The effectiveness of family empowerment model on early detection ability of risk pregnancy during the COVID-19 pandemic

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ABSTRACT

Introduction: Many pregnant women and their families are lack to carry out the examination to detect earlier about high-risk pregnancies. Family empowerment models can improve the ability of families to early detection of pregnancy during the COVID-19 pandemic. This study aims to analyze the effectiveness of the family empowerment model on the ability to detect early pregnancy at risk during the COVID-19 pandemic.

Methods: This study used an explanatory survey with a cross-sectional study approach and interventions of the family empowerment model on early detection ability of risk pregnancy. Sampling using the Probability sampling method with simple random sampling, a sample size of 100. Independent variables are interventions of the family empowerment model, while dependent variables of early detection ability of risk pregnancy during the covid-19 pandemic. Data collection instrument using questionnaires. The research data were analyzed using Structural Equation Modeling (SEM) based on variance or SEM-based components, known as Partial Least Squares (PLS).

Results: The influence of personal factors, resource factors, cognitive behavioral factors, interpersonal factors, filial values, and commitments showed t-statistics > 1.96 and p-values <0.05. This means that there is a significant effect on all of these variables on family empowerment. The resulting coefficient is positive 0.080 so it can be said that better family empowerment tends to increase the ability of families in early detect high-risk pregnancies. That means there is a family empowerment model that makes participants feel more responsive, and alert, pay attention to self-care, and immediately check with health workers if there are danger signs.

Conclusion: After being given the family empowerment model intervention almost all respondents were good in the ability to detect early pregnancy at risk during the COVID-19 pandemic contributed to increasing family involvement in intensive care for pregnant women to prevent pregnancy complications.

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INTRODUCTION

Pregnant women are one of the special groups who are vulnerable to the Covid-19 virus.[1] During pregnancy, there are certain conditions that may occur in pregnant women, such as a partial decrease in immunity, making pregnant women more susceptible to viral infections. The physiological and immunological changes that occur as a normal component of pregnancy can have systemic effects that increase the risk of obstetric complications from respiratory infections in pregnant women.[2] This puts the pregnany women may have a complication risk during their pregnancy, specifically respiratory disorders, such as decreased lung capacity and cardiac and vascular problems, such as tachycardia, and even nutritional deficiencies.

Until today, the further information of pregnancy in Covid-19 pandemic is still limited which can harm the health of pregnant women during their pregnancy during the pandemic.[3] Because during the pandemic there were significant changes in health services, especially for pregnant women. According to the data from the Indonesian Ministry of Health (Kemenkes RI), antenatal care visits have also decreased, even though only 19.2% of Posyandu are still active during the pandemic.[4]

The principle of early detection of pregnancy risk factors is very necessary, although it is evidence-based according to several studies conducted, that all women during the reproductive period, especially during pregnancy, are always at risk, even though we know that pregnancy is physiological, meaning that all women are healthy and married will experience the process of pregnancy. Pregnancy is said to be physiological and must remain vigilant because pregnancy is at risk of falling into a dangerous situation for both the mother and the fetus she is carrying.

Pregnant women should have good knowledge and understanding of how to protect themselves from Covid-19 and pregnancy complications. Adequate knowledge about early detection of risky pregnancies through family

empowerment is hoped that mothers can also have good attitudes and behaviors in living their daily lives. So based on this phenomenon, the authors are interested in researching the relationship between the level of knowledge and the Until now, information about Covid-19 in pregnancy is still limited which can harm the health of pregnant women during their pregnancy during the Covid-19 pandemic. During the pandemic, there were significant changes in health services, especially for pregnant women. For this reason, it is necessary to have family empowerment so that pregnant women have more knowledge and adequate capabilities regarding early detection of risky pregnancies so that pregnant women hope that they do not contract the COVID-19 virus and do not experience pregnancy complications. Results of a previous study show the factors that influence family empowerment, including caregiver's age, social support, minimal child care burden, frequent use of home services, use of child care, household income, and strong family ties.[5] Health workers can conduct a more detailed assessment of the level of family empowerment, and caregivers based on education level, economic status, care burden, and family ties. Several similar studies on family empowerment can be explained as follows: previous research explained that the CEP-BAM (Caregiver Empowerment Program Based On Adaptation Model) family empowerment model can improve the functional capacity and quality of life of post-stroke patients after 6 months of intervention. Other studies also reported that family empowerment programs carried out through active listening, discussion, reflection, and intervention based on Freire's theory of empowerment can reduce parental stress and improve family functions (closeness, expression, conflict resolution, and independence) in caring for family members who sick.[6,7]

This study aims to analyze the effectiveness of the family empowerment model on the ability to detect early pregnancy at risk during the COVID-19 pandemic. In this study, researchers combined the Family Empowerment Model by involving factors that affect the ability of families to detect the high risk

of pregnancy early including personal factors, resources, cognitive behavior, interpersonal influences, basic values, commitment, and early detection abilities.

