

# THE RISK FACTORS OF LABOR AND DELIVERY COMPLICATION ON WORKING MOTHERS' IN FATMAWATI HOSPITAL JAKARTA

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## Abstract

Labor and delivery complications are one of the causes of maternal deaths in Indonesia. The risk factors known to contribute to labor and delivery complication are kinds of occupation and work activity in pre partum work. The objective of this study was to identify risk factors of labor and delivery complication. This study has a case control design with a retrospective approach and used a technical sampling with a consecutive sampling method. The result of this study shows that prolonged sitting and pregnancy complication are the risk factors of labor and delivery complications. This study provides the scientific evidence that working mothers should pay attention to work activity when they work.

**Keywords:** kinds of occupation, work activities, labor and delivery complication.

## Background

The commitment of the countries in the world in the frame of realizing the optimum health is shown by signing *United Nation Millenium Declaration* called *Millenium Development Goals (MDGs)* which consists of seven main goals, one of which is to improve maternal health in that it could reduce maternal death caused by pregnancy and delivery process (BPPN, 2007).

Maternal death rate and infant death rate tend to be high in the developing countries compared with the developed countries. This phenomenon shows that every year more or less 515.000 mothers died in the developing countries. It is assumed that every minute a mother died due to labor and delivery complication (Islam, Chowdury & Akhter, 2006). In Indonesia, there are two mothers who died every hour because of labor and delivery complication. It is estimated that

20.000 mothers died per 5 million labors due to labor and delivery complication every year (BPPN, 2007).

Statistics Central Board (BPS) projected that the new AKI achievement will achieve 163 maternal deaths per 100.000 live births in 2015 while MDG's target in 2015 is 102 (Depkes RI, 2008).

The main cause of maternal deaths in Indonesia is bleeding, preeclampsia, eclampsia, abortion, infection, and bad nutrition (Depkes RI, 2009). BPPN dan WHO (2007) stated that the direct cause of maternal deaths are bleeding (30%), eclampsia (25%), long partum (5), abortion complication (8%), and infection (12%). Meanwhile, the indirect cause is anemia, and cardiac diseases. The risks of maternal deaths increase if mothers suffer from anemia, lack of chronic energy, and contagious diseases (BPPN, 2007).

All the cause factors can be prevented through four strategies to reduce pain and maternal deaths. The first strategy is to improve the access and coverage of qualified and cost effective maternal and child health service. The second strategy is to create effective partnership through cross-collaboration and cross-sector. Third strategy is to empower women by increasing their knowledge and healthy behavior. The last strategy is to increase society involvement in providing good service for mothers and newborns (Depkes RI, 2008).

Pregnancy and labor are critical periods and unique processes in women lives. Both of them are normal and natural processes. However, pregnancy and labor are not predictable and risky processes for both mothers and fetus which are able to increase both morbidity and mortality. During the labor and delivery process, which are normal at the beginning, can suddenly change

into abnormal process, in other words, it changes into complications or risks (Comerford & Durkin *et al*, 2004).

The possible labor complications are namely bleeding, pre-term labor, preeclampsia in labor, infection, dystocia, prolapse, prolapsed umbilical cord, and amniotic fluid embolism(Reeder, Martin & Griffin, 2011). The main cause of labor complication is one or more factors of 4 “P” *power, passage, pasanger, dan psyche* (Lowdermilk & Perry, 2000). Apart from that, the other maternal factors are age, education, occupation, and family income which result in labor complication (Gilbert & Harmon, 2003; Lowdermilk & Perry, 2004; Murray & McKinney, 2007; Robinson, Regan & Norwitz, 2001).

Mother parity factors are the range between pregnancies, nutrition status, mother health condition in connection with her disease she has, previous obstetric complication history, and the distance between her house and labor helper which are closely connected with labor complication (Islam, Chowdury & Akhter, 2006; Murray & McKinney, 2007; Robinson, Regan & Norwitz, 2001).

The occupations requiring too long standing or sitting activities will cause fatigue (Bobak, 2005). Physiologically resistance of the veins of the people who sit in connection with gravitation is bigger than those who are in the sleeping or horizontal position as the current of the vein slows down(Gabriel, 1998; Hani & Riwidikdo, 2010). When this happens to a pregnant mother, in addition to causing fatigue due to the widening of uterus which presses arteries below, it is assumed that it can cause ultraplacental blood disorder which result in labor and delivery complication. The occupations requiring the pregnant mothers with prolong standing or sitting

activities without anything supporting her feet will increase the vein pressure so much that it can cause varicose veins and thrombophlebitis (Bobak, 2005).

