

Enhancing Maternal Mental Health Knowledge through Hypnocomfort Pregnancy Multimodal Psychoeducation Media

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ABSTRACT

Educational technology plays an important role in increasing access to information, promoting health awareness, and supporting interactive community learning on health issues. The multimodal psychoeducation approach allows the delivery of information through various channels (audio, visual, digital text), which can increase information absorption and emotional engagement. Maternal mental health is a crucial aspect that affects the well-being of both the mother and the fetus during pregnancy. This study aims to evaluate the impact of using multimodal psychoeducational media, specifically hypnocomfort pregnancy, to enhance maternal mental health knowledge in managing anxiety during pregnancy. The research employs a quasi-experimental design with a pre-test and post-test with a control group design. The sample consists of 20 pregnant women. The intervention group receives training using hypnocomfort pregnancy multimodal psychoeducational media. The results indicate that the intervention group experienced a higher maternal mental health knowledge increase than the control group. The T-test results show a significant P-value (0.000), indicating that the use of hypnocomfort pregnancy multimodal psychoeducational media has a significant effect on improving maternal mental health knowledge. It can be concluded that the development and application of hypnocomfort pregnancy multimodal psychoeducational media is effective in enhancing maternal mental health knowledge. This study supports the use of multimodal media in maternal mental health care and recommends integrating similar methods into pregnancy support programs. In addition, broader contributions include the development of psychoeducational methods that can be implemented in health education with the potential to improve the knowledge and management of community mental education.

Keywords: Pregnant Women Education, Psychoeducation, Education Media, Mental Health Knowledge



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1. INTRODUCTION

Education is fundamental in shaping high-quality individuals and fostering a forward-thinking society. Through education, individuals acquire knowledge and the skills (Haleem et al., 2022) to think critically, make sound decisions (Seibert, 2021), and navigate life's challenges more confidently (Sokhanvar et al., 2021). It creates opportunities to enhance economic prosperity, health, and overall well-being. Hence, investing in education is not merely about securing the future of individuals but also driving national advancement.

Community education can be maximized through the use of digital-based learning media. Digital technology provides access to diverse, flexible, and interactive educational resources, enabling individuals

from various backgrounds to learn anytime and anywhere (Alam & Mohanty, 2023; Alenezi et al., 2023; Garlinska et al., 2023). Tools like learning apps, online courses, and educational video platforms are crucial bridges to enhance literacy, skills, and public awareness. For example, research by Zamiri & Esmaeili (2024), who selected 217 studies, showed the role of methods and technologies education in enhancing knowledge exchange within learning communities. Research by Sugito (2022) shows that education significantly influences 30 respondents regarding public awareness of early disease detection.

Digital education media offers opportunities for individuals to learn based on their needs and interests. According to Crompton & Burke (2023), this technology-driven approach provides relevant and up-to-date materials, enabling learners to stay in tune with current developments. It also supports community-based learning through online discussions and collaboration on digital platforms, enhancing social connections while promoting a culture of collective learning. According to Basri et al. (2023), by leveraging digital education media, individuals acquire knowledge and essential digital skills required in the modern era. Thus, integrating digital media into community education is a strategic move to cultivate an intelligent, innovative society prepared to address global challenges.

Education plays a crucial role, particularly for pregnant women. Knowledge about pregnancy health, proper nutrition, and prenatal care enables mothers to safeguard their well-being and that of their fetus. Educated pregnant women are more equipped to identify signs of pregnancy complications and promptly seek medical assistance, thereby lowering maternal and infant mortality rates (Gesese et al., 2023). Furthermore, according to Erdemir (2022), education helps mothers comprehend the significance of affection and early stimulation for a child's development. With sufficient knowledge, pregnant women can prepare future generations to be healthy, intelligent, and resilient. Thus, ensuring access to education for pregnant women is a strategic effort to build a healthier, higher-quality society.

