Research Article

Knowledge and Myths about Preeclampsia and Eclampsia and its Influence on Antenatal Service Utilization among Pregnant Women and their Male Partners in Mtwara Regional - Tanzania: A Cross Sectional Analytical Study

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Abstract

Background: Pregnancy induced hypertension, including preeclampsia and eclampsia are the major health problem and the main cause of the maternal and perinatal morbidity and mortality in Tanzania. The aim of this study was to assess knowledge and myths about preeclampsia and eclampsia and its influence in Antenatal Clinics (ANC) utilization among pregnant women and their male partners in Mtwara region.

Method: A community based cross-sectional analytical study conducted in Mtwara Region, a random sampling procedure was employed to obtain a sample size of 384 pregnant women and their male partners a total of 768 participants (male=384 and female =384). Interviewer structured questionnaire was used for data collection and Statistical package for social science (SPSS v.20) software was used for data entry and analysis. Descriptive statistics, cross tabulation, Principal component analysis (PCA) were conducted and inferential statistics was used to test association between variables obtained.

Results: Among 768 participants, male partners 167(43.5%) and pregnant women 171 (44.5%) had adequate knowledge on preeclampsia and eclampsia. More than a half 396(51.6%) of study respondents had weak myths while 372(48.4%) had strong myths on pre-eclampsia and eclampsia. Furthermore, pregnant women 244 (64%) had adequate antenatal care utilization. Study participants who had adequate knowledge on pre-eclampsia and eclampsia were almost 3 times more likely to utilize antenatal care services (AOR = 2.827; CI = 1.719 – 4.651; p<0.001). Study participants who had weak myth on pre-eclampsia and eclampsia were less likely to have adequate antenatal care attendance ((AOR= 0.370; CI= 0.229; p< 0.001).

Conclusion: The overall knowledge on preeclampsia and eclampsia was low. Majority of the female had adequate antenatal service utilization. Majority of respondents had weak myths. Government and stakeholders should ensure that community is equipped with knowledge about preeclampsia and eclampsia and the available Myths should be dispelled.

Keywords: Myths; Pregnant Women and their Male Partners (Expecting Couples); ANC Utilization; Preeclampsia; Eclampsia

Abbreviations: ANC: Antenatal Clinic; AIDS: Acquired Immuno Deficiency Syndrome; BEmONC: Basic Emergency Obstetric and Newborn Care; CEMONC: Comprehensive Emergency Obstetric and Newborn Care; DC: District Council; HBM: Health Belief Model; HELLP: Hemolysis, Eleveted Liver enzyme, Low Platelet Count; H/F: Health facility;

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HSSP: Health Sector Strategic Plan; MDGs: Millennium Development Goals; MOHsw: Ministry of Health and Social warefare; PCA: Principal Component Analysis RCH: Reproductive and Child Health; SPSS: Statistical Package for Social Sciences; TDHS: Tanzania Demographic Health Survey; TC: Town Council; UDOM: University of Dodoma; URT: United Republic of Tanzania; UNFPA: United Nation Fund for Population Activities, UNICEF: United Nation International Children emergence Fund; USA: United State of America; WHO: World Health Organization

Background

Globally the Millennium development goals report shows that from 1990 to 2013 there was a decline of maternal deaths by 45% (289,000) per year [1]. However about 830 women died every day due to pregnancy complications or during delivery in 2015, meanwhile, perinatal mortality accounts for 40% of infants death globally [2]. So far, in Sub-Sahara 179 000 women die each year during pregnancy and childbirth [1]. According to the Tanzania Demographic Health Survey, the maternal mortality ratio accounts for 556 deaths per 100,000 live births while the perinatal mortality rate shows 39 deaths per 1000 pregnancies [3].

Pregnancy induced hypertension is a sign of underlying pathology which appears for the first time during pregnancy and it is a common medical complication of pregnancy [4]. Pregnancy induced hypertension , including preeclampsia and eclampsia, are the major health problem and the main cause of the maternal and perinatal morbidity and mortality. In Tanzania, the incidence of preeclampsia and eclampsia is found to be 1.7% [5]. According to the Tanzania Demographic Health survey, it shows that pregnancy induced hypertension is the second leading cause of maternal mortality which accounts for 19% of death [3]. To reduce the problem, the government set many strategies to ensure that the objectives are met. According to the Health sector strategic planning (HSSP IV) 2015- 2020 period, the following should be achieved: increasing skilled birth attendance by 80%, continue to expand provision of quality services during pregnancy, childbirth, and postnatal period, provision of Basic Emergency Obstetric and Newborn care (BEmONC) and Comprehensive Emergency Obstetric and Newborn care (CEMONC), also by the end of 2020, 70% of primary health facilities provide BEmONC and 50% of health centres and 100% of Hospitals provide CEMONC, also to ensure community awareness activities reach every household to achieve SDGs 4&5 [6].

There are several factors that lead to the high maternal and perinatal morbidity and mortality in the Global south such as Tanzania and the reasons are very crucial [7]. In the community perspectives, many factors involved such as knowledge gaps, myths regarding preeclampsia and eclampsia, traditional beliefs and inaccessibility of health care services during pregnancy [8]. Lack of knowledge, myths about danger signs of pregnancy makes the family not to put into considerations the early signs and symptoms of preeclampsia and eclampsia as a results delay to seek health care services [8]. So far, Men in Tanzania have inadequate knowledge regarding reproductive issues compared with women [9]. In turn men are the decision maker in all matters related to family issues including health services utilization which bring a negative impact on the mat ernal and perinatal outcome [10]. Moreover, empowering men with essential information on emergency obstetric condition such as preeclampsia and eclampsia is a vital strategy towards utilization of services in reducing maternal and perinatal morbidity and mortality [11].

Previously study done in Makole Ward Dodoma Tanzania about knowledge on preeclampsia among women results revealed 41% had a low level of knowledge about preeclampsia and eclampsia, half of the respondents agreed that the disease is due to evil spirit and exposure to fire while the remaining disagreed [12]. Another study done in Same District Hospital, the results showed that only 40% had knowledge of preeclampsia while the majority (60%) had no knowledge [13]. A study done in Sindh Pakistan, the findings revealed that preeclampsia was not recognized as a disease; however, women were aware of high blood pressure and can develop during pregnancy. Women believed that stress and weakness were conditions that cause high blood pressure and headache during pregnancy [14]. Little is known on the knowledge and myth on pre-eclampsia and eclampsia and its influence in antenatal attendance in rural community of Tanzania.

