# A Cultural Nursing Care Model to Prevent Preeclampsia in the Provision of Basic Services in Eastern Indonesia

**Awatiful Azza**
https://orcid.org/0000-0003-0946-1092
Doctorate Nursing Study Programme, Faculty of Nursing, Universitas Airlangga, Indonesia
awatiful.azza@unmuhjember.ac.id

**Esti Yunitasari**
https://orcid.org/0000-0002-6401-0748
Faculty of Nursing, Universitas Airlangga, Indonesia
esti-y@fkp.unair.ac.id

**Mira Triharini**
https://orcid.org/0000-0001-7872-6256
Faculty of Nursing, Universitas Airlangga, Indonesia
mira-t@fkp.unair.ac.id

**Cipto Susilo**
https://orcid.org/0000-0002-6872-2101
Faculty of Health Science, Universitas Muhammadiyah Jember, Indonesia
ciptosusilo@unmuhjember.ac.id

**Satriya Pranata**
https://orcid.org/0000-0002-2026-8931
Faculty of Nursing and Health Sciences, University of Muhammadiyah Semarang, Indonesia
Satriya.pranata@unimus.ac.id

**Machmudah Machmudah**
https://orcid.org/0000-0003-2005-3903
Faculty of Nursing and Health Sciences, University of Muhammadiyah Semarang, Indonesia
machmudah@unimus.ac.id

## Abstract

Preeclampsia is a specific multisystemic disorder that appears as a complication of pregnancy, and it is a cause of death for pregnant women. Societies in different countries strongly believe that pregnancy is part of a woman's nature; therefore, pregnancy is considered a normal event that does not require special treatment. This study aims to develop a cultural care model to prevent preeclampsia through basic services. Research following an explanatory design was conducted on a cross-sectional sample of 150 pregnant women who were selected based on a formula using the range rule of thumb with multistage random sampling at the primary level of service in eastern Indonesia. The researchers used a modified questionnaire on individual factors, social factors,

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policy factors, religious factors, technological factors, and culture of prevention to predict preeclampsia prevention behaviour. The results of this study reveal that individual factors affect preeclampsia prevention behaviour factors ($p$ = 0.038); social factors affect preeclampsia prevention behaviour factors ($p$ = 0.005), and technological factors have an effect on preeclampsia prevention behaviour factors ($p$ = 0.001). Meanwhile, policy factors and religious factors did not influence preeclampsia prevention behaviour, with $p$ values of 0.735 and 0.596, respectively. Cultural values are values inherent in society that are useful for regulating harmony and balance. The development of a cultural model of preeclampsia prevention through a cultural care model as a basic intervention to care for mothers throughout their pregnancy can increase positive behaviour in society.

**Keywords:** care; culturally congruent; eclampsia; prevention

## Introduction

Preeclampsia is a specific multisystemic disorder that manifests as a complication of pregnancy, and it is a cause of death for pregnant women (Moungmaithong et al. 2021). Societies in several countries strongly believe that pregnancy is part of a woman's nature; therefore, pregnancy is considered a normal event that does not require special treatment (Nabulo et al. 2021). The results of research in many developing countries regarding preeclampsia clearly explain how people interpret this (El Sayed and Desoky 2019; Moungmaithong et al. 2021; Qureshi et al. 2020).

Cultural practices by pregnant women during the perinatal period covering pregnancy, childbirth, and the postnatal period refer to deeply rooted traditional practices that adversely affect physical, sexual, and psychological well-being and/or violate human rights, socio-economic participation, and benefits for women, children, and society in general (Ministry of Health 2018; Rawlins et al. 2018). For example, most sections of society in Asia believe that pregnant women should not consume sea fish. Many people believe pregnant women should not make antenatal care visits in the first trimester because the spirit has not yet been blown into the baby, so it is dangerous for the safety of the foetus if they have to leave the house for a check-up. It is also believed that pregnant women should not be very active because it endangers the foetus (Cukarso and Herbawani 2020). The forms and models of these practices vary by region, ethnicity, religious values, and cultural heritage (Nabulo et al. 2021). In developing countries, cultural beliefs and practices cause women to delay accessing antenatal, delivery, and postnatal care (Nabulo et al. 2021; Qureshi et al. 2020; Rawlins et al. 2018). This has an impact on the high incidence of preeclampsia in pregnant women in developing countries (Haugdahl et al. 2020; Nabulo et al. 2021; Qureshi et al. 2020; Rawlins et al. 2018).