Integrating digital technology into education for pregnant women is essential because it allows them to access relevant and reliable information about pregnancy, health, and prenatal care easily and flexibly. Research by Kaaya et al. (2021) using interviews with 168 pregnant women shows that most women search for information using mobile technology. Using applications, educational videos, or online platforms, pregnant women can learn anytime and anywhere, even in remote areas. Technology also provides interactive tools such as online consultations with health workers (Mbunge et al., 2022) to share experiences, helping them feel more connected and supported. In addition, interactive digital-based materials can strengthen pregnant women's understanding of the importance of nutrition, healthy lifestyles, and signs of pregnancy complications, which directly impact the well-being of mothers and babies. Therefore, digital technology is an effective solution to improve the quality of education for pregnant women and encourage the creation of a healthy and quality next generation.

Psychoeducation plays a crucial role in the education of pregnant women as it helps them understand and cope with the emotional and psychological changes experienced during pregnancy. According to Diotaiuti et al. (2022) and Aydın Özkan et al. (2024), through psychoeducation, pregnant women can learn how to manage stress, anxiety, and mood swings, allowing them to feel more mentally prepared for the journey of pregnancy and childbirth. Additionally, psychoeducation aids mothers in developing practical communication skills with their partners and families, fostering a supportive environment for mental and physical health (Obeagu et al., 2024). By recognizing the importance of emotional connections during pregnancy, mothers can also provide optimal early stimulation for fetal development. Psychoeducation offers a solid psychological foundation for pregnant women, enabling them to approach pregnancy with greater confidence and prepare to be responsive and loving parents.

Mental health education plays a crucial role in raising public awareness about the importance of maintaining mental health, reducing stigma, and providing support for individuals with mental disorders. The growing focus on mental health education reflects an increased awareness of the need for psychological literacy within communities. This educational initiative aims to minimize stigma, enhance individuals' ability to identify mental health symptoms and promote effective coping strategies (Onnela et al., 2021). Through multidisciplinary collaboration, mental health education is essential in fostering a more inclusive society and supporting psychological well-being. In today's world, mental health education is a key aspect of supporting individual well-being, including that of pregnant women. According to research by Dong et al. (2021), of the 156 pregnant women, only 37 mothers experienced mild depression. Pregnant women may experience symptoms of depression, such as excessive anxiety, loss of interest, and sleep disturbances. However, they may not realize that these symptoms require medical attention due to the lack of mental health education during pregnancy.

Pregnancy is a significant transitional period in a woman's life, involving extensive physical and emotional changes (Traylor et al., 2020). During this time, many pregnant women experience anxiety related to various aspects of pregnancy, including labor, baby health, and the responsibilities of becoming a new mother (Jannah & Selvarajh, 2024; Rhodes et al., 2020). This anxiety often arises from concerns about personal health and fetal development, as well as uncertainty about the labor process and changes in daily life (Kinser et al., 2021). Hormonal changes, weight gain, and physical discomfort during pregnancy often add to the emotional burden and increase maternal anxiety (Bandeira & Wagner, 2023).

Maternal mental health is a crucial aspect of prenatal care, given its significant impact on the well-being of both the mother and the fetus. During pregnancy, women frequently face various physical, hormonal, and emotional changes that can cause or exacerbate anxiety. Anxiety during pregnancy is a common issue, with prevalence varying between 15% and 23% across different populations (Kajdy et al., 2020). This anxiety can be triggered by various factors such as concerns about fetal health, changes in social roles, or uncertainties about the future.

Key factors contributing to anxiety during pregnancy include uncertainty about the labor process, concerns about the baby's health, and social and psychological changes experienced by pregnant women. Uncertainty about the duration and intensity of labor, as well as potential complications, can lead to significant stress (Badakhsh et al., 2020; Brooks et al., 2020). Additionally, worries about potential health issues or complications with the baby are major sources of anxiety (Wallace & Araji, 2020). Changes in social roles and interpersonal relationships, including family expectations and relationships with partners, can also contribute to emotional strain (Alves et al., 2021).

