

# The Effectiveness of Using Gadgets on Pregnant Women

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**Abstract.** The high maternal death cases in Indonesia especially from indirect cases come from delay to identify the dangers of labor, to make a decision, to refer the patient and to get a medical intervention. These cases because of unpreparedness of pregnant women to face the labor and the complication. There are 78% people use gadget, including the pregnant women. It can be potential thing to increase the preparedness of the pregnant woman to face the labor and complication by get information from internet. This study aims to identify the effectiveness of gadgets to increase the preparedness of pregnant women facing labor and complications. **Method:** This research is a quasi-experimental design with 60 respondents. This study used quota sampling method, conducted on April-May 2019 in Kudus. The intervention was the use of gadgets as a source information of pregnancy and preparation of labor that carried out 5-30 minutes 1-2 times per day for 1 month. The instrument was modified Birth Preparedness and Complication readiness (BPCR). The data analysis used t-test. **Results:** Gadgets can be used to increase the preparedness of pregnant women facing labor and complication. It was proven by the results of statistical tests with a value of  $p = 0.04$ . **Conclusion:** The use of gadgets to increase the readiness to face labor and complications is recommended for pregnant women but it must be balance with awareness of the negative effects, such as impaired vision and concentration, decrease quality of sleep and make gadget addiction.

**Keywords—***Effectiveness, Gadget, Pregnant*

## I. INTRODUCTION

The Millennium Development Goals (MDGs) program has ended in 2015. The very important of MDGs program was to reduce the high maternal mortality rate (MMR). It was continued by the Sustainable Development Goals (SDGs) 2016-2030. According to the 2012 Indonesian demographic and health survey (SDKI), MMR amounts to 359 per 100,000 live births. The target of reducing MMR in 2030 is 70 per 100,000 live births [[1][2].

Indonesia was the highest MMR country in ASEAN if it compared to Malaysia, Singapore, Thailand and the Philippines. The death risk of a labor mother in Indonesia

is 1: 65 compared to 1:1.100 in Thailand. In 2007, the incidence of childbirth complications was 47%. The types of birth complications are 9% prolonged labor, 37% bleeding, 7% fever, 2% convulsions, 4% other complications. Labor complications are a direct cause of maternal morbidity and death. Indirect causes of maternal death in Indonesia are the delay to recognizing the dangers of childbirth, delay to making decisions, delay to referring and getting treatment. Delays in making decisions or delays in referring may be caused by unreadiness of the mother and family facing childbirth[3]].

Labor preparation is a structured activity. Labor planning is used to anticipate emergencies. Labor preparation is one of the strategies in labor planning. Labor planning includes a minimum of four times during pregnancy check-up during pregnancy, knowledge of danger signs of pregnancy, place of delivery, birth attendants, labor costs, transportation, childbirth assistance, who is guarding at home and a potential blood donor [4].

Labor preparation aims to preparing for all needs during pregnancy and labor. Knowledge and labor preparation in third trimester pregnant women include maternal and fetal risk factors, psychological and physiological changes, danger signs and how to respond of them, feelings about labor and infant development, symptoms of labor and family treatment. The labor readiness of the pregnant women in development country was lack. 47,8% in India, 17% in Ethiopia, 23% in Ghana and 34,9% in Nigeria. It caused by the lack of knowledge pregnant women about labor complication and emergency. Labor preparedness help the pregnant women got the profesional health care services when the labor started and reduce the risk of labor complication. Several things that must be prepared before labor are don't be panic and worry about the labor, keep calm, have the family support. Family support make the pregnant women more confident to facing the labor. Five important things on labor preparedness are labor planning, the decision maker if there is a labor complication, labor fund, other facility that needed [5][6][7].

Giving antenatal care education or antenatal class for high risk pregnant women can increase the labor readiness and reduce the worrie, make more relax and increase her confident to facing the labor. Antenatal class is a pregnant women activities under the monitor of midwife to preparing the labor and giving more information about pregnant and labor. [5][8][9]

There are 107,000,000 (28.7%) of 373,000,000 pregnant women who experience anxiety to face the labor. there are 679,765 women who have anxiety when they face the labor . One of the factors that influence maternal anxiety and readiness during pregnancy is mother's knowledge.[10]

Beside antenatal class, we can increase the pregnant women knowledge by use the gadgets to get information of labor preparation. Now, gadgets are very known and be the important thing for every person. The gadgets using is very broad and supports the media communication. It means, gadgets can provide the information, gadgets as a media to find alternative solutions of the problems. It is caused of the Internet technology on the gadgets [11][12].

