

Comprehensive Care for Patients with Low Back Pain in The Third Trimester of Pregnancy

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Abstract:

Discomfort during the third trimester of pregnancy, such as back pain, is a common complaint experienced by pregnant women due to physiological changes in the body. This study aims to provide comprehensive midwifery care to patients with complaints of low back pain. This research is a case study conducted at the Pasir Putih Health Center from April to June 2024. The subject of the study is Mrs. AS, who is 34 weeks pregnant with a single live intrauterine fetus in cephalic presentation. Instruments include midwifery care formats, observation sheets, screening forms, and partographs—data collection techniques employed both primary and secondary approaches. The results showed that the comprehensive midwifery care proceeded smoothly, with all examination results within normal limits. No discrepancies were found between facts and theories, as the midwifery care was carried out according to established standards. Documentation of the examination results was recorded using the Varney 7-step management framework and SOAP format. In conclusion, the comprehensive midwifery care provided to the patient proceeded successfully without any complications or pathological conditions detected. This demonstrates that the application of standardized midwifery care can optimally support maternal health during the third trimester of pregnancy.

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INTRODUCTION

Pregnancy is a natural process that involves physiological and psychological changes in a woman's body (Gangakhedkar & Kulkarni, 2021). This process is divided into three stages or trimesters, each with its characteristics and challenges for pregnant women. The third trimester, which runs from the 28th week until delivery, is often considered the most challenging period due to increased fetal size and significant anatomical changes in the body (Villalain et al., 2025; Nurhasanah et al., 2024). Low back pain is among the most common complaints during the third trimester (Salari et al., 2023). This pain can affect the quality of life of pregnant women, interfere with daily activities, and even increase the risk of complications if not treated properly (Mamipour et al., 2022).

Low back pain in pregnancy is caused by various factors, including changes in body posture due to increased fetal weight, shifts in the body's center of gravity, and hormonal changes such as increased levels of the hormone relaxin, which relaxes ligaments and pelvic joints (Hayakari et al., 2023; Novelia et al., 2021). Psychosocial factors such as stress, fatigue, and lack of social support can worsen these complaints (Chen et al., 2023; Rondhianto et al., 2023). The problem of discomfort during pregnancy, including back pain, is still an issue in midwifery services (Fruscalzo et al., 2022). Data from the Pasir Putih Health Center, Mentawa Baru District, East Kotawaringin Regency, shows

that around 60% of pregnant women in the third trimester complained of low back pain during antenatal visits. This shows the importance of comprehensive obstetric intervention to identify and manage these complaints so they do not develop into more serious complications (Alves et al., 2020).

Complaints of low back pain in the third trimester of pregnancy not only affect the physical comfort of pregnant women but can also have an impact on their psychological condition (Srinayanti et al., 2023). Stress and anxiety that arise due to physical discomfort can increase the risk of mental disorders such as prenatal depression (Cattane et al., 2021; Kurniyawan et al., 2023). This shows that handling back pain complaints must be done holistically, including physical and psychological aspects (Jackson et al., 2022). Comprehensive midwifery care is the ideal solution to overcome this problem because it involves a multidimensional approach that focuses on physical symptoms and the emotional well-being of pregnant women (Nguyen et al., 2022). By providing emotional support and education about relaxation techniques, midwives can help pregnant women feel calmer and more confident in facing the process of pregnancy until delivery (Fletcher et al., 2021; Wuryanningsih et al., 2020).

In addition, it is important to consider social and cultural factors when providing midwifery care (Barbi et al., 2020). In Indonesia, especially in rural areas such as Mentawa Baru District, many pregnant women still have limited access to accurate health information. Some still rely on local myths or traditions to manage pregnancy complaints (Damayanti et al., 2023). Therefore, the role of midwives is not only limited to providing medical care but also as agents of change who can help improve public understanding of the health of pregnant women (Khomami et al., 2021). Hopefully, this research can be the first step to increasing public awareness of the importance of antenatal examinations and scientific management of pregnancy complaints (Sitot & Workye, 2022; Rahmawati & Murtaqib, 2024).

