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Knowledge, attitude and practice of women towards preeclampsia in port blair: A cross sectional study

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***Abstract*---**Preeclampsia (PE), also known as toxemia, is a multisystem disorder in pregnancy and main cause of perinatal mortality with long-term maternal complications. For a long time, PE was defined as the new onset hypertension and proteinuria after 20 weeks of gestation. This study was designed to assess the knowledge, attitude and practice of women towards preeclampsia among various urban and rural areas of Port Blair, Andaman & Nicobar Islands. A Cross – Sectional Study was conducted among 207 adult women in Port Blair, Andaman & Nicobar Islands. A structured questionnaire of 30 questions was designed to collect data on socio – demographic details and KAP and were filled by the participants who gave their consent. Data were analysed using the statistical package of Microsoft Excel and SPSS Software. Overall, 207 women participated in survey according to which, 26.19% of women had knowledge on preeclampsia, 50.48% of women have not heard of preeclampsia and according to their attitude 81.43% of the people stated that they don't have proper knowledge regarding the restriction of the growth of a baby's womb. In practice, 64% of cases, participants attributed excessive salt intake as a cause of high blood pressure Statistically significant differences were identified between sub-topics of pre-eclampsia; signs and symptoms were the least well known. The majority of the participants of the study tended to have a low level of knowledge and practices. Also, most of them had a positive attitude towards antenatal care. These findings can be used to plan a customized health intervention program aiming to improve maternal health practices regarding antenatal care and eventually improve the health status of Port Blair women.

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Introduction

Preeclampsia is a complication which is characterized by high pressure of blood and signs of damage to some other organ system. Kidney and liver damages by the complication of pregnancy in this regard. In general, causes of preeclampsia is not clearly known but it is caused by the uneven blood supply in the placenta. As a result, Blood supply of baby also hampered to a spacious assortment. Symptoms of preeclampsia includes change and reflexes in the mental state with dizziness. Trouble breathing and shoulder pain are also common in this disease. As the study is regarding knowledge and attitude of preeclampsia in Andaman Nicobar Island, then it is important to understand the demography and problem related to the health. As per the view of Burton *et al.* (2018). Health delivery system of this Island is exclusively controlled by DHS or directorate of Health services of Andaman. Maternal death due to preeclampsia has been enhanced in this region which is one of the main problems in this regard. In general, preeclampsia can also cause by the acute pulmonary edema that cause death of many patients in this scenario.

Not only that, high range of pulmonary embolism is another problem for the enhancement of this disease. According to the research, it can be mentioned that more than 37,000 women are dying from these issues each and every year as the mortality rate goes higher from 2% to 16.7% in Andaman and Nicobar (Brouwers *et al.* 2018). On the other hand, this ratio was measured as the volume 18.5% in the mainland of the Port Blair which is illustrating the insufficient information and awareness among the women. Gaps in the understanding of causes, diagnostics, and administration of pre-eclampsia may be related to lack of periodic training and absence of published practice guidelines on pre-eclampsia therapy. Health care personnel at this facility may profit from training classes that incorporate current domestic and international treatment of preeclampsia. Maternal mortality and morbidity are exacerbated by preeclampsia, which is a prominent cause among the women from Port Blair and Andaman & Nicobar Islands (Phipps *et al.* 2019). Preeclampsia's inadequate level of prevention contributes to its high occurrence. Preeclampsia tree teaching is intended to promote preeclampsia preventive behaviour. There is a necessity to establish an effective preeclampsia tree teaching approach and put it to use in the fight against the disease.

Pre-eclampsia is a severe public health concern in low- or middle-income nations, particularly in developing countries. As many as 40% of pregnant women have delivery issues during labor and/or in the first few weeks of pregnancy. Pre-eclampsia affects 2% to 10% of women worldwide, while eclampsia affects 0.03% to 0.05%. Around 2 percent to 10 percent of all pregnancies are affected by preeclampsia, which may lead to eclampsia if left untreated. Pregnancy-related eclampsia occurs at a rate of 5–7 cases per 10,000 in industrialized nations in North America and Europe (Burton *et al.* 2018). Since the World Health Assembly (WHO) maintains that the incidence of pre-eclampsia is seven times greater in

