

## Prevalence and Determinants of Postpartum Depression in Sukoharjo District, Central Java

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### ABSTRACT

**Background:** After delivery psychological disorder otherwise appropriately and immediately handled may lead to postpartum depression (PPD). PPD has serious impact on mothers that manifests as lower quality of life and inability to care of themselves, their partner, and infants. There is a lack of studies on PPD in Indonesia. Its prevalence and determinants are not well-understood. This study sought to estimate the prevalence and the determinants of PPD in Sukoharjo, Central Java.

**Subjects and Method:** This was an analytic observational study with cross-sectional design. The study was conducted at community health centers in Sukoharjo District, Central Java, from November to December, 2017. A total sample of 200 postpartum mothers was selected for this study using cluster random sampling, with community health center as the cluster. The dependent variable was PPD. The independent variables were maternal age, parity, labor complication, maternal education, self-efficacy, family income, coping strategy, unwanted pregnancy, and family support. The data were collected by questionnaire and analyzed by path analysis.

**Results:** PPD prevalence in Sukoharjo, Central Java, was 18.5%. The risk of PPD increased with labor complication ( $b= 3.14$ ,  $SE= 0.45$ ,  $p<0.001$ ), unwanted pregnancy ( $b= 1.54$ ,  $SE= 0.45$ ,  $p<0.001$ ), and low family income ( $b= -0.05$ ,  $SE= 0.01$ ,  $p<0.001$ ). The risk of PPD decreased with age ( $b= -0.07$ ,  $SE= 0.03$ ,  $p= 0.028$ ), stronger self-efficacy ( $b= -0.55$ ,  $SE= 0.09$ ,  $p<0.001$ ), and improved coping strategy ( $b= -0.56$ ,  $SE= 0.03$ ,  $p= 0.064$ ). PPD was indirectly affected by younger age, parity, weaker family support, lower family income, coping strategy, and maternal education.

**Conclusion:** PPD prevalence is 18.5% in Sukoharjo, Central Java. The risk of PPD increases with labor complication, unwanted pregnancy, and low family income, but decreases with age, stronger self-efficacy, and improved coping strategy.

**Keyword:** prevalence, postpartum depression, determinant, path analysis

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### BACKGROUND

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Postpartum is a period marked by the presence of a heavy burden on the mother, especially disorders of affective ability (Sylvén et al., 2017). After the delivery process, the mother will experience physical and psychological changes. Although maternal changes are usually seen as a positive experience for a woman, it still requires physical, psycho-logical and social adaptation which are not easy (Habel et al., 2015). Psychological disorders after child-

birth can be mild, and it is called baby blues. If rapid and precise handling is not done, it can progress into postpartum depression. In some cases it can develop into postpartum psikosis (Fairus and Widiyanti, 2014). During the postpartum period, mood disorders are common in women approximately up to 85%, although only 10-15% of mothers experience significant clinical symptoms (Sylvén et al., 2017). However, in 10-15% of mothers who have further symptoms and get worst are

diagnosed with postpartum depression (Cirik et al., 2016).

The total number of people living with depression in the world is about 322 million inhabitants. Almost half of these people live in Southeast Asia and the Western Pacific Region. The prevalence of depression in Southeast Asia is 27%, while in Indonesia the prevalence of depression is 3.7% which means that Indonesia is in the second place after India (4.5%) (World Health Organization, 2017).

According to the data from the Centers for Diseases Control from 2004-2012, the prevalence of depression postpartum was 11.5% out of 27 countries (Rockhill et al., 2017). The postpartum depression cases in Asia is quite high and varies between 3.5% to 63.3% (Mohamad Yusuff et al., 2015). The prevalence of postpartum depression in the countries which has middle to lower income was from 1.9% to 82.1% and in high-income countries was from 5.2% to 74% (Tikmani et al., 2016). Primary Health Care Research and Development of 2013 results show that the incidence of emotional mental disorders in Indonesia with symptoms of depression and anxiety was about 16% or 14 millions inhabitants. The results of Primary Health Care Research and Development of 2007 on the prevalence of mental emotional disorders in rural areas were higher than in urban areas, but in Primary Health Care Research and Development of 2013, the prevalence was reversed and urban prevalence was higher than in rural areas (Ministry of Health, 2013). A study conducted at Puskesmas Morokrembangan Surabaya found that more than 50% (53%) mothers have mild depression level (Indriasari, 2017).