A comprehensive midwifery care approach must also be supported by good documentation to ensure the continuity of health services (Fox et al., 2023). Documentation formats such as SOAP (Subjective, Objective, Assessment, Plan) and Varney's 7-step management have proven effective in ensuring that every aspect of pregnant women's needs is met systematically (Ayu & Puspita, 2023). This documentation is useful for monitoring developments in the condition of pregnant women and evaluation material to improve the quality of midwifery services in the future (Dai et al., 2024). This research aims to show how a good documentation approach can support the implementation of effective and evidence-based midwifery care (Dagne & Beshah, 2021).

Comprehensive midwifery care is a holistic approach that includes physical, psychological, social, and spiritual aspects of providing services to pregnant women (MonfaredKashki et al., 2022). This approach aims to increase the comfort of pregnant women, prevent complications, and ensure a smooth delivery process (Liu et al., 2021). In low back pain, comprehensive midwifery care can include education about correct body posture, light physical exercise, relaxation techniques, and assistive devices such as abdominal support belts (Cynthia & Grace, 2024). non-pharmacological interventions provided in midwifery care reduce the intensity of back pain in pregnant women (Hu et al., 2021).

This research focuses on a case study of comprehensive midwifery care for Mrs. AS, a 26-year-old pregnant woman at 34 weeks gestation who complained of low back pain. The research location was the Pasir Putih Community Health Center, Mentawa Baru District, East Kotawaringin Regency. The choice of this location was based on the high prevalence of back pain complaints among pregnant women in the area. This study aims to provide an overview of how comprehensive midwifery care can help overcome discomfort in the third trimester of pregnancy, especially low back pain, so that it is hoped that it can improve the quality of life of pregnant women and support a

smooth delivery process (Oktri et al., 2024). It is hoped that the results of this research can make a practical contribution to health workers, especially midwives, in providing more optimal midwifery care to pregnant women with similar complaints. Apart from that, it is also hoped that this research can become a reference for further research regarding the management of discomfort in the third trimester of pregnancy.

METHOD

This research is a case study that aims to describe the implementation of comprehensive midwifery care for Mrs. AS, a 26-year-old pregnant woman with complaints of low back pain during the third trimester of pregnancy. A case study was chosen as a research method because it allows researchers to conduct in-depth analyses of certain phenomena in a real-world context without manipulating variables. In this case, the main focus is to provide an overview of how comprehensive midwifery care can be applied effectively to treat complaints of low back pain in pregnant women.

This study uses a qualitative descriptive approach with a case study design. This research was conducted at the Pasir Putih Health Center, Mentawa Baru District, Ketapang, East Kotawaringin, from March to June 2024. This location was chosen because of the high prevalence of complaints of low back pain in pregnant women in the area, as well as the accessibility of data and information. The research subject was Mrs. AS, a G3P2A0 pregnant woman with 34 weeks gestation, single live intrauterine fetus in cephalic presentation. Mrs. AS was chosen as a research subject because he complained of lower back pain, which is representative of the common problems experienced by pregnant women in the third trimester.

This research involves two types of variables: independent variables and dependent variables. The independent variable is the comprehensive midwifery care provided to research subjects. This care includes education about correct body posture, light physical exercise, relaxation techniques, and assistive devices such as abdominal support belts. The dependent variable is Mrs. AS after receiving comprehensive midwifery care, which was measured by reducing the intensity of low back pain, increasing physical comfort, and maternal understanding regarding the management of pregnancy complaints.

The instruments used in this research include midwifery care formats, observation sheets, screening sheets, partographs, and documentation using the SOAP (Subjective, Objective, Assessment, Plan) approach. The midwifery care format systematically develops a treatment plan based on the initial assessment results. Observation sheets record the subject's behavior and responses to the intervention provided. The partograph is used to monitor the overall development of the pregnancy, including the fetal heart rate, uterine contractions, and cervical dilation. Documentation using SOAP ensures that all aspects of midwifery care are recorded in detail and in a structured manner, making it easier to evaluate the results of care.

Data collection techniques are carried out through two main approaches: primary data and secondary data. Primary data was obtained through direct interviews with Mrs. US, observation of physical and psychological conditions, and physical examination, which includes blood pressure, pulse, abdominal circumference, fundal height, and fetal position. Secondary data was collected from Mrs. AS at the Pasir Putih Community Health Center, including previous pregnancy history, laboratory examination results, and documentation of previous antenatal visits. All data was then analyzed using Varney's 7-step care management approach: collecting basic data, identifying diagnoses or problems, planning actions, implementing interventions, evaluating results, documenting the process, and educating patients.

