



Capacity building program for midwives in maternal mental health through psychoeducation and digital application

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ABSTRACT

Maternal mental health issues are a critical contributor to the high Maternal Mortality Rate in East Kalimantan. Significant challenges in providing adequate support stem from limited psychological services and knowledge gaps among midwives at the Trauma Center Community Health Center (Puskesmas). This community service research aimed to build the capacity of midwives to provide Psychological First Aid (PFA) for pregnant women through a digitally supported psychoeducation program. The methodology involved a psychoeducation program delivered to 30 midwives, featuring a PFA workshop and the socialization of the "Bumil Sejahtera" application. A paired T-test was used to analyze data and measure improvements in participant knowledge and skills. The results demonstrated a statistically significant improvement ($p < 0.05$) across all assessed domains, with the mean score increasing from 87.33 in the pre-test to 113.67 in the post-test. This enhancement of skills is beneficial for the early detection and initial management of maternal mental health issues. For maximum impact, program sustainability is recommended through periodic workshops and collaboration with the local Health Department to expand the application's user reach.

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1. INTRODUCTION

Mental health issues have become a significant public health issue that can affect anyone, including pregnant women. Conditions such as depression, anxiety, stress, adjustment, and somatoform disorders often arise during pregnancy and can interfere with the health of both the mother and the fetus (Chauhan & Potdar, 2022; Monterrosa-Castro et al., 2023). This issue is particularly relevant in East Kalimantan, where the Maternal Mortality Rate (MMR) remains high at 177 deaths per 100,000 births (2020 Population Census). Data shows an increasing trend in the number of maternal deaths from 73 cases in 2022 to 83 cases in 2023, mostly due to pregnancy complications or suboptimal treatment (Dinas

Kesehatan Provinsi Kalimantan Timur, 2023). This situation highlights the need for concrete efforts to reduce the MMR, in line with the Sustainable Development Goals (SDGs) target of reducing the rate to 70 deaths per 100,000 births by 2030.

At the primary care level, community health centers play an important role in promoting maternal health and prevention, including the Loa Janan Trauma Center Community Health Center. This center is a key partner in addressing maternal mental health challenges. The partner has identified several critical issues, such as fluctuations in patient visits that range from 104 to 200 visits per month. Previous studies have shown that consistent visits can improve the mental health of pregnant women through education and consultations provided by midwives (Tendean et al., 2021). Maintaining regular visits is therefore essential so that potential health risks, including psychological concerns, can be detected at an early stage.

However, the review indicates that mental health services at the partner health center are not yet well integrated. The primary focus remains on physical care, while psychological aspects have not been included in routine services. An examination of promotional tools such as the health center website and social media also did not reveal any educational or promotional content related to mental health. In fact, preventive measures through mental health promotion in easily accessible primary health facilities are urgently needed (Damayani et al., 2024). This situation shows that integrated psychological services to support the mental health of pregnant women are still unavailable.

Furthermore, visit data shows that around 55 percent of pregnant women report mental health complaints, such as difficulty sleeping (45 percent), loss of enthusiasm (35 percent), and excessive anxiety (20 percent). Yet midwifery services still focus predominantly on physical aspects, while psychological aspects receive less attention due to limited knowledge and skills in early detection and initial treatment (Karmilasari et al., 2022). This situation indicates a competency gap that needs to be addressed immediately to support more holistic maternal services.

The mental health quality of pregnant women is also inseparable from diverse and vulnerable socioeconomic backgrounds. Based on partner data, some pregnant women are in challenging social conditions such as widowhood, lower-middle-class economic status, polygamy, and pregnancy outside of marriage. These factors are often correlated with low social support (Bedaso et al., 2021; Tan et al., 2023), which ultimately worsens the psychological condition of pregnant women. Maternal mental health interventions therefore need to account for social context and available support systems.

Midwives, as frontline health workers who interact directly with pregnant women, play an important role in providing emotional support and psychological first aid. However, the assessment results show that most midwives in the partner institutions still have limited knowledge and skills in this aspect. The education provided so far has focused on physical aspects such as nutrition and rest, without touching on psychological aspects in depth. This phenomenon also occurs in community-based health services such as integrated health service posts (posyandu) under the coordination of public health center (Puskesmas) midwives (Purwaningrum et al., 2024). As a result, the mental health of pregnant women is often neglected in daily services.

Research showed that good mental health in mothers can facilitate the delivery process, speed up recovery, and reduce the risk of complications for both mothers and babies (Cibralic et al., 2023). Based on this analysis of the situation, the root of the problem lies in the limited knowledge and skills of partners in the promotive and preventive aspects of maternal mental health. Therefore, psychoeducation and Psychological First Aid (PFA) training are strategic steps to equip midwives with the ability to detect, calm, and respond early to signs of psychological disorders in pregnant women.