Until now postpartum depression cases in Indonesia cannot be exactly known because there is no institution that con-

ducts research on this case and the system of notes and reporting that have not been complete. Sukoharjo District Health Office obtained complete cumulative puerperium visit for about 12.238 people in 2016. However, Sukoharjo regency is included in the top 10 regencies / cities in Central Java with the lowest coverage area of puerperium services which was about 93,19% (Central Java Provincial Health Office 2016).

Postpartum depression is a mental health condition that affects up to 13% of primiparous moms occurring in the first 4 weeks to 1 year postpartum (Qobadi, Collier and Zhang, 2016). Low social support is a strong predictor of postpartum depression (Negron et al., 2013). Social support includes 4 main dimensions of information, material, emotional, and partner or spouse. These aspects of support will support the mental health of the postpartum mother (Gjerdingen et al., 2014). Rodríguez et al (2010) also mentions an association between postpartum depression symptoms and coping handling (Gutiérrez-Zotes et al., 2016).

The use of emotional coping during pregnancy has been proven to be a significant predictor of depression levels during pregnancy. Coping strategies are influenced by different aspects, such as socioeconomic status, coping style, optimism, interrelationships between stressors, and stress control (Monzani et al., 2015). Postpartum depression may occur from postnatal to one month after the delivery, even up to one year (Muchanga et al., 2017). The depression cases increased significantly during the first three months after the mother gave birth, and the depression cases increased threefold higher at five weeks after the birth delivery (Kettunen, Koistinen and Hintikka, 2014).

The history of depression, marital problems, lack of family support, stress, and low socioeconomic status are the most frequently reported predictors (Cirik et al., 2016). Poor marital relationships, prenatal depression, childhood illness, low socioeconomic status, low educational level, unwanted pregnancy, obesity, previous postpartum depression, complications during pregnancy are the determinants of postpartum depression (Tikmani et al., 2016). Socioeconomic status is a strong predictor of mental health. Higher levels of depression are evident in pregnant and post-partum women who are socially and economically disadvantaged (Stepanikova and Kukla, 2017).

Postpartum depression has a direct impact on the mother and long-term risks to mother's mental health. It also has a negative impact on the physical, social, and cognitive development of children (Borra, Iacovou and Sevilla, 2015). The prevalence of postpartum depression is closely related to socioeconomic and cultural factors, and varies across countries, ethnicities and races (Taherifard et al., 2013). In some countries such as Singapore, Malta, Malaysia, Austria, Denmark, there are only a few reports of postpartum depression or postpartum depression symptoms. While in other countries like Brazil, Guyana, Costa Rica, Italy, Chile, South Africa, Taiwan, Korea, it is reported that postpartum depression symptoms in these countries are very prevalent (Motzfeldt et al., 2013).

Based on the background, the author was interested to estimate the prevalence and to examine the determinants of PPD in Sukoharjo, Central Java.

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## SUBJECTS AND METHOD

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### 1. Study Design

This was an analytic observational study with a cross sectional design.

### 2. Population dan sampels

The target population in this study were all postpartum mothers. The source population in this study were puerperium mothers in the Area of Public Health Center in Sukoharjo regency. This study was conducted in November-December 2017. The number of samples in this study were 200 subjects. The sampling technique was cluster random sampling. The inclusion criteria in this study were postpartum women (2-6 weeks), not illiterate, and willing to participate in the study. Exclusion criteria of this study were mothers who did not complete the questionnaires and who have severe mental disorders.

### 3. Study variables

In this study, the endogenous variables consisted of coping strategies, birth delivery complications, unwanted pregnancy, self efficacy, and postpartum depression. The exogenous variables were variables that influence other variables which are age, education level, family income, parity, unwanted pregnancy, coping strategy, birth delivery complication, family support, and self efficacy.

