



Application of Pregnancy Exercise to Improve the Quality of Sleep in Trimester III Pregnant Women in the Working Area of the Puskesmas Perumnas, Lubuklinggau City

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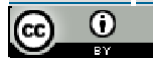
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ABSTRACT

Pregnancy is a process that starts from a stage of conception until the birth of the fetus. A normal pregnancy will last 40 weeks or 9 months, Pregnancy is divided into 3 semesters, of which the first trimester lasts in 12 weeks, the second trimester is 15 weeks and the third trimester is 27 weeks. Pregnancy exercise can be useful for increasing oxygen circulation to muscles and body tissues, as well as improving blood circulation, so it can reduce the physical discomfort and reduce complaints of pregnant women. It is known that the quality of sleep in pregnant women increases by implementing pregnancy exercise in the working area of the Perumnas Public Health Center. This research is descriptive using a case study approach. The subjects in this study were 2 mothers with of third trimester pregnancy. This was carried out directly with an initial assessment of patients with sleep disorders and then intervention by giving the pregnant exercise to improve sleep quality. After the application of pregnancy exercise can improve the quality of sleep in pregnant women in the third trimester.

INTRODUCTION

Pregnancy is a process that starts from a stage of conception until the birth of the fetus. Normal pregnancy length of 280 days equals 40 weeks which is calculated from the first day of the last menstruation (1). Pregnancy is divided into 3 semesters, where the first trimester lasts 12 weeks, the second trimester 15 weeks and the third trimester 27 weeks (2). Sleep disturbances are more common in the third trimester of pregnancy (3), In the third trimester, the number of sleep disturbances is higher due to discomfort such as back pain, urination and spontaneous awakening. Despite the fact that sleep disturbances can occur during the third trimester of pregnancy , pregnant women find it difficult to maintain a sleeping position as a result of the growing uterus, and breathing can be disrupted as a result of the diaphragm opening up due to the developing pregnancy. In addition, pregnant women also experience back pain, difficulty breathing, sleep, lack of sleep, frequent urination, abdominal contractions, swollen ankles, leg cramps (4).

In the third trimester, the number of sleep disturbances is higher, due to discomfort such as low back pain, frequent urination, and spontaneous awakening from sleep. Fetal movement, heartburn (hurtburn), leg cramps, fatigue and difficulty getting to sleep or difficulty sleeping until morning (5). The impact of disrupted sleep patterns if it occurs for a prolonged period during pregnancy is that it is feared that the baby to be born will have low birth weight (LBW), unbalanced neurological development, premature birth and weakened immune system of the baby. In addition, sleep disorders cause depression and stress that affect the fetus they contain. Mild stress causes the fetus to experience an increase in heart rate, but severe and prolonged stress will make the fetus more hyperactive (6). The National Sleep Foundation (2007) states that 97.3% of third-trimester pregnant women always wake up at night and an average of about 78% of pregnant women experience sleep disturbances. (7), said that 97% of pregnant women in the third trimester experience sleep disturbances. Most pregnant women experience sleep disturbances and only 1.9% of women do not wake up at night during the third trimester of pregnancy.

THEORETICAL REVIEW

One of the efforts made to overcome the problem of sleep patterns in pregnant women is to do body movement exercises, relaxation and regulate the mother's breathing patterns caused by an enlarged uterus pressing against the diaphragm wall. Pregnancy exercise can be useful for increasing oxygen circulation to muscles and body tissues, as well as improve blood circulation, so as to reduce physical discomfort and reduce complaints of pregnant women (Ministry of Health RI, 2010). Many women do not know how to deal with sleep pattern disorders during pregnancy. Handling sleep pattern disturbances can be done in a non-pharmacological way (8). One of the non-pharmacological therapies that is often used in nursing is giving pregnancy exercise, because it can improve sleep quality (9).

The pregnancy exercise can have an effect in helping to increase the duration of sleep. Pregnancy exercise has a relaxing effect on pregnant women. The effect of pregnancy exercise on the sleep quality of pregnant women shows that after doing exercise, the sleep quality of pregnant women. after doing pregnancy exercise the quality of sleep for the mother improves because the exercise helps the abdominal wall muscles become elastic, improves the physical balance of pregnant women, helps improve the correct position of the mother during pregnancy and also improves the mother's blood circulation thus increasing the mother's comfort (10).

A preliminary study conducted by researchers at the Perumnas Health Center with interviews with pregnant women who visited said that they experienced complaints of difficulty sleeping because they often woke up at night for urination and it was difficult to adjust their sleeping position because their stomachs were getting bigger. The nurse's task is to meet the patient's needs in a comprehensive manner, so it is necessary to have an independent nurse's task that aims to provide a sense of comfort. So that makes researchers interested in conducting case studies of pregnancy exercise interventions to improve sleep quality in pregnant women.