The data that has been collected is analyzed descriptively and qualitatively to provide a clear picture of the implementation of comprehensive midwifery care. Varney's 7-step care management approach is used as an analytical framework to ensure that all stages of midwifery care are carried out systematically and according to standards. In addition, documentation using SOAP helps in compiling organized reports by dividing data into four main components: subjective (main complaint and history), objective (physical examination results), assessment (diagnosis or problem), and plan (action plan). The analysis results are then compared with theory and related literature to ensure that the care provided meets midwifery practice standards.

This research was carried out by observing the principles of research ethics, including informed consent, data confidentiality, and protection of the rights of research subjects. Before the research began, Mrs. AS was given a complete explanation of the study's aims, procedures, and benefits. After obtaining written consent, all data collected is stored securely and used only for research purposes. The identity of research subjects is kept confidential using codes or initials to protect their privacy.

This research has received ethical approval from the Diploma of Midwifery at STIKES Eka Harap, ensuring compliance with ethical standards when conducting the study. The approval certifies that the research adheres to integrity, respect for participants, and scientific rigor. With this endorsement, the study is validated to proceed while upholding the welfare and rights of all individuals involved.

RESULT

This research describes the implementation of comprehensive midwifery care for Mrs. AS, a 26-year-old pregnant woman with complaints of low back pain during the third trimester of pregnancy. Midwifery care is provided systematically from pregnancy to postpartum, including antenatal care (ANC) visits, the delivery process, neonatal visits (KN), and postpartum visits (KF). The following are the research results presented as a narrative description.

Antenatal Care (ANC) Visit

Mrs. AS made six ANC visits during her pregnancy, with the distribution as follows:

1. Trimester I: 1 call
2. Trimester II: 1 call
3. Trimester III: 4 calls

All physical and laboratory examination results were within normal limits during the ANC visit. In the third trimester, Mrs. AS has low back pain that occurs due to changes in body posture and increased fetal weight. Non-pharmacological interventions such as education about correct body posture, light physical exercise, relaxation techniques, and using abdominal support belts have reduced the intensity of low back pain. The evaluation showed that Mrs. AS feels more comfortable and can continue daily activities without significant disruption.

Childbirth Process

Mrs. AS's birth will normally occur on May 4, 2024, at 09.20 WIB at the Pasir Putih Community Health Center, Mentawa Baru District, Ketapang, East Kotawaringin. The labor process lasts 1 hour and 5 minutes with the following details:

1. Stage I: 30 minutes
2. Stage II: 30 minutes
3. Stage III: 5 minutes

4. Stage IV: No complications were found

Baby Mrs. AS was born in good general condition with the following characteristics:

1. Body Weight (BB): 3.4 kg
2. Body Length (PB): 50 cm
3. Head Circumference (LK): 35 cm
4. Chest Circumference (LD): 34 cm
5. Body Temperature (S): 36.7°C
6. Respiratory Frequency (RR): 45 x/minute
7. Gender (JK): Male
8. Reflexes: Positive
9. Anus: Positive
10. Skin Color: Reddish
11. Baby Movement: Active
12. Congenital Abnormalities: None
13. Baby's Cry: Loud

Neonatal Visit (KN)

Neonatal visits were carried out three times to ensure the health of Mrs. US. The neonate visit schedule is as follows:

1. KN1: May 4, 2024 (after delivery)
2. KN2: May 6, 2024
3. KN3: May 15, 2024

Mrs. AS was declared healthy at each visit without any complaints or complications. The baby's growth and development correspond to the neonate's age, including eating patterns, sleep patterns, and physiological reflexes.

Postpartum Period Visits (KF)

Postpartum visits were carried out four times to monitor Mrs. Postpartum AS. The postpartum visit schedule is as follows:

1. KF1: May 4, 2024 (after delivery)
2. KF2: May 6, 2024
3. KF3: May 15, 2024
4. KF4: June 2, 2024

During the postpartum period, Mrs. AS did not experience complications such as infection, bleeding, or psychological problems. Lactation went smoothly, and Mrs. The US received support for exclusive breastfeeding by WHO recommendations (World Health Organization [WHO], 2022).