underdeveloped nations than in industrialized ones, pre-eclampsia has maintained a public health hazard in both developing and underdeveloped nations (0.4 percent were measured of live births). Developing nations, including Tanzania, Nigeria, and Ethiopia, have a greater prevalence of pre-eclampsia because of the inadequate quality of treatment provided in those countries (Burton *et al.* 2019). As much as 50% of preeclampsia-related maternal fatalities occur in Port Blair, where healthcare practitioners lack basic expertise and a reliable referral system, whereas the frequency of pre-eclampsia ranges from 5.6% to 7.6% in the Andaman and Nicobar Islands. According to a study on the knowledge and treatment practices of pre-eclampsia amongst health care providers in Andaman & Nicobar Islands, Port Blair, only a small percentage of the individuals were aware of the WHO guidelines. As a consequence of a lack of knowledge and education among healthcare practitioners, the results of the earlier studies may differ.

More than 50 % of participants in this research were unable to accurately identify the typical medications for controlling thedeterminates of the pre-eclampsia, which can be recognized as Nifedipine, Methyldopa, and Hydralazine. More than a 60% of the women from Port Blair and Andaman could not name the medications that their doctors advised which is illustrating a lack of knowledge and information about the pre-eclampsia among them. As a consequence of a insufficient volume of knowledge and inadequate training, this terrible outcome may be the result. Health care professionals' understanding of preeclampsia etiology was found to be average in this research. Pre-eclampsia was seen as quite severe by them. A provider's understanding of pre-eclampsia was shown to be correlated with their years of experience (Brouwers *et al.* 2018). Pre-eclampsia medication management procedures were found to be inadequate by the participants in the research.

In light of these results, health care providers of all experience levels need to be educated on the clinical presentation and treatment of preeclampsia. In this manner, it can be mentioned that it is important for the healthcare development managers from the countries to focus on spreading knowledge and awareness among the women and the citizens in terms of reducing the rate of death that can occur due to a negative impact of the Pre-Eclampsia (Wen *et al.* 2018). In this study, a detailed and explained underlining about the conducting suitable practices, spreading knowledge and information about the pre-eclampsia among the women of Andaman & Nicobar Island, Port Blair will be discussed in an effective and credible manner. In addition to this, suitable recommendations, for avoiding or reducing the huge interruptions in health-care structure growth and lowering the consequences of preeclampsia will also be included throughout the entire study in a significant way.

Materials and Methods

Study site

This is a Cross – Sectional study carried out among general women of Port Blair, Andaman & Nicobar Islands over a period of 6 months. Port Blair on South Andaman Island is the capital city of the Andaman and Nicobar Islands, an

Indian territory in the Bay of Bengal. It is a popular tourist destination. The Island is surrounded by rugged coastline and tropical forest but despite the fact for having hot and moist biome, this Island has a picturesque environment. The city is popular for the infamous Cellular Jail National Memorial, which was once a prison where many freedom fighters and people of other nationals were imprisoned.

Inclusion criteria

Authors included women above the age of 25 – 50.

Exclusion Criteria

Non – Consenting women were excluded from the study.

Study material

A well – structured validated 30 questions was designed, 10 knowledge,10 attitude and 10 practice was used to collect data from all enrolled participants. The questionnaire was designed by reviewing previous studies of similar objectives. Required modifications were made and the questionnaire was administered in the language the participants understand. Information collected include socio-demographic information and history of PE (Age, marital status, employment status, residence, educational status, Trimester status). Knowledge of PE was assessed based on a series of question regarding the awareness, signs/symptoms, risk factors and complications of PE. The questionnaire was close-ended with predefined choices.

Statistical Analysis

The data will be analyzed by Microsoft excel and SPSS Software for logistic regression analysis.

