

The Effects of Telehealth During Pregnancy on Maternal Knowledge and Postpartum Mental Health in the Covid-19 Pandemic

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Abstract

Background: The Covid-19 pandemic caused changes in health services, especially Antenatal Care (ANC) because pregnant women are at risk of contracting Covid-19 so telehealth is one of the methods developed to make ANC more effective and efficient. This study aimed to analyze the relationship between telehealth during pregnancy on knowledge and mental health of postpartum mothers

Methods : The research method uses a case-control where there are two groups of samples. The case group consisted of 30 postpartum mothers who received telehealth (routine online monitoring and counseling) during pregnancy, while the control group consisted of 27 postpartum mothers who did not receive telehealth during pregnancy. Samples were taken using a random sampling technique with inclusion criteria are postpartum mothers who received online monitoring and counseling during pregnancy routinely by volunteer mothers. The exclusion criteria were postpartum mothers who did not routinely receive online monitoring and counselling. Statistical analysis used Wilcoxon Mann Whitney, Chi-Square, and Fisher Exact tests.

Conclusions:The telehealth has influenced the maternal knowledge but it will necessary to develop a telehealth strategy that contribute to the mental health of mother during the postpartum period.

Key-words: telehealth, knowledge, mental health, postpartum

Introduction

The first Covid-19 case was discovered in Indonesia on March 2, 2020. During this pandemic, it was reported that health services at the community level stopped, more than 75% of integrated service post (Posyandu) were closed, more than 41% of home visits and less than 10% of facilities primary health care (Puskesmas), antenatal care (ANC) services have also stopped. Services were stopped because of public health worker was concern about Covid-19 transmission because they face it directly¹. Telehealth is one of the innovative

methods in health care that aims to monitor a person's health because it does not allow direct examination and counseling. Telehealth for pregnant women is very important during the Covid-19 pandemic to minimize pregnant women contracting Covid 19 during direct visits to health facilities. During pregnancy, support is needed not only from the family, the community but also from health providers, this monitoring and support can be done via telehealth.

The technical guidelines for maternal and newborn health services during the Covid-19 pandemic issued by the Ministry of Health, have explained several things about telehealth, including that the District / City Health Office is expected to facilitate the use of technology to replace routine direct services. The communication technology used can be a special call center for

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Mother and Children Health, Short Message Service (SMS), Whatsapp messenger, or telemedicine/telehealth applications².

Mental health is very important, especially for postpartum mothers. The decrease in hormones during childbirth can cause postpartum mothers to be susceptible to psychological and emotional problems such as postpartum blues, depression to psychosis. Prevention of this problem is by having a good support system from families, society, and health providers. Knowledge is very important to evaluate the effectiveness of counseling by health providers. It is hoped that good knowledge can make a mother more empowered and improve their health degree. Therefore, we are interested in further researching the effects of telehealth during pregnancy on the knowledge and mental health of postpartum mothers at Krembangan Selatan dan Tenggilis Public Health Center Surabaya, Indonesia.

Materials and Methods

An observational case-control study was undertaken at Krembangan Selatan and Tenggilis Public Health Center, Surabaya, Indonesia. Ethical approval was obtained from the Faculty of Public Health, Universitas Airlangga Surabaya, Indonesia number 02/EA/KEPK/2020.

The study population was postpartum mothers in the target areas of Krembangan Selatan and Tenggilis Public Health Center. The sample in the case group was postpartum mothers who received telehealth (online monitoring and counseling) during pregnancy, while the control group was postpartum mothers who did not receive telehealth during pregnancy. Inclusion criteria are postpartum mothers who were recorded at the Krembangan Selatan and Tenggilis Public Health Centers and received online monitoring and counseling (telehealth) during pregnancy. The exclusion criteria were postpartum mothers who did not routinely receive online monitoring and counseling (telehealth) during pregnancy. The sample size was 30 postpartum mothers in the case group and 27 postpartum mothers in the control group.

This study used an online questionnaire form. The questionnaire contains questions that examine the level of knowledge and mental health of postpartum mothers. The knowledge component was questioned about pregnancy, childbirth, and postpartum that the mother should know, while the mental health questionnaire uses the Edin Burgh Scale. Data were analyzed descriptively with frequency distribution and statistical tests Wilcoxon Mann Whitney, Chi-Square, and Fisher Exact tests.

Results and Discussion

Telehealth is a method of communication in the health sector that aims to monitor a person's health because it does not allow for direct examination and counseling. Telemedicine has proven to be a method that can be used to provide sustainable care and can increase maternal satisfaction when receiving services³.