The impact of anxiety during pregnancy can significantly affect the mother's physical and psychological health. High anxiety levels are often associated with physical health problems such as hypertension and preterm labor, and can exacerbate conditions like nausea and vomiting (Bandeira & Wagner, 2023). Psychologically, anxiety can increase the risk of mental disorders such as depression and sleep disturbances, negatively affecting the quality of life and the mother's ability to adapt to the new role of being a mother (Baglioni et al., 2022; Molgora & Accordini, 2020). Therefore, managing anxiety through psychoeducational interventions, social support, and cognitive-behavioral therapy is crucial to improving maternal well-being and reducing negative impacts on physical and psychological.

To address this issue, effective management strategies are essential. One proven strategy is the use of multimodal psychoeducational media. Multimodal psychoeducational media is designed to provide structured information on anxiety management and mental health during pregnancy (Bao et al., 2024). This media not only offers knowledge about the psychological changes occurring during pregnancy but also provides practical coping strategies for managing anxiety.

Enhancing pregnant women's knowledge about mental health and anxiety through multimodal psychoeducational media can help them better understand and manage stress. Previous research indicates that effective psychoeducational programs can improve maternal knowledge about anxiety management and lead to positive behavioral changes, such as the adoption of relaxation techniques and improved coping skills. Psychoeducational media interventions are often used for health research. For example, Research by Shaygan et al. (2021) and Fuente (2021) used psychoeducational media for Covid-19 patients. Research by Ghanbari et al. (2021) used psychoeducational media for women with breast cancer. Research by Wang et al. (2022) used multimodal psychoeducational media intervention for acute leukaemia patients. Unlike these studies, the novelty of this study is that it used multimodal psychoeducational media intervention for pregnant women.

This study aims to evaluate the impact of using multimodal psychoeducational media on maternal mental health knowledge in managing anxiety during pregnancy. By understanding the effects of this intervention, it is hoped that more effective methods for supporting maternal mental health and improving the overall pregnancy experience can be identified.

2. METHOD

This study is a quantitative quasi-experimental research with a pre-post test and a control group design. The population of pregnant women at Griya Terapi Holistic Ungaran, Indonesia, when the researcher conducted the study in July 2024, was 20 women. Based on the population, the researcher used a total sample technique of 20 respondents. The study used inclusion and exclusion as sample criteria. First, the inclusion criteria are: 1) Trimester of pregnancy. All respondents in the pregnancy trimester (either the first, second, or third trimester) become respondents in this study. 2) Low mental health knowledge. Respondents who have low knowledge of mental health become research respondents. The level of low knowledge is measured through the knowledge test used in the study. Second, the exclusion criteria are 1) Not in the trimester of pregnancy. Respondents who are not in the trimester of pregnancy are not eligible for this study, such as women who are not pregnant or pregnant outside the specified trimester. 2) High mental health knowledge. Respondents with high or excellent mental health knowledge are excluded from this study because the study aims to assess respondents with low knowledge. 3) Pregnancy disorders or medical complications. Respondents who experienced serious complications or medical disorders that could affect their mental health or pregnancy conditions were excluded from this study. 4) Pregnancy with high-risk factors. Pregnant women with high-risk factors (e.g., preeclampsia, severe gestational diabetes) were excluded from this study.

Data analysis includes univariate analysis with frequency distribution and bivariate analysis using T-test. Data processing was conducted using SPSS version 26. The following are the steps of the intervention using Hypnocomfort Pregnancy Multimodal Psychoeducation Media. In the first step, respondents

explained the purpose of the intervention, which is to improve knowledge of mental health during pregnancy and reduce anxiety. Introduce hypnocomfort pregnancy as a multimodal media tool used in this training, including features such as audio, video, and digital-based interactive materials that will be used. The second step is conducting a pre-test. Before starting the intervention, participants took an initial knowledge test regarding mental health during pregnancy and stress management techniques.