### 4. Operational definition of variables

Postpartum depression was defined as a mood change with symptoms of sadness, feeling worthless and hopeless that occurred to the mother about 2 to 6 weeks after delivery. The data were collected by EPDS (Edinburgh Postnatal Depression Scale) with a score assessment  $<10$  indicating the mother is not depressed and  $\geq 10$  for depressed mothers.

Age was defined as the life span of the mother which is calculated from birth to the time when she filled the questionnaire. The measurement scale was continuous.

Education was defined as the highest level of education that has been achieved by respondents. The data were collected by

questionnaire. The measurement scale was categorical.

Family income was defined as the amount of income from head of household and mother in 1 month expressed rupiah. The data were collected by questionnaire. The measurement scale was continuous.

Parity was defined as the number of children whom the mother ever gave birth either live or dead. The data were collected by questionnaire. The measurement scale was continuous.

Unwanted pregnancy was defined as a pregnancy beyond the will/want of the mother, which is undesirable to either party or both. The data were collected by questionnaire. The measurement scale was categorical.

Complications of birth delivery was defined as problems faced by mothers during childbirth that may cause health problems to the mother or fetus or both. The data were collected by questionnaire. The measurement scale was categorical.

Family support was defined as the support the mother receives from her husband in the process of childbirth in the form of caring, affection, attention, emotional support, material, and finance. The data were collected by questionnaire. The measurement scale was continuous, but for the purpose of data analysis, it was transformed into dichotomous, coded 0 for weak support (score <12) and 1 for strong support (score  $\geq$ 12).

Self-efficacy was defined as the maternal self-confidence to perform her role as an independent individual. The data were collected by General Self-Efficacy Scale. The measurement scale was continuous, but for data analysis, it was transformed into dichotomous, coded 0 for low (score <7) and 1 for high (score  $\geq$ 7).

Coping strategies was defined as the cognitive and behavioral measures to deal

with stress as measured by the COPE (Coping Orientation for Problem Experiences) Brief compiled by Carver, Scheier and Weintrub in 1989 consisting of 28 items with 14 subscales. The measurement scale was continuous, but for the purpose of data analysis, it was transformed into dichotomous, coded 0 for poor (score <72) and 1 for good (score  $\geq$ 72).

## 5. Data Analysis

Data analysis technique used in this study was path analysis using SPSS AMOS 22 program to know the effect of variable, either direct or indirect influence. The steps of path analysis consisted of model specification, model identification, model conformity, parameter estimate and model respecification.

## 6. The Research Ethics

The research ethics consisted of informed consent, anonymity, confidentiality and ethical clearance. Ethical clearance in this study was obtained from Research Ethics Committee, Dr. Moewardi hospital, Surakarta, Central Java, Indonesia.

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## RESULTS

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### 1. Sample characteristics

Table 1 showed sample characteristics. The prevalence of postpartum depression in Sukoharjo regency, Central Java, Indonesia, was 18.5%. Characteristics of the subjects in this study were seen based on maternal age, occupation, education level, family income, parity, pregnancy status and birth complications.

Table 1 showed that out of the 200 subjects, 73% of mothers were 20-35 years old, 38.5% of mothers were unemployed, 46% of mothers were senior high school graduates, 50.5% of families have income for  $\geq$ Rp 2,900,000, 55% of mothers are multiparous, 74% of mothers want their pregnancies, and 72.5% of mothers did not

experience complications during the birth delivery.