The relationship of ethnicity to the severity of preeclampsia has been extensively studied in multicultural settings, comparing mostly African-American, Hispanic, and white

subgroups in the United States (Fasanya et al. 2021). Low maternal education, living in rural areas, lack of antenatal care and lack of trained personnel are risk factors that cause women to continue to adopt harmful cultural practices during the perinatal period. Globally, around 830 women die from complications of pregnancy or childbirth every day, and this is a very high rate (Afulani et al. 2019; Dartey et al. 2022). In 2015, it was estimated that around 303,000 women died during childbirth and postpartum due to factors resulting from a lack of resources, which are mostly preventable (Haugdahl et al. 2020).

Socio-cultural practices in general have been reported to affect infant survival (Roudsari, Zakerihamidi, and Khoei 2015). Based on the fact that communities have their own unique culture and traditions, the traditional practices of mothers and newborns may differ from community to community. Beneficial cultural practices need to be identified and promoted while harmful practices must be discouraged and prevented (Afulani et al. 2019). To improve maternal health, barriers that limit access to quality maternal health services must be identified and overcome, one of the barriers being harmful cultural practices.

Currently, no research discusses the prevention of preeclampsia through culture. Discussion of preeclampsia tends to use medical techniques, and this study was conducted to develop a cultural model of preeclampsia prevention through a cultural care model as a basic intervention for caring for mothers throughout their pregnancy. The cultural care model can assist nurses in providing health services for pregnant women through a cultural approach, so that the mother can go through her pregnancy comfortably (Salinda et al. 2021). A cultural approach to prevention is one way to help empower mothers and their partners to prevent complications in pregnant women by understanding and accepting cultural values and adhering to ethics and operational principles of the culture in which they live. This study aims to develop a cultural model of preeclampsia prevention through cultural care by applying the sunrise model.

## Methodology

### Design

An explanatory study with a cross-sectional approach was carried out at a service level based on the prevalence of preeclampsia. The sample size in this study was 150 pregnant women who were selected based on the rule of thumb formula for 30 indicators using multistage random sampling at the primary level of service in eastern Indonesia. Respondents were taken from five primary healthcare facilities in the city of Jember in the period June to August 2022. The sample criteria are mothers in their first and second trimesters of pregnancy who live with their husbands and who do not have comorbidities during pregnancy.

### Data Collection Techniques

Data collection was carried out using a modified questionnaire based on the Family Response Questionnaire (FRQ) instrument for individual and social factor variables, the Cultural Self-Assessment Questionnaire for cultural prevention variables, the Pregnancy Physical Activity Questionnaire, and a stress management checklist for activity indicators and stress management on the preventive behaviour variable.

### Measurement Variable

There are six independent variables, which include individual factors (age, ethnicity, pregnancy status, family type, education level, religion, occupation, income), social factors (family, community leaders, health workers, religious leaders), policy factors (preeclampsia prevention and implementation of the programme), religious factors (knowledge of religion, view of illness from religion), technological factors (detection of preeclampsia and preeclampsia treatment), culture of prevention (including cultural identity, relationships, expectations, and cultural empowerment) and one dependent variable, namely preeclampsia prevention behaviour factors (nutrition, activities, stress management, antenatal care compliance [ANC], social interaction, and spiritual behaviour).

### Data Analysis

The analysis in this study is a descriptive analysis to describe general and inferential data using analysis modelling with the PLS (Partial Least Squares) method through measuring the fit of the PLS-SEM (structural equation modelling) model, which includes analysis of the outer model and inner model (structural model) on individual variables, social factors, policies, religion, technology, and a culture of preeclampsia prevention behaviour. The goodness of fit model is measured using the *R*-squared of the dependent latent variable with the same interpretation as the regression; Q-square predictive relevance for structural models measures how well the observed values are generated by the model and also estimates its parameters. Meanwhile, assessing the significance of the hypothesis is done by measuring the *t* statistic value, which must be higher than the *t* table or $t > 1.96$, and the *p* value $\leq 0.05$ ($\alpha = 5\%$).

## Ethical Considerations

This research has received ethical approval from the ethical commission of Airlangga University, No. 2527 KEPK, dated 10 May 2022. This study was also successfully accepted by the primary healthcare services and local government in eastern Indonesia.

