



## Emotion and Behaviour Disorders towards Children of Maternal Depression in Psychiatry Polyclinic at RSUP Sanglah



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### Abstract

Background: Depression was a psychiatric disorder that often occurred towards mothers were related to the psychiatric problems for their children. It little was known regarding the effects of maternal depression on the emotional and behavioral disorders to children. Aims: The present study compared the incidence of emotional and behavioral disorders towards the children and maternal depression and children of mothers were not depressed. Methods: It was observational analytic research that was designed a cross-sectional. There were 74 mothers who came to the psychiatry clinic at RSUP Sanglah from December 2010 to February 2011 and met the inclusion criteria were included in the present research. They were screened by Beck Depression Inventory (BDI). There were 37 maternal depression and 37 non-maternal depression. The mother characteristics were analyzed excluding the confounding variables. In order to assess the differences percentages of emotional and behavioral disorders among children of maternal depression and children of non-maternal depression was conducted by Chi-square test for categorical variables, and assess the depression degree, a long depression, compliance, and comorbidities. The differences were considered significant if  $P < 0.05$ . Results: There were obtained that most children of maternal depression experiencing emotional and behavioral disorders (83.8%) at screening with the Pediatric Symptom Checklist (PSC-17). The mother characteristics did not show significant results therefore, it was not a confounding variable. It was compared to the children of non-maternal depression, children of maternal depression had value was higher for occurring emotional and behavior disorders ( $p < 0.000$ ). PSC score risk was to increase towards the children of maternal depression of severity ( $p < 0.003$ ). Conclusion: The maternal depression especially those having moderate to severe associated with a high incidence of emotional and behavioral disorders for their ancestries. The father could be a protective factor if they were healthy and supportive.

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**1. Introduction**

The child is a resource for survival nation. Therefore, the optimal child development must be prioritized and is essential. An optimal growth process is as well as the mutual interaction of internal and external factors to the children. Internal factors, unlike genetic factors, is "blueprint" for developing and growing of children in the future. Whereas, the external factor is outer factors of children including the environment wherein the children live and grow, parenting parents, including the fulfillment of children's nutrition and cultural norms. These factors are interrelated and mutually strengthen or weaken. In term of this shows that the child developing is not an easy and simple process, however, a process is very complex and deals with many things (Wiguna, 2006).

The family has a high influence on the children and adolescents development, due to the family is the first social environment, that laid the personality basis. Parenting parent has a very high influence on children and adolescents. In addition to parenting, their relationships between families as well as shape the behavior before adolescence. Understanding and support by their parent are very helpful for the adolescent's development (Soetjiningsih, 2004). Depression is a psychiatric disorder that often occurs to parent and significantly related to functional disorders and psychiatry at their children. It is needed an understanding of the mechanisms i.e. mental disorders can be reduced so that the effect of maternal depression on their children. The genetic factors play a role, however, the families situation are full of stress, as well as have a higher contribution to the children mental health issues.

If the mother has depression will affect a positive relationship and communication with their children. Family environment with parents that depressed is affected by full stress and conflict in their life. They as well as have social support and family ties are less, it is compared to parents who are not depressed. One of the stressors that cause is the low income (Riley, 2009). There are some studies researched regarding the relationship between the effect on parents depression to their ancestry psychopathology. Depression in parents increases the risk of depression in ancestry as well as other psychopathology. the data although is obtained sufficient for the relationship between parental depression and psychopathology in ancestry, however, it was obtained a weakness that is not seen accompanying the treatment and comorbid depression in their parents (Lieb *et al.*, 2002).

It is viewed from the pediatrics perspective, maternal depression will improve the emotional, behavioral and development for the child. This relationship results from the ineffective interaction between children and their parents and approaches less well than their parents. It is a little known about the association between maternal depression and depression in children, includes the child health factors due to unmet demand for food (Casey *et al.*, 2004). Maternal depression is related to the lack of response for the mother treats their ancestry depression. It recently is little known about the depression treatment effects towards mothers to their ancestries. A study was found that a good treatment for mothers with depression will improve symptoms of psychiatric disorder for their ancestries (Pilowsky *et al.*, 2008).

The research regarding the maternal depression effects on the children mental status in Bali, especially, in RSUP Sanglah (*hospital central in Bali province*), it has not been conducted. The different background of the study may lead to variations in psychodynamic occurrence for childhood mental disorders whose mothers had depression. In term of that, the research is tried to conducted on the emotional and behavioral disorders to children whose mothers suffering a depression.

