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DOI: [10.31965/infokes.Vol21Iss3.969](https://doi.org/10.31965/infokes.Vol21Iss3.969)Journal homepage: <https://jurnal.poltekkeskupang.ac.id/index.php/infokes>**RESEARCH****Open Access****The Use of Digital Media "Tayo Prenatal" on Anxiety Pregnant Women****Dian Pratiwi<sup>1a\*</sup>, Elisabeth Lalita<sup>2b</sup>, Amelia Donsu<sup>3c</sup>, Nancy Oliy<sup>4d</sup>**<sup>1</sup> Department of Midwifery, Politeknik Kesehatan Kementerian Kesehatan Manado, Manado, North Sulawesi, Indonesia<sup>2</sup> Department of Midwifery, Politeknik Kesehatan Kementerian Kesehatan Gorontalo, Gorontalo, Indonesia<sup>a</sup> Email address: [pratiwi.dian1826@gmail.com](mailto:pratiwi.dian1826@gmail.com)<sup>b</sup> Email address: [emflalita@gmail.com](mailto:emflalita@gmail.com)<sup>c</sup> Email address: [ameliyaks.donsu@gmail.com](mailto:ameliyaks.donsu@gmail.com)<sup>d</sup> Email address: [oliinancy7@gmail.com](mailto:oliinancy7@gmail.com)

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**Abstract**

Globally, people are experiencing increased feelings of stress, anxiety, and depression as a consequence of the situation that has arisen due to the current pandemic. Pregnant women also often feel anxious and afraid of being exposed to COVID-19, which has an impact on anxiety and mood disorders. Yoga is an ancient way of living in harmony with oneself (body, emotions, and mind) and nature and can improve individual health and reduce stress. This study aims to determine the average difference in anxiety in pregnant women after being given "prenatal tayo". This research is a quasi-experiment using a pretest-Posttest Control Group Design, with 25 respondents fulfilling the inclusion and exclusion criteria. The inclusion criteria in this study were pregnant women with gestational ages between 14 and  $\leq 30$  weeks, being able to read and write, and owning a smartphone. Exclusion criteria in this study were pregnant women with pregnancy complications and pregnant women with a history of previous miscarriages caused by a weak uterus or heart disease. The sampling technique is purposive sampling. Statistical tests using independent T test and Paired T-Test. There is a difference in the anxiety of pregnant women before and after being given "Tayo Prenatal". More research is needed regarding changes in anxiety in pregnant women measured every week to determine the effect of the intervention of giving "Tayo Prenatal" compared to giving Yoga.

**Keywords:** Yoga Online, COVID-19, Anxiety, Pregnant Women.

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## 1. INTRODUCTION

COVID-19 is causing increased mortality and morbidity, but also enormous economic loss, social and cultural disruption, which may raise concerns about the potential for widespread increases in mental health problems (Ransing et al., 2020; Wang et al., 2020). Globally, people are experiencing increased feelings of stress, anxiety, and depression as a consequence of the situations that have arisen due to the pandemic (Huang & Zhao, 2020). Centers for Disease Control and Prevention (CDC) advise everyone, including pregnant women, to stay at home or maintain a distance of at least 1 meter outside the home to reduce the risk of contracting COVID 19 (Centers for Disease Control and Prevention, 2020). The isolation and social distancing felt by pregnant women will increase the risk of anxiety and mood disorders (Mcgonagle et al., 2020).

Pregnant women are a high risk group for COVID 19 (Allotey et al., 2020; Ellington et al., 2020; Taubman–Ben-Ari et al., 2020). Pregnant women are more susceptible to lung infections due to physical changes in the respiratory system (Allotey et al., 2020; Ellington et al., 2020). Pregnant women also often feel anxious and afraid of being exposed to COVID-19, which has an impact on anxiety and mood disorders (PAMD) (Durankuş & Aksu, 2020; Mcgonagle et al., 2020). Pregnant women had significantly higher rates of mood disorders during the COVID-19 pandemic compared to the general population (Harville et al., 2010). Recent data suggest that pregnant women are at high risk for COVID-19 infection and hypoxic disorders because of changes in cardiorespiratory and immune function (Dashraath et al., 2020).