# Results

## Demographics

**Table 1:** Distribution of individual respondent factors (*n* = 150)

| No | Indicators | *N* | % |
|---|---|---|---|
| 1. | **Age** | | |
| | Late adolescence: 17–25 years | 48 | 32.0 |
| | Early adulthood: 26–35 years | 77 | 51.3 |
| | Late adulthood: 36–45 years | 21 | 14.0 |
| | Early old age: 46–55 years | 4 | 2.7 |
| | **Total** | 150 | 100 |
| | **Ethnic group** | | |
| | Java | 48 | 32.0 |
| | Madura | 101 | 67.3 |
| | Bali | 1 | 0.7 |
| | **Total** | 150 | 100 |
| 3. | **Pregnancy status** | | |
| | 1 | 63 | 42.0 |
| | 2 | 58 | 38.7 |
| | 3 | 29 | 19.3 |
| | **Total** | 150 | 100 |
| 4. | **Type of family** | | |
| | Nuclear family | 82 | 54.7 |
| | Extended family | 68 | 45.3 |
| | **Total** | 150 | 100 |
| 5. | **Education** | | |
| | Primary school | 45 | 20 |
| | Junior high school | 39 | 26.0 |
| | Senior high school | 58 | 38.7 |
| | Bachelor’s degree | 8 | 5.3 |
| | **Total** | 150 | 100 |
| 6. | **Religion** | | |
| | Islam | 138 | 92 |
| | Christian | 7 | 4.7 |
| | Protestant | 1 | 0.7 |
| | Hindu | 4 | 2.7 |
| | **Total** | 150 | 100 |
| 7. | **Jobs** | | |
| | Private | 33 | 22 |
| | Army / Apparatus | 1 | 0.7 |
| | Labourer | 40 | 26.7 |
| | Farmer | 76 | 36.7 |
| | **Total** | 150 | 100 |
| 8. | **Income** | | |
| | Less than the regional minimum wage | 10 | 6.7 |

| No | Indicators | *N* | % |
|---|---|---|---|
| | Same as the regional minimum wage | 122 | 81.3 |
| | Above regional minimum wage | 18 | 12.0 |
| | **Total** | 150 | 100 |

Descriptive data on individual characteristics reveal that some respondents are in the early adulthood age range, 26–35 years, with the Madurese having a high school education. Most are employed as farmers with an income equal to the regional minimum wage.

Structural model evaluation was carried out by PLS-SEM analysis, which was obtained as shown below:

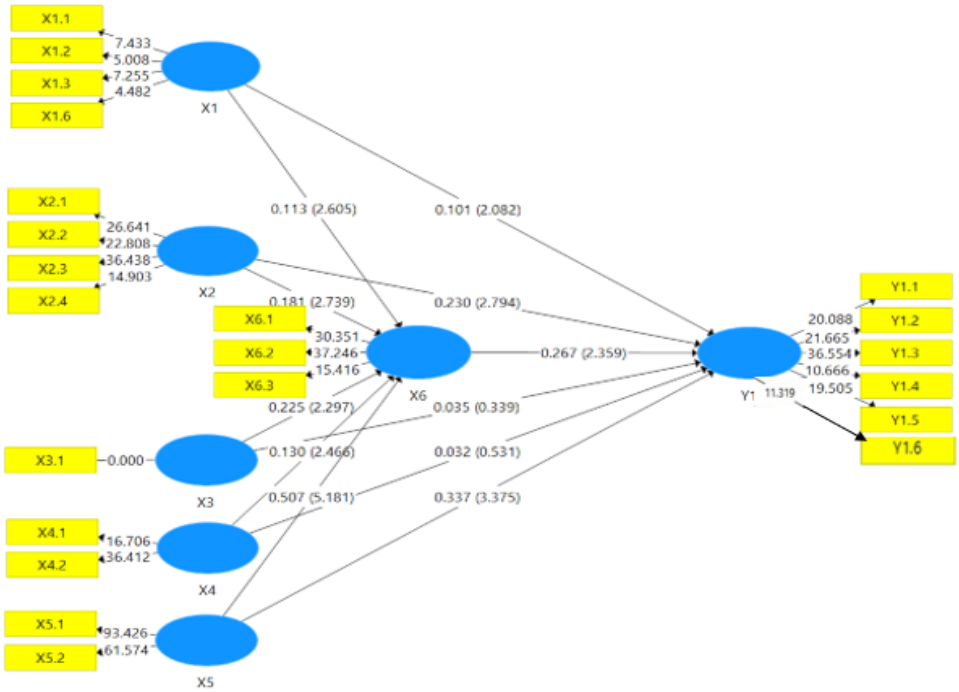


**Figure 1:** Modelling cultural care to prevent preeclampsia

The cultural care model for preventing preeclampsia is built by constructing individual factors, social factors, policy factors, religious factors, and technological factors, which form the basis of a culture of prevention. Meanwhile, the cultural factor of prevention consists of cultural identity, relationships and expectations as well as cultural empowerment.