Result

Data interpretation by SPSS
Frequency distribution

Table 1
Frequency distribution

Statistics

		Age	Marital Status	Number of Children	Education Status	Residence	1. Have you heard of Preeclampsia ?	2. Do you think that High BP may cause preeclampsia ?	3. Do you k2w symptoms of PE?	4. Do you k2w when preeclampsia starts?
N	Valid	210	210	210	210	210	210	210	210	210
	Missing	1	1	1	1	1	1	1	1	1
Mean		39.44	1.09	2.15	1.06	1.18	1.97	2.60	2.51	2.56
Median		40.00	1.00	2.00	1.00	1.00	2.00	3.00	3.00	3.00
Mode		40	1	3	1	1	2	3	3	3
Skewness		-.042	2.981	-.185	3.843	1.712	.040	-1.481	-1.117	-1.207
Std. Error of Skewness		.168	.168	.168	.168	.168	.168	.168	.168	.168
Kurtosis		-1.067	6.953	-1.281	12.894	.940	-.972	.670	-.133	.221
Std. Error of Kurtosis		.334	.334	.334	.334	.334	.334	.334	.334	.334
Sum		8282	228	452	222	247	414	547	528	537

Source: Self-developed in SPSS

This figure discusses the frequency distribution of the present study. According to the ideas of Jones *et al.* (2020), frequency distribution determines the number of intervals between a given variable. It can be observed from the present study that frequency distribution consists of mean, mode, median along with skewness and kurtosis value. Not only are that, the value of skewness and kurtosis directly proportional to each other. Apart from that, the relationship between variables is also associated with the changes in the distribution of variables. Changes in the distribution of a variable are more or less associated with thinking regarding preeclampsia and their attitude toward taking this disease in a serious manner. The mean value of variables is 2.60 which is observed in case of the question number 3. As the Likert scale is not fitted for the distribution of age in this context then it is normally analysed by the frequency and pie chart. Apart from that, the relationship between variables can be taken into consideration as one of the most crucial aspects that depend on repeatable events. The repeatable events show that the skewness value is high in the case of the educational status indicated by 3.843. On the other hand, the value of Kurtosis is considered to be high in the case of educational status which is important for understanding their knowledge taking ability. The kurtosis value is indicated by the 12.894 in this study. As per the view of Divisi *et al.* (2017), if the value of kurtosis is greater than 1 then it can be said that the distribution is too peaked**.** Moreover, it can also be said that the normal value of Kurtosis is 2.3.

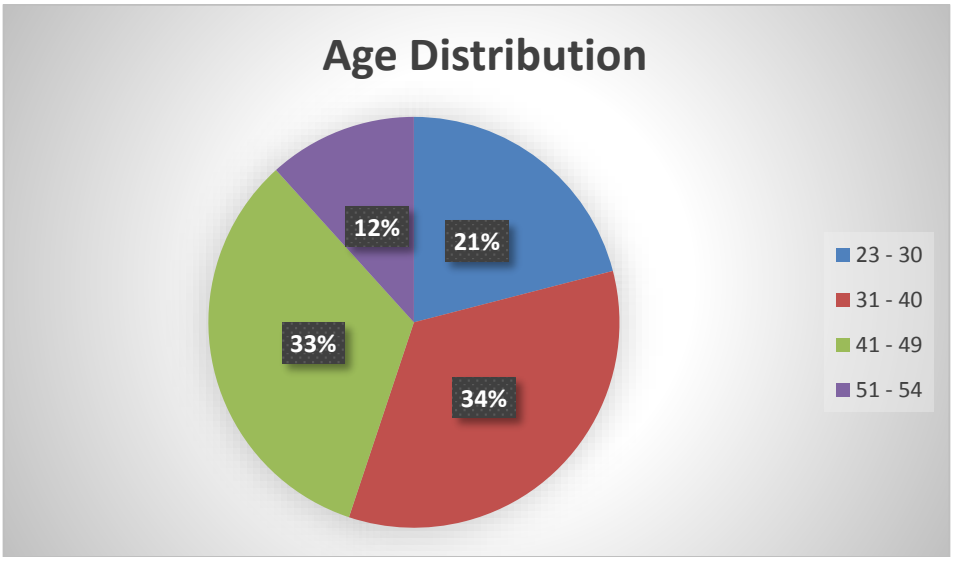

Figure 1. Pie chart of age distribution
(Source: Self-developed in SPSS)

This image discusses the pie chart of the age distribution of variables. The age of 54 is considered to be high than other ages. Apart from that, the lowest frequency is observed in the case of 25 years of people. 8.57% is the value of women who are of 54 years. Hence, it can be said that age plays an important role in understanding knowledge, attitude and behaviour of preeclampsia. Apart from that, the thinking and the learning perspective of the age distribution shows that in the case of older individuals problems related to preeclampsia is severe than in other age groups.

