



Case Study

Factors Contributing to Hypertensive Disorder of Pregnancy among Clients in Selected Clinic in Tobruk City

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Abstract

Numerous studies have investigated about the risk factors for hypertensive disorders in pregnancy and have identified obesity, a family history of hypertension, alcohol intake, heart failure, stroke, and left ventricular hypertrophy and smoking as risk factors. This study determined the factors contributing to hypertensive disorder of pregnancy among clients in selected clinics in Tobruk City. The study was undertaken in three (3) health centers, namely Tobruk Medical Center, Iada Hilal, and Iada Ahmed Hussein, all located in Tobruk City. Purposive sampling was made used wherein the clients sought consultation at the said health centers and fit to the criteria were included during the conduct of the study from June 1 to 10, 2022. A total of ninety two (92) respondents of which thirty (30) were cases of hypertension in pregnancy which was considered as the case group and a total of sixty two (62) non-hypertensive pregnant woman were regarded as the control group. Upon validating the tools, questionnaires which was written in English and translated into Arabic language were distributed to the respondents during the conduct of the study. The first part of the questionnaire was used to determine the socio-demographic characteristics of the respondents. The second part of the questionnaire contained six (6) statements pertaining to the respondents, reproductive characteristics. The third part contained four (4) items referring to the personal and family history of hypertension. It was observed that a significant numbers of pregnant women diagnosed with hypertension in pregnancy like preeclampsia and eclampsia were admitted at the Obstetric ward of Tobruk Medical center. However little is known about the incidence of hypertension in pregnancy and the risk factors that could influence its development. Results indicated that there was a difference in the factors contributing to hypertensive disorders of pregnancy between the non-hypertensive and hypertensive respondents in terms of their socio-demographic, reproductive characteristics, and personal and family history of hypertension.

Keywords: Hypertensive disorder, Maternal hypertension, Paternal hypertension, Personal hypertension, Family history

INTRODUCTION

Hypertensive disorder in pregnancy is a condition in which the pregnant woman manifested high blood pressure during pregnancy as defined in 1986 by the American college of obstetricians and gynecologist and adopted by the world health organization (WHO). Previous studies defined hypertension in pregnancy as a condition presented with a systolic blood pressure of at least 140mmHG or a diastolic blood pressure of at least 90 mmHg or, a rise in diastolic

blood pressure of at least 15 mmHg or a rise of 30 mmHg in systolic blood pressure. Moreover, WHO considered only an elevated value of diastolic blood pressure as a criterion for defining the disorder? The disorder complicates 4-10% of pregnancies. The American College of Obstetricians and Gynecologist and the United Nations Organization recognize four categories of hypertension in pregnancy. These include chronic hypertension, gestational hypertension, preeclampsia/eclampsia, and superimposed preeclampsia/eclampsia, a condition defined as chronic hypertension

complicated by preeclampsia/eclampsia (Adeyinka DA, et al., 2010).

Several studies have analyzed the risk factors for hypertensive disorder in pregnancy and the identified risk factors include obesity, family history of hypertension, alcohol intake, heart failure, stroke, left ventricular hypertrophy, and smoking.

There were other studies which confirmed that aboriginal race, Caucasians, nulliparity, and pre-existing and gestational diabetes are independent risk factors for all types of hypertension in pregnancy. Increasing maternal age increase the risk for pre-existing hypertension and superimposed pre-eclampsia. There appeared to be appropriate referral of women with hypertension disorder to teaching hospitals. A new finding is the increase risk unemployed women engaged in home duties (Jacobs, 2001)

Numerous studies have investigated about the risk factors for hypertensive disorders in pregnancy and have identified obesity, a family history of hypertension, alcohol intake, heart failure, stroke, and left ventricular hypertrophy and smoking as risk factors (Assis TR, 2008).

METHODOLOGY

This section deals with the research design used in the study, the respondents of the study, the sampling, the instruments used, the data gathering procedure and the data analysis procedure.

The research design used in this study is a quantitative, non-experimental, descriptive method to evaluate hypertensive in pregnancy among the respondents; this study is intended to determine the factors contributing to hypertensive disorders of pregnancy. Since the motive of the study was only to find out the factors contributing to hypertensive disorders of pregnancy by describing the differences between the respondents with hypertension with those without hypertension during their present pregnancy, the researchers believed that a descriptive research method was appropriate to use. To the degree that researchers can demonstrate comparability between the hypertensive and non-hypertensive pregnant women with regard to extraneous traits (such as age, educational level, occupation) inferences regarding the presumed cause of the disease are enhanced.