**2. Materials and Methods**

The present research is an analytic study by cross-sectional design that aims to reveal the maternal depression effects on the occurrence of emotional and behavioral disorders to their children. The first group was mothers with depression and the second group was mothers with no depression. The study was conducted at psychiatry polyclinic in RSUP Sanglah Denpasar. It was conducted from October 2010 to March 2011. The target population is maternal depression and non-maternal depression who have children 4-18 years old. The affordable population is depressed mothers and nondepressed mothers who have children aged 4-18 years, which their mother ever came to RSUP

Sanglah Denpasar. The research samples were maternal depression and maternal depression who have visited the Psychiatry Polyclinic in RSUP Sanglah met the inclusion criteria and exclusion.

The inclusion criteria is the mother who came to the clinic, the patient or the patient families, have children 4-18 years old, including the productive age, able to read and write (at least primary school graduation), mother and their child live in one house, and is willing to join the study and signed a consent whereas the exclusion criteria are mothers with severe cognitive impairment, psychotic or can not be interviewed, mother and children living with a large family, the father has a mental disorder, as well as the child is experiencing emotional and behavioral disorders before their mother suffers a depression.

Consecutive sampling was applied at choosing the sample, i.e. the mothers who come to the psychiatry clinic that met the inclusion criteria and the medical record views until the required sample size is met. The formula that was used to a hypothesis on two population proportions (Dahlan, 2009). Based on the results, a sample size of each group was 37 subjects. The independent variables were researched: maternal depression status vs sub-variables i.e. depression degree, disease infected time, presence comorbidities and therapy adherence. The dependent variables researched were: emotional and behavioral disorders towards the children. The confounding variables were: maternal job, maternal marital status, maternal age, income, child sequence, the number of children and maternal education, sex of the child.

The mother that has depression in 4-18 years old who come to the psychiatry clinic, and has been screened by *Beck Depression Inventory Scale* showed depression and confirmed by PPDGJ III (Guidelines for Diagnostic Classification of Mental Disorders). The treatment compliance was observed by the visiting frequency/control to the clinic at the hospital. The measurements were made based on information filled in the questionnaire and adjusted that was noted in the medical recording. It is categorized into: never, irregular rarely and often, regularly.

The disease time is determined from how long the patients infected of depression since the symptoms first known until recently is based on information from patients and the medical record notice. It is categorized into two, namely less than a year and more than a year. Comorbid disorders in questioning is another comorbid disorder to patients with disorders other than depression during recent time. It can be a physical or mental disorder to another, which can be seen from medical records and interviews to respondents. The disease degree was assessed on the depression patients degree were divided into: mild, moderate and severe, as seen on the medical recording that has been diagnosed by a psychiatrist based on PPDGJ III as well as is determined according to *Beck Depression Inventory Scale*. Non-maternal depression is the mother who came to the psychiatric for asking mental health references or dropping their families who have been screened by *Beck Depression Inventory Scale* and showing no depression.

An emotional and behavioral disorder that were experienced by the children after mother suffered a depression. It is assessed with *pediatric symptom checklist 17 items* (PSC 17) instruments, which has been validated (enclosed). The variable assessed based on the amount of each question value. The marital status is classified in categories: married or single parents (divorced due died or divorced). Employment status in accordance with whether there is any activity that aims to earn money routinely performed maternal depression and a livelihood. The measurements were made based on the work mentioned by patients from list depression questions and additional information given.

The variables are categorized into worker and non-worker. The mother's education listed is the highest education level received mother, is grouped in clusters graduation of primary school, junior high school, high school, and a bachelor. Maternal age: the age when mothers enrolled in the present study in terms of years, based on birthdays time. One day before the birthday, mother's age is still not plus one yet. It is grouped in <20 years old, 20-30 years old, 40-50 years old and >50 years old. The children order is grouped starting at 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, and 4<sup>th</sup> or more. The children number in the families grouped in clusters child, two children, three children, and more than 3 children whereas the family income in one month is grouped that is less than 1 million/month, 1-2 million/month, more than two million/month,

An instrument in the present study is the assessment tool for emotional and behavioral disorders by *pediatric symptom checklist 17 items* (PSC-17). These instruments are translated into *Indonesian* and have been validated (*all respondents are Indonesian*). Emotional and behavioral disorders assessed with a number that represents the total value of 17 questionnaires with each range values question is 0-2. If the value is never 0 = 0, sometimes = 1 and often = 2. There are three behavior subscales is five questions internalization, there is an externalization seven questions and concerns there are five questions. Positive (there may be behavioral disorders) if one subscale is representing on a number of internalization = 5 or more, externalization value = 7 or greater; attention value = 7 or more, or it could be positive if the total amount is 3 subscales = 15 or more (Ritscher *et al.*, 2001).