**Tabel 1. Sample characteristics**

Characteristics	Label	N	%
<b>Age</b>	<20 years old	11	5.5
	20 – 35 years old	146	73.0
	≥35 years old	43	21.5
<b>Occupation</b>	Housewife	77	38.5
	Civil servant	14	7.0
	Non state workers	75	37.5
	Labor/Farmer	12	6.0
	Entrepreneur	22	11.0
<b>Family income</b>	< Rp 2,900,000	99	49.5
	≥ Rp 2,900,000	101	50.5
<b>Educational background</b>	SD	5	2.5
	SMP	71	35.5
	SMA	92	46.0
	Diploma	17	8.5
	Sarjana	15	7.5
	<b>Parity</b>	Primipara	90
Multipara		110	55.0
<b>Pregnancy status</b>	Wanted pregnancy	148	74.0
	Unwanted pregnancy	52	26.0
<b>Birth delivery complication</b>	No complication	145	72.5
	There is complication	55	27.5

## 2. Univariate analysis

Descriptive statistics of continuous data in the form of age, family income, parity,

family support, self efficacy, coping strategies and postpartum depression are presented in Table 2.

**Table 2. The univariate analysis of the study**

Variables	n	Mean	SD	Min	Max
Age	200	30.64	6.07	16	43
Family income	200	30.72	16.28	5	79
Parity	200	1.85	0.90	1	5
Family support	200	11.64	1.18	7	15
Self-efficacy	200	6.70	2.19	1	10
Coping strategy	200	74.59	6.42	56	94
Postpartum depression	200	5.90	3.89	1	24

Table 2 shows that each variable has a small standard deviation. The mean describes the average value, while the standard deviation (SD) describes how far the data variation are. If the SD value is greater than the mean, then the mean value is a poor representation of the entire data, whereas if the SD value is very small compared to the mean value, then the mean value can be used as a representation of the whole data.

## 3. Bivariate analysis

Table 3 shows that age ( $r = -0.13$ ,  $p = 0.065$ ) has a negative effect on postpartum depression and is statistically significant. The higher the mother's age is, the less likely the postpartum depression is. The level of education ( $r = -0.19$ ,  $p = 0.009$ ) has a negative effect on postpartum depression. The higher the level of education, the less likely it is for postpartum depression. Family income ( $r = -0.42$ ,  $p < 0.001$ ) had a negative effect on postpartum depression. The higher

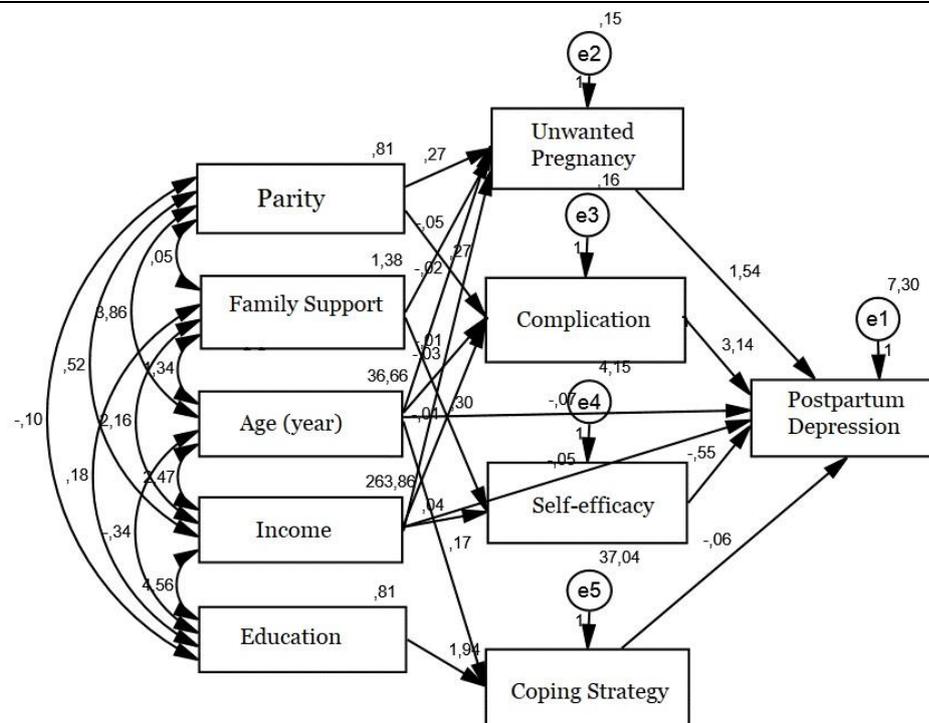
the family income, the less likely it is for postpartum depression to happen. Family support ( $r = -0.20, p = 0.004$ ) has a negative effect on postpartum depression. The stronger the family support, the less likely it is for postpartum depression to happen.

