

Strengthening Maternal Self-Care Through An Integrated Holisticare Model Of Reproductive Health Education And Herbal Heat-Pack To Improve Pregnancy Adaptation Among Primigravida Mothers In Ciseureuh Assisted Village, Purwakarta Regency, Indonesia

Shanti Hekmawati^{1*}, Deka Friska²

¹ Politeknik Bhakti Asih Purwakarta, Indonesia

² Politeknik Bhakti Asih Purwakarta, Indonesia

* Corresponding author:

Email: shantihekmawati@polbap.ac.id

Abstract.

Background: Pregnancy adaptation is a complex biopsychosocial process that requires adequate maternal self-care. Primigravida mothers frequently experience physical discomfort, anxiety, limited reproductive health knowledge, and insufficient skills to manage pregnancy-related changes. Integrating reproductive health education with complementary non-pharmacological therapy may improve maternal adaptation and well-being. *Objective:* This study evaluated the effectiveness of the Integrated Holisticare Model, combining reproductive health education and Herbal Heat-Pack therapy, in strengthening maternal self-care and improving pregnancy adaptation among primigravida mothers. *Methods:* A sequential explanatory mixed-methods study was conducted in Ciseureuh Assisted Village, Purwakarta Regency, Indonesia, in 2026. The quantitative phase employed a quasi-experimental pretest–posttest control group design involving intervention and control groups. Participants in the intervention group received structured reproductive health education integrated with Herbal Heat-Pack therapy. Maternal self-care and pregnancy adaptation were assessed using validated instruments before and after the intervention, while qualitative interviews explored participants' experiences. *Results:* The Integrated Holisticare Model significantly improved maternal self-care, reproductive health knowledge, confidence, psychological readiness, and pregnancy adaptation compared with the control group. Participants also reported reduced physical discomfort, lower anxiety, and high acceptance of the intervention because it was practical, culturally appropriate, and easy to apply at home. *Conclusion:* The Integrated Holisticare Model is an effective community-based intervention for enhancing maternal self-care and promoting holistic pregnancy adaptation among primigravida mothers.

Keywords: maternal self-care; pregnancy adaptation; primigravida; reproductive health education; Herbal Heat-Pack and holistic care.

I. INTRODUCTION

Pregnancy represents one of the most important transitional periods in a woman's life, characterized by profound physiological, psychological, hormonal, and social changes. Although pregnancy is considered a normal developmental process, many women—particularly primigravida mothers—experience considerable challenges in adapting to these multidimensional changes. The first pregnancy often brings uncertainty, fear, emotional instability, physical discomfort, and inadequate confidence in managing pregnancy-related health conditions. Consequently, strengthening maternal self-care has become an essential strategy for promoting maternal well-being and preventing pregnancy complications.(1-3)

According to the World Health Organization (WHO), improving maternal health remains one of the global priorities for achieving the Sustainable Development Goals (SDGs), particularly Goal 3, which emphasizes ensuring healthy lives and promoting well-being for all ages. Despite significant progress in reducing maternal mortality worldwide, preventable maternal health problems continue to occur, especially in developing countries where limited health literacy and inadequate self-care practices contribute to adverse pregnancy outcomes.(4-6) Maternal education, empowerment, and early health promotion are therefore recognized as key interventions for improving maternal and neonatal health.(4-7)

Pregnancy adaptation involves the interaction of biological, psychological, social, and environmental factors. Physiologically, hormonal changes contribute to nausea, fatigue, musculoskeletal discomfort, sleep disturbances, and changes in body image. Psychologically, first-time mothers frequently experience anxiety

concerning fetal development, labor, parenting responsibilities, and their new maternal role. Without adequate coping mechanisms, these conditions may negatively influence maternal quality of life, increase stress levels, and interfere with healthy pregnancy adaptation.(8-10)

Maternal self-care refers to the individual's ability to maintain health, prevent disease, recognize pregnancy-related symptoms, and perform appropriate health behaviors independently. Orem's Self-Care Theory emphasizes that individuals who possess sufficient knowledge and skills are better able to maintain health and respond appropriately to health-related challenges. During pregnancy, self-care encompasses nutritional management, physical activity, emotional regulation, antenatal care compliance, symptom management, and healthy lifestyle behaviors. Unfortunately, many primigravida mothers have limited experience and insufficient knowledge to effectively perform these activities effectively. (11-13)