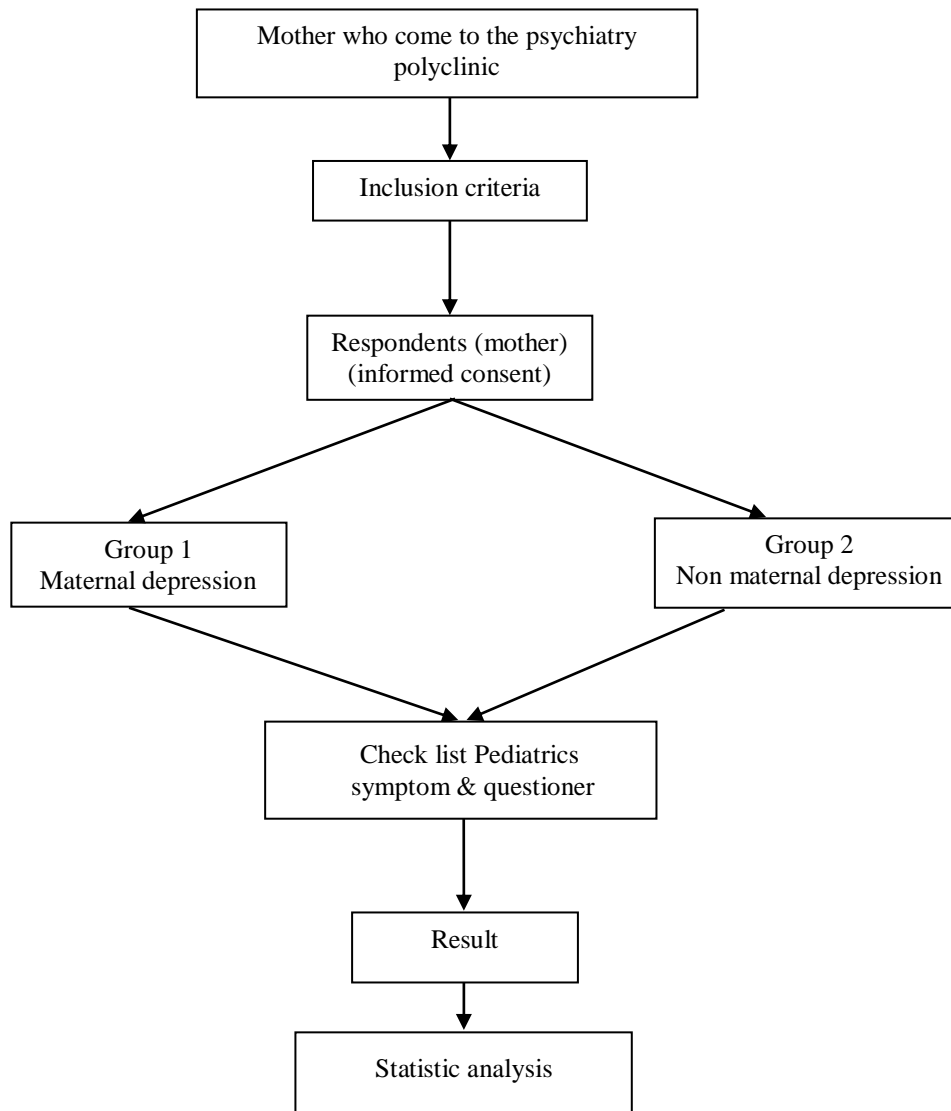
*Research Model*

Figure 1. Research model

The subject characteristics data of groups are descriptively presented. The categorical variable will be presented in tabular form. The data will be analyzed using a computer. In order to assess the differences magnitude in the occurrence of emotional and behavioral disorders among children of maternal depression and children of maternal depression is conducted by normality test beforehand to determine the distribution of normal data or not by using Kolmogorov-Smirnov test. If the data distribution is normal will be used unpaired t-test. If the data distribution is not normal will be conducted a nonparametric test of Mann-Whitney. The differences are considered significant if  $P < 0.05$  with a confidence interval is 95%. The multivariate analysis ANOVA was conducted on the differences effects in the basic characteristics of variable studies.