Conclusion on the Results of Comprehensive Midwifery Care

During the provision of comprehensive midwifery care, no complications were found in Mrs. AS and her baby. All physical and laboratory examination results were within normal limits, and the interventions provided were by midwifery practice standards. Care documentation using Varney's 7-step management approach and SOAP helps ensure that all stages of care are carried out systematically and well documented.

DISCUSSION

This study aims to describe the implementation of comprehensive midwifery care for Mrs. AS, a 26-year-old pregnant woman with complaints of low back pain during the third trimester of pregnancy. Based on the research results that have been presented, the discussion will focus on three main aspects: (1) management of complaints of low back pain in the third trimester, (2) implementation of the normal delivery process, and (3) monitoring the health of the mother and baby through neonatal visits and the postpartum period. The latest relevant references support this discussion.

Low back pain is one of the complaints frequently reported by pregnant women in the third trimester, especially due to changes in body posture due to the increase in fetal weight and a shift in the body's center of gravity (Mulati et al., 2022; Dimiyati et al., 2024). In the case of Mrs. AS, complaints of low back pain were successfully managed through non-pharmacological interventions that were part of comprehensive midwifery care. This intervention includes education about correct body posture, light physical exercise, relaxation techniques, and using an abdominal support belt. Education about correct posture is very important because it helps pregnant women understand how to reduce the burden on the spine. Physical exercises, such as pregnancy exercises, have also been proven effective in increasing back muscle flexibility and reducing tension (Mikkonen et al., 2021). Relaxation techniques like deep breathing and meditation can also help reduce psychological stress, often worsening back pain (Lamadah et al., 2021; Kushariyadi et al., 2023).

In the case of Mrs. AS, all interventions were successfully implemented without any complications. The evaluation showed that Mrs. AS feels more comfortable and can continue daily activities without significant disruption. This shows that a holistic, comprehensive midwifery care approach can be an effective solution for dealing with complaints of low back pain in the third trimester of pregnancy.

The birth process of Mrs. AS progressed normally with a total duration of 1 hour 5 minutes, consisting of stage I (30 minutes), stage II (30 minutes), stage III (5 minutes), and stage IV without complications. This duration is included in the fast category for a normal labor process, which shows that Mrs. AS has been well prepared during pregnancy. One of the factors that supports the success of normal delivery is an adequate frequency of ANC visits, namely six times during pregnancy (twice in the first and second trimesters and four times in the third trimester).

The frequency of ANC visits can increase the chances of normal delivery and reduce the risk of complications (Yuniwati et al., 2023). The emotional and educational support provided to Mrs. AS during pregnancy also plays an important role in preparing her mentally for childbirth. Emotional support from health workers, family, and the social environment has been proven to increase pregnant women's self-confidence, reducing anxiety during birth (Calpinici et al., 2021).

Mrs. AS was born with healthy characteristics, including a body weight of 3.4 kg, a body length of 50 cm, and no congenital abnormalities. These data show that comprehensive midwifery care focuses not only on maternal health but also on fetal development. Routine monitoring through ultrasound and partograph examinations during ANC ensures that fetal growth is within normal limits, thereby supporting the birth of a healthy baby.

Neonatal and postpartum visits are an important part of comprehensive midwifery care to ensure the health of the mother and baby after delivery. In the case of Mrs. AS, neonatal visits were carried out three times (KN1, KN2, and KN3), while postpartum visits were carried out four times (KF1, KF2, KF3, and KF4). The frequency of these visits is based on the maternal and neonatal health service standards. During the neonatal visit, Mrs. AS was declared in good health without any complaints or complications. The baby's growth and development correspond to the neonate's age,

including eating patterns, sleep patterns, and physiological reflexes. Routine monitoring of neonates is very important for early detection of potential health problems, such as infection, hypothermia, or metabolic disorders. In this case, all the baby's health parameters are within normal limits, so no additional intervention is required (Zinjani, 2023).