Internet give the worldwide information include labor preparation. It effects the readiness of the pregnant women to face the labor.This study aims to identify the effectiveness of using gadgets to increase the readiness of pregnant women facing labor and complications.

**II. METHOD**

This is a quasi-experimental study by comparing between intervention and control groups. The sampling method used quota sampling. This study used 30 respondents in the intervention group and 30 in the control group. This study conducted in April-May 2019 in Kudus Regency, Central Java and used instrument Birth Preparedness and Complication readiness (BPCR) which modified to determine the readiness of pregnant women to face labor and complications. In the intervention group, respondents should be use gadgets as a source of information about pregnancy and preparation for labor with 5-30 minutes 1-2 times a day and carried out for 1 month.In the control group, respondents did not use gadgets to access information about pregnancy and childbirth preparation . Both of the two groups received information about pregnancy and labor preparation from health workers in the antenatal class and health care facilities. The data analysis used t-test.

**III. RESULT AND DISCUSSION**

The results of the study include data on the characteristics of respondents, differences in readiness of pregnant women before and after the intervention, differences in readiness between the intervention and control groups.

TABLE 1. HOMOGENEITY TEST BASED ON THE CHARACTERISTICS OF RESPONDENT

Variable	Cotrol Group n=40	Intervention Group n=40	Total	X <sup>2</sup>	P
	%	%			

Education							
Elementary	2	6.7	2	6.7	4		
School	10	33.3	8	26.7	18	0.347	0.951
Junior high school	15	50	17	56.6	32		
Senior high school	3	10	3	10	6		
University	30	100	30	100	60		
Total							
Occupation							
Unemployed	10	33.3	15	50	25		
Employed	20	66.7	15	50	35	1.714	0.19
Total	30	100	30	100	60		
Family income							
Low	16	53.3	11	36.7	27		
Medium	14	46.7	19	63.3	33	1.684	0.194
Total	30	100	30	100	60		
Parity							
Primigravida	10	33.3	16	53.3	26	2.443	0.118
Multigravida	20	66.7	14	46.7	34		
Total	30	100	30	100	100		

Most of the respondents of intervention and control group are high school educated, multigravida, as an employed and have medium level of family income. The level of education will affect perception to accept the new ideas and technologies. Besides that, education can make it easier for someone to take decisions and act. Education is an effort to develop oneself that lasts a lifetime both through the school environment and outside the school. The higher level of education of a person, the person will be easier to receive information including information about health. The higher the level of education, the more knowledgeable the person. But it turns out if someone has a low level of education then not always low knowledge because someone's knowledge is not absolutely obtained from formal education but also non-formal education. A person's knowledge about an object also contains two aspects, namely positive and negative aspects. These two aspects will ultimately determine a person's attitude towards a particular object. The more positive aspects of the object that are known, will foster a more positive attitude towards the object. [13]

Occupation can increase the someone knowledge because it is related to the social and cultural interaction. The social and cultural interaction are related to the information exchange and give effect to the understanding process of new information. We can get new information by hearing or seeing the others experience.[ 14 ]

Parity is one of the mother health experience. Experience was gotten by repeating the knowledge in the past. Experience is a source of knowledge, or experience is a way to obtain the truth of knowledge. Therefore personal experience can also be used as an effort to gain knowledge. This is done by repeating the experience gained in solving problems encountered in the past.

Economic status will affect her knowledge because economic status will determine the availability of a facility to get information, so the socioeconomic status will affect to the knowledge. A women's knowledge about pregnancy and labor can be obtained by reading from online media on the gadgets. The ability of a person to

own a gadget is greatly influenced by their economic status although not all gadgets are expensive but the internet quota used also requires a fee.

TABLE 2. THE DIFFERENCES OF READINESS BETWEEN THE INTERVENTION AND CONTROL GROUP BEFORE AND AFTER THE INTERVENTION

Readiness Variable	Control group n=30			Intervention group n=30		
	Mean	SD	P	Mean	SD	p
before	5.86	1.57	0.03	6.73	2.13	0.01
after	8.03	1.45		11.13	2.89	

The readiness of respondents in the intervention group was significant with p value = 0.01 and in the control group was significant with p value = 0.03. Based on the study results, the using of gadgets can increase the readiness of pregnant women facing labor and complications.