Independent sub-variable of maternal depression unlike the depression degree, disease infected time, the presence of comorbidities and medication adherence will be conducted Spearman correlation test on emotional and behavioral disorders that occur in children. It is specifically done for mothers who are depressed.

Each research subject will be given an explanation on the background, aims, methods, and the significances than expected and the research ordinances were conducted. It was submitted to the Research Ethics Committee, Research

Unit and Development (R&D) RSUP Sanglah/Medical Faculty in the University of Udayana, Denpasar to obtain an ethics airworthiness. This study as well as will be submitted to the Director of Human Resources and Education of RSUP Sanglah in Denpasar to obtain research permit.

### 3. Results and Discussions

Regarding the respondent's demographics description, it is obtained the highest maternal group is 30-34 years old (25.7%) and being more married is 68 people (91.9%) than those who divorce or their husband died. Based on the mother's education is obtained the highest school graduation is 34 people (45.9%), which higher education cumulatively (high school and Bachelor) is higher i.e. 55 (74.3%) compared to the low education. The more respondents who worked 44 people (59.5%), and have a family income of more than two million are 36 people (48.6%). The sex of children is assessed more men is 41 (55.4%) with the largest children number is two of 34 mothers (45.9%).

Table 1  
Basic characteristics of the research subject

No	Mother Characteristics (n-74)	f	%
1	Age of Mother : - < 29	12	16,2
	- 30-34	19	25,7
	- 35-39	17	23,0
	- 40-44	10	13,5
	- >44	16	21,6
2	Education : - Primary School	10	13,5
	- Junior High School	9	12,2
	- Senior High School	34	45,9
	- College/University	21	28,4
3	Marital Status : - Married	68	91,9
	- Divorce	6	8,1
4	Occupation : - Worker	44	59,5
	- Non Worker	30	40,5
5	Sex of Children : - Male	41	55,4
	- Female	33	44,6
6	Age of Children : - 4-5 years old	21	28,4
	- 6 - 11 years old	30	40,5
	- 11- 18 years old	23	31,1
7	Number of Children : - 1	29	39,2
	- 2	34	45,9
	- >3	11	14,9
8	Family Income : - < 1 million	13	17,6
	- 1-2 million	25	33,8
	- > 2 million	36	48,6

There are 74 respondents, the mothers were screened using *beck depression inventory* and divided 37 maternal depression and 37 non-maternal depression then fill in a questionnaire provided.

Table 2  
The characteristics comparison of maternal depression vs nondepression

No	Mother Characteristics (n = 74)	Depression	Non-Depression	P
1	Age of Mother : - < 29	6 (50,0)	6 (50,0)	0.640
	- 30-34	9 (47,4)	10 (52,6)	
	- 35-39	11 (64,7)	6 (35,3)	
	- 40-44	5 (50,0)	5 (50,0)	
	- >44	6 (37,5)	10 (62,5)	
2	Education : - Primary School	6 (60,0)	4 (40,0)	0.816
	- Junior High School	5 (55,6)	4 (44,4)	
	- Senior High School	17 (50,0)	7 (50,0)	
	- College/University	9 (42,9)	12(57,1)	
3	Marital Status : - Married	34 (50,0)	34 (50,0)	1.000
	- Divorce	3 (50,0)	3 (50,0)	
4	Occupation : - Worker	23 (52,3)	21 (47,7)	0.636
	- Non Worker	14 (46,7)	16 (53,3)	
5	Sex of Children` : - Male	19(46,3)	22 (53,7)	0.483
	- Female	18(54,5)	15 (45,5)	
6	Age of Children : - 4-5 years old	13 (61,9)	8 (38,1)	0.320
	- 6-11 years old	15 (50,0)	15 (50,0)	
	- 12-18 years old	9 (39,1)	14 (60,9)	
7	Number of Children : - 1	8 (27,6)	21 (72,4)	0.016*
	- 2	18 (52,9)	16 (47,1)	
	- > 3	11 (100,0)	0 ( 0,0)	
8	Family Income : - < 1 million	7 (53,8)	6 (46,2)	0.760
	- 1-2 million	11(44,0)	14 (56,0)	
	- > 2 million	19(52,8)	17 (47,2)	