In the third step, researchers provided educational materials through multimodal media. Respondents attended a training session using hypnocomfort pregnancy, which consisted of several digital-based materials. Educational videos explaining the importance of mental health during pregnancy, the impact of anxiety, and stress management techniques. Relaxation audio and hypnotherapy-based relaxation techniques to help reduce anxiety and stress. Digital-based interactive materials and digital modules that teach breathing techniques, mindfulness, and anxiety management strategies. The fourth step is relaxation practice and stress management techniques. Respondents were invited to practice relaxation techniques taught in the session, such as deep breathing and visualization techniques, to reduce stress and anxiety. Focus on integrating these methods into everyday life to help manage stress during pregnancy. The fifth step is discussion and reflection. Discussion session to explore participants' experiences during the training using the media. Participants were invited to reflect and share their feelings after the education and relaxation session. The sixth step is conducting a post-test. After the intervention session, participants took another test to assess changes in their knowledge of mental health during pregnancy and the anxiety they felt. Changes in maternal mental health knowledge levels were compared with the initial assessment (pre-test) results to measure the intervention's effectiveness.

3. RESULTS AND DISCUSSION

3.1. Result

Table 1. Characteristics of Research Respondents

No.	Demography	Frequency	Percentage
1.	Age		
	< 17 Years old	0	0
	18 - 34 Years old	4	20
	> 35 Years old	16	80
	Total	20	100
2.	Gestational		
	1st trimester	1	5
	2nd trimester	3	15
	3rd trimester	16	80
	Total	20	100
3.	Education Level		
	Junior High School	4	20
	Senior High School	13	65
	University	3	15
	Total	20	100
4.	Employment		
	Not Working	13	65
	Working	7	35
	Total	20	100

Table 1 result Majority of the respondents are over 35 years old, comprising 80% of the total sample, with only 20% aged between 18 and 34 years. There are no respondents under 17 years. Most of the respondents are in their third trimester of pregnancy (80%), followed by 15% in the second trimester, and only 5% in the first trimester. Regarding education, 65% of the respondents have completed their education at the senior high school level, 20% have finished junior high school, and 15% are university graduates. Concerning employment status, 65% of the respondents are not working, while 35% are employed.

Table 2. Distribution Knowledge Test Score Intervention Group (N=10)

Respondents	Before		After		Difference	
	Score	Category	Score	Category	Score	Category
P1	20	Low	60	High	40	Moderate
P2	20	Low	62	High	42	Moderate
P3	19	Low	65	High	46	Moderate
P4	38	Moderate	79	High	41	Moderate
P5	25	Low	70	High	45	Moderate
P6	26	Low	60	High	34	Moderate

P7	42	Moderate	80	Very High	38	Moderate
P8	24	Low	60	High	36	Moderate
P9	39	Moderate	80	Very High	41	Moderate
P10	19	Low	70	High	51	Moderate

Table 2 result Based on the analysis, it can be concluded that there was a significant change in the respondents' knowledge levels after the intervention. Before the intervention, the majority of respondents were in the "Low" category (60%), with a few in the "Adequate" category (20%). After the intervention, most respondents were in the "Adequate" category (70%) and a small proportion were in the "High" category (30%). No respondents were in the "Very Low" or "Very High" categories after the intervention, indicating an overall improvement in knowledge and a positive effect of the intervention provided.

Table 3. Frequency Distribution Knowledge Test Score Control Group (N=10)

Respondents	Before		After		Difference	
	Score	Category	Score	Category	Score	Category
K1	24	Low	40	Moderate	16	Moderate
K2	26	Low	58	Moderate	32	Moderate
K3	39	Moderate	57	Moderate	18	Moderate
K4	41	Moderate	60	High	19	Moderate
K5	20	Low	43	Moderate	23	Moderate
K6	26	Low	45	Moderate	19	Moderate
K7	28	Low	30	Low	2	Low
K8	24	Low	40	Moderate	16	Moderate
K9	40	Moderate	40	Moderate	0	Moderate
K10	21	Low	45	Moderate	24	Moderate

Table 3 result Based on the analysis, it can be seen that the majority of respondents demonstrated an increase in their knowledge after the intervention. Before the intervention, most respondents were in the "Low" category (70%), with a few in the "Adequate" category (30%). After the intervention, the distribution of knowledge changed significantly, with 80% of respondents in the "Adequate" category and 10% in the "High" category. No respondents were in the "Very Low" category after the intervention, indicating an improvement in their level of knowledge.