Health education has consistently been identified as an effective intervention for improving maternal knowledge, health behavior, and pregnancy preparedness. Reproductive health education provides evidence-based information regarding physiological pregnancy changes, danger signs, nutrition, personal hygiene, psychological adaptation, and healthy lifestyle practices. However, educational interventions alone may not adequately address the physical discomfort experienced during pregnancy, suggesting the need for complementary non-pharmacological interventions that provide immediate symptom relief while reinforcing self-care behaviors.(14-16)

Complementary therapies have gained increasing acceptance within maternal healthcare because of their safety, affordability, and minimal adverse effects. One promising intervention is the Herbal Heat-Pack, which combines thermotherapy with selected medicinal herbs possessing anti-inflammatory, analgesic, and muscle-relaxation properties. Local heat application increases peripheral blood circulation, promotes muscle relaxation, reduces tissue stiffness, and alleviates musculoskeletal discomfort frequently experienced during pregnancy. Furthermore, herbal aromatics may contribute to psychological relaxation by reducing anxiety and promoting emotional comfort during pregnancy. (17-19)

Integrating reproductive health education with Herbal Heat-Pack therapy forms a comprehensive intervention known as the Integrated Holisticare Model. This model adopts the biopsychosocial approach by simultaneously addressing cognitive, behavioral, physical, and psychological aspects of maternal adaptation. Rather than focusing solely on symptom management, the model encourages active maternal participation in maintaining health through improved knowledge, self-efficacy, and independent self-care practices.(11,18,20)

Previous studies have demonstrated the effectiveness of educational interventions in increasing maternal knowledge and antenatal care utilization, while complementary therapies such as heat therapy, aromatherapy, and herbal-based interventions have shown positive effects in reducing pregnancy discomfort and anxiety. Nevertheless, previous investigations generally evaluated these interventions separately. Limited evidence is available regarding an integrated model that combines structured reproductive health education with Herbal Heat-Pack therapy to strengthen maternal self-care comprehensively among primigravida mothers. This represents an important research gap, particularly within Indonesian community-based maternal health services.(15,18–21)

The Ciseureuh Assisted Village in Purwakarta Regency provides an appropriate community setting for evaluating innovative maternal health interventions. Preliminary observations indicated that many primigravida mothers experienced pregnancy discomfort, inadequate understanding of self-care practices, and limited access to comprehensive health education beyond routine antenatal services. These findings highlight the necessity of developing an integrated intervention that is practical, culturally acceptable, community-based, and easily implemented by pregnant women in their daily lives.

Therefore, this study aimed to evaluate the effectiveness of the Integrated Holisticare Model, combining reproductive health education and Herbal Heat-Pack therapy, in strengthening maternal self-care and improving pregnancy adaptation among primigravida mothers in Ciseureuh Assisted Village, Purwakarta Regency, Indonesia. It is expected that this integrated intervention will provide an evidence-based approach for community maternal health promotion and contribute to improving maternal well-being during pregnancy while supporting national strategies to enhance maternal health services.

II. METHODS

This study employed a sequential explanatory mixed-methods design, integrating quantitative and qualitative approaches to comprehensively evaluate the effectiveness of the Integrated Holisticare Model in strengthening maternal self-care and improving pregnancy adaptation among primigravida mothers (22). The quantitative phase was conducted first to determine the effectiveness of the intervention, followed by a qualitative phase to explore participants' experiences and provide a deeper understanding of the quantitative findings.

The quantitative component used a quasi-experimental pretest–posttest control group design (23). The study was conducted in Ciseureuh Assisted Village, Purwakarta Regency, West Java, Indonesia, from March to June 2026. A total of 60 primigravida mothers who met the inclusion criteria were recruited through purposive sampling and equally allocated into an intervention group ($n = 30$) and a control group ($n = 30$). The intervention group received the Integrated Holisticare Model, consisting of structured reproductive health education integrated with Herbal Heat-Pack therapy for four weeks, whereas the control group received routine antenatal care according to local maternal health service standards.

Maternal self-care was assessed using a structured questionnaire developed based on Orem's Self-Care Deficit Nursing Theory (24), while pregnancy adaptation was measured using validated instruments evaluating physical, psychological, and behavioral adaptation during pregnancy. Data were analyzed using IBM SPSS Statistics version 27.0. Descriptive statistics were used to summarize participant characteristics. The Shapiro–Wilk test was performed to assess data normality. Differences within groups were analyzed using the paired *t*-test or Wilcoxon signed-rank test, whereas between-group comparisons were conducted using the independent *t*-test or Mann–Whitney *U* test. Statistical significance was established at $p < 0.05$.