\* Significant difference  $p < 0,05$

# Chi Square Test

The characteristics of maternal depression and non-maternal depression are not obtained significant results unless the number of children showed significantly is  $p < 0.016$ , it is obtained in mothers with the number of children  $>$  or equal to 3 have a tendency to have children with behavioral disorders. It can be concluded that some of the mother characteristics are not a confounding variable except the number of children characteristics who required advanced statistical analysis.

The previous bivariate analysis research was getting the parents with low education, can increase the incidence of depression to their ancestries (Ritsher *et al.*, 2001). This is related to how to maintain and seek health care, where people with low education and low socioeconomic ignore the disease so that it becomes cronies (Navon *et al.*, 2001). Education itself has no effect, possibly due to their arrival to psychiatric clinic showed their health understanding. The gender difference is more often an effect on disorder types, in which the son usually more aggressive than girls, so the more prominent than an externalization female subscale (Warsiki, 2010). In the present study, the child's gender does not influence the occurrence of depression as well as emotional and behavioral disorders of the children.

Age of children are not visible effect, wherein has been described that, not only in the dominant age group will be interference, but also in the phase wherein is an interference fixation will be in accordance with disturbances in the phase.

In the present research, income and marital status did not give significant results. Respecting a study that was conducted in the Africa tribal and America of Latin was attained only marital status and family income was used as a control variable and high correlation (Riley, 2009). Based on these results it was found that maternal characteristics unlike maternal age, mother's education, and occupation, marital status and number of children and child characteristics such as the child's age and education of children is not a confounding variable. Therefore, between maternal depression and maternal depression does not have the same characteristics, thus, it does not affect the

occurrence of depression as well as emotional and behavioral disorders to the children. All respondents filled out PSC 17 questionnaires which consist of three subscales namely internalizing subscale consists of 5 questions, externalizing subscale consists of 7 questions and subscale concern that consist of five questions.

Table 3  
PSC subscale results towards children of maternal depression and non-depression

Sub Scale*	Depression	Nondepression
Negative	6 ( 9,2)	34 (91,8)
+ Internalisation	4 (10,8)	1 ( 2,7)
+ Externalisation	10 (27,0)	0 ( 0,0)
+ Treatment	6 (16,2)	2 ( 5,4)
+ Total	0 (00,0)	0 ( 0,0)
+ > 1 subscale	11 (29,7)	0 ( 0,0)
Total	37	37

The results rate of PSC scale is obtained that children whose positive results on screening emotional and behavioral disorders is 31 children of maternal depression and 3 children of non-maternal depression. The results are obtained positive subscale on more than one scale that is 11 people (29.7%). Externalizing subscale is manifested in excessive delinquency is 10 children (27%). For the treatment subscale, wherein the child is showing symptoms leads to hyperactivity and attention deficit disorder is 6 children (16.2%) of maternal depression and 2 children (5.4%) of non-maternal depression. The results of internalization subscale form of sadness and anxiety symptoms got merely 4 children (10, 8%) on the children of maternal depression and a child (2.7%) in non-maternal depression. The negative result is obtained in the children the majority of non-maternal depression is 34 children (91.8%), whereas children of maternal depression showed a negative merely 6 children (9.2%).

Table 4  
Maternal depression status relationship within emotion and behavior disorders of the children

Depression Status	Emotion and behavior disorders		Prevalence Ratio	95% CI	P
	Yes	No			
Depression Status (n = 74)					
Yes	31 (83,8)	6 (16,2)	10,3	3,460-30,85	0,000*
No	3 ( 8,1)	34 (91,9)			

\* Meaning differences  $p < 0,05$ , prevalence ratio  $> 1$

Based on the statistical analysis results, it was obtained that the status of maternal depression has a significant value is  $p < 0.05$  ( $p 0.000$ ) wherein the maternal depression has a prevalence ratio 10.3 ( $rp > 1$ ) show significant effects that depressed mothers have impaired children emotional and behavioral higher than mothers whose non-depression.