Self efficacy ( $r = -0.52, p < 0.001$ ) has a negative effect on postpartum depression. The higher the self efficacy is, the less likely the postpartum depression to happen. The coping strategy ( $r = -0.18, p = 0.013$ ) has a negative effect on postpartum depression. The better the coping strategy is, the less

likely it is for postpartum depression to happen. Unwanted pregnancy ( $r = 0.30, p < 0.001$ ) has a positive effect on postpartum depression. The higher the unwanted pregnancy is, the more likely it is for postpartum depression to happen. Complications of labor ( $r = 0.52, p = 0.004$ ) had a positive effect on postpartum depression. The higher the complications of labor is, the greater the likelihood of postpartum depression to happen. Parity ( $r = 0.06, p = 0.401$ ) has a positive but statistically insignificant effect.

**Table 3. Bivariate correlation of Pearson product moment**

Independent Variabls	r	p
Age	-0.13	0.065
Education background $\geq$ Senior high school	-0.19	0.009
Family income $\geq$ minimum wage	-0.42	<0.001
Parity	0.06	0.401
Pregnany status	0.30	<0.001
Complikation of the birth delivery	0.52	<0.001
Family supports	-0.20	0.004
Self-efficacy	-0.52	<0.001
Coping strategy	-0.18	0.013



**Figure 1. Structural model of path analysis with estimates**

Figure 1 shows the structural model after estimation using IBM SPSS AMOS 22. The path analysis model goodness of fit was

shown in Table 4. The CMIN fit index was 25.65 with  $p = 0.108 > 0.05$ ; GFI (Goodness of Fit Index) =  $0.98 \geq 0.90$ ; NFI (Normed Fit

Index)= 0.95  $\geq$  0.90; CFI (Comparative Fit Index)= 0.98  $\leq$  0.90; RMSEA (Root Mean Square Error of Approximation)= 0.046  $\geq$

0.08 which means the empirical model meets the criteria and is proven to be suitable with the empirical data.

**Table 4. The result of analysis between age, education, family income, parity, pregnancy status, birth complications, family support, self-efficacy, coping strategies, and postpartum depression**

Dependent Variable		Independent Variable	b	SE	p	$\beta$
<b>Direct Relationship</b>						
Postpartum Depression	←	Complication	3.14	0.45	<0.001	0.37
Postpartum Depression	←	Coping Strategy	-0.56	0.03	0.064	-0.10
Postpartum Depression	←	Self-efficacy	-0.55	0.09	<0.001	-0.32
Postpartum Depression	←	Pregnancy Status	1.54	0.45	<0.001	0.18
Postpartum Depression	←	Age	-0.07	0.03	0.028	-0.11
Postpartum Depression	←	Family Income	-0.05	0.01	<0.001	-0.20
<b>Indirect Relationship</b>						
Pregnancy Status	←	Age	-0.02	0.01	<0.001	-0.33
Pregnancy Status	←	Parity	0.27	0.04	<0.001	0.56
Pregnancy Status	←	Family Support	-0.05	0.02	0.044	-0.13
Pregnancy Status	←	Family Income	-0.01	<0.01	0.003	-0.19
Complication	←	Age	-0.03	0.01	<0.001	-0.37
Complication	←	Parity	0.27	0.05	<0.001	0.54
Complication	←	Family Income	-0.01	<0.01	<0.001	-0.23
Coping Strategy	←	Age	0.17	0.07	0.015	0.16
Coping Strategy	←	Education	1.94	0.48	<0.001	0.27
Self-efficacy	←	Family Income	0.04	0.01	<0.001	0.31
Self-efficacy	←	Family Support	0.30	0.12	0.016	0.16
<b>Observation Score = 200</b>						
<b>Fit Model</b>						
b = Unstandarized path coefficients			NFI= 0.95			
$\beta$ = Standarized path coefficients			CFI= 0.98			
CMIN = 25.65 p = 0.108 ( $\geq$ 0.05)			RMSEA= 0.046			