**Table 2:** Convergent validity test

| Variables | Indicators | Loading Factor | AVE |
|---|---|---|---|
| Individual factor (X1) | X1.1 Age | 0.851 | 0.568 |
| | X1.2 Tribe | 0.687 | |
| | X1.3 Pregnancy status | 0.835 | |
| | X1.4 Religion | 0.619 | |
| Social factor (X2) | X2.1 Community leaders | 0.837 | 0.666 |
| | X2.2 Family | 0.831 | |
| | X2.3 Health officer | 0.832 | |
| | X2.4 Religious figures | 0.761 | |
| Policy factor (X3) | X3.1 Prevention of preeclampsia | 1.000 | 1.000 |
| Religious factor (X4) | X4.1 Understanding of religion | 0.852 | 0.774 |
| | X4.2 Religious perspective on pregnancy | 0.906 | |
| Technological factor (X5) | X5.1 Detection of preeclampsia | 0.976 | 0.949 |
| | X5.2 Treatment of preeclampsia | 0.972 | |
| Cultural prevention factor (X6) | X6.1 Cultural identity | 0.881 | 0.731 |
| | X6.2 Relationships and expectations | 0.898 | |
| | X6.3 Cultural empowerment | 0.780 | |
| Preeclampsia prevention behaviour factors (Y1) | Y1.1 Nutrition | 0.769 | 0.604 |
| | Y1.2 Activity | 0.791 | |
| | Y1.3 Stress management | 0.857 | |
| | Y1.4 Antenatal care compliance | 0.632 | |
| | Y1.5 Social interaction | 0.819 | |
| | Y1.6 Spiritual behaviour | 0.834 | |

Predictive relevance testing (Q2):

**Table 3:** Predictive relevance test results (Q2)

| Variable | SSO | SSE | $Q^2$ (= 1-SSE/SSO) |
|---|---|---|---|
| Cultural prevention factors (X6) | 450.000 | 230.763 | 0.487 |
| Preeclampsia prevention behaviour factors (Y1) | 750.000 | 502.768 | 0.330 |

All variables produce predictive relevance (Q2) values greater than 0 (zero), which indicates that the model is said to be good. Predictive relevance (Q2) measures how well the observed values are produced by the model and also the parameter estimates by looking at the Q-square value. Based on the analysis with blindfolding, the Q2 value for the prevention culture was 0.487 > 0, meaning that the exogenous construct variables (identity, social, policy, religious, and technological) had predictive relevance to the large prevention culture variables. In the behaviour change variable, the Q2 value is 0.330 > 0, meaning that the exogenous construct variables (identity, social, policy, religious, technology, and prevention culture) also have predictive relevance to the preventive behaviour variable with a high predictive rate.

**Table 4:** Results of the coefficient of determination ($R^2$)

| **Variable Dependent** | ***R*-Squared** | ***R*-Squared adjusted** |
|---|---|---|
| Cultural prevention factors (X6) | 0.699 | 0.688 |
| Preeclampsia prevention behaviour factors (Y1) | 0.585 | 0.568 |

The *R*-squared value of the behavioural factor for the preeclampsia prevention variable (Y1) is 0.585 or 58.5%. This shows that 58.5% of preeclampsia prevention behaviour factors (Y1) can be explained by individual factors (X1), social factors (X2), policy factors (X3), religious factors (X4), technological factors (X5), and culture of prevention factors (X6). In other words, the contribution of the variable influence of individual factors (X1), social factors (X2), policy factors (X3), religious factors (X4), technological factors (X5), and prevention culture factors (X6) on the behavioural factors of preventing preeclampsia (Y1) is 58.5%. The remaining 41.5% is the contribution of other variables not discussed in this study.

**Table 5:** Results of direct hypothesis testing on the development of a transcultural nursing-based prevention culture model on preeclampsia prevention behaviour of pregnant women from June to September 2022 ($n$ = 150)

| **Relationship among variables** | **Coefficient** | ***T* Statistics (\|O/STDEV\|)** | ***P*-Value** | **Explanation** |
|---|---|---|---|---|
| Individual factor (X1) -> Cultural prevention factor (X6) | 0.113 | 2.605 | 0.009 | Significant |
| Social factor (X2) -> Cultural prevention factor (X6) | 0.181 | 2.739 | 0.006 | Significant |
| Policy factor (X3) -> Cultural prevention factor (X6) | 0.225 | 2.297 | 0.022 | Significant |
| Religious factor (X4) -> Cultural prevention factor (X6) | 0.130 | 2.466 | 0.014 | Significant |
| Technological factor (X5) -> Cultural prevention factor (X6) | 0.507 | 5.181 | 0.000 | Significant |
| Individual factor (X1) -> Preeclampsia prevention behaviour factors (Y1) | 0.101 | 2.082 | 0.038 | Significant |
| Social factor (X2) -> Preeclampsia prevention behaviour factors (Y1) | 0.230 | 2.794 | 0.005 | Significant |
| Policy factor (X3) -> Preeclampsia prevention behaviour factors (Y1) | 0.035 | 0.339 | 0.735 | Not Significant |
| Religious factor (X4) -> Preeclampsia prevention behaviour factors (Y1) | 0.032 | 0.531 | 0.596 | Not Significant |
| Technological factor (X5) -> Preeclampsia prevention behaviour factors (Y1) | 0.337 | 3.375 | 0.001 | Significant |

