Available from: https://ejournal.lucp.net/index.php/ijbb/article/view/5410

10. Insan N, Weke A, Forrest S, Rankin J. Social determinants of antenatal depression and anxiety among women in South Asia: A systematic review & meta-analysis. PLoS One [Internet]. 2022;17(2 February):1–25. Available from: http://dx.doi.org/10.1371/journal.pone.0263760

11. Barkin JL, Philipsborn RP, Curry CL, Upadhyay S, Geller PA, Pardon M, et al. Climate Change is an Emerging Threat to Perinatal Mental Health. J Am Psychiatr Nurses Assoc. 2024;30(3):683–9.

12. Emma L. Lucas & Lisa M. Brown. Evidence-Based Treatment for Mental Health Care Post-Disaster. In: The Intersection of Trauma and Disaster Behavioral Health [Internet]. United States of America: Springer International Publishing; 2020. p. 187–205. Available from: https://link.springer.com/chapter/10.1007/978-3-030-51525-6_11

13. Zhang, Y., Dang, J., & Ma Z. Trajectories of posttraumatic stress disorder (PTSD) and posttraumatic growth among victims 6 months after the 2021 Henan floods : predictive roles of social support and short video exposure during the disaster. BMC Psychol. 2026;14(109).

14. Williamson A, Brunet A, Laplante DP, Yu C, King S. Peritraumatic Distress Mediates the Effect of Severity of Disaster Exposure on Perinatal Depression: The Iowa Flood

Study Rebecca. 2016;28(6):515–22.

15. National Disaster Management Agency. Indonesian Disaster Risk Index (IDRI) 2020. Natl Disaster Manag Agency [Internet]. 2021;78. Available from: https://inarisk.bnpb.go.id/pdf/BUKU IRBI 2020 KP.pdf

16. W. Adi. et .al. Indonesian Disaster Risk Index. Natl Board Disaster Manag. 2023;01:1–338.

17. Rahmadhani Z SF, Teuku Yan W.N, Cipta Endayana. Tsunami Landfall Prediction of 5 and 12 Meters in Padang City, West Sumatra. J Geol Miner Resour. 2023;24(3):125–34.

18. Lee, A. R., Choi, S. M., Baik, M., & Paik JW. The Role and Effectiveness of Remote Mental Health Interventions in Disaster Response: A Narrative Review. Psychiatry Investig. 2026;23(1):5–10.

19. Lafortune S, Laplante DP, Elgbeili G, Li X, Lebel S, Dagenais C, et al. Effect of natural disaster-related prenatal maternal stress on child development and health: A meta-analytic review. Int J Environ Res Public Health. 2021;18(16).

20. Kouhirostamkolaei M. Integrating Mental Health Support in Emergency Planning and Disaster Risk Mitigation Strategies. Qeios. 2023;1–7.

21. Rohani, R., & Pratiwi CS. Midwives' Role in Managing Pregnant Women with Mental Health Issues and Disorders in Developing Countries: A Rapid Review. Poltekita J Ilmu Kesehat. 2024;17(4):1332–43.

22. Astuti RT, Fanani M, Yusuf M. The role of the psychoeducation for family preparedness application on psychological preparedness and functional activities of families post-disaster : A community intervention study. 2025;6(2):172–7.

23. Natasubagyo OS, Kusrohmaniah S. The Effectiveness of Psychoeducation for Improving Depression Literacy. Gadjah Mada J Prof Psychol. 2019;5(1):26.

24. Park, S., Kim, J., Oh, J., & Ahn S. Effects of psychoeducation on the mental health and relationships of pregnant couples: A systemic review and meta-analysis. Int J Nurs Stud [Internet]. 2020;104(103439). Available from: https://www.sciencedirect.com/science/article/abs/pii/S0020748919302469

25. Lazarus, R., & Folkman S. Stress, Appraisal, and Coping. [Internet]. New York: Springer Pub. Co.; 1984. Available from: https://catalog.nlm.nih.gov/discovery/fulldisplay/alma995977513406676/01NLM_INST:01NLM_INST

26. Bandura A. Social foundations of thought and action: A social cognitive theory. Prentice-Hall; 1986.

27. Bandura A. Self-efficacy: The exercise of control. W. H. Freeman., editor. 1997.

28. Liu, W., Tan, Y., Li, W., Xiang, J., Yang, M., Li, M., Luo, X., Wang, Y., Chen, H., & Deng L. Relationship Between Prenatal Depression and Psychological Capital in Pregnant Women in Guangdong , China : The Mediating Role of Coping Styles. Nurs Res Pract [Internet]. 2026;1–9. Available from: https://pmc.ncbi.nlm.nih.gov/articles/PMC13176618/

29. Yasunari, T., Nozawa, M., Nishio, R., Yamamoto, A., & Takami Y. Development and evaluation of “disaster preparedness” educational programme for pregnant women. Int Nurs Rev. 2011;58(3):335–340.

30. Ali-saleh O, Halperin O. The Role of Intimate Partner Violence (IPV) in Mediating Between Stress and Depression Among Pregnant and Childbearing Women. 2026;2026.