Methods

Study area

This study was conducted in Mtwara region. The Region covers the total area of 16,710km^2 (6,450sqmi). Administratively the Region is divided into nine districts that are Mtwara Municipal, Newala DC, Tandhimba, Masasi DC, Nanyumbu, Masasi TC, Mtwara DC, Newala TC, and Nanyamba TC. The region has a total of 253 health facilities of which there are 6 Hospitals, 22 Health centres and 225 Dispensaries Almost all facilities are providing ANC services like physical examination of pregnant women, Health education about danger signs of pregnancy, testing and counseling for HIV/AIDS, Vaccination of Tetanus toxoid, micronutrients provision and checking for Hemoglobin level etc.

Study design

A community based analytical cross sectional study was conducted. The study employed a quantitative research

approach. This design was chosen so as to assess the community' myths about preeclampsia and eclampsia towards Antenatal services utilization.

Setting

The study involved 4 districts namely Mtwara DC, Newala, Nanyumbu, and Masasi. In each District two wards were involved, making a total of eight wards, At village level three villages from each ward were involved making a total of 24 villages.

Study population

Pregnant women who were in second and third trimester with their Male partners. This group was at risk group for preeclampsia and eclampsia since the women were pregnant and were the one who expected to utilize ANC services. Furthermore male partners are the decision maker in family level even regarding the health of their spouse.

Sample size calculation

Since there was no any documented study done in Mtwara Region showing the prevalence of preeclampsia and eclampsia, this study used a prevalence of 50% as a standard to calculate the sample size. By using the Kish Leslie formula as follows: -

$$N=\frac{Z^2 xP (100-P)}{E^2}$$

Whereby

N= sample size

Z= Confident interval to 95% (1.96)

P= Prevalence (50%)

E= Worst acceptable margin error (0.05)

HENCE:

$$N=\frac{(1.96)^2 x50/100(100-50/100)}{(0.05)^2}$$

N= 384.16. Therefore the sample size was 384 couples. Pregnant women and their male partiners. The total participants 768

Sampling technique

The region was selected purposively because of an increasing number of preeclampsia and eclampsia and women reported at the health facility while already had eclamptic fit as seen earlier in RCH report of 2018. Then districts, wards, and villages employed multistage sampling. Mtwara Region has nine districts namely Mtwara municipal, Mtwara district, Masasi district, Newala district, Nanyumbu district, Masasi Town council, Newala Town council, Tandahimba district Council and Nanyamba Town Council. The main indigenous

ethnic groups in Mtwara Region are Makonde, Makua, Yao, Wamatambwe and Mwela. Makonde is the dominant tribe which is found in all councils except Nanyumbu DC Makonde tribe made 70% of the Population [3]. Generally the people of Mtwara Region share the same characteristics due to their ethinic origin Table 1.

The first stage was a selection of four Districts (Mtwara DC, Nanyumbu, Newala and Masasi DC) out of nine districts within Mtwara Region. Simple random sampling using the lottery method was used to select the districts. A list of all districts was obtained and the names of the districts were listed. Pieces of paper were divided according to the number of districts and the names of the district were written in each small piece of paper then each piece of paper was folded and put together in a box. Then the box was shaken and four pieces were picked at random and names of districts were identified. The second stage was a selection of wards whereby all wards in each district (21 Wards of Mtwara DC, 17 Wards of Nanyumbu district, 22 Wards of Newala district and 34 Wards of Masasi district) were listed. By using the lottery method two wards from each district were selected randomly to obtain a total of 8wards. The third stage was selection of three villages from each selected ward by repeating the same procedure to obtain a total of 24 villages. The fourth stage was a selection of participants from each village whereby a list of pregnant women with gestation age of 24 weeks and above who lived with a male partner was obtained from a ten cell leader and eligible participants were given a number, thereafter by the use of lottery method simple random procedure was employed to select 16 expecting couples who met inclusion criteria from each village.

Inclusion criteria

All pregnant women including prime gravid and multigravid who were in the second and third trimester, gestation age of 24 weeks and above who lived together with their male partners who were willing to participate in the study. These groups provided valid information on their knowledge and myths about preeclampsia and eclampsia.

Exclusion criteria

Pregnant women and their partners who were very sick, mentally incapable and who refused to be involved in this study.

S/N	Councils	Major Ethnicity Groups
1	Mtwara District	Makonde
2	Newala DC	Makonde
3	Masasi District	Makua, Yao and Makonde
4	Tandahimba DC	Makonde and Makua
5	Mtwara-Mikindani MC	Makonde, Mwela, Yao and Makua
6	Nanyumbu DC	Makua and Yao
7	Masasi TC	Makua, Makonde, Mwela and Yao
8	Nanyamba TC	Makonde
9	Newala TC	Makonde

Table 1: Major Tribes by Council, Mtwara Region, 2015.

Research instruments

The tool used to collect data was a structured questionnaire, with closed ended questions and open-ended questions. The questionnaire was divided into four sections. Social-demographic and social economic characteristics, questions for measuring knowledge, myths and Antenatal service utilization. Social demographic and social economic characteristics adapted from NBS, 2015. The questions were translated in Swahili language and the whole questionnaire took 30 minutes to complete.

Data collection process

Data were collected through interviewer structured questionnaires. A researcher together with research assistants interviewed the eligible respondents whereby the researcher and research assistant filled the questionnaire the response from the participants. Ten research assistants were involved in data collection after being trained before the process commenced.

Data processing and analysis

Data obtained were coded manually and then were entered into the computer and cleaned. Data analysis was finally done by using statistical package for the social sciences (SPSS) computer software version 20. Frequencies and cross tabulations were done. Data were summarized into frequency tables, figures and chi square were done to look for an association between demographic variable and outcome variables. Logistic regressions were used to determine the strength of association between selected variables and outcome variable. Moreover, a P-value and confidence interval used to verify the significance of the differences found. A P-value < 0.05 was considered to be statistically significant. The principal component analysis was also done to find out the weighted score of the questions asked. A weighted score of >0.3 was regarded as relevant.

Measurements of the variables

Level of knowledge about preeclampsia and eclampsia:

Knowledge on preeclampsia and eclampsia was measured by nominal scale involving 38 items on knowledge with yes/no answers which were then converted into correct and incorrect. Unnecessary questions were rejected and remained with 11 questions for analysis. Then one score for each correct answer and zero score for each wrong answer [12]. Therefore those who scored 50% and above were termed as having adequate knowledge and below 50% inadequate knowledge.