According to Robinson, Regan & Norwitz (2001), a pregnant mother whose occupation requires walking and sitting activities for more than 36 hours per week has the risk of complication in preterm labor. A pregnant mother whose occupation requires too tiring activities tends to have 15.5 times preterm labor with the below average baby weight. In addition, a pregnant mother's hardwork and excessive activities influence her health condition and her fetus (Watson & McDonald, 2007; Reeder, Martin & Griffin, 2011).

The occupation that requires a pregnant mother to stand up too long results in premature labor while an occupation requiring physical activities such as going up and down stairs and lifting heavy burden can cause hypertension in pregnancy and the restriction in fetal development (Mozurkewich & Wolf, 2000; Cuninghame & Gant, et al, 2004). Therefore, all activities resulting in a pregnant mother's depressions and physical fatigue must be stopped (Reeder, Martin & Griffin, 2011).

Similarly Gilbert & Hamon (2003) says that an occupation requiring very hard physical activities with heavy burdens can cause preterm labors, small gestation age (SGA) and preeclampsia. Physical activities requiring energy and concentration can cause physical and psychological fatigue (Consonni, 2010).

In addition, psychological stressors resulting in a mother's stress and anxiety must be avoided because they can have impacts on the mother and fetal condition and it can also have bad effects on her pregnancy and labor (Gilbert & Hamon, 2003; Murray & McKinney, 2007). Consonni et al (2010) states that anxiety during pregnancy will have negative effects on a mother's emotional

balance and fetal development besides neonatal outcome, including premature labors, light baby's birth, and low "apgar" value.

The result of the research conducted by Mozurkewich & Wolf (2000) shows the correlation between the occupations which require physical activities, prolonged standing period, long working hours, occupations with shifts, and continuous fatigue with premature labors, preeclampsia, and babies born with extremely low weight.

In Indonesia, researches on pregnancy and labor complications in connection with mothers' occupations are very rare. Therefore, the writer conducted this research to see the risk factors causing labor complication.

### **Research Method**

This research is a retrospective research by using a control case design whose objective to see the relation among the variables, namely kinds of mothers' occupations, other risk factors with labor complications. This research used consecutive sampling technique with 69 working mothers as its respondents, 32 respondents as a control group and 37 respondents as a case group. The strategy to collect data used medical recordings and questionnaires. Medical records were used to obtain diagnosis data of labor complication. Questionnaires were used to collect the primary data in connection with occupation risk factors, work activities, and respondent characteristics. Data collection was conducted after the process of ethic test and the respondents' informed consents.

Data analysis in this research used univariate analysis, bivariate analysis with Chi Square and multivariate analysis by using logistic regression analysis to see the most dominant risk factors which influence labor complication.

## **Research Result**

### **Respondents' Characteristics**

The majority of the respondents are at the healthy reproductive age both in the control group (79,9) and the case group (75,9%). The respondents' characteristics of their education background are quite similar between low and high education background of the two groups. Seen from the two groups' socio-economic status, most of the group members are from the lower economic status, with the control group (53,9%) and the case group (68,4%). The majority of the respondents is multivariate with the control group (63,3%) and the case group (62%) with the rage of their pregnancies between two and nine years who have no risks of labor complication. Most of the cases of pregnancy complications in the case group are pregnancy complications (73,4%); however, in the control groups, the majority of the respondents did not experience pregnancy complication (60,8%). In both groups, it seems that almost all of the respondents (91,1%) did pregnancy checks regularly during the pregnancy period.

### **Mothers' Risk Factor Characteristics and the Occupations Influencing Labor Complications**

This research shows that there were four variables of work activities and labor complication experienced by working mothers which had impacts on labor complications. With logistic regression analysis, the result is shown in Table 1.

Table 1: The Relation Between the Kinds and Activities of the Occupations in Connection with Labor Complication in Fatmawati Hospital Jakarta, December 2011.

