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Preeclampsia Awareness Among Women in King Saudi Arabia

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Abstract: Preeclampsia is one of the pregnancy complications characterized by high blood pressure and signs of damage to another organ system, most often the liver and kidneys. It usually begins after 20 weeks of pregnancy. This disease encompasses 2 to 8% of pregnancy-related complications, greater than 50,000 maternal deaths, and over 500,000 fetal deaths worldwide (12), according to the annual statistical book from Ministry of Health King Saudi Arabia preeclampsia cases at 2017 in hospitals was 4292 cases. This study aims to estimate the level of awareness and knowledge of preeclampsia among women in Saudi Arabia. Because the literature shows a remarkably lack of knowledge of PE among women in Saudi Arabia. This is a cross sectional study conducted in 2023. A total of 390 women ages ranged from 18 to 60 years were included in the study and given a self-administered web-based questionnaire. The study uses the general knowledge about pre-eclampsia as one of the three measurements, together with sociodemographic data and the conceptual history of pregnancy. A total of 390 participants were enrolled in this study. Of the total sample of 66.7% had poor awareness level regarding preeclampsia while 33.3% had good awareness level. However, it was found that about one-third of the participants had an overall good awareness for preeclampsia. More than half of them heard about preeclampsia. The reports that the level of preeclampsia awareness in Saudi Arabia is low. Factors associated with women awareness level regarding preeclampsia are employment, high level of education and family history of preeclampsia. Two thirds of low awareness is alarming, which emphasize the importance of enhancing the awareness of pre-eclampsia among Saudi women that helps fasten medical seek with low complications of both mothers and fetuses.

Keywords: PE, Pre-eclampsia, Awareness

1. Introduction

Preeclampsia is a hypertensive disorder in pregnancy related to 2% to 8% of pregnancy-related complications worldwide. It results in 9% to 26% of maternal deaths in low-income countries and 16% in high-income countries. Preeclampsia is defined as new-onset hypertension. The parameters for initial identification of preeclampsia are specifically defined as a systolic blood pressure of 140 mm Hg or more or diastolic blood pressure of 90 mm Hg or more on two occasions at least 4 hours apart; or shorter interval timing of systolic blood pressure of 160 mm Hg or more or diastolic blood pressure of 110 mm Hg or more, all of which must be identified after 20 weeks of gestation.

The initial presentation of preeclampsia typically arises in near-term pregnancies. Other significant findings that may or may not be a part of the clinical presentation include proteinuria, signs of end-organ damage, such as thrombocytopenia, impaired liver function, severe persistent right upper quadrant or epigastric pain, excluding all other alternative diagnoses, new-onset headache unresponsive to all forms of management, pulmonary edema, or renal insufficiency with abnormal lab values. Further

distinguishing subcategories of preeclampsia include classification into mild or severe, which are deemed so based upon presentation and clinical criteria, to be described further (10) In Saudi, according to the annual statistical book from Ministry of Health, preeclampsia cases at 2017 in MOH hospitals was 4292 cases. [1]. There are some studies done before to assess the awareness of preeclampsia. Initially, On July 2022, the study "Level of knowledge on preeclampsia symptoms, complications, and risk factors among women in Saudi Arabia: A cross sectional study" was done and the conclusion shows that " The knowledge of PE among women in Makkah, Saudi Arabia, is remarkably low". [2] Secondly, Another study which is "Knowledge of preeclampsia and its associated factors among pregnant women: a possible link to reduce related adverse outcomes" shows that "The knowledge of PE among pregnant women in Ghana is low. The prominent factor that facilitates adequacy of knowledge of PE is higher level of education. [3]"

All these data support the hypothesis that early diagnosis and patient's education and counseling is highly required, compared to the poor level of knowledge. This study aims to estimate the level of knowledge about pre-eclampsia among women of Saudi Arabia and explore the associated variables that help early diagnose and counsel majority of women who are expected to motherhood.

2. Materials and Methods

2.1. Study Design

This is a community based cross-sectional study was conducted in Saudi Arabia, from OCT 10 2023 to Nov 25 2023.

2.2. Study Population and Sampling

The target population of this study included all adult females in Saudi Arabia A minimum sample of 385 was required as calculated via an electronic sample calculator, at a 95% level of confidence and a 5% margin of error. The inclusion criteria for this study consists of all women aged from 18 to 60 years, who were either Saudi or none Saudi.

2.3. Data Collection Tool

Data collected through a web-based survey, questions were adapted from a questionnaire for pre-eclampsia based on DSM -1V criteria, and other related questions on demographic or pregnancy experience formulated accordingly.