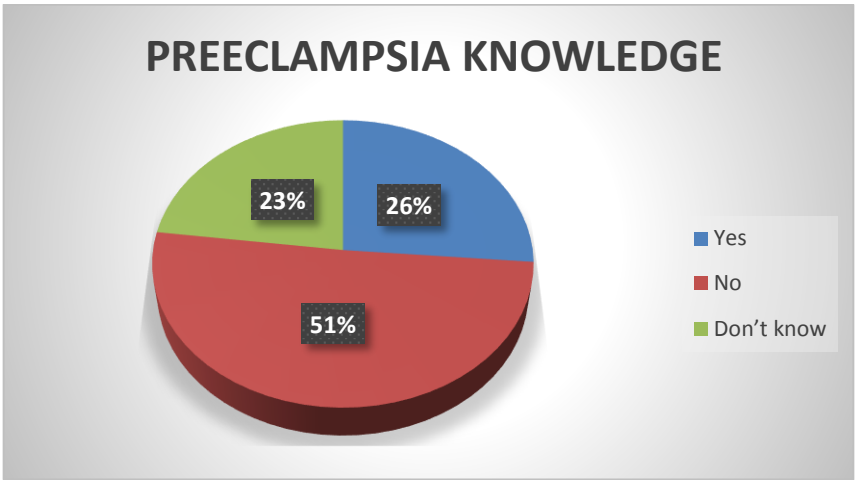

Figure 2. Pie chart of knowledge regarding Preeclampsia
(Source: Self-developed in spss)

This image discusses the knowledge related to preeclampsia which is the first and the foremost important facet for understanding the in-depth knowledge of the

study. 23.33% of people stated that they have a piece of minimal knowledge regarding preeclampsia. On the other hand, 26.19% of the people have agreed that they have proper knowledge regarding preeclampsia. Apart from that, 51% of this survey have not heard a single word about preeclampsia. Hence, it can be said from the pie chart that, preeclampsia is a disease at the time of pregnancy that is associated with the thinking and the learning perspective of proper attitude (Yart *et al.* 2021). Individuals are failed to develop proper knowledge regarding expanding of this disease as well as its symptoms.

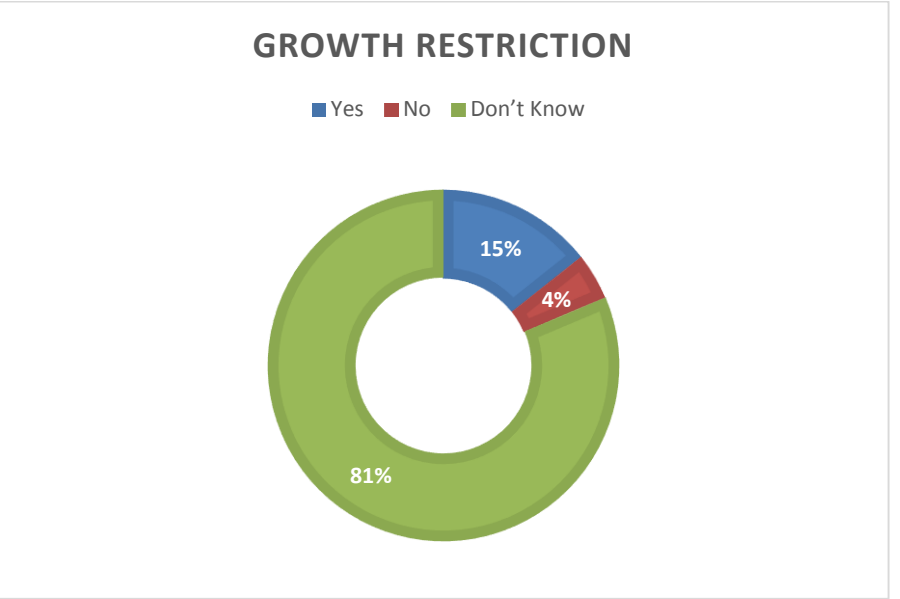

Figure 3. Restriction of growth of baby womb (responses from Pie chart)
(Source: Self-developed in SPSS)