31. Chan, K. L., Leung, W. C., Tiwari, A., Or, K. L., & Ip P. Using Smartphone-Based Psychoeducation to Reduce Postnatal Depression Among First-Time Mothers : Randomized Controlled Trial. JMIR mHealth uHealth. 2019;7(5):1–11.

32. Chen C, Wang X, Xu H, Li Y. Effectiveness of digital psychological interventions in reducing perinatal depression : a systematic review of meta - analyses. Arch Womens Ment Health [Internet]. 2023;(0123456789). Available from: https://doi.org/10.1007/s00737-023-01327-y

33. Forsell, E., Bendix, M., Holländare, F., Szymanska von Schultz, B., Nasiell, J., Blomdahl-Wetterholm, M., Eriksson, C., Kvarned, S., Lindau van der Linden, J., Söderberg, E., Jokinen, J., Wide, K., & Kaldo V. Internet delivered cognitive behavior therapy for antenatal depression: A randomised controlled trial. J Affect Disord. 2017;221:56–64.

34. Li, L., Yue, S-W, Xu, J., Qiao, J., Redding, S. R., & Ouyang Y-Q. Effectiveness of Internet-based psychological interventions for treating perinatal depression: A systematic review and meta-analysis. J Clin Nurs. 2023;32:3087–3101.

35. Arifin, S. R. M., Kamaruddin, A., Muhammad, N. A., Nurumal, M. S., Mohadis, H. M., Hussain, N. H. N., & Wardaningsih S. An evaluation of digital intervention for perinatal depression and anxiety : A systematic review. AIMS public Heal. 2024;11(2):499–525.

36. Seema M, Tuzel E. The impact of disasters on maternal mental health : a systematic review. 2026;16.

37. Cox JL, Holden JM SR. Detection of Postnatal Depression: Development of the 10-item Edinburgh Postnatal Depression Scale. Br J Psychiatry [Internet]. 1987;150(6):782–6. Available from: https://www.cambridge.org/core/journals/the-british-journal-of-psychiatry/article/abs/detection-of-postnatal-depression/E18BC62858DBF2640C33DCC8B572F02A

38. Sari, D. N., Diatri, H., Siregar, K., & Pratomo H. Adaptation of the Edinburgh Postnatal Depression Scale in the Indonesian version: Self-reported anxiety and depression symptoms in pregnant women. Open Access Maced J Med Sci. 2021;9:1654–1659.

39. Kendall-Tackett KA. Screening for Perinatal Depression : Barriers , Guidelines , and Measurement Scales. J Clin Med. 2024;13(21):65.

40. Fellmeth G, Harrison S, Opondo C, Nair M, Kurinczuk JJ, Alderdice F. Validated screening tools to identify common mental disorders in perinatal and postpartum women in India: a systematic review and meta-analysis. BMC Psychiatry. 2021;21(1):1–10.

41. Çakmak, S., Uzun, S., Dere, C., Akdemir, R. R., Baygin, Ş., & Çoban İG. The effect of

psychoeducation on hope, loneliness and depression of nursing students who experienced 6 February 2023 Turkey earthquake. ,. Psychol Health Med. 2025;30(10):2149–2160.

42. Caydı, S., Batmaz, S., & Erdil IEG. Effectiveness of an online-delivered, ultra-brief group psychoeducation intervention for earthquake-related trauma symptom severity and posttraumatic cognitions. Curr Psychol. 2026;45(413).

43. IBM Corp. IBM SPSS Statistics (Version 32.0.0.0). 2026.

44. Prabhu S, Sara L, Guruvare S, Angelita J, Treesa T, Nayak BS, et al. Patient Education and Counseling Effectiveness of psychosocial education program on postnatal depression , stress , and perceived maternal parenting self-efficacy among pregnant women in South India. Patient Educ Couns [Internet]. 2025;130(September 2024):108458. Available from: https://doi.org/10.1016/j.pec.2024.108458

45. Aghebatbekheir, A., Mahmoodi, Z., Rahimzadeh, M., Zandifar, A., & Saeieh SE. Midwife-led psychosocial counseling with family support on postpartum depression and maternal functioning: a randomized controlled trial. BMC Pregnancy Childbirth. 2025;26(1):31.

46. Hajure, M., Alemu, S. S., Abdu, Z., Tesfaye, G. M., Workneh, Y. A., Dule, A., Hussen, M. A., Wedajo, L. F., & Gezimu W. Resilience and mental health among perinatal women: a systematic review. Front Psychiatry. 2024;15.

47. Islam, K. F., Awal, A., Mazumder, H., Munni, U. R., Majumder, K., Afroz, K., Tabassum, M. N., & Hossain M. Social cognitive theory-based health promotion in primary care practice: A scoping review. Heliyon. 2023;9(4).

48. Bandura A. Perceived Self-Efficacy in Cognitive Development and Functioning.

49. Scott, W. D., Cervone, D., & Ebiringah OU. The social-cognitive clinician: On the implications of socialcognitive theory for psychotherapy and assessment. J Int depsychologie. 2024;

50. Tougas ME, Hayden J, McGrath P, Huguet A, Rozario S. A Systematic Review Exploring the SocialCognitive Theory of Self-Regulation as a Framework for Chronic Health Condition Interventions.

