The Effectiveness of Interactive Video-Based Pregnancy Exercise to Reduce Anxiety of Pregnant Women

Dewi Marfuah[1], Pitriyani Pitriyani[2]

[1]Department of Community Nursing,STIKep PPNI Jawa Barat, Bandung

[2]Bachelor Student of STIKep PPNI Jawa Barat, Bandung

OPEN ACCESS

Proceeding STIKep PPNI Jawa Barat

Website :
https://proceedings.stikep-ppnijabar.ac.id/index.php/psj

Volume 1 (1), 257-264

Article info

Received	:	December 28, 2024
Revised	:	April 22, 2025
Accepted	:	May 02, 2025
Published	:	May 19, 2025

Corresponding author
Dewi Marfuah
Sekolah Tinggi Ilmu Keperawatan PPNI Jawa Barat, Bandung, Indonesia
Jl. Muhammad No 34 Bandung, Indonesia
Email : dewi.marfuah@yahoo.com

Citation
Marfuah, D., & Pitriyani. (2025). The Effectiveness Of Interactive Video-Based Pregnancy Exercise To Reduce Anxiety Of Pregnant Women. *Proceeding STIKep PPNI Jawa Barat,* 1(1), 256-264.

Abstract

Objective: Determine the effectiveness of video-based pregnancy exercise to reduce anxiety of pregnant women.

Method: This research was Quasy Experiment with a pre and post-test approach. The population was pregnant women with a sample of 128 people which divided into two groups. Convenience sampling techniques was use to select the samples with inclusion criteria were pregnant women aged 18 years and over with gestational age past the first trimester. Data collection using questionnaires (Pregnancy Related Anxiety Questionnaire- revised 2 (PRAQ-R2). Data analysis was used Independent t test.

Results: Majority of respondents were aged 18–25 years, with 50% in the control group and 51.6% in the intervention group. 50% of respondents in the control group and 42% in the intervention group had completed senior high school. More than half of the respondents were in their second trimester of pregnancy, accounting for 62.5% in the control group and 60% in the intervention group. Independent sample test results obtained p value = 0.484 (>0.05) which means there is no significant difference between the two groups.

Conclusion: Intervention through video pregnancy exercise for second and third trimester pregnant women is not significant for reducing anxiety levels. Future studies should also explore alternative delivery methods for pregnancy exercise interventions to minimize unintended anxiety increases in both groups.

Keywords: pregnancy exercise, anxiety, pregnant women

INTRODUCTION

Pregnancy is a process that a woman goes through accompanied by significant physiological and psychological changes that can affect mental health conditions (Putri et al., 2022). One-fifth of pregnant women experience mental health problems before and after giving birth, the mental health of pregnant women is an important factor for the health of the child in the womb (Ministry of Health, 2022). *(World Health Organization., 2018)* shows that pregnant women worldwide experience mental disorders up to 10% and about 13% of women after childbirth experience psychological disorders. Often pregnant women show several psychological symptoms, especially in the first and third trimesters in the form of anxiety, irritability, unstable mood and a tendency to depression (Perkovic et al., 2021). In fact, 28.7% of Indonesians experience anxiety or other mental disorders (Salsabilla, 2020).

Anxiety in pregnant women is a normal thing that occurs in various conditions such as change, new experiences and growth, psychological disorders such as anxiety are prone to occur in pregnant women (Sari et al., 2023). In 2012,

83.4% of Indonesians experienced severe anxiety and 16.6% experienced moderate anxiety. In multigravida mothers severe anxiety is 7%, moderate anxiety is 71.5% and mild anxiety is 21.5% (*World Health Organization.,* 2014). Pregnant women experience higher levels of anxiety and are at risk of giving birth prematurely, which can result in miscarriage (Puspitasari et al., 2023). Anxiety in pregnancy can result in a decrease in uterine contractions so that labor will take longer, an increase in the incidence of uterine atonia, bleeding lacerations, infections, maternal fatigue and shock, while in babies it can increase the risk of premature birth and low birth weight (BBLR) (Ratna et al., 2023). Pregnancy Exercise activity is one of the services during pregnancy or prenatal care that aims to prepare and train the muscles so as to facilitate the delivery process and provide relaxation for the pregnancy of pregnant women in the 3rd trimester (Lubis, 2022) In addition, the knowledge and attitude of pregnant women in the 2nd and 3rd trimesters about pregnancy gymnastics is an important factor in the implementation of pregnancy gymnastics, which can help prepare and train muscles and influence pregnant women's behavior related to pregnancy gymnastics. Therefore, based on these evidences, pregnancy exercises in the 2nd and 3rd trimesters are recommended to prepare the body and psychology of pregnant women in the face of childbirth (Widyawaty & Ria Andriani, 1929).