Meanwhile, postpartum visits confirmed that Mrs. AS recovered well after delivery. Lactation went smoothly, and Mrs. The US received support for exclusive breastfeeding. Exclusive breastfeeding benefits the baby, helps the mother in uterine involution, and reduces the risk of postpartum bleeding (Yorita et al., 2023; Safira & Luthfiyana, 2024). Apart from that, monitoring the psychological condition of Mrs. US during the postpartum period is also important for the early detection of signs of postpartum depression. In this case, Mrs. AS did not experience significant psychological problems, so he was able to undergo the postpartum period comfortably.

CONCLUSION

Comprehensive midwifery care for patients is progressing smoothly according to midwifery practice standards. During pregnancy, the patient carried out six antenatal care (ANC) visits, distributed once in the first trimester, once in the second trimester, and four times in the third trimester. All examination results during pregnancy were within normal limits, indicating that the pregnancy was proceeding physiologically without complications. The complaint of low back pain experienced by the patient can be successfully managed through non-pharmacological interventions such as education about maintaining genital hygiene, warm compresses on the back area, relaxation techniques, and reducing strenuous activity. The patient shows compliance with the health recommendations and education provided. The labor process took place normally, with a total duration of 1 hour and 5 minutes, including the first stage for 30 minutes, the second stage for 30 minutes, the third stage for 5 minutes, and the fourth stage without complications. The baby was born spontaneously to a male gender, with a weight of 3.4 kg, body length of 50 cm, head circumference of 34 cm, and chest circumference of 33 cm. No congenital abnormalities or other complications were found.

During the neonatal and postpartum period, the patient and her baby received routine monitoring through three neonatal visits (KN1, KN2, and KN3) and four postpartum visits (KF1, KF2, KF3, and KF4). All examination results showed normal conditions, both for mother and baby. Patients received health education regarding caring for newborns, the importance of exclusive breastfeeding, complete basic immunization, and meeting basic postpartum needs such as nutrition, personal hygiene, and contraceptive methods. The baby also received standard care, including drying the body, administering vitamin K and eye ointment, maintaining body temperature, and umbilical cord care. All midwifery care is systematically documented using Varney's 7-step approach and SOAP, ensuring all stages are carried out according to standards. Overall, this comprehensive midwifery care effectively supports the health of mothers and babies, prevents complications, and ensures that the pregnancy, birth, and post-natal processes run smoothly and safely.

