# Path Analysis Reinforcing Factor (Green and Keuter) the Usage of NAC in Preventing Preeclampsia on Pregnant Mother in Kediri Regency, East-Java Province

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**Abstract:** Antenatal care is one of an effort in health reinforcing of pregnant mother. The high of mother mortality number is big problem in Indonesia. Health world report realizes that the care of antenatal care can increase mother's and infant's health whose goal is to increase health and to diagnose the risk of pregnancy complication, especially, preeclampsia. The goal of this research is to know the direct and indirect correlation between reinforcing factor and the usage of ANC in preventing preeclampsia. The research design uses case control study with cross sectional approach. It was conducted in Kediri Regency, East-Java Province Indonesia from October 10, 2016 to March 8, 2018. The variables of this research are social networking, trust, feed-back norm, ANC behavior and preeclampsia. Samples were chosen by fixed disease sampling with the scale 1:3 for subject of case and control were 160 subjects. The data collection methods were by questionnaire and medical report. The data was analyzed by path analyses by using stata program 13. There was correlation between ANC behavior and preeclampsia of pregnant mother (b = -0.91, CI = -1.65-0.17, p = 0.015). It was found indirect correlation between trust and preeclampsia through ANC behavior (b = 1.16, CI = 0.44-1.88, p = 0.0001). There wasn't correlation between social network (b = 0.27, CI = -0.43-0.98, p = 0.452) and the feedback norm (b = -0.91, CI = -0.29-1.13, p = 0.254) with preeclampsia trough ANC behavior. There was direct and indirect correlation between reinforcing factor and the usage ANC in preventing preeclampsia with path analysis approach. It is significant to apply the ANC usage in preventing preeclampsia on pregnant mother from early pregnancy.

**Key words:** Reinforcing factor, antenatal care, preeclampsia, ANC, mortality, preventing

## INTRODUCTION

People's health of a country is not only influenced by medical factors, like medical service and facility but also by education, economics, environment, genetic and so on. The level of people's health can be depicted from mother's mortality number infant's mortality number, baby's mortality number and morbidity number of some diseases and the status of people's nutrition. Sani and Abubakar (2015) mother's mortality number in East-Java Province now are 97.39/100.000 kH. This number is lower of province government's prediction, 102/-100.000 kH. Some districts contributing large number of mother's mortality are Surabaya, Kediri, Jombang and Situbondo. Most mother's mortality number are caused by slow response of carrying her to central reference. The factors of mortality number are the problem of social, culture, lack of education and economics. But the most factors of mother's mortality are preeclampsia and bleeding because of slow response time.

The data of mother's mortality number based on health minister of Kediri Regency related to mother's mortality number from the target of 28.287 pregnant mothers in 2014 with high risk pregnancy 5.637 people and labor mother 26.906 people was noted 13 cases of mother's mortality per October 2014. This number decreased than 2013, 34 cases and in 2012 37 cases. The factors of mortality were bleeding infection, heart attack, preeclampsia and so on (Kesehatan, 2013; Anonymous, 2013, 2015).

The factors of mother's mortality above can be prevented by appropriate antenatal care and diagnose mother's pregnancy risk. By ANC, some information related to undetected pregnancy can be informed and by early detection all risk factor causing complication can be diagnosed and prevented. When it is found one of the high risks of pregnant mother in pregnancy, it can be conducted preventive care as early as possible, so, mortality risk can be decreased by right and accurate care.

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Early diagnose of risk factor of complication is an act to find pregnant mother with risk and complication factors. Every pregnancy is normal experience for woman in reproduction process but it is sometimes found complication to many people, especially, to pregnant mother, so, the accurate care can be conducted as early as possible. It is the key of success in decreasing the number of mother and infant mortality (Hasbullah, 2006).

To decrease the number of preeclampsia, it is needed cross-collaboration among government, health department, public health center, reference general hospital and midwife to serve people health facility. Besides that, it is also needed good motivation, participation and communication, so that, people are aware and able to use health service and facility focusing on pregnant mother's health by health promotion strategy through early diagnose promote of preeclampsia.

The promotion effort above is based on health minister decision of Indonesia No.1193/MENKES/SK/X/ 2004 defining health promotion as an effort to increase people's capability through learning from, by, to and together with the people in order that they can help themselves and develop an activity of human resource based on local norm and wisdom and supported by public policy having health discourse.

Every pregnant mother will experience mortality risk, so, one of the efforts to decrease mother's mortality level is by increasing health status of pregnant mother from pregnancy to labor through pregnancy service until post-partum. Pregnancy medical checking is important to know the infant growth and mother's health. Most pregnant mothers in Indonesia (95.4%) have conducted first pregnancy check and the pregnancy frequency minimally 4 times during her pregnancy is 83.5%. The scope of first pregnancy check on the first trimester is 81.6% and the frequency of ANC 1-1-2 or K4 (minimally once on the first trimester, once in the second trimester and twice in the third trimester) is 70.4%. The most health officials conducting ANC are midwife (88%) and the ANC spots are conducted in midwife private clinic (52.5%).