This image discusses the growth restriction of the baby's womb by the expansion of preeclampsia. 81.43% of the people state that they don't have proper knowledge regarding the restriction of the growth of a baby's womb. Hence, the knowledge attitude and practices are not beneficial for increasing their concern about this dangerous disease. Apart from that, the attitude also shows that they need a proper awareness program in this context for proceeding with the best result (Sammar et al. 2021). Not only that, it can be seen that preeclampsia affected arteries that carry blood flow to the placenta. Fetal growth of restriction and low birth weight of the baby is associated with the changes in growth. Hence, it can be said from the analysis, that it can also be improved by the presence of hypertension to an ample extent (Sara *et al.* 2021). Fetus health becomes affected in this context which is one of the main themes of this study. In addition to that, a line of evidence also suggests that the changes in the transcriptional regulation are one of the main causes of this disease. A fetus is observed to be affected to an ample extent due to the enhancement of preeclampsia. Hence, infants whose mothers have preeclampsia might have an increased risk for a later problem. Infants are faced risk due to the enhancement of preeclampsia and which further causes blindness, epilepsy and dizziness.

Correlation

Table 2
Correlation of variables

Correlations

		Marital Status	Residence	1. Have you heard of Preeclampsia?	2. Do you think that High BP may cause preeclampsia?	3. Do you k2w symptoms of PE?	4. Do you k2w when preeclampsia starts?	2. Are you taking balance diet with low salt?	7. Regular antenatal check-up is necessary.	10. Most women with PE can deliver healthy babies & can recover fully.
Marital Status	Pearson Correlation	1	-.008	.037	-.022	-.054	-.052	-.094	-.073	-.018
	Sig. (2-tailed)		.912	.598	.756	.433	.452	.175	.294	.799
	N	210	210	210	210	210	210	210	210	210
Residence	Pearson Correlation	-.008	1	.143*	.172*	.124	.159*	.170*	.045	.175*
	Sig. (2-tailed)	.912		.038	.012	.074	.022	.014	.519	.011
	N	210	210	210	210	210	210	210	210	210
1. Have you heard of Preeclampsia?	Pearson Correlation	.037	.143*	1	.453**	.423**	.393**	.187**	.159*	.203**
	Sig. (2-tailed)	.598	.038		.000	.000	.000	.007	.021	.003
	N	210	210	210	210	210	210	210	210	210
2. Do you think that High BP may cause preeclampsia?	Pearson Correlation	-.022	.172*	.453**	1	.723**	.612**	.300**	.187**	.585**
	Sig. (2-tailed)	.756	.012	.000		.000	.000	.000	.006	.000
	N	210	210	210	210	210	210	210	210	210
3. Do you k2w symptoms of PE?	Pearson Correlation	-.054	.124	.423**	.723**	1	.836**	.200**	.164*	.500**
	Sig. (2-tailed)	.433	.074	.000	.000		.000	.004	.018	.000
	N	210	210	210	210	210	210	210	210	210
4. Do you k2w when preeclampsia starts?	Pearson Correlation	-.052	.159*	.393**	.612**	.836**	1	.211**	.159*	.395**
	Sig. (2-tailed)	.452	.022	.000	.000	.000		.002	.021	.000
	N	210	210	210	210	210	210	210	210	210
2. Are you taking balance diet with low salt?	Pearson Correlation	-.094	.170*	.187**	.300**	.200**	.211**	1	.391**	.195**
	Sig. (2-tailed)	.175	.014	.007	.000	.004	.002		.000	.005
	N	210	210	210	210	210	210	210	210	210
7. Regular antenatal check-up is necessary.	Pearson Correlation	-.073	.045	.159*	.187**	.164*	.159*	.391**	1	.172*
	Sig. (2-tailed)	.294	.519	.021	.006	.018	.021	.000		.012
	N	210	210	210	210	210	210	210	210	210
10. Most women with PE can deliver healthy babies & can recover fully.	Pearson Correlation	-.018	.175*	.203**	.585**	.500**	.395**	.195**	.172*	1
	Sig. (2-tailed)	.799	.011	.003	.000	.000	.000	.005	.012	
	N	210	210	210	210	210	210	210	210	210

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

(Source: Self-developed in SPSS)