Myths on preeclampsia/eclampsia:

Questionnaires adapted and modified from [17]. This involved 6 open ended questions which made a total of 32 responses regarding myths on preeclampsia and eclampsia.

Difference responses were obtained from the respondents. Similar responses were grouped and then coded and 32 responses obtained. Therefore myths were measured by employing principle component analysis Myths were computed by using principal component analysis (PCA). The first analysis was done to 32 responses regarding myths to give weight to each question. During analysis 14 components were obtained and component one was selected since it had a high variance of 9.674. 21 responses had weight less than 0.3 therefore excluded from the component matrix and 11 responses remained. The second analysis was involved with 11 responses and four (4) components obtained whereby the variance of the component one raised from 9.674 to 23.627. All 11 responses weighted above 0.3 and no question was excluded from the matrix. Responses which excluded from the component matrix as shown below Table 2. After PCA normality test was done and data were not normally distributed. Then the computed Mean= -0.0866278; Median = -0.1694712; Mode = -0.18007; Standard deviation = 0.79491721; Range = 4.55206; Min = -2.31358; Max = 2.23843. To categorize myths median was used as a cutoff point so as to get those who had strong Myths and those who had weak Myths about preeclampsia and eclampsia below the median weak Myth and above the Median strong Myth.

Antenatal service utilization

Involved 7 items adapted and modified from [20]. In Tanzania pregnant woman should attend Antenatal clinic at least four visits if she has no any problem until delivery. Therefore from 24 weeks the woman could have 2 visits if she really started clinic in time which helped me to measure ANC utilization. First visit started when woman has gestation age of below 16 weeks, second visit 20 to 24 weeks, third visit 26 to 28 weeks and fourth visit 28 to 36 weeks. In inclusion criteria of 24 weeks and above this woman obviously attended ANC clinic not less than two visits. Therefore utilization was measured by number of recommended antenatal visits by WHO guideline. Therefore if the women attended ANC less than two visits was graded as inadequate utilization of ANC services and if attended two or more visits graded as adequate utilization of ANC service [19].

Results

Social- demographic characteristics of the participants

The study involved 384 couples who met inclusion criteria. Among them, female were 384 and male also were 384 which made a total of 768 participants. Results indicated that Majority of the participants 270 (36.0%) were in the age group, The mean age was 31.71 ± 8.056, median age 30.00, minimum age 18 and maximum age was 59. Regarding the education level of the participants, the large proportion of respondents 465 (60.0%) had primary education and a small

Responses	Principal component analysis (PCA)	
	First analysis	Second analysis
The local name for preeclampsia and eclampsia is devil` disease	-0.284*	
The local name for preeclampsia and eclampsia is mental illness	0.572	0.489
The local name for preeclampsia and eclampsia is God-made disease	0.046*	
The local name for preeclampsia and eclampsia is magic disease	-0.180*	
The local name for preeclampsia and eclampsia is big illness	0.238*	
The local name for preeclampsia and eclampsia is Homa ya mdudu	-0.104*	
The local name for preeclampsia and eclampsia is illness of the moon	-0.238*	
Causes of preeclampsia and eclampsia is devils living in the wild, sea &big trees	0.428	0.344
Causes of preeclampsia and eclampsia is Witch craft	-0.155*	
Causes of preeclampsia and eclampsia is Mnyama(animal)	-0.185*	
Causes of preeclampsia and eclampsia is mistreatment by in-law	-0.183*	
Presentation of preeclampsia and eclampsia is convulsions (kukwijula)	0.074*	
Presentation of preeclampsia and eclampsia is eye rolling back	0.515	0.543
Presentation of preeclampsia and eclampsia is miso makasuku (red eye)	0.138*	
Presentation of preeclampsia and eclampsia is Chidudu (headache)	0.273*	
Presentation of preeclampsia and eclampsia is chakare(regular falling)	-0.453	-0.585
Presentation of preeclampsia and eclampsia is Lyuni (Dizziness)	-0.183*	
Presentation of preeclampsia and eclampsia Kyokombe (heart burn)	-0.220*	
The consequence of preeclampsia and eclampsia is premature baby (njiti)	0.509	0.474
The consequence of preeclampsia and eclampsia is kuyiwa (loss of memory)	0.198*	
The consequence of preeclampsia and eclampsia is death of the mother	0.059*	
The consequence of preeclampsia and eclampsia is mental illness	0.072*	
The consequence of preeclampsia and eclampsia Litulilye (intrauterine fetal death)	-0.643	-0.601
Treatment of preeclampsia and eclampsia is drinking boiled green tree	-0.274*	
Treatment of preeclampsia and eclampsia is special dance to expel demons/devils	-0.395	-0.521
Treatment of preeclampsia and eclampsia is burning leaves or incense (ubani)	0.380	0.371
Treatment of preeclampsia and eclampsia splashing human urine over the mother' body with eclampsia	0.379	0.329
Prevention of preeclampsia and eclampsia locally is tie a string of tree around the waist	0.331	0.430
Prevention of preeclampsia and eclampsia locally is wear charms (hirizi) around the neck	0.064*	
Prevention of preeclampsia and eclampsia locally is wear a black piece of cloth around the wrist	0.176*	
Prevention of preeclampsia and eclampsia locally is boil the wood of the trees and bathe	-0.431	0.563
Prevention of preeclampsia and eclampsia locally lie the pregnant mother under the bed.	-0.184*	

Source: Researcher field data. Key: * Responses excluded from the component matrix.

Table 2: Questions about Myths used in PCA (N = 32Qns).

proportion 92 (12.5%) had secondary education. Majority of the participants 665 (84%) were peasants and those who had three or more children were 260 (33.9%). Majority of the participants 605 (78.0%) had an income of less than 1000 T.shs per day. Large proportion 599 (78.0%) were able to access health facility when they face problems Table 3.

Level of knowledge about preeclampsia and eclampsia among pregnant women and their male partners

Majority of respondents 217 (56.5%) male and 213 (55.5%) female had inadequate knowledge on pre-eclampsia and eclampsia, only 167 (43.5) of male partners and 171 (44.5) of pregnant women had adequate knowledge on pre-eclampsia and eclampsia Figure 1.