Table 4 showed the analysis result between the effect of age, education, family income, parity, unwanted pregnancy, labor complication, family support, self-efficacy, coping strategy and postpartum depression using IBM SPSS AMOS 22 software. In every enhancement of one complication unit, it increased 3.14 units of postpartum depression (b= 3.14, SE =0.45, p <0.001). In every enhancement of one high coping strategy unit, it decreased 0.56 unit of postpartum depression (b= -0.56, SE=0.03, p= 0.064). In every enhancement of one high self-efficacy unit, it decreased 0.55 unit of postpartum depression (b= -0.55, SE= 0.09,

p<0.001). In every enhancement of one unwanted pregnancy unit, it increased the postpartum depression by 1.54 unit (b= 1.54, SE= 0.45, p<0.001). In every enhancement of one age unit, it decreased 0.07 unit of postpartum depression (b= -0.07, SE= 0.03, p= 0.028). In every enhancement of one high family income unit, it decreased the postpartum depression by 0.05 unit (b= -0.05, SE= 0.01, p<0.001).

In every enhancement of one unit of age, it decreased the unwanted pregnancy by 0.02 unit (b= -0.02, SE= 0.01, p <0.001). In every enhancement of one high parity unit, it increased the unwanted pregnancy

by 0.27 unit ( $b = 0.27$ ,  $SE = 0.43$ ,  $p < 0.001$ ). In every enhancement of one strong family support unit, it decreased 0.05 unit of unwanted pregnancy ( $b = -0.05$ ,  $SE = 0.02$ ,  $p = 0.044$ ). In every enhancement of one high family income unit, it decreased the unwanted pregnancy by 0.01 unit ( $b = -0.01$ ,  $SE = < 0.01$ ,  $p = 0.003$ ).

In every enhancement of one age unit, it decreased the birth delivery complication by 0.03 unit ( $b = -0.03$ ,  $SE = 0.01$ ,  $p = < 0.001$ ). In every enhancement of one high parity unit, it increased 0.27 unit of the birth delivery complication ( $b = 0.27$ ,  $SE = 0.05$ ,  $p = < 0.001$ ). In every enhancement of one high family income unit, it decreased the birth delivery complication by 0.01 unit ( $b = -0.01$ ,  $SE = < 0.01$ ,  $p < 0.001$ ).

In every enhancement of one age unit, it increased the coping strategy by 0.17 unit ( $b = 0.17$ ,  $SE = 0.07$ ,  $p = 0.015$ ). In every enhancement of one high educational level unit, it increased the coping strategy by 1.94 unit ( $b = 1.94$ ,  $SE = 0.48$ ,  $p < 0.001$ ).

In every enhancement of one high family income unit, it increased the self-efficacy by 0.04 unit ( $b = 0.04$ ,  $SE = 0.01$ ,  $p < 0.001$ ). In every enhancement of one strong family support unit, it increased the self-efficacy by 0.30 unit ( $b = 0.30$ ,  $SE = 0.12$ ,  $p = 0.016$ ).

The model in this study was in accordance to the sample data as shown by goodness of fit measure. In addition, the path coefficients were more than 0 and they were statistically significant. Therefore, no model respecification is required.

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## DISCUSSIONS

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### 1. The effect of maternal age on postpartum depression

The result of the analysis showed that there was a direct and indirect negative relationship between maternal age and postpartum depression through complications, preg-

nancy status, and coping strategy which are statistically significant.

The enhancement of maternal age increased the emotional maturity and coping in facing the pregnancy and adapting after birth delivery, therefore, it increased the involvement and satisfaction in the parents' role and it formed an optimal maternal behavior as well (Fatmawati, 2015). Pregnant adolescents have higher risk of birth delivery complications such as anemia, pregnancy hypertension and cephalopelvic disproportion (CPD) and they also have higher risk of delivering babies with low body weight. Adolescents are also more difficult to accept their pregnancy, so that they try to hide their pregnancies. Therefore, the mothers did not get prenatal care before the third trimester (Kurniasari and Astuti, 2015).