METHODS

Study Design
This study used an explanatory survey with a cross-sectional study approach and interventions of the family empowerment model on early detection ability of risk pregnancy.

Data Collection
Respondents in this study were trimester I, II, and III pregnant women who examined PMB Ika Mardiyanti and were willing to be respondents and willing to be given interventions in the form of a family empowerment model for 14 days. Sampling using the Probability sampling method with simple random sampling, a sample size of 100. Independent variables are interventions of the family empowerment model, while dependent variables of early detection ability of risk pregnancy during the covid-19 pandemic. Data collection instrument using questionnaires.

Interventions in the form of the family empowerment model are given with Standard Operational Procedures, carried out 14 times carried out for 14 consecutive days, and conducted routinely every 1 hour before activity. That means there is a family empowerment model that makes participants feel more responsive, and alert, pay attention to self-care, and immediately check with health workers if there are danger signs.

Data Analysis
Quantitative data processing techniques are carried out through an editing process for the completeness of research data, followed by scoring and coding. The research data were analyzed using Structural Equation Modeling (SEM) based on variance or SEM-based components, known as Partial Least Squares (PLS). The influence of personal factors, resource factors, cognitive behavioral factors, interpersonal factors, filial values, and commitments showed t-statistics>1.96 and p-values<0.05. This means that there is a significant effect on all of these variables on family

empowerment. The resulting coefficient is positive 0.090 so it can be said that better family empowerment tends to increase the ability of families in early detect high-risk pregnancies.

RESULTS

From table 1 below, it showed that most of the respondents are 20-35 years old, half of the respondents are in their pregnancy or primigravida. Furthermore, most of the respondents are not working and have secondary education.

Table 2 shows the factors that affect the ability of families to detect high risk of pregnancy early that most of the personal factors are good, most of the resource factors are not supportive, most of the cognitive behavior is not good, most of the interpersonal influences are not supportive, most of the basic values are not good, most of the commitments are poor and early detection capabilities are lacking. Family empowerment model makes participants feel more responsive, alert, pay attention to self-care and immediately check with health workers if there are danger signs.

Inner Model Evaluation
Analysis of research data was carried out using SEM-PLS which included testing the measurement model (outer model) and testing the structural model (inner model). The measurement model is needed to ensure that the indicators measured are valid and reliable. The structural model is used to examine the effect of exogenous factors on endogenous factors. The t-table value (1.96) was used as a reference. Exogenous factors affect endogenous factors if the t-statistic value is greater than the t-table value with an error tolerance of = 0.05. The results of the structural model test are listed in the table below.

Table 3 below explains that almost all variables have a significant relationship. There is one value that is not significant because it has a T-statistic value that is less than T-table 1.96, namely the relationship of resources factors to interpersonal factors. So that further in the model this relationship is omitted, the complete results after removing the insignificant relationship are as follows. The results of the new inner model which contains

all significant relationships, then are the results of the final model.

High Risk Pregnancy in during COVID-19 Pandemic

Figure 1 below describes the path of the complete T-statistical value of all variables. The figure shows that personal factors have a strong influence on interpersonal (10.301; 0.000). Furthermore, the strong interpersonal increase the Filial Value (13,501; 0,000). Furthermore, Filial value has a strong effect on commitment (9.495; 0.000). In the end, this family commitment will affect the ability to detect high-risk pregnancies (3.840; 0.000).

DISCUSSION

Ability is the capacity or potential of someone that they have in their early age or innate, from their birth, or is the result of their consistence of training or practices. The family plays a part in deciding the way of care required at home. The low role of the family is also influenced by the low motivation of the family as the driving force. Family motivation can be increased by providing midwifery care that focuses on the family, not just restoring the client's situation.[8]

The role and ability of families is important in early detection of high-risk pregnancies. Not only in this aspect, but also the family is important to prevent the complication in any point, such as pregnancy, childbirth, and postpartum.