TABLE 3. DIFFERENCE IN MEAN DIFFERENCE BETWEEN THE CONTROL AND INTERVENTION GROUPS AFTER RECEIVING THE INTERVENTION

Group		the difference in mean	SD	P
Intervention	Before-after	4.81	2.22	0.04
Control	Before-after	3.75	1.70	

The mean's difference on readiness of pregnant women facing labor and complications in the intervention group is greater than the mean's difference in the control group. Gadgets can be used to increase the readiness of pregnant women facing labor and complications. It is proven by the results of statistical tests with a value of p = 0.04. Readiness is a form of attitude in dealing with something. Readiness is strongly influenced by knowledge, skills, personality, intelligence and insight. Understanding in thinking will make someone feel comfortable so that they will be ready to face everything. Readiness to face labor and complication is the adaptability of a mother included physically and mentally. There are many factors give effect to the readiness of mothers to face labor and complications, including experiences of previous pregnancy and labor, coping mechanisms or the ability adaptation. Unpreparedness of mothers in facing labor and complications is one of the factors causing the high maternal mortality rate (MMR) and infant mortality rate (IMR) in Indonesia. The occurrence of maternal death is related to direct and indirect causes. The direct cause of maternal death in Indonesia are dominated by bleeding, eclampsia and infection. While the indirect causes of maternal death are cases "three late", namely late in recognizing the dangers of labor and making decisions, late being referred and late handed.

Labor preparation is everything that is prepared in terms of welcoming the birth of a child by mother. Readiness for labor in the third trimester include risk factors for the mother and fetus, psychological and

physiological changes, danger signs and how to respond to them, feelings about labor and infant development, signs of labor, response to the birth, and family-centered care. The low readiness of women for labor is due to inadequacy or lack of maternal readiness to give birth and readiness to deal with emergencies, which is a key component of maternal safety programs globally. Labor readiness helps ensure that women can achieve professional delivery services when labor starts and reduces delays that occur when women experience obstetric complications. What should be prepared for the mother before labor are to avoid panic and fear. The mother should be calm. The mother and family should be know where is the health facilities as labor place that be chosen. The mother should believe that labor process can do properly. The mother should be better prepared in addition to asking for support from those closest to them, because attention and affection will certainly help provide encouragement to mother who will give birth.[15][16]

The duty of the midwife as a responsible, and accountable professional health workers are giving support, care and advice during pregnancy, labor, lead the labor on its own responsibility and provide care for newborns. This care includes prevention efforts, promotion of normal labor, detection of complications for mothers and baby, access to medical assistance or other appropriate assistance, as well as carrying out emergency measures[17].Beside lead the labor, midwives also have important duties such counseling and health education, not only to women, but also to families and communities. These activities include antenatal education, preparation for parenthood, promotion of women's health, sexual health or reproductive health and child care. There is a correlation between mother's knowledge and the ability to access the media. Pregnant women who are able to access information to the media (online) have good knowledge and perceptions for the utilization of maternal and child health services.[18]

A gadget is a mini mechanical interesting tool device because it will provide a lot of fun for its users even though it may not be practical in used. Gadget as a small electronic device that has many functions. Gadget (smartphone) has many functions for its users so it is considered easier. Gadgets (smartphones) or in simple words mobile phones that currently have a variety of features and functions that are increasingly complex in order to facilitate the wearer are new breakthroughs of previous mobile phones. Based on expert opinion, it is concluded that the gadget is a wireless communication tool that has a special function to helps human work and can be carried everywhere. Gadget functions, among others, for Personal Digital Assistant (PDA) such as calendars, personal schedules, address books, and have the ability to access the internet, open emails, create documents, play games, and open other applications. [(19)[ 20]

Gadgets have the same functions as computers, so users can change the function of the cell phone into a mini computer. To increase knowledge about technological advancements, smartphone communication tools such as

gadgets are one of the results of current technological advancements. Gadgets can be used to increase knowledge about the progress of science and technology including health, labor and complication in the globalization era [12]

Beside of the positive effects, gadgets also have negative effects including: being introvert, brain health disturbed, eye health disrupted, health of the hands interrupted, sleep disturbance, like to be alone, violent behavior, fading creativity, exposure to radiation, exposure to cyberbullying. Besides that, the effects of using gadgets are increasingly risk of cancer due to radiation, deafness, eye irritation and myopic. Therefore, the use of gadgets to increase the readiness of a pregnant women to face the labor and complications must be accepted wisely. It is caused the negative effects of gadgets especially for the health.

#### IV. CONCLUSION

The use of gadgets to increase the readiness to face labor and complications is recommended for pregnant women but must be balanced with awareness of negative effects on health, including brain health interrupted, eye health interrupted, health of the brain interrupted, sleep disturbance, like to be alone, violent behavior, waning creativity, exposure to radiation, threat of cyberbullying, increased risk of cancer due to radiation, deafness, eye irritation or even myopic.

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