Table 4. Results of the Test for Differences in Knowledge Levels Before and After Intervention

Treatment	Mean		P-value
	Intervention	Control	
Before	27.20	28.90	0.661
After	68.60	45.80	0.000
Difference	41.40	16.90	0.000

Table 4 The results of the test for differences in knowledge levels before and after the intervention show that the average knowledge of respondents who received the intervention increased from 27.20 before the intervention to 68.60 after the intervention, with a p-value of 0.000, indicating a significant difference. In contrast, the control group only experienced an increase from 28.90 to 45.80, with a p-value of 0.000 for the difference between the intervention and control groups, demonstrating that the intervention had a significant effect in improving knowledge compared to the control group. The difference in average knowledge between the intervention and control groups is 41.40, indicating that the intervention effectively enhanced knowledge more than the no-intervention condition.

3.2. Discussion

Mental health education is essential to pregnancy care that can impact maternal and fetal well-being. According to the World Health Organization (2022), adequate knowledge about mental health during pregnancy helps mothers understand the changes occurring and how to manage them. Supported by Madden et al. (2022) and Çankaya & Şimşek (2021) states that with increased understanding, pregnant women can reduce their anxiety levels, manage stress, and take proactive steps to maintain their mental well-being.

Psychoeducation refers to the process of providing information and skills to individuals to enhance their understanding of mental health and help them manage their conditions more effectively. In the context of pregnancy, psychoeducation is crucial as it can reduce anxiety, stress, and the risk of other mental disorders that pregnant women may face (Alshammari et al., 2024; Yuen et al., 2022). Hypnocomfort pregnancy multimodal psychoeducation media are designed to provide structured and practical information

on various aspects of mental health during pregnancy, including stress management techniques, identification of mental health symptoms, and strategies to support emotional well-being.

3.2.1. Digital Books as Multimodal Psychoeducation Media

Psychoeducational digital books function as a multimodal medium by combining text with visual elements, such as images, diagrams, and tables, to present mental health information comprehensively (Seiferth et al., 2023). These digital books typically offer educational material in an easily understandable format, making it simpler for pregnant women to access and comprehend relevant information. Visual elements in psychoeducational digital books can clarify and enrich understanding, such as through illustrations of relaxation techniques or graphs explaining the impact of stress on health.

Practical psychoeducational digital books can significantly enhance pregnant women's knowledge about mental health. Supported by Shaygan et al. (2021), patients using psychoeducational digital books demonstrate improved understanding of stress management techniques and ways to maintain their mental health. These books often include information on signs of anxiety and depression, as well as practical strategies for addressing these issues, such as breathing techniques, meditation, and daily routine management. With detailed and practical information, pregnant women can learn effective ways to manage anxiety and improve their mental well-being.

Psychoeducational digital books not only provide information but also serve as psychological support tools. By equipping pregnant women with knowledge and skills to manage stress, these books can help them feel more confident and oriented during pregnancy. The use of psychoeducational digital books can facilitate positive behavioral changes, such as the adoption of relaxation techniques and the development of healthier coping strategies (Perry et al., 2021). As a result, pregnant women may experience reduced anxiety levels and improved emotional well-being.

Learning media serve as crucial tools for educating and informing pregnant women about various aspects of pregnancy, including mental health, stress management, and prenatal care. Digital books, as a form of learning media, offer advantages in terms of accessibility, information structure, and the ability to provide detailed and continuous content (Haleem et al., 2022). Previous research by Wallace & Araj (2020) indicates that using digital learning media tools in maternal patient education can significantly impact the enhancement of pregnant women's knowledge.

According to prior studies, psychoeducational digital books have proven effective in improving pregnant women's knowledge. For instance, Lau et al. (2021) found that pregnant women who read well-designed psychoeducational books experienced significant increases in their understanding of prenatal care and stress management techniques. Research by Perry et al. (2021) found that psychoeducational digital books are a suitable digital tool for postpartum women to understand and cope with the new period after pregnancy in a resilient manner. This indicates that well-structured educational materials can provide valuable insights and practical advice, contributing to better informed and prepared mothers.