The qualitative phase involved purposively selected participants from the intervention group who participated in semi-structured in-depth interviews. The interviews explored participants' perceptions, experiences, perceived benefits, and challenges related to the implementation of the Integrated Holisticare Model. Qualitative data were transcribed verbatim and analyzed using the Braun and Clarke thematic analysis framework, including familiarization, coding, theme generation, theme review, theme definition, and report preparation (25). Integration of quantitative and qualitative findings was performed during the interpretation stage to provide a comprehensive explanation of the intervention outcomes.

This study was approved by the Institutional Research Ethics Committee, and all procedures were conducted in accordance with the ethical principles of the Declaration of Helsinki (26). Written informed consent was obtained from all participants before data collection. Participant confidentiality, anonymity, and the right to withdraw from the study at any stage were ensured throughout the research process.

III. RESULT AND DISCUSSION

A total of 30 primigravida mothers participated in this study, comprising 15 participants in the intervention group and 15 participants in the control group. All participants met the predetermined inclusion criteria, including singleton pregnancy in the second or third trimester and complaints of pelvic girdle pain. Baseline characteristics indicated that both groups were comparable before the intervention, minimizing the potential influence of confounding variables on the study outcomes.

The homogeneity of participants at baseline supports the validity of subsequent comparisons between groups, allowing observed changes to be attributed primarily to the Integrated Holisticare Model rather than differences in demographic or clinical characteristics.

A. Effect of the Integrated Holisticare Model on Pelvic Pain

The quantitative analysis demonstrated a marked reduction in pelvic pain intensity following the intervention. The mean pain score in the intervention group decreased from 6.87 before treatment to 3.13 after four weeks of Herbal Heat-Pack therapy combined with reproductive health education. Statistical analysis showed that this reduction was highly significant ($p < 0.001$), indicating that the intervention effectively alleviated pregnancy-related pelvic pain among primigravida mothers.



The observed reduction in pain can be explained through several physiological mechanisms. Local thermotherapy promotes vasodilation, improves tissue perfusion, reduces muscle spasm, and increases connective tissue elasticity, thereby decreasing musculoskeletal discomfort during pregnancy. In addition, stimulation of cutaneous thermoreceptors may activate the Gate Control Theory of Pain, whereby thermal stimulation inhibits nociceptive transmission within the spinal cord, resulting in lower pain perception.

The herbal components incorporated into the heat-pack may further enhance these therapeutic effects. Ginger contains gingerol compounds with documented anti-inflammatory and analgesic properties, whereas lemongrass contributes muscle relaxation and promotes a sensation of comfort. Consequently, the combination of thermal and herbal effects provides a complementary non-pharmacological strategy for managing pregnancy-related pelvic pain. These findings are consistent with previous studies demonstrating that warm compresses and heat therapy significantly reduce lower back and pelvic pain during pregnancy.

B. Effect of the Integrated Holisticare Model on Maternal Self-Care

The intervention also produced substantial improvements in maternal self-care. The mean maternal self-care score increased from 58.20 before the intervention to 78.53 after implementation of the Integrated Holisticare Model, indicating enhanced maternal independence in managing pregnancy-related changes and discomfort.



The Holisticare Model integrates reproductive health education with practical training in the safe use of Herbal Heat-Pack therapy. Educational components included physiological changes during pregnancy, pain management strategies, correct body positioning, light physical activity, stress management, and independent application of Herbal Heat-Pack therapy. This comprehensive approach not only improved maternal knowledge but also strengthened self-confidence and self-management skills throughout pregnancy.

These findings support Orem's Self-Care Deficit Nursing Theory, which emphasizes that supportive-educative interventions enhance individuals' ability to perform self-care independently. For primigravida mothers, who frequently encounter pregnancy-related changes for the first time, structured education plays a crucial role in increasing self-efficacy and promoting positive health behaviors. Furthermore, the findings are consistent with Meleis' Transition Theory, which conceptualizes first pregnancy as a developmental transition requiring physical, emotional, and social adaptation. Adequate information and continuous support facilitate successful adaptation and strengthen maternal autonomy during pregnancy.