Selected case –control study research design was used to evaluate the factors contributing to hypertensive disorders of pregnancy. The study was conducted in three places, at the out-patient-department obstetric section of Tobruk medical center, Iada Hilal, and Iada Ahmed Hussein from June 1, 2022. The researcher chose to conduct the study these health centers to be able to recruit the required number of subjects needed to test research hypotheses adequately and because of their accessibility and proximity to the researcher, residences, and university campus (Chesley LC, 1984).

RESULTS AND DISCUSSION

Data obtained from the respondents were collated, tabulated, categorized, interpreted and analyzed using descriptive statistic particularly frequency and percentage distribution.

The following statistical treatments were used to answer the specific statement of the problems and to test the hypothesis in the study.

Frequency and Percentage Distribution: This determined the proportioned of a part of a whole such as given number of respondents in relation to the sample population. Hence this was utilized in determining the socio-demographic characteristics, reproductive characteristics, personal and family history of hypertension.

Formula

$$P = (f/N) \times 100\%$$

Where:

P = percentage

F = frequency

N = total frequency on the number of respondents

Table 1. Shows the factors contributing to hypertensive disorders of pregnancy among the respondents without hypertension in terms of: (Table 1)

A. Socio-Demographic Characteristics.

a. Age

Table 1. Distribution of respondents without hypertension according to age

(N=62)

June 1 – 10, 2022

Table 1 shows the distribution of respondents without hypertension according to age. The respondents, age range from 18 to 50 years old. There are five (8%), thirty four (55%), twenty (32%), three (5%) non-hypertensive respondents who were under the age group below 21, 21-30, 31-40 and above 40 respectively. The table further shows that majority of the non-hypertensive pregnant clients were at early adulthood.

b. Educational level

Table 1. Distribution of respondents without hypertension according to age.

Age	Frequency	Percentage(5)
Below 21	5	8
21 – 3	34	55
31 – 40	20	32
Above 40	3	5
Total	62	100

Table 2. Distribution of respondents without hypertension by Educational Level (Table 2)

(N=62)

June 1 – 10, 2022

Table 2 shows the distribution of respondents without hypertension by educational level. The table further reveals that majority or fifty four (87%) of the non-hypertensive pregnant clients included in the study had no formal education. Three (5%) and five (8%) respondents attained the primary and secondary or university level of education.

c. Reproductive Characteristics

Table 3. Distribution of respondents without hypertension by Reproductive Characteristics (Table 3).

(N=62)

June 1 – 10, 2022

Table 3 presents the distribution of respondents without hypertension by reproductive characteristics. Under the number of deliveries, majority of 95% of the non-hypertensive clients had 1 to 5 deliveries while only three (5%) of the sixty two respondents in this group had more than 5 (6-10) deliveries.

The table further reveals that significant number of the non-hypertensive respondents (81%) had no history of ectopic pregnancy and only twelve (19%) had history of such condition.

The data likewise shows that most of the respondents with no hypertension (68%) had no history of abortion while twenty (32%) had an abortion.

d. Personal and Family History of Hypertension

Table 4. Distribution of Respondents without hypertension by history of personal and family hypertension (Table 4)

Table 2. Distribution of respondents without hypertension by Educational Level.

Education level	Frequency	Percentage (%)
None	54	87
Primary level	3	5
Secondary /University level	5	8
Total	62	100

Table 3. Distribution of respondents without hypertension by Reproductive characteristics.

Reproductive characteristic	Frequency	Percentage
Number of deliveries	1-5 deliveries	59
	6-10 deliveries	3
History of ectopic pregnancy	Yes	12
	No	50
History of abortion	Yes	20
	No	42

Table 4. Distribution of respondents without hypertension by history of personal and family hypertension.

History of personal and family hypertension		Frequency	Percentage (%)
History of maternal hypertension	Yes	0	0
	No	62	100
History of paternal hypertension	Yes	0	0
	No	62	100
History of hypertension in pregnancy	Yes	0	0
	No	62	100
History of chronic hypertension	Yes	0	0
	No	62	100

Table 5. Distribution of respondents with hypertension by age.

Age	Frequency	Percentage (%)
Below 21	1	3
21 – 30	8	27
31 – 40	13	43
Above 40	8	27
Total	30	100

(N=62)

June 1 – 10, 2022

Table 4 shows the distribution of respondents without hypertension by history of personal and family hypertension. The table also reveals that all non-hypertensive pregnant women included in the study had no history of maternal (100%), paternal hypertension (100%).