The questionnaire includes three areas of the study (1) Socio demographic information, region of residence, age, marital status, employment, educational level (2) pregnancy related data and pre-eclampsia experience among study women (3) Overall women awareness regarding preeclampsia, Saudi Arabia.

Before distributing, the questionnaire steps were done1/ formulated in the Arabic colloquial language, which is the primary language of the target group2/ A pilot survey conducted to ensure the clarity, accuracy and validity with the assistance from college professors from the gynecology department for translating the English scientific terms and3/ reviewed with a professional translator.

The questionnaire was distributed electronically to the target group using Google forms and shared across the kingdom of Saudi Arabia via links of social media. Personal data collecting with using private account that having password. No assumption of risks because there will not be direct contact with the participants. The estimated time to fill out forms is 4 to 5 minutes. Responses collected are 440, only 390 included and 50 excluded according to the criteria of exclusion mentioned before.

2.4. Ethical Consideration

The Institutional Review Board at King Faisal University, Saudi Arabia approved this study the Ethical clearance obtained Ref. No KFU-REC-2023 OCT –ETHCS1309. All participants take written consent prior any data collection. A cover letter on each questionnaire, which included explanation about the purpose of the study, the use of data, the benefits of doing this research, the right to participate, complete the survey or not, and the confidentiality and anonymity of the data.

2.5. Data Analysis

The International Business Machines (IBM) Statistical Package for the Social Sciences version 23.0 (SPSS) used to analyze the data. The descriptive analysis was done to display mean, standard deviation, frequencies for a categorical data, The chi-squire test was used to assess for the presence of any association between categorical variables.. The results were considered statistically significant when P= 0.5 at a 95 % confidence interval.

3. Results

A total of 390 women were included. Women's ages ranged from 18 to more than 35 years with mean age of 27.1 ± 12.8 years old. Vast majority (235; 60.3%) were from eastern region, while others were from different regions. A total of 262 (67.2%) were married and 104 (26.7%) were single. Exact of 126 (32.3%) were employed. As for educational level, 234 (60%) had university level of education, 142 (36.4%) were at high school (table 1).

Table 1. *Personal characteristics of study women in Saudi Arabia.*

Personal data	No	%
Region		
Central	33	8.5%
Eastern	235	60.3%
Northern	30	7.7%
Southern	47	12.1%
Western	45	11.5%
Age in years		
< 20	32	8.2%
20-25	130	33.3%
26-35	139	35.6%

Personal data	No	%
> 35	89	22.8%
Marital status		
Single	104	26.7%
Married	262	67.2%
Divorced / widow.	24	6.2%
Employment		
Yes	126	32.3%
No	264	67.7%
Educational level		
Below high school	14	3.6%
High school	142	36.4%
University / above	234	60.0%

Table 2. Pregnancy related data and pre-eclampsia among study women, Saudi Arabia. Only, 50 (12.8%) women were pregnant, where 20 (40%) were at their 2nd trimester, 14 (28%) were at their 3rd trimester, and 16 (32%) were at their 1st trimester. It was first pregnancy among 23 (46%). As for previous pregnancies, 174 (44.6%) had no previous pregnancies, 100 (25.6%) had 1-2 pregnancies previously and 50 (12.8%) had previous more than 4 pregnancies. Exact of 35 (9%) experienced preeclampsia before and 45 (11.5%) had family history of preeclampsia.

Table 2. *Pregnancy related data and pre-eclampsia among study women, Saudi Arabia.*

Pregnancy data	No	%
Are you currently pregnant?		
Yes	50	12.8%
No	340	87.2%
Gestational age (n=50)		
1st trimester	16	32.0%
2nd trimester	20	40.0%
3rd trimester	14	28.0%
Is this your first pregnancy? (n=50)		
Yes	23	46.0%
No	27	54.0%
Number of previous pregnancies?		
None	174	44.6%
1-2	100	25.6%
3-4	66	16.9%
> 4	50	12.8%
Experienced preeclampsia before		
Yes	35	9.0%
No	355	91.0%
Family history of preeclampsia		
Yes	45	11.5%
No	150	38.5%
I don't know	195	50.0%

Table 3. Awareness of preeclampsia among study women, Saudi Arabia. A total of 211 (54.1%) women heard about preeclampsia. Exact of 71.3% know that women likely to experience preeclampsia at 20 weeks of gestation or above, 43.3% know that preeclampsia sometimes necessitate CS, 51% reported that preeclampsia have grades (mild and severe), while only 29.7% know that preeclampsia is severe disorder. With regard to preeclampsia signs/ symptoms, the most known included High blood pressure while pregnancy (78.7%), Persistent headache (59.5%), Blurred vision (54.9%), Nausea and vomiting (35.3%), Convulsions (27.4%), and Chest pain (15.6%). As for preeclampsia risk factors, the most known were Family history of preeclampsia (65.1%), Having prior preeclampsia (65.1%), DM (30.5%), and History of clotting problems (27.7%). Considering preeclampsia complications, 86.7% reported for fetal death, 51.8% reported for renal dysfunction, and 51.3% know about maternal death.