Some interventions that can be done to reduce anxiety in pregnant women such as deep breath relaxation techniques which are one of the interventions that can reduce anxiety levels in pregnant women (Nurbaiti et al., 2022). Hypnobirthing is a natural way to overcome anxiety so that it can help the childbirth process in a natural way (Maulida, 2020). Lavender aromatherapy is effective in reducing labor anxiety (Setiati, 2019). In the previous study, it was stated that doing *Pregnancy Exercise* can provide health to the fetus, especially the heart, obesity, diabetes and hypertension problems (Septiyaningsih et al., 2020). Pregnant women are encouraged to do light exercise during pregnancy so that the mother and fetus are healthier and reduce problems that arise in their pregnancy. One of the light exercises that pregnant women can do *is Pregnancy Exercise*. The Pregnancy Exercise movement contains relaxation effects that are useful for stabilizing anxiety and reducing fear by means of physical and mental relaxation, as well as getting information that prepares them to experience what will happen during labor and birth (Yunitasari et al., 2021).

Research conducted by Okvitasari (2023), in Banjarmasin showed that pregnancy gymnastics interventions in the third trimester had an impact on stress levels carried out 2 times in 2 weeks and could help reduce the level of anxiety of pregnant women and had an effect on lowering anxiety levels. The research conducted (Fibrinika & Dewi, 2020), discussed the anxiety experienced by pregnant women during the pandemic and was given murotal therapy, yoga and *motivational interviewing*. The results of the study showed that all three interventions had an effect on pregnant women's anxiety during the pandemic.

Research *Pregnancy Exercise* This video-based is rarely done, but with the development of current technology, researchers are very interested in utilizing interventions using pregnancy gymnastics videos in which there are gymnastics movements and questions and answers in the form of direct interaction connected to the application *WhatsApp Group* (Respondents at the end of the video are directed to click on the link that is directly connected to the WhatsApp Group application) *WhatsApp Group* This is one of the media for providing discussions that can be done. According to (Riayah *et al.,* 2021) Learning Through videos is very influential in optimizing online learning, through this interactive video pregnant women will be able to learn the right movements, follow clear instructions, and modify exercises according to their needs and abilities. That way, pregnant women can still do *Pregnancy Exercise* based on interactive videos that can be accessed anywhere. Therefore, this study aims to reduce the level of depression in pregnant women by doing *Pregnancy Exercise* with the help of video as a tool for the guide.

METHODS

Study Design

This study employed a quasi-experimental design with two groups, utilizing a pretest-posttest approach to evaluate the effectiveness of interventions and measure changes before and after implementation.

Population and Sample

The study population consisted of pregnant women attending Public Health Services in Cikadu District, West Java Province, Indonesia. Participants were selected using a convenience sampling method. The required sample size was determined using G*Power software version 3.1.9.4, applying a t-test for differences between two independent means. The parameters included an effect size (f) of 0.5, a significance level (α) of 0.05, and a statistical power of 0.8. Based on these criteria, a total of 128 respondents were needed for the study. These participants were then randomly allocated into two equal groups, consisting of 64 individuals in the intervention group and 64 individuals in the control group.

Instrument

The Pregnancy-Related Anxiety Questionnaire-Revised 2 (PRAQ-R2) was utilized to measure specific forms of anxiety experienced during pregnancy. This instrument includes a set of items designed to capture concerns such as fear of childbirth, worries about the baby's health, and anxiety over bodily changes. Each item is rated by respondents using a Likert scale, typically from 1 (strongly disagree) to 5 (strongly agree). The total anxiety score is obtained by summing the responses to all items, with higher scores reflecting elevated levels of pregnancy-related anxiety. The PRAQ-R2 is widely recognized for its psychometric reliability, with previous studies reporting Cronbach's alpha values generally exceeding 0.7. This indicates a high degree of internal consistency across the questionnaire items and supports its use as a valid tool for assessing anxiety specific to pregnancy. Its standardized format allows for consistent evaluation of anxiety levels among diverse populations of pregnant individuals across different cultural and clinical settings.