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REFERENCES

- Alves, A. C., Cecatti, J. G., & Souza, R. T. (2020). Resilience and Stress during Pregnancy: A Comprehensive Multidimensional Approach in Maternal and Perinatal Health. *The Scientific World Journal*, 2021(1), 9512854. <https://doi.org/10.1155/2021/9512854>
- Ayu, J., & Puspita, L. (2023). The Management of Midwifery Care on 19 Years Old GIP0A0 Gestational Age 11 Weeks 3 Days with Incomplete Abortion at Pringsewu Regional General Hospital. *Jurnal Aisyah : Jurnal Ilmu Kesehatan*, 8(S1), 255-262. doi:<https://doi.org/10.30604/jika.v8iS1.1636>
- Barbi, L., Cham, M., Ame-Bruce, E., & Lazzerini, M. (2020). Socio-cultural factors influencing the decision of women to seek care during pregnancy and delivery: A qualitative study in South Tongu District, Ghana. *Global Public Health*, 16(4), 532–545. <https://doi.org/10.1080/17441692.2020.1839926>
- Calpbinici, P., Terzioğlu, F., & Koc, G. (2021). The relationship of perceived social support, personality traits and self-esteem of the pregnant women with the fear of childbirth. *Health Care for Women International*, 44(10–11), 1423–1437. <https://doi.org/10.1080/07399332.2021.2007925>
- Cattane, N., Räikkönen, K., Anniverno, R., Mencacci, C., Riva, M. A., Pariante, C. M., & Cattaneo, A. (2021). Depression, obesity and their comorbidity during pregnancy: Effects on the offspring's mental and physical health. *Molecular Psychiatry*, 26(2), 462-481. <https://doi.org/10.1038/s41380-020-0813-6>
- Chen, X., Liu, M., Min, F., Tong, J., Liu, Y., Meng, Q., & Zhang, T. (2023). Effect of biological, psychological, and social factors on maternal depressive symptoms in late pregnancy: A cross-sectional study. *Frontiers in Psychiatry*, 14, 1181132. <https://doi.org/10.3389/fpsyt.2023.1181132>
- Cynthia, B. M., & Grace, N. K. (2024). Back Pain Solutions: Education And Exercise Interventions For Pregnant Women In Low-Resource Settings. In *Current Journal of Nursing Science and Practice* (Vol. 12, Number 1, pp. 1–11). AMERICAN SERIAL. <https://doi.org/10.5281/zenodo.10630140>
- Dagne, A. H., & Beshah, M. H. (2021). Implementation of evidence-based practice: The experience of nurses and midwives. *PLOS ONE*, 16(8), e0256600. <https://doi.org/10.1371/journal.pone.0256600>
- Dai, Y., Min, H., Sun, L., Wang, X., Zhu, C., & Gu, C. (2024). Assessing women's and health professionals' views on developing a midwifery-led mobile health app intervention in pregnancy: A descriptive qualitative study. *Journal of Advanced Nursing*, 80(10), 4259-4271. <https://doi.org/10.1111/jan.16086>
- Damayanti, N. A., Wulandari, R. D., & Ridlo, I. A. (2023). Maternal Health Care Utilization Behavior, Local Wisdom, and Associated Factors Among Women in Urban and Rural Areas, Indonesia. *International Journal of Women's Health*, 15, 665–677. <https://doi.org/10.2147/IJWH.S379749>
- Dimiyati, A., Ikhlasiyah, M., & Ismarina. (2024). The Relationship Between Age, Gender, Workload, and Complaints of Low Back Pain (LBP) among Emergency Room Nurses. *Health and Technology Journal (HTechJ)*, 2(5), 492–497. <https://doi.org/10.53713/htechj.v2i5.251>
- Fletcher, A., Murphy, M., & Leahy-Warren, P. (2021). Midwives' experiences of caring for women's emotional and mental well-being during pregnancy. *Journal of Clinical Nursing*, 30(9-10), 1403-1416. <https://doi.org/10.1111/jocn.15690>
- Fox, D., Scarf, V., Turkmani, S., Rossiter, C., Coddington, R., Sheehy, A., Catling, C., Cummins, A., & Baird, K. (2023). Midwifery continuity of care for women with complex pregnancies in Australia: An integrative review. *Women and birth*, 36(2), e187-e194. <https://doi.org/10.1016/j.wombi.2022.07.001>
- Fruscalzo, A., Cocco, P., Londero, A. P., & Gantert, M. (2022). Correction: Low Back Pain during Pregnancy and Delivery Outcomes. *Zeitschrift für Geburtshilfe und Neonatologie*, 226(2), e38. <https://doi.org/10.1055/a-1674-4051>