In low- and middle-income countries, antenatal depression has become a major public health problem, with a prevalence of 25.3% (95% confidence interval) [CI]: 21,4-29,6%) (Shidhaye et al., 2020). Research conducted by Lin et al., (2022) showed that worldwide, around 12% of women suffer from depression during pregnancy (Lin et al., 2022). Severe life disturbances due to COVID-19, fear of contracting the disease, and anticipation of adverse economic impacts have led to an increase in symptoms of depression, anxiety, and stress among the general public as well as healthcare providers (Moreno et al., 2020).

In addition, depression during pregnancy has been reported to be a cause of intrauterine growth restriction, preterm birth, or low birth weight. Unfortunately, most women with perinatal depression seem unlikely to receive therapy. Pharmacotherapy is the most common treatment for patients with depression, although most antidepressants have been shown to produce adverse fetal effects in animals. One meta-analysis previously reported that the efficacy of antidepressants in the treatment of pregnant women with depression is unclear (Lin et al., 2022). These antidepressants may have adverse effects on the fetus, so nonpharmacological treatments appear to be safer methods of treating depression during pregnancy, such as psychotherapy, music therapy, and exercise (Lin et al., 2022; Ponting et al., 2020).

Study Davenport et al reported that many pregnant women have experienced a decrease in their level of physical activity since the start of social distancing and isolation at home, which can increase the risk of mental health (Davenport et al., 2020). Recommendations from the American College of Sports Medicine suggest that pregnant women who do a minimum of 150 minutes of physical activity per week, such as yoga, swimming, and walking, have a lower anxiety score than those who do not (Hermann et al., 2021; Hyun et al., 2022; Liguori & Medicine, 2020). Yoga is an ancient way of living in harmony with oneself (body, emotions, and mind) and nature (Jasti et al., 2020). Yoga involves relaxation and meditation, which can improve the psychological symptoms you are experiencing (Selman et al., 2015). Evidence shows that yoga can be a suitable strategy for improving individual health and reducing stress

during the COVID-19 pandemic and beyond (Gallegos et al., 2017; Pascoe et al., 2017; Zou et al., 2018).

Yoga is mostly introduced and practiced through face-to-face yoga classes delivered by certified professional experts. However, for some people, it can be difficult to leave the house to attend regular yoga classes. Study Strömberg et al., (2021) stated that respondents did not join face-to-face yoga classes because it was too time-consuming and tiring to leave their homes twice a week to travel (sometimes long distances). The distance to the location of the health worker, costs, and time for implementation are some of the things that are often found to be barriers for pregnant women coming to do prenatal yoga. Intervention is needed to deal with these problems according to current conditions. Tele-intervention, which uses telecommunications technology to support remote clinical health care, health-related education, and public health. Recent trials of remote cardiac rehabilitation show that the use of tele-technology can help increase enrollment, reduce risk factors, and increase the cost-benefit ratio (Selman et al., 2015).

Advances in video conferencing technology have made it easier for individuals who face these barriers to participate in prenatal yoga from home. These programs have the potential for significant cost savings as well as the ability to reach larger numbers of people in communities. Access to a live coach and commitment to a person or group can also help with adherence to a yoga program, and online platforms provide convenience and accountability. Successful implementation of a real-time home-based yoga program will increase access and increase adherence among participants (Selman et al., 2015).

The results of a preliminary study at the Wolaang Public Health Center stated that classes on pregnant women and pregnancy exercise had been held. However, this activity did not work because, at the time it was held, many pregnant women were working and selling in the market. In addition, many pregnant women are too lazy to come to the Community Health Center because the distance from where they live to the Community Health Center is far and there is no one to accompany them. The average number of pregnant women in the second trimester at the Wolaang Community Health Center from January to March was 26 pregnant women. The results of interviews with 6 pregnant women stated that 3 pregnant women sometimes had difficulty sleeping, complained of pain in the back and hips; 2 experienced anxiety during pregnancy; and 1 pregnant woman reached the consultation stage with a psychiatrist. The aim of this research is to determine the differences in the use of digital media "tayo prenatal" on anxiety in pregnant women at the Wolaang Community Health Center, East Langowan District, Minahasa Regency.