Procedure Intervention

This research was conducted in December 4 to 17, 2023 for 14 days. Researcher setting room at Cikadu Public Health Services to ensure the respondents have a clear view of the video screen. Ensure audiovisual equipment (e.g., projector, speakers) is in good working condition. Introduction (5–10 minutes): Welcome the respondent and introduce the session's purpose. Highlight the importance of pregnancy exercise. Briefly explain what respondent will learn and how it applies to their pregnancy. Encourage active
participation and assure them they can ask questions during the discussion. Video Presentation (10–15 minutes) and Discussion (15–20 minutes). Feedback Collection (5–10 minutes): Distribute a short feedback form to gather pregnant women' thoughts on the session and what they learned.

Data Analysis

Collected data were analyzed using SPSS version 25. Descriptive statistics summarized demographic characteristics and anxiety scores. To assess differences between the intervention and control groups, independent sample t-tests were conducted. Additionally, paired sample t-tests were used to compare pre- and post-intervention scores within each group. A p-value of less than 0.05 was considered statistically significant.

Data Analysis

The PRAQ-R2 measured pregnancy-related anxiety. Data were analyzed using SPSS with t-tests. Ethical approval was obtained, and participants gave informed consent, ensuring confidentiality and voluntary participation throughout the study.

RESULTS

Table 1. Characteristic of the respondents (N=128)

Variable	Control Group (N=64) F (%)	Intervention Group (N=64) F (%)
Age		
18-25	32 (50 %)	33 (51.6 %)
26-35	29 (45.3%)	29 (45.3%)
36-45	3 (4.7%)	2 (3.1%)
Education		
No School	0 (0 %)	0 (0 %)
Elementary School	10 (15.6 %)	5 (7.8 %)
Junior High School	17 (26.6 %)	16 (25 %)
Senior High School	32 (50 %)	27 (42.2 %)
College	5 (7.8 %)	16 (25 %)
Occupation		
Work	11 (17.2%)	20 (31.3%)
House Wife	53 (82.8%)	44 (68.8%)
Gestational Age		
Trimester 2	40 (62.5%)	39 (60.9%)
Trimester 3	24 (37.5%)	25 (39.1%)
Parity		
Primigravida	26 (40.6%)	33 (51.6%)
Multigravida	38 (59.4%)	31 (48.4%)

Table 1 revealed that the majority of respondents were aged 18–25 years, with 50% in the control group and 51.6% in the intervention group. Regarding educational background, 50% of respondents in the control group and 42% in the intervention group had completed senior high school. Additionally, over half of the respondents were in their second trimester of pregnancy, accounting for 62.5% in the control group and 60% in the intervention group.

Table 2. Anxiety Levels of the Intervention Group and Control Group

	Intervention Group (64)	Control Group (n=64)
	Means (±SD) Min-Max	Means (±SD) Min-Max
Fear of childbirth	7.30 (±2.787) 4 - 14	7.07 (±2.667) 3 - 15
Concerns about giving birth to a physically or mentally disabled child	9.08 (±3.889) 4 -20	8.72 (±3.671) 3 - 18
Concern for one's own appearance	7.77 (±3.319) 4 -15	7.45 (±2.836) 3 - 15

The table 2 showed that the anxiety in the intervention group, where the highest anxiety occurred in the domain "worry about giving birth to a physically or mentally disabled child" with a mean score was 9.08 (±3.889). Meanwhile, the lowest anxiety was seen in the domain "Fear of childbirth" with a mean score was 7.30 (±2.787). In the control group, the level of anxiety reached the highest in the domain "Worry

about giving birth to a physically or mentally disabled child" with a mean score was 8.72 (±3.671). Meanwhile, the lowest anxiety was seen in the domain "fear of childbirth" with a mean score was 7.07 (±2.667).

Table 3 the effect of video-based pregnancy exercise to reduce anxiety of pregnant women (N=128)

	Mean Score (±SD)	Std Error Means	95% CI the Difference		t	Df	Sig. (2-tailed)
			Lower	Upper			
Intervention Group Pre-post Test	-1.438 (3.972	.496	-2.430	-2.896	0.757	63	0.005
Control Group Pre-post Test	-2.109 (5.842	.730	-3.569	-2.888	2.684	63	0.005

The table above shows that the Significance value (2-tailed) in the intervention group has a value of 0.005 with a mean score (mean difference in behavior) of -1,438. Meanwhile, the control group had a value of 0.005 with a mean score (mean difference in behavior) of -2.109.