The maternal depression often misinterprets their children behave as a child could not adapt to the situation. Non-maternal depression easily agitated depression and would have lost friends and support, the consequences will perform an ineffective discipline and irritability in the children as well as address the issue of children in a bad way<sup>7</sup>. Referred to the study that assessing psychiatric disorders to children of maternal depression. It was conducted in New York, the USA, it was obtained that the occurrence rate of psychiatric disorders in the children of maternal depression was a third of 123 samples were viewed from an evaluation for 3 years (Pilowsky *et al.*, 2008). The result was obtained in the study is higher, due to it is looking for emotional and behavioral disorders screening which is thorough screening is not a specific psychiatric disorder and wearing a different instrument. In the American study used HAM-D and STAR \* D whereas in this study were applied BDI and PSC 17, where PSC 17 there were three subscales assessed and did not just look at the total, so the children assessment whose have emotional and behavioral disorders more detectable due to it depends on which one is more prominent sub-variable.

Table 5  
The relationship of Depression Sub Variables towards Mothers on Emotional and Behavior Disorders of the Children

No	Depression sub-variable	Emotion and behavior disorders		Prevalence ratio	95% CI	P
		Yes	No			
1	Degree (n = 37)	12 (100)	0 (0,0)	1,6	1,095-2,339	0,003*
	High	10 (100)	0 (0,0)			
	Middle	9 ( 50)	6 (40,0)			
	Low					
2	Depression time (n = 37) > 1 year	16 (88,9)	2 (11,1)	1,126	0,848-1,496	0,660
	< 1 year	15(78,9)	4 (21,1)			
3	Obedience (n = 37)	25 (89,3)	3 (10,7)	1,339	0,829-2,163	0,140
	Never	2 (66,7)	1 (33,3)			
	Sometime	4 (66,7)	2 (33,3)			
	Often					
4	Comorbidities (n = 37)			0,869	0,650-1,163	0,405
	Yes	14 (77,8)	4 (22,2)			
	No	17 (89,5)	2 (10,5)			

\* Significant differences  $p < 0,05$

The highest depression degree cause emotional and behavioral disorders is a severe depression degree. This result is significant at  $p = 0.003$ , wherein the mothers on severe depression degree had a prevalence ratio of 1.6 ( $p > 1$ ). Therefore, having children whose experience emotional and behavioral disorders is higher than a mother whose depression mild degrees. The compliance sub-variable, disease duration, and comorbidity showed a non-significant means of  $p > 0.05$ . According to the theory, their comorbidities will worsen the depression prognosis and would increase the influence of the emotional and behavioral disorders to the children (Ismail & Siste, 2010).

Regarding on the study in Munich Germany, it was found that the significant relationship between depression in the parents and ancestries is the only comorbidity with alcohol dependence, agoraphobia, not a specific phobia and social phobia. In term of this, the disorder increasing ancestry due to comorbid disorders on parents (Lieb *et al.*, 2002). Maternal depression comorbidity was as well as obtained significant cause behavioral disturbances than those without on depression (Cohen *et al.*, 2006). Due to the sample in the present study have comorbidities that are lacking in variety and only comorbidities unlike gastritis, migraine, tension-type headache, and anxiety are frequently present in high depression, therefore, the depression degree was more influential than mild comorbidities.

According to Erikson, a child's growth is the interaction result between the child and their environment. The main character of the environment in infancy and early childhood is the mother. The children of maternal depression whose showed increased risk of behavioral problems, depression, asthma, and trauma. A father whose a health mental was well would affect the mother unhealthy mental to behavior and emotions issues for their children. The issue will be more severe if their parents whose, not a healthy well (Kahn *et al.*, 2004).

#### 4. Conclusion

The mothers whose middle depression degrees and closely have a higher risk to have children with emotional and behavioral disorders than the mothers whose mild depression despite a long depression, treatment compliance, and the comorbidities presence did not significantly influence the occurrence of emotional and behavioral disorders to their children. In order to know the severity of the incident emotional and behavioral disorders in the children of maternal depression needed a mediator to reduce the risk of occurring emotions and behavior disorders to their children. One of them at increasing the father's role and other caregivers taking the most of mother's role. It needs to be conducted a psycho-education to mothers towards father's role and mother's education and child growth.



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*Statement of authorship*

The author(s) have a responsibility for the conception and design of the study. The author(s) have approved the final article.

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