Variabel	P value	Exp (B)	95 % CI for Exp (B)	
			Low	Upper
Standing Period	0,383	0,542	<b>0,137</b>	<b>2,145</b>
Sitting Period	0,334	2,201	<b>0,445</b>	<b>10,896</b>
Supporting Load	0,519	0,663	<b>0,190</b>	<b>2,317</b>
Occupation Status	0,368	1,643	<b>0,557</b>	<b>4,844</b>
Pregnancy Complications	0,003	6,596	<b>1,901</b>	<b>22,894</b>

Sitting period (expB=2,20; 95% CI;0,445-10,896) and pregnancy complications (expB=6,59; 95% CI:1,901-22,894) are the most dominant variables which influences labor complications.

### **The Risk factors of kinds of occupation and the occupation activities toward labor complication**

The result of this research shows that sitting period of five hours consecutively is the highest risk factor toward labor complication with the RR value = 1,944 and PAR value = 29,6. Labor complications were also caused by pregnancy complications experience by mothers during their pregnancy periods. It is clearly shown from RR value=2,016 and PAR value=63,07.

### **DISCUSSION**

The result of this research indicated that the mothers' kinds of occupations were not the risk factors of labor complications. This research was supported by the result of the research by Niedhammer *et al* (2009); in that it is said that there is no correlation between the kinds of occupation and labor complication. Similarly it is said by Hung *et al* (2002) who showed those

mothers' kinds of occupations substantially did not increase labor complication risks so that it needed caesarian.

However, Hung (2002) mentioned that kinds of occupations are not merely the only risk factor of labor complications but they were also caused by working mothers' activities. Furthermore, Arafah & Fattah (2007); Chien & Ko, (2003) said that the occupation condition with full stresses physically and psychologically caused fatigue which have impacts on labor. Social supports are very important for working mothers during their pregnancy periods. Mothers were allowed to work during pregnancy periods as long as it did not cause fatigue which later had impacts on complications during pregnancy periods (Reeder & Martin, 2011).

Some factors of work activities were not risk factors of labor complications. Sitting periods of more or the same as five hours consecutively are the risk factors of labor complications.

The result of the research was supported by Hung *et al* (2002) who said that for the mothers who still work until the third trimester, long working hour and particular occupations are not independently related with labor complications which need caesarian.

The result of this research was in contrast with the result of the research conducted by Niedhammer *et al* (2009) dan Mozurkewich & Wolf (2000) who stated that the occupations requiring significant physical activities increased the risks of labor complications and prolonged sitting periods of working mothers significantly increased the risks of preterm labor of 1,2 times.

The result of this research indicated that there was no significant correlation between work route and labor complications. This research is also similar to that of Arafah & Fattah (2007) who found out that there was no significant correlation between the route of work shifts and labor complication in this case, preterm labor. However, the result of this research was in contrast to

that of Niedhermmer et al (2009) who found out that there was a significant correlation between work shifts and labor complication. This research used cohort design with the respondents' characteristics, the majority of whom had work route without shifts but active physical activity category.

Another factor considered the dominant factor influencing labor complication is pregnancy complication experienced by mothers when they are pregnant.

This research is in accordance and consistent with the research conducted by Niedhermmer et al (2009) who found out that there was a significant correlation between labor complication during mothers' pregnancy periods and labor complication. Islam, Chowdhury & Akhter (2004) conclude that bleeding during pregnancy increases the risk of intranatal bleeding; the risk of long partum increases mothers' abdominal pain during antenatal period. The complication during pregnancy is the risk factor of labor complication, especially preterm labors (Robinson & Norwitz, 2001).

## **Conclusion**

This research indicated that kinds of mothers' occupations are the risk factor of labor complication. Several factors of work activities are not the risk factor of labor complication. Sitting periods of more or the same as five hours consecutively during working period are the risk factor of labor complication. In addition to the factor of work activities, there is another maternal characteristic which is significantly connected with the risk factor of labor complication, namely pregnancy complication

This research recommends that researches connected with the risk factors of other occupations which influence labor complication such as work load, work stress, work condition, the need of

physical activities during working period with bigger samples should be done in order to be better generalized. The future researches must be able to compare the influence of prolonged sitting and standing periods with labor complication. Nurses and health professionals are expected to be able to improve and promote preventive and curative abilities precisely to monitor the pregnant mothers with pregnancy complications intensively so that they will be able to prevent the negative effects of their labors.

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