There are several factors can affect the family's ability to carry out early detection of high-risk pregnancies, including individual or personal factors, resources, cognition, interpersonal, basic values, and commitment. It indicates that these factors affect the ability to carry out early detection of high-risk pregnancies including the introduction of high-risk pregnancy factors according to KSPR, being able to giving the decision, being able to care for high-risk pregnant women, high comorbidities, and a history of poor pregnancy (BOH/Bad Obstetric History) and able to utilize health care facilities.

Interpersonal factors have a great influence on the families' ability in early detection of high-risk pregnancies. These interpersonal factors include the role of health workers and family support. The role of health workers, specifically midwives in providing support is of the highest value in supporting families to carry out early detection of high-risk pregnancies. This study results indicate that the family will be able to carry out its part within early detection of high-risk family members who are pregnant if it is supported by good support from the midwife.[9] Support to recognize the symptoms and the response felt by pregnant women is very important to husband, families, and also health workers, specifically, the midwives.[10] Midwives as healthcare providers need to give an appropriate health promotion efforts and support to optimize the families' ability and carry out effective care.[11,12]

The personal factor in increasing the family's ability to carry out early detection of high-risk pregnancies is the experience of family behavior in carrying out early detection which has the greatest influence. These results indicate that the introduction of high-risk factors for pregnancy, learning to make appropriate decision, care for high-risk condition in pregnant women with comorbidities and poor pregnancy

Table 1. Distribution of respondents based on age, work, education and parity.

| Characteristics	Category	Amount	%
Age	<20 years	10	10
	20-35 years	66	66
	>35 years	24	24
Parity	Primigravida	50	50
	Multigravida	40	40
	Grandemulti gravida	10	10
Work	employee	43	43
	unemployee	57	57
Education	Basic	13	13
	Middle	67	67
	High	6	6

Table 2. Description of the factors that affect the ability of families to detect early high-risk pregnancies.

Variable	Frequency	Persentase (%)
Personal Factor(X1)		
Not good	36	36
Well	64	64
Resources (X2)		
Not supportive	79	79
support	21	21
Behavioral Cognition (X3)		
Not good	61	61
Well	39	39
Interpersonal Influence (X4)		
Not supportive	64	64
Support	46	46
Basic Values (X5)		
Not good	71	71
Well	39	39
Commitment (Y1)		
Not good	75	75
Well	25	25
Early Detection Ability (Y2)		
Less fortunate	74	74
Capable	36	36

Table 3. Results of the Significance Test of the Structural Model (Inner Model).

The relationship between indicatorsand their factors	Coefficient	T Statistics	P-Value	Significance
Personal factors → Cognitive behavioral factors	0.295	15.783	0.0000	Significant
Resources factors →Cognitive behavioralfactors	0.303	8.023	0.0000	Significant
Personal Factors → Interpersonal Factors	0.609	26.988	0.0000	Significant
Resources factors →Interpersonal factors	0.030	1.049	0.1473	No Significant
Cognitive behaviorfactors → Filial Value	0.114	5.276	0.0000	Significant
Interpersonal Factors → Filial Value	0.745	42.194	0.0000	Significant
Filial Value→Commitment	0.501	25.943	0.0000	Significant
Filial Value→ Earlydetection capabilities	0.111	2.671	0.0039	Significant
Commitment →Early detection ability	0.080	2.315	0.0105	Significant