Table 4 Differences in Anxiety Levels Before and After Video-Based *Pregnancy Exercise* Intervention

	Means Score		Mean Score	*P value*
	Pretest	Posttest		
Intervention Group	23.78	24.78	0.137	0.484
Control Group	21.78	23.89	0.239	

DISCUSSION

The highest level of anxiety in both groups was in the domain of "worry about giving birth to a physically or mentally disabled child". This result shows that pregnant women when facing childbirth have high concerns about babies born with disabilities. Judging from the characteristics of gestational age in both groups, the highest gestational age in the second trimester with the first pregnancy. The first pregnancy is a new experience that can be a factor that causes feelings of anxiety, fear and anxiety for a woman. Some problems are predictable and some are unpredictable, for example, anxiety before childbirth such as childbirth complications, anxiety about the development of the baby in the womb, fear of premature birth, and fear of giving birth to a defective baby (Koncara, 2009).

Low anxiety levels in both groups were in the domain of "fear of childbirth" because most of the respondents in the control and intervention groups were multigravida (more than one pregnancy), according to the (Puspitasari et al., 2023) Primigravida pregnant women experience varying levels of anxiety, with most experiencing mild anxiety, while multigravida pregnant women tend to experience lower levels of anxiety. Therefore, in general, there is evidence to show that pregnant women with primigravida tend to experience higher levels of anxiety compared to pregnant women with multigravida Based on the data from the study, it was found that the average anxiety level of respondents after receiving a video-based *pregnancy exercise* intervention was higher than the average anxiety level before the video-based *pregnancy exercise* intervention. Meanwhile, the control group also experienced an increase from pre-test to post-test although the increase was greater than that of the intervention group with an average score of both (0.239). Factors that may

lead to the absence of significant differences between the two groups can come from a variety of aspects, including the effectiveness of interventions that use video as a medium for gymnastics. Some studies suggest that the effectiveness of interventions through video can vary depending on the context and characteristics of the audience. A study conducted by Riayah *et al.*, (2021) which explains that learning through video is very influential in optimizing online learning. However, it depends on the characteristics of the audience and the context in which they are facing. Meanwhile, research conducted by Oktavitasari (2023), Handayani (2023), and Sánchez-Polán *et al.* (2021) with conventional pregnancy gymnastics methods there are significant differences between the control group and the intervention in reducing anxiety levels.

Pregnant women's anxiety before childbirth is influenced by several factors, including the age of the pregnant woman, parity, knowledge, socio-economy, and childbirth companion (Lestaluhu, 2023). The characteristics of the respondents may affect the absence of differences in this study. Age of the respondent may affect anxiety levels (Perkovic et al., 2021). According to Qurniyawati et al. (2014) stated that pregnant women aged 20-35 years are an age group that is often the focus of research because this age range is considered a young reproductive age and is vulnerable to high pregnancy risk. Therefore, the age of the respondents, especially young age, can affect the level of anxiety and response to pregnancy interventions.

Meanwhile, it is seen from the results of the characteristics of respondents in the age range in both groups of 18-25 and 26-35 years which shows that age in this range can affect the level of anxiety of pregnant women, which means that age is one of the factors that cause there is no difference between the control group and the intervention. According to Suryani (2020) which states that the level of education is related to anxiety, this is because the higher a person's education, the better the knowledge will also be on something, so that the understanding and knowledge will affect his anxiety.

Based on the results of the intervention, there was an effect but the effect increased in both groups. This research is not in line with research Okvitasari et al (2023) where the intervention carried out has been proven to have an effect on the anxiety level of pregnant women in the third trimester and helps reduce the level of anxiety of pregnant women. The implementation *of video-based pregnancy exercise* in this study is not effective in reducing anxiety levels in the pregnant woman population.

Factors that may cause the influence to increase are the characteristics of the respondents, the type of intervention given and the level of knowledge of the person. According to Nugraha (2020) People who have good knowledge may not necessarily be able to cope with what is happening in them. However, the more knowledge a person gains is not necessarily with this knowledge can have a good impact on lowering anxiety levels.