Telehealth is an important service, especially in the care of pregnant women during the Covid-19 pandemic because it can minimize pregnant women contracting Covid-19 when making direct visits to health facilities. Pregnant women are a vulnerable group to contracting the Covid-19 virus, so many recommendations aim to explain the importance of social distancing and self-isolation for this group. Telehealth will facilitate pregnant women to continue monitoring and management through online communication.

The digital era greatly facilitates health workers in providing health services through telehealth, for example by telephone, virtual communication media, and other applications that provide for online health services. Telehealth carried out in this research is a monitoring and counseling which have done by mother's companion volunteer. They were midwifery students who have graduated from a midwifery diploma school and currently continuing their education to the professional level. Assistance activities carried out starting from early pregnancy until the postpartum period is complete.

Table 1. Characteristic of the sample

Category	Group			
	Case		Control	
	n	%	n	%
Age				
20-35 years old	27	51.92	25	48.08
>35 years old	3	60.00	2	40.00
Job				
Work	5	16.67	11	40.74
Housewife	25	83.88	16	59.26

It can be explained that most of the postpartum mothers in both groups were between 20-30 years old and were mostly not working or as housewives.

The Canadian Community Health Survey results show that a mother between 35-39 years old has a lower risk of developing postpartum depression and mothers between 40-44 years old have a greater risk of postpartum depression⁴. A study from Gebregziabher explained that

housewives had 0,24 times less incidence of postpartum depression than working mothers, but mothers with low economic status had a 13 times greater risk of developing postpartum depression than the good one⁵. Occupation is a part of the demographic that related to the level of knowledge on postpartum mothers. Maternal age has a significant relationship to maternal knowledge and ability to carry out beneficial practices during the puerperium⁶.

Table 2. Level of knowledge of postpartum mothers

Group	Knowledge						Total		P-value
	Good		Sufficient		Lack				
	n	%	n	%	n	%	n	%	
Case	17	56.67	10	33.33	3	10.00	30	100.00	0.037
Control	8	29.63	13	48.15	6	22.22	27	100.00	
Total	25	86.30	23	81.48	9	32.22	57		

α : 0.05

More than half (56,67%) of the respondents in the case group had a good level of knowledge, while 48,15% of respondents in the control group had sufficient knowledge. Analysis results using the Wilcoxon Mann Whitney statistical test obtained a P-value of 0,037 so that it can be explained that there are different levels of knowledge between the case and control groups.

Table 2 explains that the knowledge level of postpartum mothers in the case group is better than the control group. In the case group, the information given is according to the mother's need especially about pregnancy, childbirth, and postpartum. This information

has given via WhatsApp message, telephone, and video call. The questionnaire used to measure the mother's knowledge contain what pregnant women should know about pregnancy, childbirth, and postpartum.

Our statistical analysis using chi-square obtained significant results that can be explain there is a relationship between telehealth during pregnancy and the knowledge of postpartum mothers. During pregnancy, mothers need continuous monitoring and counseling, but during this pandemic era, the frequency of health facilities visits was limited. Telehealth can replace ANC visits online to be more efficient in terms of time and cost^{7,8}.

Table 3. Mental health status of postpartum mothers

Group	Mental health				Total		P-value
	Normal		Depression risk		n	%	
	N	%	n	%			
Case	22	73.33	8	26.67	30	100.00	0.26
Control	15	55.56	12	44.44	27	100.00	
Total	37	128.89	20	71.11	57		

$\alpha : 0.05$

In the case group, only a small proportion (26,67%) of postpartum mothers were at risk for depression during the puerperium, while in the control group nearly half (44,44%) of respondents were at risk of experiencing depression during the puerperium. Chi-Square test obtained a *P-value* = 0,26, it can be explained that there is no difference in the mental health of postpartum mothers both those who get telehealth during pregnancy.

The risk of mental health disorders of postpartum mothers is great influenced by hormonal changes during childbirth and the lack of support from people around them, especially husbands and families. Health providers, especially midwives, assist women during the life cycle of women so that midwives have an important role in preventing mental health problems in women

during pregnancy until the postpartum period⁹.

Chi-square test results that there is no relationship between telehealth during pregnancy and the mental health of postpartum mothers. Postpartum mothers feel more comfortable when monitoring and counseling have given directly through home visits. Most mothers are not used to getting online or telehealth counseling. The insignificant results could also be due to the insignificant sample size because many studies are explained the importance of telehealth in mental health. Some of the factors that influence the occurrence of postpartum depression are marital status, unwanted pregnancy, infant disease, and low social support so the importance of good communication and health counseling during postpartum care¹⁰.