Source: Primary data, year 2021
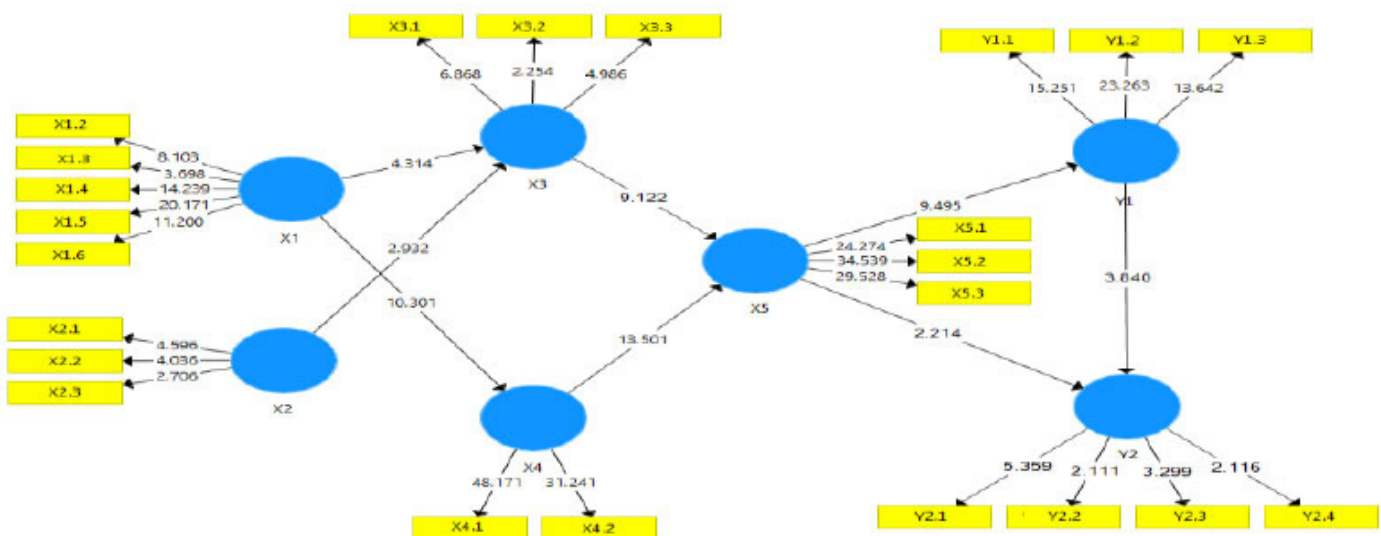
Figure 1. Family Empowerment Model on Early Detection Ability.

history (BOH/Bad Obstetric History), and utilization of health care facilities are also based on previous experience.[13] Previous experience is needed to be able to recognize discomfort in both emotional and physical conditions as well as the changes that occur during pregnancy.[14] Resource factors that affect the ability of families to carry out early detection of high-risk pregnancies are a form of involvement of family members with one another.[15] The need for continuous collaboration and capacity building for families to improve care for family members who are pregnant and at high risk.[12]

Cognitive behavioral factors include benefits, barriers, and self-esteem that affect the families' ability to carry out early detection of high-risk pregnancies. In this challenging environment such as the high-risk pregnancy, communication,

self-esteem, and support are needed, in response to and acknowledging the family personality to promote positive outcomes.[12] The perceived benefits will increase the patient's knowledge to influence positive behavior change.[15] Filial Value showing the family's behavior towards a sense of responsibility (responsibility) in accompany and caring for pregnant women, the attitude of the family in giving attention (respect) to accompany and care for complaints, prevention and handling, and the attitude of the family to care (care) in accompanying and caring for related wishes pregnant mother. These study results indicated that the families' ability to carry out early detection of high-risk pregnancies is a family responsibility because it may cause the death of the mother and the babies. The importance of co-parenting strategies e.g. effective

communication and responsibility sharing.[16]

Family commitment in carrying out early detection of high-risk pregnancies is family awareness of the disadvantages associated with high-risk pregnancies. The results of the study indicate that families are aware of the importance of early detection of the risk of an emergency and the impact that will occur if complications occur. Family functions and the achievement of the mother's role will be able to successfully adapt to the burdens faced with all the hopes and worries when pregnancy is at risk.[17] Functions, roles, and obligations of the family to enhance the capacity and potential of the family in fulfilling the function of health and family health care, to carry out family parts both formal and informal way, carry out the family health duties according to

family development stages.[18] The adequate support obtained from the family who has health problems can improve the health care behavior.[19] In addition, the necessity for education and training on the ability to care for family members may raise the confidence to carrying out care.[20,21] Therefore, the development of appropriate interventions to overcome the tissue caused by COVID-19 is recommended to improve the quality of life of pregnant women.[22]

CONCLUSION

The family empowerment model is effective for making participants feel more responsive, alert, pay attention to self-care and immediately check with health workers if there are danger signs. For healthcare providers, this method is very useful in lowering pregnancy, childbirth, and postpartum complications and can reduce maternal and infant mortality rates.

DISCLOSURE

Author Contribution

All authors have contributed to whole manuscript.

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Conflict of Interest

There is no conflict of interest for this manuscript.

Ethical Consideration

This research has been passed the ethics test by the Ethics Commission of Nahdlatul Ulama University Surabaya, Indonesia No 150/EC/KEPK/UNUSA/2021.

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