51. Carona C, Pereira M, Araújo-Pedrosa A, Canavarro MC, Fonseca A. The Efficacy of Be a Mom, aWeb-Based Intervention to Prevent Postpartum Depression: Examining Mechanisms of Change in a RandomizedControlled Trial.

52. Jimènez-Barragan M, Del Pino Gutierrez A, Sauch Valmaña G, Monistrol O, Marcet CM, Badia MP, et al. No Title.

53. Iacob E, Kausler R, Williams M, Dorn U, Simonsen S, Smid M, et al. A RandomizedControlled Trial of a Telehealth Group Intervention to Reduce Perinatal Depressive Symptoms: A Mixed MethodsAnalysis.

54. Chua JYX, Shorey S. Effectiveness of mobile application-based perinatal interventions in improvingparenting outcomes: A systematic review.

55. Qi W, Liu Y, Lv H, Ge J, Meng Y, Zhao N, et al. Effects of family relationship and social support on the mental health of Chinese postpartum women. BMC Pregnancy Childbirth [Internet]. 2022;22(1):1–10. Available from:

https://doi.org/10.1186/s12884-022-04392-w

56. Demirci, H., Bilge, Y., Emiral, E., & Şen S (2024). E recovery in post-earthquake adolescents: E the impact of a psychoeducational intervention on traumatic stress symptoms and coping strategies. Enhancing recovery in post-earthquake adolescents : examining the impact of a psychoeducational intervention on traumatic stress symptoms and coping strategies. Curr Psychol. 2024;43:26983–96.

57. Singtakaew A, Chaimongkol N. Stress and Mental Well-being in Post-COVID- 19 among Community Dwellers in Central Thailand : A Mixed-Methods Study. 2026;30(3):584–610.

58. Akena, D., Kiguba, R., Muhwezi, W. W., Kwesiga, B., Kigozi, G., Nakasujja, N., & Lukwata H. The effectiveness of a psycho-education intervention on mental health literacy in communities affected by the COVID-19 pandemic—a cluster randomized trial of 24 villages in central Uganda—a research protocol. Trials. 2021;22(1):446.

59. Steardo Jr. L, Caivano V, Sampogna G, Di Cerbo A, Fico G, Zinno F, Del Vecchio V, Giallonardo V, Torella M LM and FA. Psychoeducational Intervention for Perinatal Depression : Study Protocol of a Randomized Controlled Trial. Front Psychiatry. 2019;10(55):1–11.

60. Qian-Er Oriana Ong, Jing Wen Ong, Mei Qi Ang, Katri Vehviläinen-Julkunen H-GH. Systematic review and meta-analysis of psychoeducation on the psychological and social impact among first-time mothers. Patient Educ Couns [Internet]. 2023;3. Available from: https://www.sciencedirect.com/science/article/abs/pii/S0738399123000587

61. O'Sullivan, K., Downes, C., Monahan, M., Morrissey, J., Byrne, G., Farrell, G., Gibbons, P., & Higgins A. Operationalising a Recovery-Oriented Support and Information Programme Online : The EOLAS Programme. Int J Environ Res Public Health. 2023;20(4417):1–14.

62. Kurt O, Cevher Z. Effectiveness of video modeling in teaching earthquake and postearthquake evacuation safety skills for children with autism. 2024;(March 2023):331–40.

63. Jampar, N., Chatchawet, W., & Samankasikorn W. Impact of the LINE-Based Health Literacy Program on Health Behaviors and Gestational Weight Gain in Overweight and Obese Pregnant Women : A Quasi-Experimental Study. Pacific Rim Int J Nurs Res. 2026;30(3):557–71.

64. Caydı S, Batmaz S, Etkin I, Erdil G. Effectiveness of an online-delivered , ultra-brief group psychoeducation intervention for earthquake-related trauma symptom severity and posttraumatic cognitions. 2026;1–10.

65. Kızılgeçit, M., Okan, N., Demir, Y., Çinici, M., Temiz, Y. E., Toprak, F. B., Akça, E., Bayram, N. N., Önen, R. Ş., Kayacan, Ş. N., Çinici, T., & Karabulut F. Spiritual meaning making and trauma recovery: Evaluation of a psycho-social intervention for earthquake survivors in Turkey. J Relig Health. 2025;64(5):4147–4168.

66. Gareayaghi, A., Tatlıdil, E., Şişman, E., & Polat A (2025). PP and the role of telepsychiatry: A six-month follow-up study after the 2023 K earthquakes. Post-Earthquake PTSD and the Role of Telepsychiatry : A Six-Month Follow-Up Study After the 2023 Kahramanmara ¸ s Earthquakes. Medicina (B Aires). 2025;61(6):1097.

822

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- SupplementaryMaterialsVideoQuestionaire.pdf
- 04SupplementaryInformation1EthicsandTCTR.pdf