## 2. RESEARCH METHOD

The research design uses the quasi-experiment method using the Pretest-Posttest Control Group Design. Sampling was done using the purposive sampling technique. The inclusion criteria in this study were pregnant women with gestational ages between 14 and  $\leq 30$  weeks, being able to read and write, and owning a smartphone. Exclusion criteria in this study were pregnant women with pregnancy complications and pregnant women with a history of previous miscarriages caused by a weak uterus or heart disease. Purposive sampling method was used to recruit participants based on inclusion criteria and exclusion criteria. The sample size was calculated using Open Epi Version 3 with a confidence level of 95%. The sample size was 23 respondents.. To avoid dropping out, the number of samples was increased by 10% so that there were now 25 respondents.

Respondents dropped out if they left the WhatsApp group, experienced problems with their pregnancy, or did not actively join the prenatal yoga conference after being given the third treatment. The intervention was given for approximately 60 minutes in each session. The duration of the intervention was in accordance with Strömberg et al., (2021) that yoga

intervention was given for 60 minutes. The intervention was carried out for 8 weeks (Howie-Esquivel et al., 2010; Selman et al., 2015). An instrument for measuring sleep quality using the HARS scale. This research has been approved by the research ethics committee of the Manado Health Polytechnic Ministry of Health with number KEPK.01/08/138/2022. This study was analyzed by independent T test and Paired T-Test.

### 3. RESULTS AND DISCUSSION

**Table 1.** Frequency Distribution of Respondent Characteristics.

Mother's Characteristics	Yoga		Tayo Prenatal		Total
	n	%	n	%	
Average age (min-max)	22.00 (14-34)		27.04 (21-34)		
Educational					
Low (Primary school- Junior high school)	13	52	8	32	21
Tinggi (Senior high school- College)	12	48	17	68	29
Mother's job					
Housewife	8	32	7	28	15
Working mother	17	68	18	72	35
Parity					
Primipara	16	64	14	56	30
Multipara	9	36	11	44	20
Anxiety, mean (min-max)	21.56 (14-32)		25.12 (18-38)		

Table 1 shows the characteristics of the respondents. Characteristics of respondents "Tayo Prenatal" average age of 27.04 years and Yoga respondents average age of 22 years. The minimum and maximum ages for the "Tayo Prenatal" group are 21-34 years, while the minimum and maximum ages for the Yoga group are 14-34 years. The number of respondents in the Yoga group was almost the same, namely low education (52%) and higher education (48%). The majority of respondents in the "Tayo Prenatal" group have higher education (68%). The majority of work in the Yoga and "Tayo Prenatal" groups are working mothers. Mothers who worked in the Yoga group were 17 (68%) while in the "Tayo Prenatal" group there were 18 (72%). Parity in the Yoga and "Tayo Prenatal" groups is for the majority of Primipara mothers. There were 16 (64%) of the primiparous mothers in the group given Yoga, while in the "Tayo Prenatal" group there were 14 (56%). Respondents' anxiety during the pre-test was higher in the Tayo Prenatal group (25.12) than in the Yoga group (21.56). The minimum scores and maximum scores for the Yoga group are 14-32 while the minimum scores and maximum scores for the "Tayo Prenatal" group are 18-38.