### 2. The effect of educational level on postpartum depression

The result showed that maternal education level has indirect relationship with postpartum depression through coping strategy which is statistically significant.

This study was also supported by a study by Salonen et al. (2014) which stated that the level of education significantly affect the incidence of postpartum depression. A study by Indriasari (2017) showed that the higher the maternal education level, the lower the risk of experiencing postpartum depression. The educational level affects the effectiveness of the coping strategy used. Highly educated people will be more realistic and more active in solving the problems than those with low educational level. People with higher level of education are expected to be more able to adapt (Manurung et al., 2011).

### 3. The effect of family income on postpartum depression

The result showed that family income has direct and indirect relationship with post-

partum depression through pregnancy status, birth delivery complications and self-efficacy which is statistically significant.

The socio-economic condition of the family often affects the maternal psychology. Families who can afford the expenses with the presence of new family members may not feel the financial burden, therefore, it does not affect the adaptation process of both physical and psychological maternal and the transition to parenthood. Mothers also become more confident in taking care of their babies. On the other hand, for the family who have financial burden by the presence of newborn, it can caused stress enhancement that can interfere the parental behaviour, so that they will find difficulties in the transision to enter a new role of parenthood (Irawati and Yuliani, 2014).

Family with low family income will find difficulties in accessing health services, transportations, and in fulfilling the needs of their babies. Maternal self-efficacy about health tends to be lower in low-income parents (Holland et al., 2011). Low family income are more likely to have high unwanted pregnancy than those who have high family income. It is because mothers with low income rarely use contraceptives and experience higher rates of contraceptive failure (Haffejee et al., 2017). Parents who have low incomes will be worried about the costs incurred for food, health, clothing and other high costs. Therefore, the number of children greatly affect a woman's desire to have a baby (Apriliana, Maftuchah and Nurhudhariani, 2014).

#### **4. The effect of parity on postpartum depression**

The result of analysis showed that parity has indirect relationship with postpartum depression through pregnancy status and labor complications which is statistically significant.

Primipara women have no experience in nurturing the children, and it can caused fear and worry if they make mistake. Similarly, in doing mothers' duties, primipara women feel confused, more burdened and feel the lack of freedom by the presence of a baby. Mothers who do not have enough experiences will affect the duties in nurturing their baby. Maternal knowledge has great impact in nurturing their babies (Fatmawati, 2015).

The large number of newborn strongly affects the maternal health. At the first birth delivery, there is a high danger of complications compared to the second or third births. The second or third birth is generally safer, but at the fourth and subsequent births, the risk of infant and maternal mortality is higher (Apriliana, Maftuchah and Nurhudhariani, 2014). The results of 2012 IDHS indicate that the proportion of unwanted pregnancies increases with the order of children who have been born. Women who have many children but they get unwanted pregnancy is likely due to contraceptive failure. Mothers who have given birth many children also feel that the number of children have reached the ideal amount as desired, so that if they get pregnant, the possibility of becoming unwanted pregnancy becomes larger (Saptarini and Suparmi, 2016).

#### **5. The effect of unwanted pregnancy on postpartum depression**

The result of analysis showed that unwanted pregnancy has direct relationship with postpartum depression which is statistically significant.

The result of a study by Brito et al. (2015) showed that women who did not want their pregnancies had a 1.74 chance of experiencing postpartum depression symptoms compared to women who wanted their pregnancies. Women with unplanned pregnancy had 2.5 risk of experiencing depress-

ion in both assessments (during pregnancy and post-partum) compared to women with planned pregnancies. There is no relation between unplanned pregnancy with antenatal or postpartum depression (Faisal-Cury et al., 2016). Women who do not want to get pregnant can increase the risk of postpartum depression than women who want a pregnancy. The risk of depression rises two times higher among women with unwanted pregnancies, although they decided to deliver their babies (Mercier et al., 2013).