CONCLUSION

In this study, no statistically significant difference was found between the intervention and control groups. Several factors may have contributed to this outcome, including limitations in the measurement methods used or the possibility that a longer observation period was needed to capture meaningful changes in both groups. Although the intervention aimed to reduce anxiety through pregnancy exercise delivered via video, both groups experienced an unexpected increase in anxiety levels. This may indicate that the intervention, rather than alleviating anxiety, initially heightened awareness of pregnancy-related concerns, leading to higher anxiety scores. Additionally, the mode of delivery—through video—may not have been as effective in promoting relaxation or reassurance compared to in-person interaction. The findings suggest that while there was an observable effect in both groups, it did not favor the intervention group as expected. Future research may benefit from using alternative intervention formats and

extended follow-up periods to assess long-term impacts on pregnancy-related anxiety.

REFERENCES

Aprilia, Y. (2020). Prenatal Gentle Yoga is the key to giving birth smoothly, safely, comfortably and with minimal trauma. Pt. Gramedia Pustaka Utama.

Fasiha, Widya et al. 2022. *Pregnancy Gymnastics Module I*. Maluku: Poltekes of the Ministry of Health of Maluku.

Fatmasanti U, Bakri RR, Muchtar S, Batari K, Watampone T, Midwifery A, et al. Factors Affecting Anxiety Levels of Pregnant Women during the Covid 19 Pandemic Correspondence Address: J Kesehat Panrita Husada. 2022; 7(1):93– 104.

Gebregziabher, D., Berhe, H., Kassa, M., & Berhanie, E. (2019). Level of physical activity and associated factors during pregnancy among women who gave birth in Public Zonal Hospitals of Tigray. *BMC Research Notes*, *12*(1), 1–6. https://doi.org/10.1186/s13104-019-4496-5

Handayani, H., & Nuryati, T. (2023). The Effect of Pregnancy Exercises on Reducing Anxiety in Pregnant Women in the Third Trimester. *Journal of Scientific* Horizons, *2*(6), 2749–2758.

Indah Addilla, Misrawati, G. I. (2023). *The Effectiveness of Mindfulness Bonding Interventions for Mother and Fetus Using Smartphones on Anxiety in Pregnant*. *9*(2), 257–264.

Inge, P., Orchard, J. J., Purdue, R., & Orchard, J. W. (2022). Exercise after pregnancy. *Australian Journal of General Practice*, *51*(3), 117–121. https://doi.org/10.31128/AJGP-09-21-6181

Lestaluhu, V. (2023). Analysis of factors related to pregnant women's anxiety in facing childbirth. *Journal of Midwifery*, *3*(1), 44–50. https://doi.org/10.32695/jbd.v3i1.456

Lubis, M. (2022). Overview of the Level of Knowledge of Pregnancy Gymnastics About the Benefits of Pregnancy Gymnastics in the Working Area of the Simarpinggan Health Center, Angkola District in 2021. *Midwife*.

Lutterodt, M. C., Kähler, P., Kragstrup, J., Nicolaisdottir, D. R., & Siersma, V. (2019). *Examining to what extent pregnancy- related physical symptoms worry women in the first trimester of pregnancy : a sectional study in general practice*. 1–9. https://doi.org/10.3399/bjgpopen19X101674

Maulana, Nova; Zis, D., & 2021. (2022). Journal of Community Care. *Journal of Community Service (JPKM) - Aphelion*, *4*(December), 603–608.

Maulida, L. F., & Wahyuni, E. S. (2020). Hypnobirthing as an effort to reduce anxiety in pregnant women. *Gaster*, *18*(1), 98. https://doi.org/10.30787/gaster.v18i1.541

Ningsih, E. S. (2018). The Relationship between the Education Level of Pregnant Women in the Third Trimester and the Regularity of ANC Visits. *Journal of Midwifery*, *9*(2), 5. https://doi.org/10.30736/midpro.v9i2.19

Nugraha, A. D. (2020). *Understanding Anxiety : A Perspective of Islamic Psychology* *' . *2*(1), 1–22.

Nurbaiti, M., Citra Dewi, A. D., Surahmat, R., & Putinah, P. (2022). Deep Breath Relaxation Technique to Reduce Anxiety Levels in Pregnant Women. *Journal of Community Service Creativity (PKM), 5*(3), 652–659. https://doi.org/10.33024/jkpm.v5i3.5462

Perkovic, R., Tustonja, M., Devic, K., & Kristo, B. (2021). Music therapy and mental health in pregnancy. *Danubina Psychiatria*, *33*(Rak 2014), 786–789.