## Discussion

A cultural approach to prevention is one way to help empower mothers and their partners through their cultural potential to prevent complications in pregnant women. Culture has a system so that it can run well in human life in society. The cultural system is an abstract form of culture. The cultural system is in the form of human ideas and ideas that live together in a society. These ideas are not in a stand-alone state but are related and become a system (Salinda et al. 2021). Other studies suggest that the cultural approach applied to pregnant women greatly impacts the patient's quality of life, well-being and happiness (Battulga et al. 2021; Lagadec et al. 2018). Transcultural nursing as the basis for compiling this model can reveal that several factors that build this model include individual, social, policy, religious, technological, and preventive cultural factors that can influence preeclampsia prevention behaviour.

### Individual Factors

Individual factors are factors related to people's attitudes towards work, the age of people when working, and gender (Pranata et al. 2023). These factors greatly influence a person in making decisions. Individual factors are closely related to cultural care where a culture-based nursing intervention is strongly influenced by a person's maturity in thinking and acting (Kaihlanen, Hietapakka, and Heponiemi 2019).

### Technological Factors

An international statistical study confirms that when individuals migrate to a new country, they may experience higher rates of morbidity and mortality when compared to indigenous people, because the existing healthcare system fails to meet the needs of the group (Lam and Fresco 2015). Cultural values are values inherent in society that are useful for regulating harmony and balance (Huda et al. 2022).

### Preventive Cultural Factors

The components of cultural values include self-awareness, which is classified into several components, namely, awareness of life, work awareness, space-time awareness, awareness of human relations with the natural surroundings or with the natural environment, and awareness of social relations. Social support can affect a person's health (Sarmasti et al. 2019). This is corroborated by Zeng et al.'s research, which reveals that social influence has been considered a key theme in the field of social psychology, and it is related to how individuals' attitudes and beliefs affect their subsequent actions and how they behave (Zeng et al. 2009).

### Policy and Social Factors

Deutsch and Gerard stated that two categories of psychological factors encourage a person to conform to other people's expectations, namely, normative and informational social influence (cited in El Sayed and Desoky 2019; Hilmert, Kulik, and Christenfeld 2006). The World Health Organization (WHO) recently made recommendations in favour of "culturally appropriate" maternity care services to improve the health of mothers and newborns. Culturally appropriate service, or providing care that takes into account the preferences and aspirations of individuals and the culture of the community, is an important component of quality of care (Om 2014).

### Religious Factors

Religion is a multidimensional construct that includes beliefs, behaviours, rituals, and ceremonies that may be held or practised in private or public settings, but in some cases derive from established traditions that develop over time within a community. The understanding of illness from a religious point of view is that every human being must try to avoid disease. Religion has a strategic function to be a good source of moral strength for patients in the healing process; moreover, religion is a strong source of motivation to live positively (Koenig 2012). Khraim (2010) also believes that religion

is an element of culture that colours every aspect of society and integrates into one's individual life even if one belongs to a certain religion or not (Khraim 2010). Transcultural nursing can be the basis for changing behaviour. This study shows that the overall behaviour is influenced by the sunrise model and precede. Both are two complementary factors in shaping the behaviour of pregnant women. The behavioural model embodied in this study is also able to significantly increase social sensitivity and indirectly increase community empowerment; it also increases shared responsibility and social interaction in the community.

## Limitation

Indonesia has a diverse culture. This study is still limited to the East Java population; therefore, it cannot be generalised to other provinces in Indonesia.

## Conclusion

The study proposes a sunrise model with individual, social, policy, religious, and technological factors as the basis for model development. A culture of prevention can influence people's behaviour in preventing preeclampsia, because the behavioural model embodied in this study is able to significantly increase social sensitivity and indirectly increase community empowerment; it also increases shared responsibility and social interaction in the community.

## Recommendation

Providing nursing interventions by prioritising a cultural approach needs to be considered so that empowerment, responsibility, and social interaction between patients and health professionals and vice versa can be maximised.

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