METHODOLOGY

This study uses a qualitative design to describe in-depth information about fulfilling a sense of comfort using pregnancy exercise for clients who experience sleep disorders. The subjects of this study were individuals with sleep disorders who live in the working area of the Perumnas Health Center, Lubuklinggau. The recruitment of participants was carried out by purposive sampling. The criteria for participants in this study were: Patients who were respondents, Patients who complained of sleep pattern disturbances, A mother who was pregnant. This research was carried out in the Working Area of the Perumnas Health Center, Lubuklinggau in April-May 2022 The ethical considerations in this research were carried out by complying with the principles of human rights as research subjects, which include the right to self-determination; the right to privacy and dignity; the right to anonymity and confidentiality; the right to obtain fair treatment; and the right to protection from inconvenience or loss.

Data collection was based on interview guidelines and observation notes with the aim of obtaining as much information as possible to answer the research objectives. Data collection techniques through in-depth interviews were carried out by making field notes containing descriptions of activities, dates, times, and basic information about the atmosphere during the interviews, environmental settings, social interactions, and participant activities during the interviews. While data collection is done by observation, namely by directly observing the various activities carried out by participants, especially those that are in accordance with the research objectives. The tools used for data collection in this study were interview guides, observation notes and checklists that had been prepared.

Furthermore, data from interviews, observations, and documentation studies were put into an assessment format and analyzed to find the main problem and then a non-pharmacological nursing plan was developed regarding management sleep disturbance with pregnancy exercise. At the implementation stage it was carried out directly by the researcher and observed and documented the patient's response to the pregnancy exercise procedure. Data analysis in this study is based on a phenomenological approach. The process of data analysis was carried out throughout the research and was carried out continuously from the beginning to the end of the study by collecting all data from interviews, observation notes and field notes of the researcher and then comparing them with the existing literature and assumptions. The data analysis used is qualitative analysis and in its presentation it starts from the collected data and then draws conclusions.

RESULTS

The research subjects were 2 family members who were given the intervention together. Ny.S is 27 years old, is a student at a high school in the city of Lubuklinggau, is Muslim, has Sumatran ethnicity, address is Lubuklinggau. Mrs.S said that she often urinated 10x/day, the client said she had difficulty sleeping, felt uncomfortable, had back pain and had difficulty turning around often Bak, Mrs.S said she had never done pregnancy exercise before, during her pregnancy Mrs.S had her obstetric check at the puskesmas .The results of the physical examination Mrs.S blood pressure 120/90 mmHg, Pulse: 88 x/minute, breathing 22 x/minute, body temperature 36°C, height 168 cm, weight 75 kg, Mrs. E said that she frequently urinated as much as 8x/day, the client said he was anxious when facing labor, felt uncomfortable, had trouble sleeping, and found it difficult to go back to sleep when he woke up. Mrs. E said that she had never done pregnancy exercise before, during her pregnancy Mrs. E checked her obstetrics at the puskesmas. The results of the physical examination Mrs. S's blood pressure was 110/80 mmHg, pulse: 80 x/minute, breathing 20 x/minute, body temperature 36.5°C, height 158 cm, weight 68 kg.

Table 1. Evaluation Results on Subject 1

No.	Date	Time	PSQI Score	Result
				Description
1.	Wednesday 26-04-2022	10.10Wib	Score 6	Bad
2.	Thursday 27-04-2022	10.10Wib	Score 6	Bad
3.	Friday 28-04-2022	12.20Wib	Score 5	Good
4.	Saturday 29-04-2022	10.00Wib	Score 5	Good

Table 2. Evaluation Results on Subject 1I

No.	Date	Time		Result
			PSQI Score	Description
1.	Wednesday 26-04-2022	16.20Wib	Skor 6	Bad
2.	Thursday 27-04-2022	16.25Wib	Skor 6	Bad
3.	Friday 28-04-2022	Friday	Skor 5	Good
4.	Saturday 29-04-2022	13.30 Wib	Skor 5	Good

Based on the results of the study conducted on the two families who had children with health problems with sleep pattern disorders, it was found that there was a match between theory and practice in the field. According to NANDA international nursing diagnoses: definitions & classification 2018-2020, problems that are common in families are: Inability of families to recognize problems related to lack of information about the disease and its treatment, inability of families to make patient management decisions related to ignorance of the consequences of illness, inability of families to care for members sick families related to how to care for patients, inability of families to organize the home environment related to uncooperative families, unable to use existing health facilities in connection with not recognizing the benefits of health services to overcome illness, inability of families to recognize the potential for occurrence in children associated with lack of information about the schedule of health checks, impaired fulfillment of nutritional needs related to the inability of families to care for sick family members, damage to pemel management Home care is related to the family's inability to care for a healthy home environment, family anxiety is related to the family's inability to recognize health problems.