The goal of this research is to know the direct and indirect correlation between reinforcing factor and ANC usage in preventing preeclampsia with path analyses approach.

## MATERIALS AND METHODS

The research design used case control study with cross sectional approach. This research was conducted in Kediri Regency, East-Java Province Indonesia from October 11, 2016 to March 8, 2017. The variables of this research are social networking, trust, feed-back norm, ANC behavior and preeclampsia. The object of research populations were pregnant mother in Kediri Regency. The source of research populations were public health center in Kediri Regency. Samples were chosen by fixed disease sampling with the scale 1:3 for subject of case and control, were 160 subjects. The data collection methods were by questionnaire and medical report. The data was analyzed by path analyses by using Stata Program 13.

## RESULTS AND DISCUSSION

**The characteristic of research subject:** The characteristic of research subject expalains every varibales distribution. The result of characteristic of research subject of Table 1 and Fig. 1 showed that from 160 research subjects, they had different contribution. The description of research variable was explained based on characteristic, criteria, frequency and (%).

Most mother aged 20-35 which is 104 respondents (65%). The comparison between preeclampsia and normal research subject was 1:3. Most pregnant mother's education under high school were 82 respondents (51.3%) as house wives were 117 respondents (73.1%) and multipara 82 respondents (51.3%).

**Bivariate analyses:** The variables of this research are social network, trust, feedback norm, ANC behavior and preeclampsia. Bivariate analyses test used Chi-square test.

**Path analyses:** It explains the direct and indirect correlation between dependent and independent values.The data is analyzed by stata 13. Table 2 and 3 show the result of path analyses about the direct and indirect correlation between dependent and independent variables. It was found the direct correlation between ANC behavior and preeclampsia to pregnant mother, $p = 0.015$.

Table 1: The characteristic of research subject

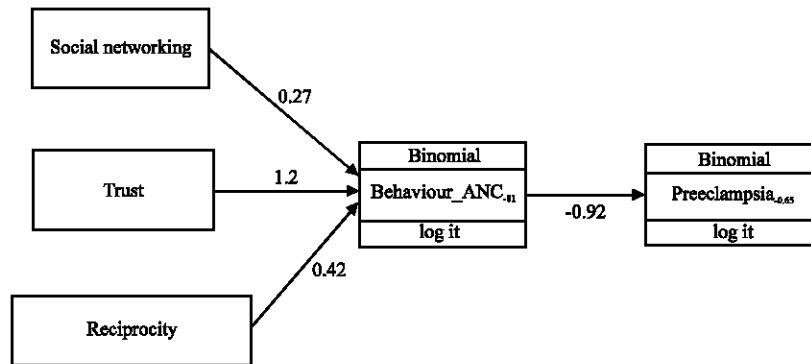| Characteristics/Criteria | Frequency | Percentage |
|---|---|---|
| **Mom's age** | | |
| <20/>35 years old | 56 | 35 |
| 20-35 years old | 104 | 65 |
| **The level of education** | | |
| <high school | 82 | 51.3 |
| ≥high school | 78 | 48.8 |
| **Job** | | |
| House wife | 117 | 73.1 |
| Farmer labor | 5 | 3.1 |
| labor | 4 | 2.5 |
| Businessman | 18 | 11.3 |
| Entrepreneur | 15 | 9.4 |
| Farmer | 1 | 0.6 |
| **Parity** | | |
| Primipara | 78 | 48.8 |
| Multipara | 82 | 51.3 |

Fig. 1: Path analysis reinforcing factor ANC usage in preventing preeclampsia on pregnant mother

Table 2: The result of bivariate analyses

| Independent variables | OR score | p-values | CI (95%) | |
| | | | Top limit | Bottom limit |
| --- | --- | --- | --- | --- |
| Social network | 0.44 | 0.024 | 0.21 | 0.91 |
| Trust | 0.26 | 0.001 | 0.12 | 0.57 |
| Feedback norm | 0.34 | 0.005 | 0.16 | 0.73 |
| ANC behavior | 0.40 | 0.013 | 0.19 | 0.83 |

Table 3: The result of path analysis reinforcing factor ANC usage in preventing preeclampsia on pregnant mother

| Correlation between dependent and independent variable | Coeff. path | CI (95%) | | p-values |
| | | Top limit | Bottom limit | |
| --- | --- | --- | --- | --- |
| **Direct effect** | | | | |
| Preeclampsia←ANC behavior | -0.91 | -1.65 | -0.17 | 0.015 |
| **Indirect effect** | | | | |
| ANC behavior←Social network | 0.27 | 0.43 | 0.98 | 0.452 |
| Trust | 1.16 | 0.44 | 1.88 | 0.001 |
| Feedback norm | 0.41 | 0.29 | 1.13 | 0.254 |

N observation = 160; Log likelihood = -187.022; AIC = 386.045; BIC = 404.496; ← = Connected

There was indirect correlation between trust and preeclampsia through ANC behavior (p = 0.001). It was not found correlation between either social network (p = 0.452) or feedback norm (p = 0.254) and preeclampsia through ANC behavior.