As an added innovation, this activity is supported by the Bumil Sejahtera application, which provides easier access to information, education, and consultation related to maternal mental health. Through the “Senyum Sehat Bunda: Improving Midwives Capacity in Mental Health for Pregnant Women” program, it is expected that midwives will gain stronger literacy and skills in providing psychological support, pregnant women will have greater awareness of the importance of mental health, and service delivery will become more responsive and integrated. This program not only contributes to improving the quality of maternal health services in the Loa Janan area but also represents a concrete effort to support the national goal of reducing maternal mortality rates.

2. METHODS

Research Design

The community service program uses a participatory training-based approach with a one group pre-test–post-test design. This approach allows participants to be actively involved in the learning process, simulations, and reflection on experiences to improve their capacity in Psychological First Aid (PFA) for pregnant women. This design also allows for empirical evaluation of participants’ competency improvement through pre- and post-intervention measurements.

Preparation

The preparatory stage included needs analysis, coordination, and the development of training tools. The needs analysis was conducted through discussions with the Loa Janan Trauma Center Health Center to identify midwives’ problems in detecting maternal mental health disorders. Based on these results, the team developed training modules and evaluation instruments that covered the basic theory of Psychological First Aid (PFA), case studies, and guidelines for using the Bumil Sejahtera application. The activity also began with technical coordination with partners regarding the schedule, supporting facilities, and division of roles, as well as initial testing of the application’s features to ensure its suitability for use during the training.

Participants

The participants involved in this program were 30 midwives at the Samarinda Trauma Center Community Health Center on August 28, 2025. These midwives were trained because they are the frontline health workers who interact directly with pregnant women and postpartum mothers. In addition, these midwives also work at several integrated health service posts under the auspices of the Trauma Center Community Health Center.

Intervention

The intervention aims to improve midwives’ competence in providing psychological first aid (PFA) to mothers. The program is designed to be comprehensive, consisting of several main activities described in Table 1.

Tools

The program is supported by a range of tools and media to ensure effective delivery of materials, including: (1) Presentation Tools: Laptops and LED TVs to display psychoeducational materials; (2) Visual

Information Media: Banners and stand banners containing concise information on psychological first aid (PFA) and tips for maintaining maternal mental health; (3) "Bumil Sejahtera" Digital Application: which provides educational features, mental health screening, online counseling, relaxation audio, PFA e-books, and community forums.

Table 1. Activity of psychoeducation

| Stage 1 | PFA Psychoeducation |
|----------------|--|
| Activity | Collaboration between the implementation team and partners in delivering material on the basic concepts of PFA, the urgency of maternal mental health, and case studies. |
| Purpose | To increase midwives' understanding of the basic concepts of PFA as early detection and initial treatment of maternal mental health problems |
| Stage 2 | 3L Method Workshop (Link, Listen, Link) |
| Activity | Simulation to train midwives in providing PFA to pregnant women experiencing emotional distress. The three core steps practiced are Look (observing signs of stress), Listen (listening empathetically), and Link (connecting the mother with the appropriate resources or information). |
| Purpose | To improve midwives' understanding and skills in providing PFA to pregnant women or post-partum women. |
| Stage 3 | Socialization of Bumil Sejahtera Application |
| Activity | Socialization and hands-on practice of using digital applications as a means of promoting mental health and as a companion medium for midwives and pregnant women. |
| Purpose | Encourage midwives to use this application as an important resource to facilitate prevention, early detection, and practical guidance in providing support in dealing with maternal mental health issues. |

Evaluation Method

The effectiveness of the program is measured through pre-test and post-test designs, which aim to assess participants' increased understanding and skills after the intervention. The evaluation covers seven competency domains: (1) The urgency and significance of maternal mental health; (2) Basic concepts of PFA; (3) Identification of mental health disorder symptoms; (4) Empathetic communication; (5) Implementation of the Look, Listen, Link principles; (6) Mental health referral system; (7) Utilization of the "Bumil Sejahtera" digital innovation

Quantitative data was collected using a standardized questionnaire administered before and after the training. Data analysis was performed using a paired sample t-test to determine the significance level of the increase in participants' competencies. This test was used because it can compare paired mean scores (pre-post) within the same group. The analysis was performed at a significance level of $\alpha = 0.05$ to determine the effectiveness of the intervention.

Ethical Considerations

All participants voluntarily participated in the activity by providing written informed consent. The data collected is kept confidential and is only used for evaluation and scientific reporting purposes.