Nursing diagnoses are data collected and then analyzed, while family nursing diagnoses were found in both subjects with desminore medical diagnoses in accordance with the guidance of the SDKI DPP PPNI Working Group team (2018) there are 3 namely Disorders of Urine Elimination, Disorders of Sleep Patterns, Anxiety. Meanwhile, family nursing diagnoses that can be enforced by nurses based on the results of the assessment include sleep pattern disturbances related to the family's inability to recognize family members' health problems. The nursing diagnoses that were enforced in the two research subjects were the same because when the authors conducted the assessment on subjects I and II the main complaints were also the same, namely experiencing sleep patterns during pregnancy, and the family did not know the health problems that were being faced at this time. According to Siregar, R.A., (2020) nursing diagnoses are actual or potential health problems where nurses, with their education and experience are able and have permission to address them. A nursing diagnosis is a clinical judgment about individual, family, or

community responses to actual or potential health problems/life processes. Nursing diagnoses are the basis for selecting interventions in achieving the goals set by responsible nurses (11). Anxiety diagnosis cannot be enforced in both subjects because at the time of the assessment no data was found to support formulating a diagnosis on the client's identity.

This nursing intervention focuses on the main diagnoses, namely sleep patterns with the aim that after nursing actions it is hoped that sleep patterns will improve with the outcome criteria based on the SLKI (Indonesian Nursing Outcome Standards), namely complaints of difficulty sleeping improve, frequent complaints of getting better, complaints of sleeping patterns change for the better, complaints of difficulty sleep improves. Interventions carried out include identifying activity and sleep patterns, identifying sleep-disturbing factors, modifying the environment (eg noise), facilitating stress relief before going to bed, carrying out procedures to increase comfort (pregnancy exercise), recommending avoiding disturbing foods or drinks sleep Motivate families to bring sick family members to the nearest health facility.

The pregnancy exercise procedure was carried out for 4 days. The nurse measures the quality of sleep before the client gets the pregnancy exercise procedure. Provide explanations to clients and families about how to improve sleep quality by using guidebooks and demonstrating how to exercise during pregnancy. The patient is placed in a relaxed and comfortable position with a quiet and closed room atmosphere, then sits cross-legged with both thighs against the floor. Place both hands on the knees. Lift your body straight with both knees as a support, Close your eyes. Breathe slowly, inhale through your nose and exhale slowly. Then turn the head right and left alternately, inhale every time you turn and exhale when your head is straight again, then alternately bend your head to the right and left, inhale when you break your neck, exhale when your head is straight, then hold your hands alternately to form an added hand. , feel the hands feel more relaxed. do the hands alternately. then raise your hands up, set your breath when your hands are up, smell your breath when your hands are below, and lastly Meet the soles of the feet, place your hands under the soles of your feet, then swing your legs like butterfly wings butterfly.

The purpose of giving this pregnancy exercise is to facilitate normal and physical delivery, so that pregnant women can prepare their bodies for childbirth, improve the welfare of the mother and the baby she is carrying, form a calm attitude, form good body mechanics during and after pregnancy. On the 4th day of carrying out the pregnancy exercise procedure, before being given the action Mrs.S Mrs.S said she slept 5 hours / day. S said it was still difficult to sleep, Mrs. S said it hurt when turning around. With a PSQI score of 6 (poor sleep quality) Whereas Mrs. E before being given therapy Mrs. E said she slept from 23.00 and woke up at 3 Mrs. E said it was still difficult to sleep, Mrs. E said that a little rest was enough, Mrs. E said cramps in her legs, with a PSQI score of 6 (poor sleep quality). This showed a significant difference in the quality of sleep in clients before and after being given pregnancy exercise therapy.

The researcher will explain the differences or gaps between the theoretical review and the case review of the application of the procedure for giving pregnancy exercise to Mrs S (Client I) and Mrs E (Client II) with pregnancy. When conducting an assessment of Mrs. S's client, the authors found some compatibility between the data obtained in the field related to health problems and the theory referring to Indonesia, P. P. N., (2016) that the limitations of the diagnostic characteristics, sleep pattern disturbances, feeling dissatisfied with sleep, time changing sleep, frequent awakenings, hard to turn around, frequent urination at night. Meanwhile, Mrs. E had cramps in her legs, it was difficult to go back to sleep, she complained of difficulty sleeping, often felt like at night, changed sleep patterns, insufficient rest.