This figure is about the correlation of the present study which is observed to be influenced by the degree of movement of a variable. The movement of the variable is considered to be one of the main themes in this regard that is associated with the changes in the value of variables. The relationship of variables is of two types, positive and negative (Schwartzman, 2018). After conducting the correlation, and bivariate statistics, it can be seen that the relationship of variables is positive and they show positive distribution. That means if one variable moves then it will also influence to move another variable to an ample extent. Pearson correlation has been performed in this study which is observed to be two-tailed in this scenario (Kühn and Vogel, 2018). Analysis of correlation shows that the Pearson correlation is significant at a 0.01 level. Covariance between variables is also associated with the thinking and the learning perspective of the movement. As all variables show there is a positive relationship then it is true that the knowledge, attitude and behaviour of people might be influenced by future preeclampsia. The standard deviation of two variables has been taken into consideration for understanding the mean deviation of the study which shows that it is influenced by a correlation value of 0.54.

Linear regression

Table 3
Linear regression of variables including model summary and ANOVA

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.693[a]	.480	.470	.420	.480	47.343	4	205	.000

a. Predictors: (Constant), 4. Do you think salty foods and processed foods should be avoided since you have PE?, 1. Do you think young women are susceptible to Pre - Eclampsia?, 2. Do you think regular ANC is used to prevent preeclampsia? , 3. Do you agree PE effective treatment is delivery?

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	33.387	4	8.347	47.343	.000[b]
	Residual	36.142	205	.176		
	Total	69.529	209			

a. Dependent Variable: 5. Do you think PE patients are at higher risk of Postpartum hemorrhage (PPH)?

b. Predictors: (Constant), 4. Do you think salty foods and processed foods should be avoided since you have PE?, 1. Do you think young women are susceptible to Pre - Eclampsia?, 2. Do you think regular ANC is used to prevent preeclampsia? , 3. Do you agree PE effective treatment is delivery?

(Source: Self-developed in SPSS)

This image discusses the linear regression of the present study. As per the view of Schmidt and Finan (2018), a linear regression more or less depends on understanding some critical factor of the significance of variables. Linear regression consists of two statistical analysis that is needed for calculating the mean deviation with the aid of its residual value. Residual values of a variable can be taken into consideration as one of the most important values which are further intermingled with the sum of squares and residual. Relation between the sum of squares and residual is important to conduct for understanding the rules and the regulation of conduction of ANOVA. On the other hand, ANOVA or analysis of variance determines the relationship of variables and their significance. R and R square value is not present in the case of ANOVA but there is a value of SUM of square and residual in this regard. Apart from that, the analysis regarding the sum of squares and residual more or less depends on the total value of the modal regression and the value of the model summary. The above study shows that the R-value is 0.693 and the value of R square is 0.480. Apart from that, this value is also equal to the adjusted R square value that is indicated by 0.470. Hence, from the analysis, it can be obtained that the R square value is also influenced by a change in the F value that is indicated by 47.343**.** Not only that, it can be seen that all of the variables show a positive relationship with each other and all of them are associated with the changes in the R square value in this regard. The table to ANOVA shows that the relationship between the Regression and the sum of a square is 33.387 and the residual value is 36.142 in this scenario. In both cases of ANOVA and model summary, the sig column indicates that there is a 0 in the first row. The value of zero in the first row indicates that the analysis is statistically significant.

Table 4
Coefficient of regression

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.965	.136		7.121	.000
	1. Do you think young women are susceptible to Pre - Eclampsia?	.242	.062	.259	3.900	.000
	2. Do you think regular ANC is used to prevent preeclampsia?	.050	.043	.076	1.156	.249
	3. Do you agree PE effective treatment is delivery?	.224	.058	.268	3.843	.000
	4. Do you think salty foods and processed foods should be avoided since you have PE?	.165	.047	.240	3.487	.001

a. Dependent Variable: 5. Do you think PE patients are at higher risk of Postpartum hemorrhage (PPH)?

(Source: Self-developed in SPSS)

This figure is about the coefficient of regression of the present study. In statistical analysis, co efficiencies of regression estimate the value of unknown parameters and it also describes the relationship between a predictor variable and its response. The analysis shows that the constant value of the model consists of an unstandardized B of 0.965 and a coefficient of the standard error of 0.136. The column of standardized beta shows that the t value is influenced by 7.121 with a significant range. Variables of predictor and their responses are more or less associated with the multiplication of the predictor values. The analysis shows that the predictor values are not associated with the changes in the multimodal equation. Therefore, it is the regression equation that talks about the value of one variable that is positively linked with another variable. The first variable is more likely to be a predictor variable that showcases the desired outcome of the study. Not only has that, the thinking and the learning perspective of the relationship of each variable showcased degree of distribution of independent variables of the study.