Responses to specific questions involved in assessing knowledge on pre-eclampsia and eclampsia

Majority of both pregnant women 248 (64.6%) and
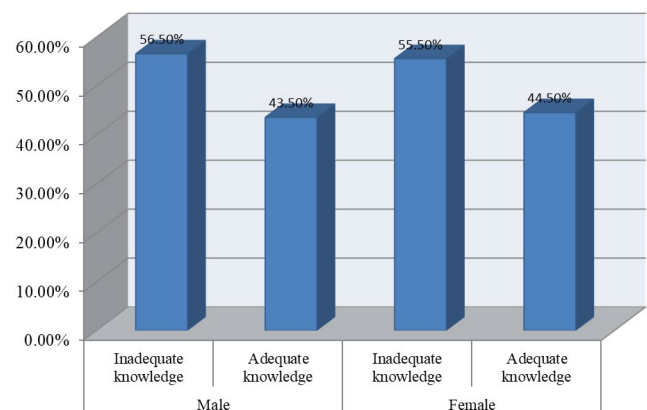
Figure 1: Knowledge on pre eclampsia and eclampsia among pregnant women and their male partners.

their male partners 220 (57.3%) did not know whether pre eclampsia is a hypertensive disorder; majority of them did not respond correctly on the risk factors of preeclampsia

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Variable	Frequency (n)	Percentage (%)
Age group		
18-25	197	25.0
26-33	270	36.0
34-41	188	24.0
42+	113	15.0
Sex		
Male	384	50.0
Female	384	50.0
Education level		
No formal education	211	27.5
Primary	465	60.5
Secondary	92	12.5
Occupation		
Employed	16	2.1
Unemployed	61	7.9
Self employed	46	6.0
Peasant	665	84.0
Religion		
Christian	161	21.0
Muslim	607	79.0
Ethnicity		
Makonde	285	37.1
Makuwa	335	43.6
Yao	82	10.7
Others	66	8.6
Number of children		
One	162	21.1
Two	193	25.1
Three or more	260	33.9
None	153	19.9
Access to health facility		
Yes	599	78.0
No	169	22.0
Distance to health facility		
< than 5 Kilometer	586	76.3
>than 5 Kilometer	182	23.7
Daily income		
<than 1000 T.shs	605	78.8
>than 1000 T.shs	163	21.2

Table 3: Social-demographic distribution of the participants (N=768).

[268 (69.8% of pregnant women and 302 (78.6) did not know whether pre existing history of high blood pressure can lead to pre eclampsia]; Also majority of respondents failed to repond correctly on the signs of pre-eclampsia [201 (52.3%)of pregnant women and 198 (51.6) responded incorrectly on severe headache; 285 (74.2%) of pregnant women and 269 (70.1%) on visual disturbance] Table 4. The relationship between socio-demographic characteristics and level of knowledge. The variable which showed significant relationship with knowledge were employment status (p<0.001), ethnicity (p<0.001), parity (p<0.001), access to health facility (p<0.001),walking distance to a nearby health facility (p<0.001) and access to mobile phone (p=0.004) Table 5.

Variable	Pregnant Women		Male partners	
	Frequency	Percent	Frequency	Percent
Preeclampsia is Hypertension in Pregnancy				
Correct response	136	35.4	164	42.7
Incorrect response	248	64.6	220	57.3
Risk factor for preeclampsia is history of high blood pressure before conception				
Correct response	116	30.2	82	21.4
Incorrect response	268	69.8	302	78.6
Risk factor for preeclampsia is Overweight				
Correct response	152	39.6	116	30.2
Incorrect response	232	60.4	268	69.8
Symptom of preeclampsia is severe headache				
Correct response	183	47.7	186	48.4
Incorrect response	201	52.3	198	51.6
Symptom of preeclampsia is Increase urine out put				
Correct response	240	62.5	204	53.1
Incorrect response	144	37.5	180	46.9
Symptom of preeclampsia is Visual disturbance				
Correct response	99	25.8	115	29.9
Incorrect response	285	74.2	269	70.1
Symptom of preeclampsia is Epigastric pain (central just below the ribs				
Correct response	131	34.1	125	32.6
Incorrect response	253	65.9	259	67.4
Symptom of preeclampsia is Sudden swelling of the face, hands or feet				
Correct response	135	35.2	133	34.6
Incorrect response	249	64.8	251	65.4
Sign of preeclampsia is Convulsions(fits)				
Correct response	176	45.8	157	40.9
Incorrect response	208	54.2	227	59.1
Sign of preeclampsia is Loss of consciousness				
Correct response	165	43	151	39.3
Incorrect response	219	57	233	60.7
Complication of preeclampsia is Maternal death				
Correct response	121	31.5	135	35.2
Incorrect response	263	68.5	249	64.8
Complication of preeclampsia is Fetal death				
Correct response	193	50.3	169	44
Incorrect response	191	49.7	215	56
Use of salt free diet				
Correct response	194	50.5	139	36.2
Incorrect response	190	49.5	245	63.8

Table 4: Responses to specific questions involved in assessing knowledge on pre-eclampsia and eclampsia.

Variable	Adequate knowledge n(%)	Inadequate knowledge n(%)	X	P-Value
Education level				
No formal education	86(40.8)	125(59.2)		
Primary	211(45.4)	254(54.6)		
Secondary	41(44.6)	51(55.4)	1.269a	0.53
Occupation				
Employed	10(62.5)	6(37.5)		
Unemployed	20(32.8)	41(67.2)		
Self employed	9(19.6)	37(80.4)		
Peasant	299(46.4)	346(53.6)	17.934a	<0.001
Religion				
Christian	63(39.1)	98(60.9)		
Muslim	275(45.3)	332(54.7)	1.969a	0.161
Ethinicity				
Makonde	85(29.8)	200(70.2)		
Makuwa	167(49.9)	168(50.1)		
Yao	39(47.6)	43(52.4)		
Others	47(71.2)	19(28.8)	48.151a	<0.001
Parity				
One	52(32.1)	110(67.9)		
Two	73(37.8)	120(62.2)		
Three or more	125(48.1)	135(51.9)		
None	88(57.5)	65(42.5)	25.397a	<0.001
Access to H/F				
Yes	286(47.7)	313(52.3)		
No	52(30.8)	117(69.2)	15.417a	<0.001
Walking distance to a nearby H/F				
Less than 5KM	287(49)	299(51)		
5Km or more	51(28)	131(72)	24.745a	<0.001
Sex				
Male	167(43.5)	217(56.5)		
Female	171(44.5)	213(55.5)	.085a	0.771
Own Mobile phone				
No	52(34.2)	100(65.8)		
Yes	286(46.6)	328(53.4)	7.561	0.004

Table 5: The relationship between socio-demographic characteristics and level of knowledge.