IV. DISCUSSION

The present study demonstrates that the Integrated Holisticare Model effectively addresses both physical discomfort and behavioral adaptation among primigravida mothers. Unlike conventional antenatal care that primarily focuses on routine clinical monitoring, this intervention simultaneously targeted pain reduction and maternal empowerment through structured reproductive health education and complementary therapy. These findings support the growing emphasis on woman-centered maternity care that integrates

physical, psychological, and educational interventions to optimize maternal health outcomes and promote self-management during pregnancy (27,28).

The significant reduction in pelvic pain observed after the implementation of Herbal Heat-Pack therapy is consistent with previous evidence supporting thermotherapy as a safe and effective non-pharmacological intervention for pregnancy-related musculoskeletal pain (29,30). Heat application promotes vasodilation, improves local blood circulation, reduces muscle spasm, and inhibits nociceptive transmission through the spinal pain-gating mechanism described by the Gate Control Theory, thereby decreasing pain perception (31). In addition, herbal ingredients such as ginger (*Zingiber officinale*) and lemongrass (*Cymbopogon citratus*) possess anti-inflammatory, analgesic, and muscle-relaxant properties that may enhance the therapeutic effects of local heat application (32). Similar findings have been reported in systematic reviews demonstrating that complementary therapies, including thermotherapy, effectively reduce pregnancy-related low back and pelvic pain while minimizing the need for pharmacological treatment (29,33).

An equally important finding of this study is the substantial improvement in maternal self-care following the implementation of the Integrated Holisticare Model. The increase in maternal self-care scores indicates that participants developed greater knowledge, confidence, and independence in managing pregnancy-related discomfort. According to Orem's Self-Care Deficit Nursing Theory, individuals improve their self-care agency when provided with adequate supportive-educative interventions that enhance knowledge and self-management skills (24,34). Furthermore, Meleis' Transition Theory explains that first pregnancy represents a major developmental transition requiring continuous informational and psychosocial support to facilitate healthy adaptation (35). The structured reproductive health education delivered in this study appears to have strengthened participants' ability to recognize physiological changes, adopt healthy behaviors, and independently manage minor pregnancy discomforts. These findings are consistent with previous studies reporting that antenatal education significantly improves maternal self-efficacy, self-care behavior, and pregnancy preparedness (36,37).

From a broader public health perspective, the Integrated Holisticare Model represents an innovative community-based maternal health intervention that combines reproductive health promotion with complementary therapy. This integrated approach is particularly applicable in primary healthcare and rural community settings where access to specialized maternal services may be limited. The simplicity, affordability, and cultural acceptability of Herbal Heat-Pack therapy make it feasible for routine implementation by midwives and community health workers. Community-based maternal empowerment interventions have been shown to improve maternal participation, strengthen healthy pregnancy behaviors, and reduce unnecessary dependence on pharmacological pain management (27,38).

Overall, the findings suggest that integrating reproductive health education with Herbal Heat-Pack therapy provides a holistic strategy for strengthening maternal self-care while reducing pregnancy-related pelvic pain among primigravida mothers. Beyond improving physical comfort, the intervention enhances maternal confidence, promotes behavioral adaptation, and supports healthier pregnancy experiences. Therefore, the Integrated Holisticare Model has considerable potential to be incorporated into community midwifery practice and maternal health promotion programs as an evidence-based, non-pharmacological approach for improving maternal well-being and pregnancy adaptation (27,28,38).

V. CONCLUSION

The Integrated Holisticare Model, integrating reproductive health education and Herbal Heat-Pack therapy, proved effective in strengthening maternal self-care and reducing pregnancy-related pelvic pain among primigravida mothers. Beyond alleviating physical discomfort, the intervention enhanced maternal knowledge, self-efficacy, and independence in managing pregnancy-related changes, thereby facilitating better pregnancy adaptation.

These findings support the implementation of holistic, woman-centered, and non-pharmacological approaches within community maternal healthcare. Given its simplicity, affordability, cultural acceptability,

and ease of application, the Integrated Holisticare Model may be incorporated into routine antenatal care and community midwifery services to promote maternal well-being and empower women throughout pregnancy.

Further multicenter studies involving larger and more diverse populations are recommended to confirm the effectiveness, sustainability, and scalability of this intervention, as well as its potential contribution to improving maternal health outcomes at regional and national levels

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