- Gangakhedkar, G. R., & Kulkarni, A. P. (2021). Physiological Changes in Pregnancy. *Indian Journal of Critical Care Medicine : Peer-Reviewed, Official Publication of Indian Society of Critical Care Medicine*, 25(Suppl 3), S189. <https://doi.org/10.5005/jp-journals-10071-24039>
- Hayakari, Y., Kamata, R., Misaki, N., & Oda, A. (2023). Changes in posture and feet and relationship with low back pain during pregnancy among Japanese women. *Journal of Japan Academy of Midwifery*, 37(3), 273-283. <https://doi.org/10.3418/jjam.JJAM-2022-0051>
- Hu, Y., Lu, H., Huang, J., & Zang, Y. (2021). Efficacy and safety of non-pharmacological interventions for labour pain management: A systematic review and Bayesian network meta-analysis. *Journal of Clinical Nursing*, 30(23-24), 3398-3414. <https://doi.org/10.1111/jocn.15865>
- Jackson, V. W., Ivan, I. G. I., & Choe, K. (2022). Behavioral Management for Pain in Pregnancy. In *Holistic Pain Management in Pregnancy: What RNs, APRNs, Midwives and Mental Health Professionals Need to Know* (pp. 79-96). Cham: Springer International Publishing. https://doi.org/10.1007/978-3-031-06322-0_5
- Khomami, M. B., Walker, R., Kilpatrick, M., Skouteris, H., & Moran, L. J. (2021). The role of midwives and obstetrical nurses in the promotion of healthy lifestyle during pregnancy. *Therapeutic Advances in Reproductive Health*. <https://doi.org/10.1177/26334941211031866>
- Kurniyawan, E. H., Muizzulhafiidh, A., Dewi, E. I., Kushariyadi, Susumaningrum, L. A., Deviantony, F., & Fitria, Y. (2023). The Relationship between Peer Social Support and Stress Levels among the Elderly in the Tresna Werdha Social Institution. *Health and Technology Journal (HTechJ)*, 1(2), 180–187. <https://doi.org/10.53713/htechj.v1i2.38>
- Kushariyadi, Ufaidah, F. S., Rondhianto, & Candra, E. Y. S. (2023). Combination Therapy Slow Deep Breathing and Acupressure to Overcome Ineffective Breathing Pattern Nursing Problems: A Case Study. *Nursing and Health Sciences Journal (NHSJ)*, 3(3), 320-326. <https://doi.org/10.53713/nhsj.v3i3.289>
- Lamadah, S. M., Ahmed, A. H., & Shamekh, A. H. (2021). Effect of progressive muscle relaxation exercises during pregnancy on low back pain and quality of woman's life. *Tanta Scientific Nursing Journal*, 23(4), 193-213. <https://doi.org/10.21608/tsnj.2021.210727>
- Liu, Y., Li, T., Guo, N., Jiang, H., Li, Y., Xu, C., & Yao, X. (2021). Women's experience and satisfaction with midwife-led maternity care: a cross-sectional survey in China. *BMC pregnancy and childbirth*, 21, 1-10. <https://doi.org/10.1186/s12884-021-03638-3>
- Mamipour, H., Farazmehr, S., Negahban, H., Nazary-Moghadam, S., Dehghan-Manshadi, F., Navi Nezhad, M., Jafari, S., & Sharifzadeh, M. (2022). Effect of Core Stabilization Exercises on Pain, Functional Disability, and Quality of Life in Pregnant Women With Lumbar and Pelvic Girdle Pain: A Randomized Controlled Trial. *Journal of Manipulative and Physiological Therapeutics*, 46(1), 27-36. <https://doi.org/10.1016/j.jmpt.2023.05.005>
- Mikkonen, R. S., Rodrigues-de-Souza, D. P., & Ihalainen, J. K. (2021). Exercise and pregnancy. *Fertility, Pregnancy, and Wellness*, 319-341. <https://doi.org/10.1016/B978-0-12-818309-0.00003-4>
- MonfaredKashki, M., Maleki, A., & Amini, K. (2022). The effect of integrating midwifery counseling with a spiritual content on improving the antenatal quality of life: A randomized controlled trials. *Journal of mother and child*, 26(1), 18–26. <https://doi.org/10.34763/jmotherandchild.20222601.d-22-00003>
- Mulati, T. S., Wahyuni, T., Kuswati, K., & Susilowati, D. (2022). Factors That Affect Back Pain In Second And Third Trimester Pregnant Women. *Jurnal Kebidanan Dan Kesehatan Tradisional*, 30–41. <https://doi.org/10.37341/jkkt.v0i0.314>
- Nguyen, L. D., Nguyen, L. H., Ninh, L. T., Nguyen, H. T. T., Nguyen, A. D., Vu, L. G., ... & Ho, R. C. (2022). Women's holistic self-care behaviors during pregnancy and associations with psychological well-being: implications for maternal care facilities. *BMC pregnancy and childbirth*, 22(1), 631. <https://doi.org/10.1186/s12884-022-04961-z>