Cronbach alpha

Table 5
Item total statistics and Cronbach alpha

Reliability Statistics

Cronbach's Alpha	N of Items
.836	4

Item Statistics

	Mean	Std. Deviation	N
9. Do you have monitor fetal movement during having Preeclampsia?	2.40	.694	210
4. Do you k2w when preeclampsia starts?	2.56	.663	210
2. Do you think that High BP may cause preeclampsia?	2.60	.699	210
7. Is excessive intake of carbohydrates the major factors of cause of PE?	2.75	.638	210

(Source: Self-developed in SPSS)

This image discusses the Cronbach alpha of the present study that is influenced by the changes in the variable. Only four variables have been taken into consideration for the research for proceeding with the best outcome. Cronbach alpha in the statistical analysis can be taken into consideration for understanding the validity and the reliability of the study to an ample extent (Vaske *et al.* 2017). In addition to that, the validity and the reliability of a study are determined by the internal consistency of the variable. High and low level of internal consistency is associated with this study that is determined by the item-total statistics and N of standardized items. In the case of question number 9, the value of the mean is 2.40 whereas in the case of question number 4 the value of the mean is 2.56. Standard deviation of question number 9,4,2,7 is 0.664, 0.663, 0.699 and 0.638. The N number becomes 207 in this regard. Hence, it is clear that the changes in all standard deviation values of a variable are associated with the influence of the mean value. Apart from that, the mean value of this study is 2.40, 2.56, 2.60, and 2.75. In addition to that, Cronbach's alpha standardized value is 0.836 which shows that there is a high level of internal consistency of variables (Zhang et al. 2020).

Discussion

This disease has a huge impact on pregnant women and is not known to almost half of women. High blood pressure is an important symptom of preeclampsia and as per the blood pressure report, the women need treatment. A large number of women do not know about high blood pressure and its impact on their health. A small number of women know that PE is a symptom of preeclampsia and its impact on their health. The women can recover themselves from this disease by treatment along with enough food in which vitamins and iron are included. Some women do not understand the actual starting symptoms of preeclampsia and they cannot take early treatment to prevent preeclampsia. For some pregnant women who are suffering from preeclampsia, it is not completely known about the effects of seizures on their health. Most of the women in India along with the island take carbohydrates as the main food for nutrition. In some cases, the women are unaware of PE and then women take a major quantity of carbohydrates as their daily food. In most cases, it is not clear whether the symptoms of PE may be dangerous for the babies or not. In a small number of cases, known treatment has shown its effectiveness in PE treatment. In large numbers of women, the known treatment process has not shown any response to recover them from PE. The women who take more salt in their food daily, are to be mostly affected by preeclampsia badly. After being affected by preeclampsia their babies can be affected by the impacts of the disease (Turbeville and Sasser, 2020). In a little number of cases the impacts of taking more salt in their food habit the women are not clear. PE is an important treatment for delivery for pregnant women and in multiple cases, this treatment process has been applied. The ineffective number of cases women who are involved with extra physical activities can control the effectiveness of preeclampsia. This mental stress also can affect the babies of the women who are suffering from preeclampsia during their pregnancy. This study has designed an observational process which shows that there is minimal knowledge of observational design in this context. Anaemia and poor blood supply is the main reason for the enhancement of this disease (Aminuddin et al). Apart from that, strength and attitude are always required to be positive in this scenario to fight against martial stress.

Conclusion

This study has shed light on the knowledge of women about preeclampsia and its complications. Few patients are aware of this condition and its complications, especially during prenatal consultation. The signs of gravity are unknown by the patients. Although they know that the disease is life-threatening and that they need to consult if there are signs of danger, this is not the case in practice. Improving antenatal care by meeting the WHO standard would reduce maternal mortality from this disease. The education of pregnant women about signs, the risks of this disease should be carried out systematically. This requires the improvement of knowledge of women. Community health workers and general women should receive basic and ongoing training to facilitate dialogue and information for pregnant and non-pregnant women in each society.

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