Predictors of knowledge on pre eclampsia and eclampsia

After controlling for confounders, predictors of knowledge were occupation status [Unemployed AOR=0.17at 95% CI=0.049-0.592, p=0.005; self employed AOR=0.095 at 95% CI= 0.024-0.373, p=0.001]; Ethnicity [Makuwa AOR=2.814 at 95% CI= 1.944-4.074,p<0.001; Yao AOR=5.48 at 95% CI=2.977-10.086, p<0.001; Others AOR=4.902 at 95% CI=2.599-9.244, p<0.001]; Parity [One AOR=0.344 at 95% CI=0.203-0.584,p<0.001;Two AOR= 0.4 at 95% CI=0.239-0.668, p<0.001]; Walking distance [5km or more AOR=0.093 at 95% CI=0.02 -0.434, p=0.003] Table 6.

Myths about preeclampsia and eclampsia among pregnant women and their male partners

The findings revealed that the majority of the participants 236 (30.7%) reported that the local name for preeclampsia and eclampsia is the devils disease and 12 (1.6%) said that it is a big illness. Majority of the participants 286 (37.2%) said preeclampsia and eclampsia is due to devils living in the wild, sea and big trees while 145 (18.9%) said that mistreatment

Variable	95%CI			p-value
	AOR	Lower	Upper	
Occupation				
Employed	1			
Unemployed	0.17	0.049	0.592	0.005
Self employed	0.095	0.024	0.373	0.001
Peasant	0.518	0.171	1.57	0.245
Ethinicity				
Makonde	1			
Makuwa	2.814	1.944	4.074	<0.001
Yao	5.48	2.977	10.086	<0.001
Others	4.902	2.599	9.244	<0.001
Parity				
None	1			
One	0.344	0.203	0.584	<0.001
Two	0.4	0.239	0.668	<0.001
Three or more	0.689	0.426	1.116	0.13
Access to H/F				
Yes	1			
No	4.518	0.955	21.382	0.057
Walking distance to a nearby H/F				
Less than 5KM	1			
5Km or more	0.093	0.02	0.434	0.003
Yes	1			
No	0.715	0.474	1.08	0.111

Table 6: Predictors of knowledge on pre eclampsia and eclampsia.

from in-law was the cause. 191 (24.9%) reported that the presentation of preeclampsia and eclampsia is heart burn (Kyokombe) while 139 (18.1%) said eye rolling back. Regarding the consequence of preeclampsia and eclampsia, 392 (51.0%) reported mental illness while 192 (25.0%) reported intrauterine fetal death (Litulilye) Table 7.

Myths about preeclampsia and eclampsia

The results showed that 51.6% had weak Myths and 48.4% had strong Myths about preeclampsia and eclampsia Figure 2.

Variable	Frequency	Percentage
	(n)	(%)
Local name for preeclampsia and eclampsia		
The devil disease	236	30.7
Snake illness	180	23.4
God-made disease	41	5.3
Magic disease	102	13.3
Big illness	12	1.6
Homa ya mdudu	92	12
Illness of the moon	105	13.7
Myths regarding the cause of preeclampsia and eclampsia		
Devils living in the wild, sea and big trees.	286	37.2
Witch craft	173	22.5
Mnyama (animal)	164	21.4
Mistreatment by in-law	145	18.9
The consequence of preeclampsia & eclampsia		
Njiti (Premature baby)	88	11.5
Loss of memory (Kuyiwa)	46	6
Death of the mother	50	6.5
Mental illness	392	51
Litulilye (intrauterine fetal death)	192	25
Local treatment of preeclampsia and eclampsia		
Drinking boiled green leaves.	287	37.4
Special dance to expel demons/ devils	190	24.7
Burning leaves or incense (kufukiza ubani)	141	18.9
Splashing of human urine over the mother`s body with eclampsia	150	19.5
Local prevention of preeclampsia and eclampsia		
Tie string of tree on the waist	173	22.5
Wear charms- (Hirizi) around the neck	181	23.6
Wear of black clothe on the hand	78	10.2
Boil the wood of trees and bathe	157	20.4
Lie the pregnant mother under the bed.	179	23.3

Table 7: Myths about preeclampsia and eclampsia (N= 768).

Antenatal care service utilization

The current study was also assessed ANC utilization among expecting mothers in Mtwara region N = 384. ANC utilization was defined as adequate if the women had at least two visits or more otherwise was inadequate keeping in mind that the current study dealt with the women who were in second and third trimester with the gestation age of 24 weeks and above together with their male partners. The total female participants were 384 and their findings regarding ANC services revealed that majority 244 (64%) had an adequate utilization since they attended two or more visits and 140 (36%) had an inadequate utilization as they attended less Figure 3.

Association between the level of knowledge and antenatal care service utilization

A Chi-square was done to show the relationship between knowledge and antenatal care services utilization then bivariate and Multivariate logistic regression was done. The findings showed that those who had adequate knowledge were all most 3 times more likely to utilize antenatal services compared to those who had inadequate knowledge (AOR = 2.827; CI = 1.719, 4.651; P = 0.000). Also those who had three or more children were 2 times more likely to utilize ANC services compared to those who had no children (AOR = 2.148; CI = 1.030, 4.483; P = 0.042). Other factors showed no association Ttable 8.
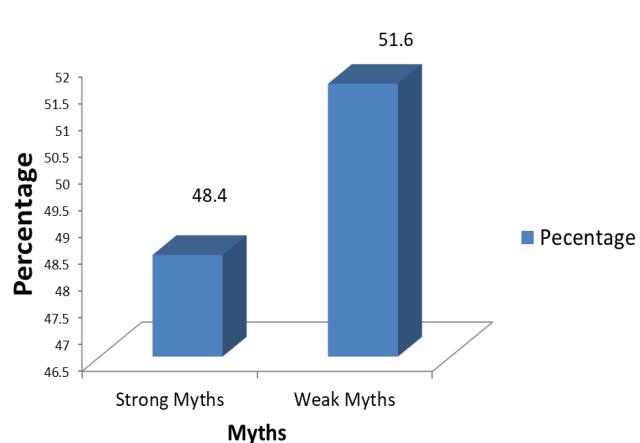

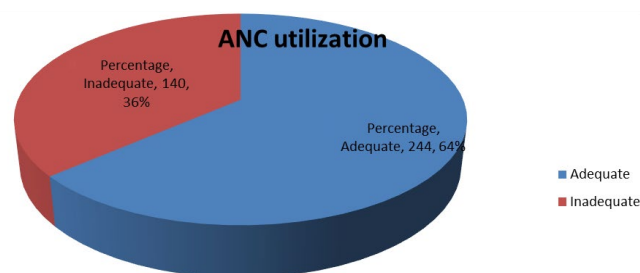**Figure 2:** Categories of myths.