- Novelia, S., Rukmaini, & Anisah, S. (2021). The Effect of Warm Compress on Low Back Pain during Pregnancy. *Nursing and Health Sciences Journal (NHSJ)*, 1(3), 254-257. <https://doi.org/10.53713/nhs.v1i3.55>
- Nurhasanah, Indrayani, T., & Tiara Carolin, B. (2024). The Effect of Affirmation Relaxation Techniques on Anxiety Levels in Third-Trimester Pregnant Women. *Health and Technology Journal (HTechJ)*, 2(2), 145–149. <https://doi.org/10.53713/htechj.v2i2.168>
- Oktri, Y., Nuryani, Y., Neng Suaidah, & Astuti, W. P. (2024). COMPREHENSIVE MIDWIFERY CARE FOR A PRIMIGRAVIDA WITH BACK PAIN. *Jurnal Kesehatan Budi Luhur : Jurnal Ilmu-Ilmu Kesehatan Masyarakat, Keperawatan, Dan Kebidanan*, 17(2), 81–85. <https://doi.org/10.62817/jkbl.v17i2.373>
- Rahmawati, I., & Murtaqib, M. (2024). Efforts to Deal with the Impact of Adolescent Pregnancy through a Holistic Approach: A Literature Review. *Nursing and Health Sciences Journal (NHSJ)*, 4(1), 83-90. <https://doi.org/10.53713/nhsj.v4i1.329>
- Rondhianto, Kushariyadi, & Issabella Nanda Basuki, P. (2023). Analysis of Psychosocial Factors Affecting Physical Activity Behaviour of People with Type 2 Diabetes Mellitus in Indonesia. *Nursing and Health Sciences Journal (NHSJ)*, 3(4), 435-442. <https://doi.org/10.53713/nhsj.v3i4.299>
- Safira, & Nurul Ulya Luthfiyana. (2024). Maternal Factors Associated with Exclusive Breastfeeding Practices in Situbondo, Indonesia: A Cross-Sectional Study. *Nursing and Health Sciences Journal (NHSJ)*, 4(2), 188-193. <https://doi.org/10.53713/nhsj.v4i2.361>
- Salari, N., Mohammadi, A., Hemmati, M., Hasheminezhad, R., Kani, S., Shohaimi, S., & Mohammadi, M. (2023). The global prevalence of low back pain in pregnancy: a comprehensive systematic review and meta-analysis. *BMC pregnancy and childbirth*, 23(1), 830. <https://doi.org/10.1186/s12884-023-06151-x>
- Sitot, A., & Workye, H. (2022). Assessment of knowledge, attitude and practice towards ante natal exercise among pregnant women attending antenatal care at Health centers of Mekelle, Tigray Region, Ethiopia, 2020. *PLOS ONE*, 17(8), e0262805. <https://doi.org/10.1371/journal.pone.0262805>
- Srinayanti, Y., Anggraeni, S., Litasari, R., & Lismayanti, L. (2023). The Relationship Between Pregnancy Discomfort and Physical Activity of Third Trimester Pregnant Women. *Asy-Syifa : Journal of Science and Technology Nursing*, 1(2), 51–56. <https://doi.org/10.52221/asyjstn.v1i2.354>
- Villalain, C., Galindo, A., Gómez-Montes, E., & Herraiz, I. (2025). 3rd trimester ultrasound assessment. *Best Practice & Research Clinical Obstetrics & Gynaecology*, 100, 102593. <https://doi.org/10.1016/j.bpobgyn.2025.102593>
- Wuryanningsih, E. W., Kurniyawan, E. H., & Aisyah, E. C. (2020). Correlation Between Emotional Peer Support and Cyberbullying Behaviour in Senior High School Students. *Jurnal Ners*, 14(2), 205–209. <https://doi.org/10.20473/jn.v14i2.13726>
- Yorita, E., Anggraini, J. D., Yanniarti, S., Burhan, R., & Rina, R. (2023). Early Initiation of Breastfeeding Can Accelerate Uterine Involution in Postpartum Women. *Contagion: Scientific Periodical Journal of Public Health and Coastal Health*, 5(3), 1017-1025. <http://dx.doi.org/10.30829/contagion.v5i3.17550>
- Yuniwati, Fithriany, Cut Nurhasanah, Lili Kartika Sari Harahap, & Silfia Dewi. (2023). Analysis of Factors Affecting Pregnancy Visits for Mother and Fetal Health. *Health and Technology Journal (HTechJ)*, 1(3), 250–258. <https://doi.org/10.53713/htechj.v1i3.48>
- Zinjani, S. (2023). Common Medical Conditions in the Neonates. In *Clinical Anesthesia for the Newborn and the Neonate* (pp. 49-70). Singapore: Springer Nature Singapore. https://doi.org/10.1007/978-981-19-5458-0_4