**Table 2.** Differences in average anxiety before and after being given Yoga and Tayo Prenatal.

Variable	Pre test	Post test	Δ mean 95% CI	p-value
	Mean ± SD	Mean ± (SD)		
Anxiety				
Yoga	21.56 ± 5.347	18.80 ± 5.292	2.760 (2.461-3.059)	0.000
Tayo Prenatal	25.12 ± 5.403	21.76 ± 5.190	3.360 (2.916 – 3.804)	0.000

Table 2 shows the mother's anxiety score after being given "Tayo Prenatal". The average pre-test anxiety score for pregnant women in the Yoga group was lower (21.56) compared to the "Tayo Prenatal" group (25.12). After being given interventions in the form of "Tayo Prenatal" and yoga, anxiety scores decreased in both groups. The anxiety score after being given Yoga and "Tayo Prenatal" decreased. in the "Tayo Prenatal" group (21.76) and the Yoga group (18.80). The statistical test showed a p value  $<0.05$  so that there was a significant difference in anxiety before and after being given "Tayo Prenatal".

**Table 3.** Differences in the average decrease in anxiety and sleep quality in the Tayo Prenatal group and the Yoga group.

Variable	Mean (SD)	CI 95%	$\Delta$ mean	p-value
<b>Anxiety</b>				
Yoga	2.76 (0.723)	0.077-1.123	0.60	0.026
Tayo Prenatal	3.36 (1.075)			

Based on table 3, it can be seen that statistically the average score for reducing anxiety in the "Tayo Prenatal" group is higher than the Yoga group. Statistical tests showed that the anxiety variable had a p-value  $<0.05$  so it was concluded that there were differences in anxiety in the yoga group and the Tayo Prenatal group. An increase in the score of the anxiety variable showed that the average score increase in the "Tayo Prenatal" group was higher (3.36) than the Yoga group (2.76).

This research is an intervention study on the use of digital media "tayo prenatal" on anxiety in pregnant women. The study was conducted for 8 weeks, and pre-test and post-test evaluations were carried out at the beginning and end of the activity. This study used home-based remote intervention (Zoom). The reason for using this intervention is that because of the COVID-19 pandemic, many pregnant women are isolated and limited in their activities. Pregnant women find it helpful because they don't have to go outside the house to do yoga activities, which also saves time and money. However, technological problems sometimes result in poor video streaming quality.

Several studies emphasize the importance of exercise for pregnant women, which can be beneficial for reducing anxiety during pregnancy. In addition, exercise can provide anti-inflammatory and antiviral effects (Birsner & Gyamfi-Bannerman, 2020). Alternative, non-face-to-face online programs are used in some settings, and there is some evidence of their effectiveness for pregnant women (Hyun et al., 2022).

This study examines the effect of a prenatal virtual yoga practice program for pregnant women to reduce anxiety during pregnancy, which is called Tele Health Yoga, abbreviated as "Tayo Prenatal". "Tayo Prenatal" focuses on breathing movements and light stretching that are safe for pregnant women to use at home.

Anxiety in pregnant women can have an impact on increasing neonatal mortality and morbidity in infants. The findings in this study indicate that Tayo Prenatal can significantly reduce anxiety in pregnant women and offer a model for providing care for pregnant women. Compliance in the Tayo Prenatal group was good, satisfaction was high, and respondents felt more privacy to ask questions because they were in the breakout room. Whereas adherence in the control group was not good because the distance between the respondent's house and the health service facility was quite far and the respondent was not free to ask yoga practitioners.

The results of the Tayo Prenatal intervention showed that there was a significant difference in reducing anxiety in respondents who were given Tayo Prenatal and yoga. Several respondents said that the benefits of "tayo yoga" are that it is more flexible and saves time. This is in accordance with research by Selman et al., that the benefits of Tele-Yoga are cost savings and the ability to reach more people in society (Selman et al., 2015).



Pregnant women with high levels of anxiety have a poorer quality of life which can have a negative impact on childbirth, such as premature birth and Sectio caesarea delivery. Anxiety in pregnancy can also affect postpartum recovery, cause problems bonding between mother and baby, and increase the risk of anxiety and even depression later in life. In addition, it has a negative impact on fetal brain development, which can affect learning and behavior in childhood (Duchette et al., 2021).