Figure 3: Antenatal care service utilization.

The association between myths about preeclampsia and eclampsia and antenatal care services utilization

A Chi-square done to show the relationship between Myths about preeclampsia and eclampsia and antenatal care services utilization then Bivariate and Multivariate logistic regression done. The findings showed those who had weak myths were 63% less likely to utilize ANC services compared to those who had strong myths. (AOR = 0.370; CI = 0.229, 0.599; P = 0.000). Furthermore, other factors showed no association Table 9.

Variable	AOR	p-value	95% confident interval	
			Lower	Upper
Knowledge				
Adequate	2.827	0	1.719	4.651
Inadequate(Ref)				
Occupation				
Employed	0.49	0.48	0.068	3.547
Unemployed	0.891	0.805	0.357	2.225
Self employed	3.385	0.076	0.878	13.047
Peasant (Ref.)				
Ethnicity				
Makonde	0.304	0.062	0.087	1.063
Makuwa	0.37	0.122	0.105	1.306
Yao	1.104	0.898	0.241	5.052
Others (Ref.)				
Number of children				
One	1.712	0.164	0.802	3.652
Two	1.315	0.489	0.606	2.851
Three or more	2.148	0.042	1.03	4.483
None (Ref.)				
Access to health facility				
Yes	2.072	0.353	0.445	9.637
No (Ref.)				
Distance to health facility				
Less than 5 kilometer	0.297	0.113	0.067	1.33
More than 5 Kilometer (Ref.)				
Wealth index				
Poorest (Ref.)				
Poor	0.542	0.668	0.033	8.904
Middle	1.092	0.755	0.628	1.898
High	0.402	0.004	0.216	0.751

Table 8: Multivariate logistic regression between knowledge level about preeclampsia and eclampsia and ANC utilization (N =384).

Variable	AOR	p-value	95% confident interval	
			Lower	upper
Myths				
Weak myths	0.37	0	0.229	0.599
Strong myths (Ref.)				
Occupation				
Employed	0.495	0.499	0.064	3.807
Unemployed	0.696	0.435	0.279	1.732
Self employed	3.816	0.05	1.002	14.533
Peasant (Ref.)				
Ethnicity				
Makonde	0.346	0.1	0.098	1.225
Makuwa	0.411	0.169	0.116	1.46
Yao	1.467	0.62	0.323	6.66
Others (Ref.)				
Number of children				
One	1.54	0.258	0.729	3.254
Two	1.214	0.622	0.562	2.623
Three or more	1.772	0.125	0.853	3.68
None (Ref.)				
Access to health facility				
Yes	1.955	0.394	0.418	9.139
No (Ref.)				
Distance to health facility				
Less than 5 kilometer	0.291	0.108	0.065	1.31
More than 5 Kilometer (Ref.)				
Wealth index				
Poorest (Ref.)				
Poor	0.407	0.539	0.023	7.185
Middle	0.963	0.893	0.556	1.669
High	0.361	0.001	0.194	0.672

Table 9: Multivariate logistic regression between myths about preeclampsia and eclampsia and ANC utilization N = 384.

Discussion

The results of the current study showed that 56.5% of the male partners and 55.5% of the pregnant women had inadequate knowledge about preeclampsia and eclampsia. The results of this study differ in findings of previous work done in Makole Dodoma [12] which revealed that 41% of the respondents had low knowledge. These differences might be due to geographical location where the study conducted as the current study conducted in Rural while the previous conducted in Urban, also it could be due to differences in the study population as the current study dealt with both

pregnant women and their male partners while the previous study focused mainly on pregnant women who are attending Antenatal clinic and get health education regarding their status. This finding also differ with [13]. findings which showed 60.0% of the respondents reported to have no knowledge. The findings of the present study showed that those who had adequate knowledge about preeclampsia and eclampsia were 43.5% male partners and 44.5% pregnant women. The present findings seem to be in line with other research done in Same Moshi Tanzania [13] which found that 40% reported having adequate knowledge on preeclampsia and eclampsia [16]. The findings might be due to the unplanned or absence of educational program regarding preeclampsia and eclampsia in the health facility and in the community.

Following the present results, previous studies have demonstrated that the local name was `Rt jho dabao vadhan` meaning that high blood pressure [14]. Another study was done in Southern Mozambique [17] reported that the local name for preeclampsia and eclampsia were falling disease, fainting disease, snake illness or childhood illness. This inconsistency of the findings might be due to the different study area and social demographic characteristics of the participants. Regarding the causes, the current study 37.2% of the participants reported that the cause was the devil living in the wild, sea, and big trees and 22.5% reported to be caused by frequency fever. These findings differ from the previous study [17] who reported the causes were mistreatment by in-laws, marital problems, and excessive thinking or worrying. These differences might be due to the cultural differences of the participants. Another important finding was that 10.5% of the respondents from the current study reported dizziness and Convulsions (kukwijula) were the signs and symptoms of preeclampsia and eclampsia. This is in line with the previous study [14] who reported the same findings. Drinking boiled green leaves was the local treatment of preeclampsia and eclampsia reported in the present study which accounts for 37.4% of the participants, special dance to expel demons/devils 24.7%, burning leaves or incense (ubani) 18.9%. These findings compared by the previous study [18] which showed that traditional treatment of preeclampsia were eating onions, drinking solution of the salt, bodily incisions and prayers. Another study [14] reported that the use of home remedies, spiritual treatment and alternative medicine. These findings imply that local treatment differs regarding culture, ethnicity and beliefs though there are some in common.