The results of this study are in accordance with (10), which shows that after doing pregnancy exercise 2x a week for 15-20 minutes it is very significant to improve the quality of sleep of pregnant women. Providing pregnancy exercise can have a positive effect, especially on the quality of sleep for the mother during pregnancy. This is because pregnancy exercise is an exercise for pregnant women that aims to help the abdominal wall muscles become elastic, improve the physical balance of pregnant women, improve blood circulation so as to increase comfort for pregnant women.

DISCUSSIONS

In this study, the implementation that the authors carried out on both subjects, namely pregnancy exercise on clients who had sleep disorders, was carried out for 5 consecutive days with a time of 15-20 minutes per day and the results were obtained, namely an increase in sleep quality in both subjects after the exercise nursing intervention this pregnant. Pregnancy exercise is a good thing to do during pregnancy. Practicing pregnancy exercises during pregnancy can help train breathing and make pregnant women feel relaxed, in making it easier for mothers to adapt to body changes during pregnancy. This technique is also in line with Wahyuni & Layinatun Nimsh's research. Sleep disorders are more common in the third trimester. , in the third trimester the number of sleep disturbances is higher, due to discomfort such as low back pain, urinating, and spontaneous awakening from sleep, cramps in the limbs, fatigue and difficulty getting to sleep or difficulty sleeping until morning (5).

According to Research (12), shows that pregnancy exercise has an effect on increasing the sleep duration of pregnant women in the third trimester. This study also states that pregnancy exercise can be done 2 x a week for ≤ 20 minutes. This pregnancy exercise will provide relaxation techniques in pregnant women which affects the increase in sleep duration of pregnant women. According to research (10), showed that pregnancy exercise has an effect on improving sleep quality in third trimester pregnant women. This research was conducted 2-3 times a week for 15-20 minutes. This study also states that pregnancy exercise has a relaxing effect on pregnant women so that it affects the duration of sleep for pregnant women. This can be an indication of the importance of health education about pregnancy exercise for pregnant women during the third trimester and routine evaluation of pregnancy exercise problems by clinicians. Based on the results provided by this study regarding

sleep disturbances during pregnancy, further research is suggested to provide interventions in the management of sleep disturbances in third trimester pregnant women.

Evaluation is the final stage of the nursing process that can be used as a measure of the success of a nursing made. After implementing nursing for 4 days the authors can state that nursing problems can be fully resolved and the final evaluation is as follows: In the study of the two subjects, there was an increase in sleep quality in third trimester pregnant women by doing pregnancy exercise. In subjects 1 and 2 there was a change in the psqi score, namely subject 1 first day the ppsi score was 6 (poor sleep quality), the second day the ppsi score was 6 (poor sleep quality), the third day the ppsi score was 5 (good sleep quality). Fourth day of ppsi score 5 (good sleep quality). On the first 2 days the PQSI score was 6 (poor sleep quality), the second day the PQSI score was 6 (poor sleep quality), the third day the PQSI score was 5 (good sleep quality). The fourth day of the PQSI score of 5 (good sleep quality).

The results of this study are in accordance with the results of a study conducted by the study of Tela et al (2011) which stated that after being given pregnancy exercise most of the patients had no sleep disturbances. After being given pregnancy exercise the quality of sleep increased because of the movements that had been given regularly. slowly helping to relax the body, gymnastic exercises and good sleep education will also reduce sleep disturbances in the form of insomnia. Sleep disturbances experienced by pregnant women are also related to the presence of major depressive disorder (MDD), such as energy, appetite, weight changes, sleep and somatic complaints. The benefits of exercise in sleep disorders are related to lowering depression levels by producing and releasing amines such as serotonin. This is also one of the previously identified mechanisms. This research is in accordance with (10), which shows that after doing pregnancy exercise 2x a week for 15-20 minutes it is very significant to improve the quality of sleep of pregnant women.