Table 3. *Awareness of preeclampsia among study women, Saudi Arabia.*

Awareness items		No	%
Heard of preeclampsia before	Yes	211	54.1%
	No	179	45.9%
When is one likely to experience preeclampsia?	≥ 20 weeks of gestation	278	71.3%
	< 20 weeks of gestation	112	28.7%
Does preeclampsia necessitate CS?	Never	40	10.3%
	Sometimes	169	43.3%
	Always	67	17.2%
	I don't know	114	29.2%
Does preeclampsia have grades (mild and severe)?	Yes	199	51.0%
	No	13	3.3%
	I don't know	178	45.6%
How severe is preeclampsia?	Not Severe	22	5.6%
	Severe	116	29.7%
	Very severe	147	37.7%

Awareness items		No	%
Signs/ symptoms of preeclampsia	I don't know	105	26.9%
	High blood pressure while pregnancy	307	78.7%
	Persistent headache	232	59.5%
	Blurred vision	214	54.9%
	Nausea and vomiting	208	53.3%
	Chest pain	61	15.6%
	Convulsions	107	27.4%
	Abdominal pain	172	44.1%
	Urinary retention	145	37.2%
	Back pain	89	22.8%
Risk factors of preeclampsia	Family history of preeclampsia	254	65.1%
	Having prior preeclampsia	254	65.1%
	Diabetes	119	30.5%
	History of clotting problems	108	27.7%
	Obesity	111	28.5%
	Unhealthy lifestyle	173	44.4%
	Multiple births	94	24.1%
	Family history with poisoning of pregnancy	10	2.6%
Complications of preeclampsia	Maternal death	200	51.3%
	Fetal death	338	86.7%
	Renal dysfunction	202	51.8%
	Heart diseases	64	16.4%

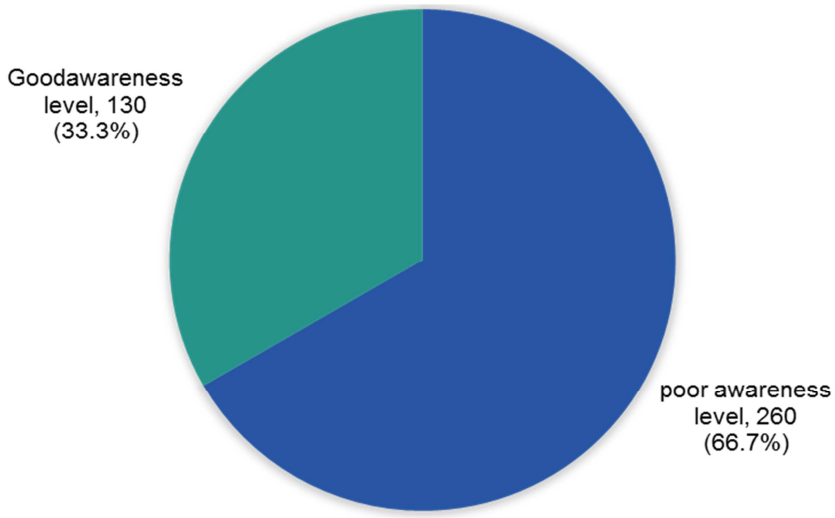

Figure 1. *Overall women awareness regarding preeclampsia, Saudi Arabia.*

Figure 1. Overall women awareness regarding preeclampsia, Saudi Arabia. Exact of 260 (66.7%) had poor awareness level regarding preeclampsia while 130 (33.3%) had good awareness level.

Table 4. Factors associated with women awareness level regarding preeclampsia. Exact of 50.8% of employed women had an overall good awareness level versus 25% of unemployed women with recorded statistical significance (P=.001). Also, 38% of university graduated women had an overall good awareness for preeclampsia compared to 7.1% of low educated women (P=.015). Good awareness was also detected among 46.7% of women with family history of preeclampsia versus 35.3% of others without (P=.049).