Puspitasari, D., Margiyati, M., & Darmawati, D. (2023). Overview of the anxiety level of pregnant women with primigravida and multigravida in the third trimester in dealing with childbirth. *Journal of Midwifery Sciences*, *9*(2), 89–92. https://doi.org/10.48092/jik.v9i2.202

Putri, N. R., Amalia, R., & Kusmawati, I. I. (2022). Pregnant Women's Classes on Pregnant Women's Psychological Health and Childbirth Preparation: A Systematic

Review. *Indonesian Journal of Midwifery (IJM),* *5*(1), 29. https://doi.org/10.35473/ijm.v5i1.1427

Qurniyawati, Eny, Murti, Bisma, Tamtomo, & Didik. (2014). The relationship between the age of pregnant women, the number of children, the distance of pregnancy and the incidence of unwanted pregnancies in BPM Titik Hariningrum, Madiun City. *National Journal of Public Health*, *8*(5), 229–234.

Ratna, E., Silalahi, D., Marbun, B. N., & Purba, J. M. (2023). *Effect of hypnotherapy on anxiety reduction*. *4*(2), 4132–4138.

Renda Pratama, A. M. (2018). *No Title*. *9*(3). https://doi.org/https://doi.org/10.36729/bi.v9i3.763

Riayah, S., & Fakhriyana, D. (2021). Optimization of Online Learning with Interactive Video Learning Media on Students' Mathematical Understanding. *Journal of Mathematics Education (Kudus),* *4*(1), 19. https://doi.org/10.21043/jmtk.v4i1.10147

Sabilah, H., & Eviyanti, A. (2022). The calculation of nutritional calories in pregnant women is based on the website using the Cooper method. *National Seminar on Technological Innovation*, 117–112.

Salsabilla, A. R. (2020). Lavender Aromatherapy as a Decrease in Childbirth Anxiety Levels. *Sandi Husada Health Scientific Journal*, *12*(2), 761–766. https://doi.org/10.35816/jiskh.v12i2.407

Sánchez-Polán, M., Silva-Jose, C., Franco, E., Nagpal, T. S., Gil-Ares, J., Lili, Q., Barakat, R., & Refoyo, I. (2021). Prenatal anxiety and exercise. Systematic review and meta-analysis. *Journal of Clinical Medicine*, *10*(23). https://doi.org/10.3390/jcm10235501

Sari, S. N., Wahyuni, S., & Distinarista, H. (2023). *The Relationship Between Pregnancy Status and Semarang*. *47*, 1103–1112.

Septiyaningsih, R., Yunadi, F. D., & Kusumawati, D. D. (2020). Pregnancy Gymnastics in Physical Preparation in Childbirth. *Poltekita: Journal of Community Service*, *1*(2), 50–55. https://doi.org/10.33860/pjpm.v1i2.100

Setiati, N. W. (2019). The Effectiveness of Lavender Aromatherapy to Reduce Anxiety in Pregnant Women in the Third Trimester in Preparation for Childbirth at Nurussyifa Independent Practice Midwife, Buniseuri Ciamis District. *Bakti Tunas Husada Health Journal: Journal of Nursing Sciences, Health Analyst and Pharmacy*, *19*(1). https://doi.org/10.36465/jkbth.v19i1.449

Shariatpanahi, M., Farghadani, A., Faramarzi, M., & Shirafkan, H. (2023). *Prevalence and risk factors of prenatal anxiety disorders : A cross - sectional study*. *January*, 1–9. https://doi.org/10.1002/hsr2.1491

Sriatmi, A., Jati, S. P., & Budiyanti, R. T. (2020). *Support and Perception of Pregnancy Complications Prevention Behavior*. *4*(3), 347–358. https://doi.org/https://doi.org/10.15294/higeia/v4i3/38056

Sukmawati, F. N. (2020). *The use of supplements and vitamins for the Diploma III Pharmacy Study Program*. 25.

Widyawaty, E. D., & Ria Andriani. (1929). The Relationship of Knowledge of Pregnant Women in the II-III Trimester about Pregnancy Gymnastics with Hami Gymnastics. *Journal of Nursing and Midwifery*, *0231*, 119–140.

Yunitasari, I., Suwanti, S., & Halimatusyaadiah, S. (2021). The Effect of Pregnancy Exercises on Anxiety and Sleep Quality of Pregnant Women in the Second and Third Trimesters. *Journal of Midwifery Update (MU),* *3*(2), 107. https://doi.org/10.32807/jmu.v3i2.117