Research by Davenport et al reports that many pregnant women have experienced a decrease in their level of physical activity since the start of social distancing and isolation at home during the COVID-19 pandemic, which can increase mental health risks (Davenport et al., 2020). Recommendations from the American College of Sports Medicine suggest that pregnant women who do a minimum of 150 minutes of physical activity per week, such as yoga, swimming, and walking, have a lower anxiety score than those who do not (Hermann et al., 2021; Hyun et al., 2022; Liguori & Medicine, 2020).

Several studies emphasize the importance of exercise for pregnant women, which can be beneficial for reducing anxiety and stress during pregnancy. In addition, it can provide anti-inflammatory and antiviral effects (Birsner & Gyamfi-Bannerman, 2020). Alternative online, non-face-to-face programs are used in some settings, and there is some evidence of their effectiveness in pregnant women (Hyun et al., 2022).

The results of the Tayo Prenatal intervention showed that there were significant differences in reducing anxiety in respondents who were given Tayo Prenatal and face-to-face yoga. The average reduction in anxiety for pregnant women given Tayo Prenatal was (3.36) higher than for pregnant women given Yoga (2.76). Some respondents said that the benefits of "tayo yoga" are that it is more flexible and saves time. According to research by Selman et al., the benefits of Tele-Yoga are increased flexibility and strength, increased motivation, increased ability to overcome shortness of breath, improved sleep, and becoming better able to deal with anxiety or stress (Selman et al., 2015).

Other factors that affect anxiety are age, occupation, education, and the parity of pregnant women. A person's psychology is influenced by age. With increasing age, the level of emotional maturity of a person will increase. A healthy reproductive age ranges from 20-35 years old. Pregnant women younger than 20 years or older than 35 years have a high-risk pregnancy that can cause anxiety and sleep disturbances (Hamdiah et al., 2017).

The majority of mothers' education in the Tayo Prenatal and yoga groups was in the higher education group. Higher education can help mothers have a broader education and more easily understand the information provided (Pratiwi et al., 2021). Low education is a contributing factor to the occurrence of anxiety and sleep disturbances.

Work also affects anxiety and sleep disturbances experienced by pregnant women. Pregnant women who work worry about losing their jobs if their work cannot be completed because of their pregnancy. On the other hand, if the work of pregnant women is not too heavy and does not require too much energy, and the mother can do it during pregnancy, her work can have a positive impact (Said, Kanine & Bidjuni, 2015).

Parity is the number of deliveries a mother has experienced, both live births and stillbirths. The anxiety experienced by primiparous mothers is certainly different from that of multiparous women, because multiparous mothers have had previous birth experience (Pratiwi et al., 2021). For primigravidas, the pregnancy they are experiencing is their first experience, so the third trimester is felt to be even more worrying because it is getting closer to the delivery process. Mothers will tend to feel anxious and experience sleep disturbances with their pregnancy, feel anxious, and be afraid of facing childbirth, considering that ignorance is a contributing factor to anxiety.

The weakness in this study is that it is the first study on the use of online "Tayo Prenatal" for pregnant women, and therefore, this study has limitations. The first is the inconsistency of the software used. Pregnant women with several conditions who cannot do "Tayo Prenatal" virtually can view Zoom recordings. The solution so that pregnant women are monitored in "Tayo Prenatal" is for pregnant women to send videos of researchers demonstrating yoga. This study shows that pregnant women are willing to take part in "Tayo Prenatal" activities. The limitation of this research is that researchers do not yet know whether pregnant women are willing to continue using "Tayo Prenatal" if this activity is not subsidized (given an internet package).

#### 4. CONCLUSION

There is a difference in the anxiety of pregnant women before and after being given "Tayo Prenatal". Providing the "Tayo Prenatal" intervention can save time and money. Pregnant women don't need to leave the house to do yoga activities. More research is needed regarding changes in anxiety in pregnant women measured every week to determine the effect of the intervention of giving "Tayo Prenatal" compared to giving Yoga.

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