**The correlation between ANC behavior and preeclampsia:** In this research, it was found indirect correlation between ANC behavior and preeclampsia. At the present time, the existence of antenatal quality in public health is standardized with the goal of antenatal. The service quality of antenatal conducted to pregnant mother is weighing, measuring height, blood pressure control, ring of top arm (LiLA). Besides that, it was also conducted the measurement of artery fundus, measurement of infant's heart rhythm, determining infant's percentage to predict pregnancy age and infant's health. To support mother's and infant's health, it was given Tetanus Toxoid immune (TT), tablet of blood supplement (Fe) and laboratory check (routine and

special), case act and effective communication (Latu *et al.*, 2018). Low ANC behavior of pregnant mother was caused because pregnant mother did not feel complain during pregnancy. The low motivation of pregnant mother to come to public health was caused by that pregnant mother did not feel ay complain, so, she did not think to come to public health service (Brown *et al.*, 2014).

Routine medical check-up as needed to know the progress of pregnancy and to diagnose the complication during pregnancy (Shaw and Kean, 2016).

**The correlation between social network and preeclampsia:** The result of analyses of this research shows that there is positive between social network and preeclampsia.

Pregnant mother with low social network tends to have preeclampsia because of the lack of awareness of visiting public health service, like just staying home without motivation to check her pregnancy. Pregnant mother having little information about the way of healthy life needs awareness and strong support from medical official, advertisement and information whose goal is to give knowledge to pregnant mother. The low social network of pregnant mother was also caused by that pregnant mother is not opened to health service and mother did not think there was problem in her pregnancy, so in the end of semester, many regnant mother experienced pregnancy complication.

Human relationship is very meaningful for her as person. It could be said at least, someone was depicted form other people known. Further, the relations among human beings played as boundary for other larger social structure. The min idea of social is that social network is a valuable asset (Hasbullah, 2006). The networks provide a basis for social cohesion because it is able to people to elaborate each other and also with the people they know in order to be benefit each other.

PerintisLynch and Tinsley (2001), Fukuyama (1997, 2001) stated that the power of social network depends on from what view that network, namely the consideration of originality and on what level that network. Social networks is also used as means of communication for pregnant mother, to conduct ANC connected with other people. For medical officials, they must be able to give information and knowledge about ANC execution. Health officials must be able to discuss and share with pregnant mother about healthy life, so, pregnant mother can stay healthy and be avoided form pregnancy complication.

**The correlation between trust and preeclampsia:** In this research, it is found indirect correlation between trust and preeclampsia. An urge to take social relation based on trusting that other will do what is hoped and will act in a certain pattern. Trust is a feeling of believing each other in certain society, uniting each other and contributing in the increasing of social life (Francois, 2004). Trust is the relevant economics component of culture in society forming the social wealth (Budiani *et al.*, 2018). Pregnant mother also doubts to ANC check because the regular ANC check cannot diagnose pregnant mother's diseases. Pregnant mother also thought that health officials were not friendly enough and they were afraid when health officials came and they could not be cared well. Pregnant mother also doubted to giving information and training from the officials that the activity conducted could not help her maximally.

**The correlation between feedback norm and preeclampsia:** In this research, was found the positive correlation between feedback norm and preeclampsia. Low feedback norm tends to have preeclampsia because the norm around her was still low, so, the feeling of loving and affecting each other or interacting each other was still low. Many pregnant mothers still do not understand the pregnancy complication. In daily life, mother still follows the rule of norm around her. Pregnant mother is still busy with her job and after job hours, they take rest at home. In daily life, mother still does not understand the meaning of collaboration and remain each other about ANC execution in order that pregnancy complication, especially, preeclampsia can be prevented well. Norm is a rule hoped to be obeyed and followed by certain society of certain social entity (Fukuyama, 1997, 2001). The collective rules are not usually texted or scripted but they are understood by that society and determine the pattern of behavior hoped in social relation context. Norm is also part of social capital whose forming is not created by government (Francois, 2004). Norm is formed by tradition,

history, crucial public figure establishing someone's or certain society's behavior. Further inside of it, it will appear capital social spontaneously in the frame of determining the rule that can manage both personal will and collective will (Shaw and Kean, 2016).

## CONCLUSION

It is found direct and indirect correlation between reinforcing factor of ANC usage in preventing preeclampsia and path analyses approach. The significance of applying ANC usage in preventing preeclampsia of pregnant mother is started, since, early pregnancy.

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