Antenatal care utilization among pregnant women who were in second and third trimester starting gestation age of 24 weeks and above. The results of the current study 64% of the pregnant women had adequate antenatal care service utilization. These results agree with the findings of other study done in Jordan [19] in which 63.4% of the respondents had adequate ANC service utilization. It seems possible that these results might be due to an increasing number of health facilities in each village also the effort done by the government to ensure that every pregnant woman should be attended by the trained personnel as well as free services offered to pregnant women. A similar study was done Eastern Napel [20] which showed that 69% of the participants had higher antenatal care service utilization. Furthermore, the current study indicated that those who had inadequate ANC service utilization were 36%. These results differ from the study done in Geita Tanzania [21] which showed the extremely low ANC attendance by 3.62%. This inconsistency might be due to the social cultural beliefs, lack of knowledge regarding the importance of ANC utilization. It might be also the nature of the participants regarding their activities as the majority of the participants in Geita engaged in animal keeping and they tends to move from one place to another to fetch food for their animals. Therefore, this might be the reason for inadequate ANC utilization.

The current study determine the association between knowledge of preeclampsia and eclampsia towards ANC utilization which showed statistically significant association whereby those who had adequate knowledge about preeclampsia and eclampsia were 3 times more likely to utilize antenatal care service compared to those who had inadequate knowledge (P–value <0.05). Different from the study done in Napel [20] which showed that those respondents who had knowledge were 5 times more likely to have antenatal care utilization compared to those who did not have knowledge .These findings seemed to have difference since the current study was conducted in a developing country where the majority of their people had a primary level of education and were not much exposed to social media where can search information compared to the previous study which was conducted in a developed country. Therefore, women should be equipped with knowledge regarding their health and this could facilitate them to utilize antenatal care services. Knowledge can influence an individual to see the importance of seeking health services. The current study showed that only 43.5% of the male partners had adequate knowledge on preeclampsia and eclampsia and are the ones who are decision maker within the family level, therefore empowering men with adequate knowledge about reproductive health issues including preeclampsia and eclampsia will facilitate them to encourage their partners to attend ANC care. The knowledge of preeclampsia and eclampsia will also help the community to Identify the early signs and symptoms of the problem and take appropriate measures without delaying in seeking care as well as motivate them to attend antenatal care since they know the consequence of the problem and eventually reducing maternal morbidity and mortality rate due to preeclampsia and eclampsia in the country.

The findings showed that those who had weak myths were less likely to utilize ANC services compared to those

who had strong myths (P = 0.000). These findings differ from the previous study [20] which showed that those who believed from traditional healers were less likely to have antenatal care service utilization than those who did not believe tradition healers . These inconsistency results might be due to lack of adequate knowledge about preeclampsia and eclampsia though the participants had weak myths also resistance in behavior change. It might be also they did not see any benefit obtained through utilizing antenatal services. Furthermore, although the present study showed a number of respondents who had strong myths are low but still more effort is needed to dispel myths and misconceptions in the community at large and ensure all pregnant women are utilizing antenatal services for the benefit of both mother and unborn baby.

Conclusion

The overall knowledge about preeclampsia and eclampsia was low. Majority of the participants had weak myths although the different with those who had strong myths was small. The majority of the pregnant women utilized antenatal care services. Furthermore, findings showed that those with adequate knowledge had adequate antenatal services utilization. Moreover, those who had strong myths found to have antenatal care services utilization. Therefore, the community should be educated regarding the facts about preeclampsia and eclampsia in order to dispel the available Myths and misconceptions and ensure ANC services utilization for all pregnant women inorder to prevent complications of pregnancy.

Declarations

Ethical approval and consent to participate

Ethical clearance was obtained from University of Dodoma ethics and committee before commencing the data collection. Also permission to conduct the study obtained from the Regional administrative secretary of Mtwara, District Administrative secretaries of Mtwara District council, Newala, Nanyumbu and Masasi DC. The permission letters obtained were presented to Ward Executive officers, and Village leaders who granted me a permission to conduct study in their respective areas. Written consent was obtained from each participant before data collection.

Consent for publication

Not applicable

Availability of data and materials

The dataset used and /or analyzed during the current study are available from corresponding author on reasonable request.

Competing of interests

The author declares that there was no conflict of interest.

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Appendix A: questionnaires

PART A: Demographic data (Write, circle the correct answer or answers)

Adapted from TDHS 2015/2016

1. How old are you? ……….

2. Sex   A. Male B. Female

3. What level of education did you attain?

4. No formal education B. Primary C. Secondary D. Collage.

5. What is your occupation?

6. Employed B. Unemployed C. Self employed D. Peasant

7. What is your Religion

8. Christian B. Muslim

9. Where do you live A. urban B. Rural.

10. What is your ethnicity A. Makonde B. Makuwa C. Yao D. Others specify………….

11. How many children do have? One B. Two C. Three and above

12. What is gestation age of this pregnancy (in months)…….

13. Do you able to access and afford to get health facility services A. Yea B. No

14. How many kilometers from your home to health facility A. less than 5km B. More than five km.

15. What is your daily income A. less than 1000Tshs   B. More than 1000Tsh

Household characteristics (Adapted from TDHS 2015/2016) Tick

1. What kind of toilet facility does members of your household use?

a) Flush or pour flush toilet; Flush to piped sewer system [ ] Flush to septic tank [ ] Flush to pit latrine [ ] Flush to somewhere else [ ] Flush, don't know where [ ]

b) Pit latrine; Ventilated improved pit latrine [ ] Pit latrine with slab (washable) [ ] Pit latrine with slab (not washable) [ ] Pit latrine without slab/open pit [ ]

c) Compositing toilet [ ]

d) Bucket toilet [ ]

e) No toilet/bush/field [ ]

2. What type of fuel does your household mainly use for cooking?

a) Electricity [ ]

b) Bottled gas [ ]

c) Parrafin/kerosene [ ]

d) Charcoal [ ]

e) Firewood [ ]

f) Crop residuals [ ]

g) Straw [ ]

h) Grass [ ]

i) Animal dunk [ ]

j) No food cooked in household [ ]

k) Other (Specify)…………….

3. What is the source of energy for lighting in the household?

a) Electricity [ ]

b) Soler [ ]

c) Gas [ ]

d) Paraffine/urricane lamp [ ]

e) Paraffine pressure lamp [ ]

f) Paraffine-wick lamp [ ]

g) Firewood [ ]

h) Candle [ ]

i) Other (specify)……………..