The table further shows that all of the respondents without hypertension during the current pregnancy had neither a history of hypertension during pregnancy (100%) nor had history of chronic hypertension (100%)

Table 5. Shows the factors contributing to hypertensive disorders of pregnancy among the hypertensive respondents in terms of

A. Socio-Demographic Characteristics

a. Age

Table 5. Distribution of Respondents with Hypertension by Age (Table 5)

(N=62)

June 1 – 10, 2022

Table 5 shows the distribution of respondents with hypertension according to age. The respondents age range from 18 to 50 years old. There was one (3%), eight (27%), thirteen (43%), eight (27%) hypertensive pregnant patient who belonged to age groups below 21, 21-30, 31-40 respectively. The table further shows that majority of the hypertensive pregnant patient ranged from thirty one (31) to forty (40) years of age.

b. Educational level

Table 6. Distribution of Respondents with hypertension by educational level (Table 6)

(N=62)

June 1 – 10, 2022

Table 6 shows the distribution of respondents with hypertensive by educational level. The table is also discloses that fourteen or 47% of the hypertensive pregnant clients included in the study had attained the higher educational level while twelve (40%) were at the primary level. Only four (13%) have not attended any formal education

B. Reproductive Characteristics

Table 7. Distribution of Respondents with hypertension by reproductive characteristics (Table 7)

(N=62)

June 1 – 10, 2022

Table 7 shows the distribution of respondents with hypertension by reproductive characteristics. For the number of deliveries, majority or 93% of the hypertensive clients had 1 to 5 deliveries while only two or 7% of the sixty two respondents in the group had 6 to 10 deliveries.

The table also shows that significant number of the hypertensive respondents (83%) had no history of abortion while eleven (37%) had history of abortion.

C. Personal and Family history of Hypertension

Table 8. Distribution of Respondent with Hypertension by History of Personal and Family Hypertension (Table 8)

(N=62)

Table 6. Distribution of respondents with hypertension by educational level.

Educational level	Frequency	Percentage (%)
None	4	13
Primary level	12	40
Secondary/university level	14	47
Total	30	100

Table 7. Distribution of respondents with hypertension by reproductive characteristics.

Reproductive characteristic		Frequency	Percentage (%)
Number of Deliveries	1-5 deliveries	28	93
	6-10 deliveries	2	7
History of ectopic pregnancy	Yes	5	17
	No	25	83
History of abortion	Yes	11	37
	No	19	63

Table 8. Distribution of respondent with hypertension by history of personal and family hypertension.

History of personal and family hypertension		Frequency	Percentage
History of maternal hypertension	Yes	15	50
	No	15	50
History of paternal hypertension	Yes	9	30
	No	21	70
History of hypertension in pregnancy	Yes	18	60
	No	12	40
History of chronic hypertension	Yes	11	37
	No	19	63

June 1 – 10, 2022

Table 8 shows the distribution of respondents with hypertension by history of personal and family hypertension. The data shows that the fifteen (50%) of the clients with hypertensive disease in pregnancy had history of maternal hypertension and the other half of them had no history.

It can also be noted from the date presented, majority of the clients with hypertensive disease in pregnancy (70%) had no history of paternal hypertension and nine or 30% of these respondents had history.

The table also discloses that most of the hypertensive clients (60%) had history of hypertension during their previous pregnancy and there were twelve (40%) who had no history of hypertension during their pregnancy.

Furthermore, the table reveals that a significant number of the hypertensive respondents (63%) have no history of chronic hypertension but manifested the disease only during pregnancy while 11 or 37% were hypertensive even when they were not in the state of pregnancy.

Table 9. Shows the difference between the respondents with and without hypertensive disorder of pregnancy according to socio-demographic characteristics (Table 9)

Table 9 shows the difference between respondents with and without hypertensive disorder of pregnancy according to socio-demographic characteristics. It can be noted that majority of women with the hypertensive disorder in pregnancy were at age group 31-40 (43%) while there were only twenty or 32% among the non-hypertensive respondents in this age group. Among the non-hypertensive pregnant woman, majority belonged to age group 21-30. Meanwhile, pregnant women with hypertension have attended form education, whether they attained only the primary (twelve or 40%) or secondary/university level (fourteen or 47%) compared to respondents without hypertension, only three (5%) have reached the primary level and five (8%) attained the secondary level. Majority of the non-hypertensive respondents (87%) have not attended formal schooling (Niesdiadomy RM, 2008).