3. RESULTS DAN DISCUSSION

Results

The initial stage of the activity began with a focus group discussion (FGD) with the leaders and midwife coordinators of the Loa Janan Trauma Center Community Health Center (Figure 1). This discussion

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revealed a number of crucial findings regarding the mental health of pregnant women and the readiness of midwives to provide psychological support. From the midwife coordinators' perspective, it was found that most pregnant women experienced stress and anxiety during pregnancy, particularly related to concerns about the condition of the fetus, the delivery process, and their role as prospective mothers. Meanwhile, the health center leaders highlighted structural and competency constraints, namely the lack of integration of psychological services into the health center service system and the limited knowledge of health workers regarding maternal mental health.

These findings are reinforced by secondary data from records of pregnant women's visits in 2023–2024, which show a relationship between psychological complaints and low rates of antenatal visit compliance. Pregnant women who reported symptoms of distress (e.g., difficulty sleeping, excessive anxiety, and loss of motivation) were found to have lower visit compliance rates than other groups. This indicates the need to improve midwives' capacity for early detection and initial management of psychological problems in pregnant women.



Figure 1. Discussion with Head of Puskesmas Trauma Center

As a follow-up to the identification of problems, the internal team held discussions to develop educational content for the application. This application provides education on maternal mental health to improve user literacy, in the form of articles, photos, and videos. Practical e-books on PFA for health educators can also be easily accessed on the website (Figure 2).



Figure 2. Flip book PFA (https://bumilsejahtera.com/buku_flip.php)

Figure 3 explains the updated features for early detection of mental health. The maternal sector has been expanded to include pregnant women, nursing mothers, and mothers with toddlers. The application also features interactive communication to facilitate the formation of a supportive digital community among pregnant women. This application can accommodate various parties, including midwives and patients.

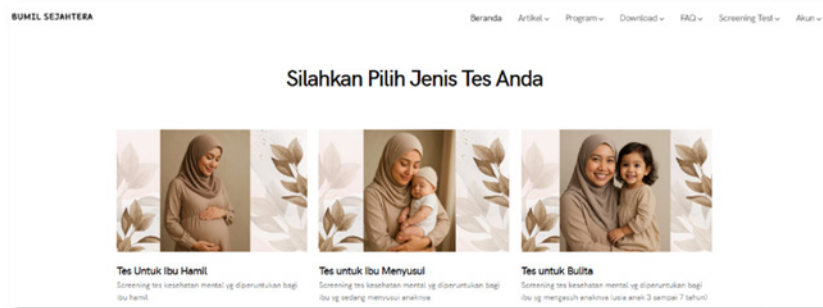


Figure 3. Early detection (screening test) of mental health

Figure 4 shows the PFA psychoeducation activities as part of early detection and initial treatment to improve participants' understanding of maternal mental health. This activity also aims to foster behaviors that support mental health maintenance, especially in pregnant women. Before the psychoeducation activity was conducted, the pre-test results showed that midwives' level of understanding of the PFA concept was still relatively low, with an average score of 87.33. These findings indicate that midwives still have limitations in their basic knowledge and practical skills related to maternal mental health.

The psychoeducation activity covered several core materials on the basic concepts of PFA, identification of verbal and nonverbal signs, and practical ways to provide initial emotional support. The material was delivered using an interactive approach to build a fundamental understanding that PFA is not the exclusive responsibility of psychology practitioners, but rather part of supportive and humanitarian actions that can be carried out by frontline health workers. The main objective is to provide a sense of security, calm individuals experiencing severe stress, and connect them with appropriate professional help.

Participants enthusiastically participated in the activities and remained engaged until the end. Throughout the activities, the midwives actively participated by paying close attention to the material and taking the initiative to ask relevant questions during the discussion sessions. Figure 5 shows two midwives tried out the 3L (Link, Listen, Link) simulation as a practical step in implementing PFA. This is important to do in order to reinforce understanding because the knowledge is directly applied.



Figure 4. 3L (Look, Listen, Link) simulation for midwives

Figure 5. Presentation of PFA and 3L materials

The program evaluation results show a comprehensive improvement in participants' competencies in various essential areas that were measured. This improvement was identified in the aspects of understanding the urgency of maternal mental health, mastery of fundamental PFA concepts, and

the ability to identify early symptoms of mental disorders in pregnant women. In the area of practical skills, participants showed significant progress in applying PFA action principles (Look, Listen, Link), using empathetic communication techniques, and understanding the systematic referral process for appropriate follow-up.

Table 2 shows the post-test results showed an increase in the average score to 131.67 (88 percent), indicating a substantial improvement compared to the initial condition. Statistical analysis using a paired sample t-test reinforced these findings by showing a statistically significant increase (sig. = 0.000; $p < 0.05$). Thus, the psychoeducation program proved effective in improving midwives' capacity to identify and provide early intervention for maternal mental health issues in a more accurate and empathetic manner.