Home-based telehealth is believed to provide effective care for mothers at high risk because it provides psychological and social comfort for pregnant women, but to achieve this requires good communication and information technology systems¹¹. The main activity of telehealth by monitoring high-risk pregnant women is an innovative way to provide a better experience for mothers. The mother is in a comfortable and private environment, it can help reduce anxiety and consider the efficiency of costs incurred¹². The results of experimental studies to analyze the importance of telehealth through telemonitoring in cases of metabolic syndrome explain that telemonitoring can help reduce the risk of disease, improve mental health and physical abilities so that they are more productive¹³. Telehealth with the aim

of monitoring has been applied to pregnant women who are at high risk of developing hypertension during pregnancy. Telemonitoring in pregnant women requires careful planning and it is important to collaborate with multidisciplinary knowledge by midwives, obstetricians, psychologists, nutritionists, and others to achieve the expected goals. Telemonitoring has been shown to prevent preterm labor¹⁴.

Midwives and mother's companion volunteers are very important to consider planning and strategies when implementing telehealth so that it is expected to have an impact on reducing the incidence of postpartum depression in mothers. Interprofessional collaboration is needed so that the care provided is more comprehensive.

Table 4. The relationship between the level of knowledge and mental health in the case group

Level of knowledge	Mental health				Total		P-value
	Normal		Depression risk		N	%	
	n	%	n	%			
Good	14	46.67	3	10.00	17	56.67	0.212
Sufficient	7	23.33	3	10.00	10	33.33	
Lack	1	3.33	2	6.67	3	10.00	
Total	22	73.33	8	26.67	30	100.00	

$\alpha : 0.05$

It can be explained that almost half (46,67%) of postpartum mothers who are well informed also have normal health during the postpartum period. Fisher Exact test obtained a P-value of 0,212, it can be concluded that there is no relationship between knowledge and the mental health of postpartum mothers after receiving telehealth during pregnancy.

Table 4 explains that postpartum mothers in the case group with good knowledge have good mental health

during the postpartum period, but the statistical analysis is not significant. This could be because other factors affect the mental health of postpartum mothers. Several studies have shown that family support is a major factor in reducing the incidence of depression in postpartum mothers, but there is still low public awareness about the problems and impacts of mental health in pregnancy and childbirth, that efforts are needed to increase public awareness through knowledge of mental health¹⁵.

Table 5. The relationship between the level of knowledge and mental health in the control group

Level of knowledge	Mental health				Total		P-value
	Normal		Depression risk		N	%	
	n	%	n	%			
Good	6	22.22	2	7.41	8	29.63	0.009
Sufficient	9	33.33	4	14.82	13	48.15	
Lack	0	0.00	6	22.22	6	22.22	
Total	15	55.55	12	44.45	27	100.00	

$\alpha : 0.05$

The results of statistical analysis using the Fisher Exact test obtained a P-value = 0.009, it can be concluded that there is a relationship between knowledge and the mental health of postpartum mothers who do not get telehealth during pregnancy.

Table 5 explains that in the control group, it was found that mothers with less knowledge were at risk of depression than mothers with sufficient and good knowledge. The results of statistical analysis using chi-square are significant, it can be explain that there is a relationship between knowledge and the mental health of postpartum mothers. Research on knowledge and mental health during a pandemic also suggests that good knowledge can be useful in reducing anxiety and depression¹⁶.

This study results explained that providing online care through telehealth at Krembangan Selatan and Tenggilis Public Health Center shows the relationship between telehealth during pregnancy with knowledge and mental health in postpartum mothers. It still needs to do further research about strategies used in implementing telehealth because mothers in this work area are not familiar with telehealth. Factors that influence maternal satisfaction during telehealth are very important to studied, so that telehealth will provide an

optimal contribution to maternal health both physically, mentally, and socially.

Research in Poland explains that midwives are not ready to accept new tasks in perinatal care, such as assessing and treating mothers who experience mental health problems during pregnancy and childbirth. Special training is needed to increase knowledge and skills related to screening and management of depression in mothers¹⁷. Currently, there have been many studies on mental health during pregnancy and childbirth, but there have not been many implementations and efforts to reduce mental health problems. It is very important to pay attention to the mental health of mothers. Increasing maternal knowledge is an effort to reduce mental health problems in postpartum mothers.

Conclusion and Acknowledgement

The telehealth contributes to increasing maternal knowledge especially when there are restrictions on offline pregnancy visits because of the Covid-19 pandemic but it is necessary to develop strategies so that telehealth can more effective to improve the mental health of mothers during pregnancy and postpartum.

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