Using infographics in health education materials helps pregnant women visualize and comprehend information about prenatal nutrition and stress management more effectively. Infographics simplify complex information, making it easier to digest and remember. Additionally, pregnant women who read psychoeducational books about mental health experience improvements in their understanding of coping techniques and stress management. This contributes to reduced anxiety and improved emotional well-being during pregnancy.

By integrating theoretical and practical information, psychoeducational digital books enable pregnant women to apply the knowledge gained in their daily lives. These books provide a comprehensive approach to managing stress and maintaining mental health, making it possible for pregnant women to incorporate effective strategies into their routines. The impact of psychoeducational digital books on both knowledge enhancement and behavioral change underscores their value as a resource for supporting maternal health and well-being.

3.2.2. Educational Online Videos as Multimodal Psychoeducation Media

Multimodal psychoeducation, which integrates various forms of communication such as visuals, text, and audio, is an effective method for improving health-related knowledge. As a form of multimodal media, online videos offer significant potential for educating pregnant women. Online videos can incorporate video animations, expert interviews, and culturally tailored content to address specific maternal health topics. Waang (2023) and Monib et al. (2024) suggests multimedia learning strategies enhance comprehension and knowledge retention by simplifying complex concepts into accessible formats.

The accessibility of online videos is another key advantage, particularly for pregnant women in rural or underserved areas who may have limited access to traditional health education. Unlike in-person sessions, online videos are available on demand, allowing users to learn at their own pace and revisit the material when necessary. Research by Whitworth et al. (2024) with inclusion criteria from 12 studies indicates that tailored educational videos improve pregnant women's understanding of prenatal care and foster self-efficacy, ultimately improving health outcomes. Topics such as nutrition, mental health, and

delivery preparation can be effectively covered, empowering women to make informed decisions about their care.

Maximizing education through online educational videos requires good design, such as keeping content concise, using clear and engaging visuals, and incorporating interactive elements (Weinert et al., 2024). Furthermore, adapting the content to reflect the cultural and social contexts of the target audience can enhance its relevance and effectiveness (Nicolaou, 2021). Continuous evaluation and feedback from users are essential for refining the material to meet their needs. As a versatile and accessible tool, educational videos promise to enhance psychoeducation and improve maternal health outcomes.

4. CONCLUSION

Psychoeducational digital books as multimodal media play a crucial role in supporting the mental health of pregnant women by providing structured and practical information on stress management and emotional well-being. By combining text with visual elements, these books enhance pregnant women's understanding and skills in managing anxiety and stress. The use of psychoeducational digital books can lead to increased knowledge, positive behavioral changes, and the psychological support needed to maintain the well-being of both mother and fetus. Therefore, psychoeducational digital books should be considered an essential tool in strategies for mental health care during pregnancy.

Online video, as a form of multimodal media, has excellent potential to educate pregnant women in an engaging and accessible way. Online videos can easily combine video animations, expert advice, and content tailored to maternal health topics effectively. This dynamic approach allows for presenting complex medical concepts in a simplified and visually appealing format, enhancing comprehension and retention. In addition, online videos can be easily distributed through digital platforms, thus having a broad reach and accessibility. By catering to diverse learning preferences and cultural contexts, online videos are a powerful tool to empower pregnant women with the knowledge needed for healthier pregnancies and better maternal health outcomes.

The implementation of hypnocomfort pregnancy multimodal psychoeducational media has proven effective in improving knowledge about maternal mental health. This research contributes to the use of multimodal media in maternal mental health care and encourages incorporating similar approaches into pregnancy support programs. Moreover, it offers broader contributions by advancing psychoeducational methods that can be applied in health education, with the potential to enhance community awareness and management of mental health education. The limitation of this study is the small number of pregnant women respondents, so further research with more extensive and more diverse samples or using various approaches to measure the long-term effectiveness of this psychoeducational digital media. It will strengthen the position of the study and contribute to the development of this field.

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