4. How many rooms in this house are used for sleeping ………….

5. Does any member of the family own any agricultural land? 1) Yes [ ] 2) No [ ]

6. How many hectares own? …………..

7. Does this house own any livestock? 1) Yes [ ] 2) No [ ]

8. How many of the following animal does this house own?

Cows/Bulls ………., Other cattle………… Horses/Donkey/mules………., Goats………….., Sheep…………, Chicken/poultry…………….. None [ ]

9. Does your household have;

Electricity [ ] Radio [ ] Television [ ] Non Mobile telephone [ ] Computer [ ] Refrigerator [ ] Battery [ ] Iron [ ]

10. Does any member of this house own;

Watch [ ] Mobile phone [ ] Bicycle [ ] Motorcycle/Scooter [ ] Animal-drawn cart [ ] Car/Truck [ ] Boat with motor [ ]

Household observation

1. Type of house: 1) Temporary [ ] 2) Permanent[ ] 3)

2. Material of the floor 1) Earth/sand [ ] 2) Wood planks [ ] 3) Tiles [ ] 4) Cement/Concrete [ ]

3. Material of the roof 1) None roof [ ] 2) Mud [ ] 3) Grass [ ] 4) Iron [ ]

4. Material for the wall 1) None wall [ ] 2) Poles with mud [ ] 3) Grass [ ] 4) Stones with mud [ ] 6) Wood/Timber [ ] 7) Cement blocks [ ] 8) Blokes bricks [ ]

PART B: Knowledge about preeclampsia and eclampsia Questionnaire (circle correct answer or answers). 1dapted and modified form Angela Ruth Savage and Lujani Hoho, 2016

S/N	Qn.	Options	Yes	No
1	Do you know what preeclampsia is?	a) Male disorder		
		b) Mental disorder		
		c) Orthopedic disorder		
		d) Childhood disorder		
		e) Hypertension in Pregnancy		
2	Which of the following are the risk factors for preeclampsia?	a) diabetes		
		b) Evil sprit		
		c) A history of high blood pressure before conception		
		d) Exposure to fire during pregnancy		
		e) Overweight		
		f) Singleton pregnancy		
3	Which of the following symptoms may be experienced in preeclampsia?	a)severe headache		
		b) Increase urine out put		
		c) Visual disturbance		
		d) Epigastric pain (central just below the ribs		
		e)severe back pain		
		f) Sudden swelling of the face, hands or feet		
4	Which of the following signs may be presented in eclampsia?	a) Convulsions(fits)		
		b) Loss of consciousness		
		c) Diarrhea		
		d) General body pain		
		e) abdominal pain		
5	Which of the following are the complications of preeclampsia?	a) Maternal death		
		b) Risk for low blood pressure in subsequent pregnancy		
		c) Fetal death		
		d) Higher than average birth weight		
		e) Loss of memory after birth		
6	Which of the following may help to prevent preeclampsia and its serious risks?	a) Bed rest from 24th week		
		b) Regular clinic attendance		
		c) Use of salt free diet		
		d) Regular exercise		
		e) Taking contraceptive every day		
		f) Do not know		
7	Which of the followings are part of management of preeclampsia and eclampsia	a)Admission to hospital in severe preeclampsia and eclampsia		
		b) Use of medicine to treat infections		
		c) Early delivery if close to term		
		d) Use if vitamins c, D and E		
		e) Use of drugs that prevents fits		
		f) Return visit 6-8 weeks after delivery		

Citation: Aziza S Machenje, Stephen M Kibusi, Nyasiro Gibore, Athanase Lilungulu, Fabiola V Moshi. Knowledge and Myths about Preeclampsia and Eclampsia and its Influence on Antenatal Service Utilization among Pregnant Women and their Male Partners in Mtwara Regional - Tanzania: A Cross Sectional Analytical Study. Archives of Internal Medicine Research 5 (2022): 397-411.

PART C: Myths open ended Questionnaire: adapted and modified from (Khowaja et al., 2016) and (Boene et al., 2016). This part based on 6 categories of items with open ended questions, thus are local terminology, causes, warning (danger) signs, preventive strategies, consequences and traditional treatments.

1. What is/are the local name for preeclampsia and eclampsia in that area?

    ………………………………………………………………………
    ………………………………………………………………………
    …………

2. What do you believe is the cause of preeclampsia and eclampsia?

    ………………………………………………………………………
    ………………………………………………………………………
    …………

3. How do pregnant women with eclampsia present?

    ………………………………………………………………………
    ………………………………………………………………………
    …………

4. What are the consequences of preeclampsia and eclampsia?

    …………………………………………………………………

5. How do you treat eclampsia locally?

    ………………………………………………………………………
    ………………………………………………………………………
    …………

6. How do you prevent preeclampsia and eclampsia locally?

    ………………………………………………………………………
    ………………………………………………………………………
    …………

PART D 1: questionnaire regarding antenatal service utilization. Choose and circle the answer or answers. Adapted and modified from Roseline Dansowaa Doe, 2013. To Be Filled By Pregnant Woman

1. Are you living together with your partner?
A. Yes B. No

2. Does this pregnancy planned?
A. Yes B. No

3. Did you attend antenatal clinic?
A. Yes B. No

4. When did you start first ANC booking?
A. Before 3 months B. After 3 months.

5. How many times did you attend ANC clinic.
A. One B. two or more C. I don't know.

6. Were you accompanied by your partner to the ANC clinic?
A. Yes   B. No

7. How many times did your partner accompanied you to ANC clinic
A. Once B. Twice C. Three or more.

Part D2: To be filled by a male partner

1. Are you living together with your partner?
A. Yes B. No

2. Is the pregnancy planned?
A. Yes B. No

3. Did she attend antenatal clinic?
A. Yes B. No

4. When did she start first ANC booking?
A. Before 3 months B. After 3 months.

5. Were you involved in the decision on where she has antenatal care?
A. Yes B .No

6. Did you ever accompany your partner to the ANC clinic
A. Yes   B. No   If yes

7. How many times did you accompany her to the ANC clinic
A. Once B. two or more C. None

Citation: Aziza S Machenje, Stephen M Kibusi, Nyasiro Gibore, Athanase Lilungulu, Fabiola V Moshi. Knowledge and Myths about Preeclampsia and Eclampsia and its Influence on Antenatal Service Utilization among Pregnant Women and their Male Partners in Mtwara Regional - Tanzania: A Cross Sectional Analytical Study. Archives of Internal Medicine Research 5 (2022): 397-411.