Table 4. *Factors associated with women awareness level regarding preeclampsia.*

Factors	Overall awareness level				p-value
	Poor		Good		
	No	%	No	%	
Age in years					
< 20	22	68.8%	10	31.3%	
20-25	81	62.3%	49	37.7%	.422
26-35	92	66.2%	47	33.8%	
> 35	65	73.0%	24	27.0%	
Marital status					
Single	73	70.2%	31	29.8%	.167
Married	175	66.8%	87	33.2%	

Factors	Overall awareness level				p-value
	Poor		Good		
	No	%	No	%	
Divorced / widow	12	50.0%	12	50.0%	
Employment					
Yes	62	49.2%	64	50.8%	.001*
No	198	75.0%	66	25.0%	
Educational level					
Below high school	13	92.9%	1	7.1%	.015*$
High school	102	71.8%	40	28.2%	
University / above	145	62.0%	89	38.0%	
Are you currently pregnant?					
Yes	33	66.0%	17	34.0%	.915
No	227	66.8%	113	33.2%	
Gestational age					
1st trimester	11	68.8%	5	31.3%	.756
2nd trimester	12	60.0%	8	40.0%	
3rd trimester	10	71.4%	4	28.6%	
Is this your first pregnancy?					
Yes	16	69.6%	7	30.4%	.623
No	17	63.0%	10	37.0%	
Number of previous pregnancies?					
None	122	70.1%	52	29.9%	
1-2	57	57.0%	43	43.0%	.067
3-4	43	65.2%	23	34.8%	
> 4	38	76.0%	12	24.0%	
Experienced preeclampsia before					
Yes	19	54.3%	16	45.7%	.103
No	241	67.9%	114	32.1%	
Family history of preeclampsia					
Yes	24	53.3%	21	46.7%	.049*
No	97	64.7%	53	35.3%	
I don't know	139	71.3%	56	28.7%	

P: Pearson X^2 test $: Exact probability test
* P < 0.05 (significant)

4. Discussion

Preeclampsia is a medical complication of pregnancy that is characterized by high blood pressure and damage to organs [4]. It typically develops after the twenty-week mark and may lead to abnormal clotting or liver and kidney damage if left untreated [4, 5]. Symptoms may include headaches, vision changes, and swelling in the hands and feet [6]. While the exact cause of preeclampsia is unknown, certain risk factors such as high blood pressure, diabetes, and carrying multiple fetuses may increase the likelihood of developing the condition [7, 8]. Awareness of preeclampsia amongst women is crucial for early diagnosis and prevention of the complication. It is important for women to pay attention to warning signs such as headaches, vision changes, and swelling, and report them to their healthcare providers immediately [9].

The current study aimed to assess women awareness regarding preeclampsia in Saudi Arabia. The study revealed that about one-third of the study women had an overall good awareness for preeclampsia. More than half of the study women heard about preeclampsia. Most of the study women know that preeclampsia onset is at 20 weeks of gestation or above, less than half of them know that preeclampsia sometimes necessitates CS, while half of them reported that preeclampsia has grades (mild and severe). Only 29.7% know that preeclampsia is severe disorder. As for preeclampsia signs/ symptoms, the most known included high blood pressure while pregnancy, persistent headache, blurred vision, and nausea and vomiting. Considering preeclampsia risk factors, the most known were family history of preeclampsia, having prior preeclampsia, DM, and history of clotting problems. About preeclampsia complications, most of study women told about fetal death, half of them know about renal dysfunction, and also know about maternal death. Higher awareness was detected among employed women, highly educated and those with family history of preeclampsia. A Savage and Hoho L [11] showed similar results where 41% of the females gave the correct answers for preeclampsia. Fondjo LA et al. [3] reported for lower awareness level as 11.4% of the study women had adequate knowledge of preeclampsia where high education was the significant determinant for adequate knowledge level. You et al. [12] in the US estimated that 43.3% of women had identified the correct answers regarding PE, with only 14% being able to provide the information that accurately define the syndrome. In Malaysia, Teng and Keng [13] found only 18.4% of women to have adequate knowledge of PE. Likewise, A Savage et al. [11] concluded that 60% of Tanzanian women had inadequate knowledge of PE. In Saudi Arabia, Gari A et al. [2] reported for a very low level of

knowledge where only 4% of the participants had good knowledge about preeclampsia.

The study also revealed that less than one-tenth of the women experienced preeclampsia which is much higher than that estimated by among pregnant women in King Abdulaziz University Hospital study (4.2%). [14] Another study in Western Saudi Arabia revealed that 2.4% of pregnant women experienced hypertensive disorder of pregnancy with 54.9% was preeclampsia [16].