Depression which is associated with transition to parent may be aggravated in unwanted pregnancy cases followed by socioeconomic factors, such as increased financial need for newborns and psychological readiness to become mothers (Barton et al., 2017).

#### **6. The effect of labor complication on postpartum depression**

The result of analysis showed that labor complication was directly related to postpartum depression which is statistically significant.

The result of this study is similar to Mathisen's study, which stated that complications during pregnancy and labor are significantly related to postpartum depression symptoms. This is similar to the results of a study in Netherlands toward 4,941 women, where preeclampsia, inpatient care, and emergency cesarean delivery were significantly related to postpartum depression. In that study, the risk of postpartum depression increased with the increasing number of complications. A study in Japan which involved 627 women who found high EPDS scores is significantly related to preterm and difficult labor (Mathisen et al., 2013).

#### **7. The effect of family support on postpartum depression**

The result of analysis showed that family support has indirect relationship with postpartum depression through pregnancy

status and self-efficacy which is statistically significant.

The result of this study is in line with a study by Kusumastuti which stated that husband support has a meaningful relationship with postpartum depression. This is because the mothers feel comfortable with the support given by their husbands during labor process until the puerperium. It is also caused by self-confidence and self-efficacy that grows with the support of people around them, especially the support from husbands. Therefore, mothers can normally go through the puerperium period. (Kusumastuti, Astuti and Hendriyati, 2015). Women with unwanted pregnancies are probably having lack of supports from their husbands. Husband's support for mothers leads to the improvement of quality of life and mental health. Thus, an unwanted pregnancy due to the lack of husband's support is a risk factor for postpartum depression (Shahry et al., 2016).

#### **8. The effect of self-efficacy on postpartum depression**

The result of analysis showed that self-efficacy has direct relationship with postpartum depression and it is statistically significant.

According to Bandura (1994), self-efficacy is the parental belief in their ability to control their roles and jobs as a parent so that it will produce self-efficacy (Azmoode, Jafarnejade and Mazlom, 2015). Maternal self-efficacy is determined by various factors, such as social support, baby's temperament, and mental health of the mothers. In addition to these factors, the relationship of emotional conditions is a source to assess the maternal self-efficacy. The more negative the emotional condition, the lower the self-efficacy (Reck et al., 2012). Parental self-efficacy is a mediator between a mother's experience with her elder son, education and satisfaction in parenting, and

a mediator between social support and maternal conflict.

Bandura (1986) stated that a person's self-confidence acts to reduce the perception of reaction to stress and depression, therefore, the more the mothers feel successful in dealing with tasks and demands as new mothers, the less the tendency to experience stress and depression (Leahy-Warren, McCarthy and Corcoran, 2011).

### **9. The effect of coping strategy on postpartum depression**

The result of analysis showed that coping strategy has a direct relationship with postpartum depression which is statistically significant.

The transition into a mother requires some important things to change such as changes in family dynamics, finances and work life that adapt to the physical and psychological. However, some women can not handle the changes in the transition period due to lack of confidence in their ability to nurture the physical, behavioral, emotional and social development of their babies. A person experiences stress through complex cognitive, behavioral, emotional and biological processes. The process of selecting a strategy is an evaluation of the personal competence to deal with the problem (Gutiérrez-Zotes et al., 2016).

Based on its functions, Lazarus et al. (in Sarafino, 1994) divided the coping strategies into two kinds, namely coping strategies that focus on problems to reduce stressful situations and emotion-focused coping strategies to control the emotional responses to stressful situations through behavioral and cognitive approaches. Mothers who believe that they can change a stressful situation will tend to use problem-focused coping strategy, while mothers who judge and believe that they can not do anything to change stressful situations will tend to use emotion-focused coping strategy

(Rahmandani et al., 2010). The result of this study showed that 21,3% of postpartum mothers experience severe depression. Emotional coping strategies are most widely used by postpartum mothers (Norliza et al., 2014).

### **CONFLICT OF INTEREST**

The authors declare that there is no conflict of interest regarding the publication of this article.

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