Providing pregnancy exercise can have a positive effect, especially on the quality of sleep for the mother during pregnancy. This is because pregnancy exercise is an exercise for pregnant women that aims to help the abdominal wall muscles become elastic, improve the physical balance of pregnant women, improve blood circulation so as to increase comfort for pregnant women. During pregnancy, sleep disturbances in pregnant women in the second and third trimesters occur with the highest prevalence. Increased gestational age and other complaints during the third trimester of pregnancy. Sleep disturbances are found in pregnancy. This can be an indication of the importance of health education about sleep disorders for pregnant women during the third trimester, and routine evaluation of sleep disorders by clinicians. Based on the results provided by this study regarding sleep disturbances during pregnancy, further research is suggested to provide interventions in the management of sleep disturbances in third trimester pregnant women

CONCLUSIONS AND RECOMMENDATIONS

Conclusion Based on nursing care Mrs S and Mrs E for 4 days with complaints of sleep disturbances. From the results of the intervention carried out on Mrs S and Mrs E, pregnancy exercise therapy is to help improve sleep quality. From the implementation carried out on the 2 research subjects, it was found that there was an increase in sleep quality, pregnancy exercise therapy was carried out once a day in the morning and evening for \pm 15 minutes. So the authors conclude that the general goal is achieved. Clients also seem motivated to carry out what the author teaches, this success is due to the active participation of both research subjects and families. Both clients are motivated to do pregnancy exercise therapy more regularly and comply not to consume food and drinks that can increase sleep disturbances such as consuming coffee and tea. Clients are also advised to get enough rest and do light exercise regularly to improve fitness during pregnancy. The results of this study can be used as an application of independent nursing actions in pregnant patients. And for future writers it is hoped that they can further increase their knowledge and skills in carrying out nursing care for families whose family members experience sleep disorders by using pregnancy exercise.

FURTHER STUDY

Furthermore, data from interviews, observations, and documentation studies were put into an assessment format and analyzed to find the main problem and then a non-pharmacological nursing plan was developed regarding management sleep disturbance with pregnancy exercise. At the implementation stage it was carried out directly by the researcher and observed and documented the patient's response to the pregnancy exercise procedure. Data analysis in this study is based on a phenomenological approach. The process of data analysis was carried out throughout the research and was carried out continuously from the beginning to the end of the study by collecting all data from interviews, observation notes and field notes of the researcher and then comparing them with the existing literature and assumptions. The data analysis used is qualitative analysis and in its presentation it starts from the collected data and then draws conclusions.

REFERENCES

- Widatiningsih S, Christi Hinaya Tungga Dewi. Praktik terbaik asuhan kehamilan. Yogyakarta : Transmedika, 2017 © 2017; 2017. 258 p.
- Sarwono Prawirohardjo, Saifuddin AB, Rachimhadhi T, Wiknjastro GH. Ilmu kebidanan Sarwono Prawirohardjo. Jakarta : PT. Bina Pustaka Sarwono Prawirohardjo, 2016; 2016. 981 p.
- Field T, Diego M, Hernandez-reif M, Figueiredo B, Contogeorgos J, Ascencio A. NIH Public Access. 2007;29(4):579–83.

- Hutchinson EF, L'Abbé EN, Oettlé AC. An assessment of early mandibular growth. *Forensic Sci Int* [Internet]. 2012;217(1-3):233.e1-233.e6. Available from: <http://dx.doi.org/10.1016/j.forsciint.2011.11.014>
- Grace SL. Health-Promoting Behaviors Through Pregnancy , Maternity Leave , and Return Health-Promoting Behaviors Through Pregnancy , Maternity Leave , and Return to Work : Effects of Role Spillover and Other Correlates. 2006;(February).
- Okun ML, Ba RE, Saini B. A review of sleep-promoting medications used in pregnancy. *Am J Obstet Gynecol* [Internet]. 2014;(October). Available from: <http://dx.doi.org/10.1016/j.ajog.2014.10.1106>
- Sharma S, Franco R. W I S C O N S I N M E D I C A L J O U R N A L Sleep and Its Disorders in Pregnancy. 2004;(February).
- Aprilyadi N, Feri HJ, Ridawati ID. Efektifitas Hypnoterapi Terhadap Penurunan Nyeri Dismenorea Pada Siswi Sma. *J Perawat Indones*. 2018;2(1):10.
- Hegaard HK, Kjaergaard H, Damm PP, Petersson K, Dykes AK. Experiences of physical activity during pregnancy in Danish nulliparous women with a physically active life before pregnancy. A qualitative study. *BMC Pregnancy Childbirth*. 2010;10.
- Aliyah J. Pengaruh Pemberian Senam Hamil Terhadap Tingkat Kecemasan Dan Kualitas Tidur Ibu Hamil Di Puskesmas Samata Kabupaten Gowa [Internet]. Vol. 152, *Revista CENIC. Ciencias Biológicas*. 2016. Available from: oai:repository.unhas.ac.id:123456789/19340
- Abdul Muhith. *Pendidikan Keperawatan Jiwa*. 2015. 447 p.
- Rustiana ER, Cahyati WH. Manfaat Senam Hamil Untuk Meningkatkan Durasi Tidur Ibu Hamil. *J Kesehat Masy*. 2013;8(2):113-20.