5. Conclusion

The level of preeclampsia awareness in Saudi Arabia is low. Factors associated with women awareness level regarding preeclampsia are employment, high level of education and family history of preeclampsia.

More efforts should be done to increase the awareness in community by awareness campaigns and via social media that help to fasten medical seek with low complications of both mothers and fetuses.

Further studies are recommended to clarify the barriers beyond suboptimal knowledge.

Disclosure Statement

We hereby (authors) declare that following: Payment/services information we: declared that no financial support was received from any organization for the submitted work. Financial relationships: we declared that we have no financial relationships at present or within the previous three years with any organizations that might have an interest in the submitted work.

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Conflicts of Interest

The authors declare no conflicts of interest.

References

[1] [Internet]. [cited 2023 Jun 13]. Available from: https://www.moh.gov.sa/en/Ministry/Statistics/book/Documents/ANNUAL-STATISTICAL-BOOK-1438H.pdf.

[2] Gari A, Alshanqiti W, Alquzi R, Alsamli R, Alqahtani R. Level of knowledge on preeclampsia symptoms, complications, and risk factors among women in Saudi Arabia: A Cross Sectional Study. Medical Science. 2022; 26(128): 1–9. doi: 10.54905/disssi/v26i128/ms432e2512.

[3] Fondjo LA, Boamah VE, Fierti A, Gyesi D, Owiredu E-W. Knowledge of preeclampsia and its associated factors among pregnant women: A possible link to reduce related adverse outcomes. BMC Pregnancy and Childbirth. 2019; 19(1). doi: 10.1186/s12884-019-2623-x.

[4] Ramos JG, Sass N, Costa SH. Preeclampsia. Revista Brasileira de Ginecologia e Obstetrícia/RBGO Gynecology and Obstetrics. 2017 Sep; 39(09): 496-512.

[5] Magee LA, Nicolaides KH, Von Dadelszen P. Preeclampsia. New England Journal of Medicine. 2022 May 12; 386(19): 1817-32.

[6] Triche EW, Saftlas AF, Belanger K, Leaderer BP, Bracken MB. Association of asthma diagnosis, severity, symptoms, and treatment with risk of preeclampsia. Obstetrics & Gynecology. 2004 Sep 1; 104(3): 585-93.

[7] Dekker GA. Risk factors for preeclampsia. Clinical obstetrics and gynecology. 1999 Sep 1; 42(3): 422.

[8] English FA, Kenny LC, McCarthy FP. Risk factors and effective management of preeclampsia. Integrated blood pressure control. 2015 Mar 3: 7-12.

[9] Alnuaimi K, Abuidhail J, Ismail H. The effects of an educational programme about preeclampsia on women's awareness: a randomised control trial. International Nursing Review. 2020 Dec; 67(4): 501-11.

[10] Gestational Hypertension and Preeclampsia: ACOG Practice Bulletin, Number 222. Obstet Gynecol. 2020 Jun; 135(6): e237-e260. [PubMed]

[11] A Savage, Lujain Hoho L. Knowledge of pre-eclampsia in women living in Makole Ward, Dodoma, Tanzania. African health sciences. 2016 June 1; 16(2): 412-9.

[12] You WB, Wolf M, Bailey SC, Pandit AU, Waite KR, Sobel RM, Grobman W. Factors associated with patient understanding of preeclampsia. Hypertension in pregnancy. 2012 Aug 1; 31(3): 341-9.

[13] Teng SP, Keng SL. Knowledge of preeclampsia among antenatal women in a tertiary referral teaching hospital. The Malaysian Journal of Nursing (MJN). 2016 Apr 4; 7(2): 8-13.

[14] Gari A, Alshanqiti W, Alshanqiti F, Alquzi R, Alsamli R, Alqahtani R. Level of knowledge on preeclampsia symptoms, complications, and risk factors among women in Saudi Arabia: A cross sectional study. Medical Science, 26, ms432e251.

[15] Dania H, Lulwah B. Prevalence and Associated Risk Factors for Preeclampsia among Pregnant Women Attending Antenatal Care Inking Abdulaziz University Hospital in Jeddah, Saudi Arabia: A Hospital-Based Study. Annals of International Medical and Dental Research. 2017; 4 (1): 29-32.

[16] Subki M, Algethami, H Abduljabbar HS. Prevalence, risk factors, and fetal and maternal outcomes of hypertensive disorders of pregnancy: a retrospective study in Western Saudi Arabia. Oman medical journal. 2018 Sep; 33(5): 409.