Table 2. Result of evaluation

| Activity | Participants' Understanding | Mean | P |
|-----------|-----------------------------|---------|-------|
| Pre-Test | 18 | 87.333 | 0.001 |
| Post-Test | 30 | 113.667 | |

Discussion

The evaluation results show that psychoeducation effectively improves midwives' competence in Psychological First Aid (PFA) through the Look, Listen, Link principle to support maternal mental health. This program is innovatively packaged because, in addition to training, midwives are also provided with demonstrations on how to use the Bumil Sejahtera application as a practical digital resource. Thus, midwives have the essential skills to transform their role from health workers who focus on physical aspects to the frontline in holistic health services, covering both physical and mental aspects.

Before the intervention, most midwives still had a limited understanding of maternal mental health and viewed the issue as beyond their professional responsibilities. This perception often created hesitation when responding to early psychological signs. Previous research shows that psychoeducation acts as a catalyst for restructuring professional understanding (Ong et al., 2023). Such restructuring is crucial so that midwives recognize mental health as an integral part of maternal care. With this perspective, midwives develop a stronger cognitive foundation and greater confidence when managing emotional concerns among pregnant women.

This intervention also generated positive psychological changes among midwives. The meaningful learning process fostered self-confidence and self-efficacy in providing psychological support. Midwives began to internalize empathetic values, forming stronger emotional bonds with pregnant women. This change is in line with Affective Events Theory (AET), in which positive experiences in training elicit constructive emotional responses in the form of intrinsic motivation, readiness to act, and a shift in professional identity from merely physical health workers to holistic health agents (Junça-Silva & Lopes, 2023). These changes support the effective application of skills learned during the training.

The importance of this intervention is also supported by previous research confirming the vulnerability of pregnant women to anxiety, stress, and depression, which not only affect the mother but also fetal development and the postpartum bonding process (Septeria et al., 2024). Through PFA training, midwives are trained to identify signs of psychological distress (Look), take an empathetic approach (Listen), and connect patients with appropriate support (Link). Thus, midwives acquire practical skills to become first responders in psychological emergencies.

The Bumil Sejahtera application further strengthens this role by offering accessible information, relaxation audio, and visual learning materials. The app creates a sense of psychological safety because midwives feel they have practical guidance at hand when assisting patients. Earlier studies also highlight that technological innovation is essential for maintaining professionalism and efficiency in health services

(Mitchell & Ivimey-Cook, 2023). The combination of PFA skills and digital support expands midwives' professional capacity and solidifies their evolving identity as holistic maternal health providers.

However, this program still has limitations. Without a control group, it is difficult to determine whether the improvement in competence is solely the result of the intervention, as external factors may also contribute. Previous research highlights that using a comparison group is essential to increase the objectivity of evaluating a program's effectiveness (Sokhivah, 2021). Therefore, future studies are encouraged to include a control group to strengthen the validity of the findings.

In addition, the sustainability of the program is also a challenge. The knowledge and skills acquired are at risk of declining if they are not honed regularly. Previous studies have shown that continuous training for one year can maintain competence while also reducing maternal mortality rates (Setiawan & Chalidyanto, 2021; Wang et al., 2023). Therefore, future programs need to adopt a sustainable capacity development model with long-term mentoring mechanisms.

Overall, this program contributes to strengthening primary health care by positioning midwives as the frontline of comprehensive maternal health. This capacity transformation is expected to support efforts to reduce mental health risks in pregnant women, while also contributing to reducing maternal mortality rates (MMR) through more integrated promotive and preventive services.

4. CONCLUSION AND RECOMMENDATIONS

This community service program has proven effects in improving midwives' capacity to provide Psychological First Aid (PFA) through the "Bumil Sejahtera" digital application. A significant increase in participants' knowledge and skills ($p < 0.05$), particularly in the aspects of identification to application of the 3L principles, demonstrates the success of the intervention in strengthening midwives' ability to detect and provide early treatment for psychological problems in pregnant women. Ultimately, this program has succeeded in expanding the role of midwives as the frontline of holistic maternal health, covering both physical and mental dimensions.

The effectiveness and sustainability of this program can be maximized through several strategic steps. First, it is necessary to develop application features that enable long-term evaluation, so that the PFA skills acquired by midwives can be continuously monitored and the mental health of pregnant women can be monitored regularly. Second, it is also important to expand the training target, not only for midwives but also for other health workers and community cadres, in order to create a more comprehensive support ecosystem. Third, scientific evidence needs to be strengthened through quasi-experimental designs with control groups to test in greater depth the effectiveness of psychoeducation and digital innovation on improving maternal mental health. Fourth, cross-sector collaboration with local governments and relevant stakeholders is essential to ensure the sustainability of the program, while strengthening the integration of maternal mental health services into the existing health care system.

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