Table 9. Shows the difference between the respondents with and without hypertensive disorder of pregnancy according to socio-demographic characteristics.

Socio-demographic characteristics		With		Without		Total	
		Hypertension		Hypertension		(N=92)	
		(N=30)		(N=62)			
		F	%	F	%	F	%
Age	Below 20	1	3	5	8	6	7
	21-30	8	27	34	55	42	46
	31-40	13	43	20	32	33	36
	41-50	8	27	3	5	11	12
Educational Level	None	4	13	54	87	58	63
	Primary level	12	40	3	5	15	16
	Secondary level	14	47	5	8	19	21

Table 10. Difference between respondents with and without hypertensive disorders of pregnancy according to reproductive characteristics.

Reproductive Characteristics		With		Without		Total	
		Hypertension		Hypertension		(N=92)	
		(N=30)		(N=62)			
		F	%	F	%	F	%
Number of Deliveries	1-5 deliveries	28	93	59	95	87	95
	6-10 deliveries	2	7	3	5	5	5
History of Ectopic Pregnancy	Yes	5	17	12	19	17	18
	No	25	83	50	81	75	82
History of Abortion	Yes	11	37	20	32	31	34
	no	19	63	42	68	61	66

According to the study conducted by Chelsey (1984) as cited by Tebeu et al in their research, the extreme ages of reproductive years are well-known risk factor for hypertension during pregnancy with high incidence rates in teenagers.

There were several studies conducted previously which identified advanced age as a risk factor for hypertension in pregnancy, as in the case of present study. Assist et al.(2008) had undertaken a study which identified that higher age as an important risk factor for hypertension in pregnancy, especially in developed countries. Their study found that age above 30 years was associated with a risk for preeclampsia superimposed on chronic hypertension in the present study, majority of women with hypertension (32%).

The many studies have also identified that young age is an important risk factor for hypertension during pregnancy. Adeyinka et al. (2010) found that prevalence of eclampsia and preeclampsia among adolescent to be 20% in comparison to only 3.33% among the controls (Polit D, 2003).

The study reveals that attending formal education and achieving higher level of education was associated with about 2-fold risk for those patients presenting with hypertensive disorder in pregnancy. The absence of school education, identified as independent risk factors for hypertensive disorder in pregnancies, is well-documented in the literature Silva et al, (2008) as cited in the study by Tebeu et al.

Table 10. Difference between Respondents with and without Hypertensive Disorders of Pregnancy according to Reproductive Characteristics (Table 10)

Table 10 shows the difference between the respondents with and without hypertensive disorder of pregnancy according to reproductive characteristics. The table further shows that majority of respondents in both groups had 1-5 number of deliveries, twenty eight of 93% in the hypertensive group and fifty nine or 95% among the non-hypertensive group.

Likewise, majority of the respondents, both among the hypertensive respondents (83% and among the non-hypertensive clients (81%), had no history of ectopic pregnancy. Moreover, significant number of the respondents, nineteen or 63% among the group of hypertensive respondents and forty two or 86% among the non-hypertensive pregnant respondents, had no history of abortion.

When compared with women without hypertension, the pregnant women with hypertension present no difference with regards to the number of deliveries (93% versus 95%), history of abortion (83% versus 81%) or history of premature delivery (63% versus 68%).

Table11. Difference between respondents with and without Hypertensive disorder of pregnancy according to personal and family history of Hypertension (Table 11)

Table 11 shows the difference between respondents with and without hypertensive disorder of pregnancy according to personal and family history of hypertension. The table

Table11. Difference between respondents with and without hypertensive disorder of pregnancy according to personal and family history of hypertension.

History of personal and family hypertension		With		Without		Total	
		Hypertension		Hypertension		(N=92)	
		(N=30)		(N=62)			
		F	%	F	%	F	%
History of maternal hypertension	Yes	15	50	0	0	15	16
	No	15	50	62	100	77	84
History of paternal hypertension	Yes	9	30	0	0	9	10
	No	21	70	62	100	83	90
History of hypertension in pregnancy	Yes	18	60	0	0	18	20
	No	12	40	62	100	74	80
History of chronic hypertension	Yes	11	37	0	0	11	12
	No	19	63	62	100	81	88

likewise shows that the number of women with hypertensive disease in pregnancy was significantly greater than those without hypertension when taking into account the history of maternal hypertension, 50% among the hypertensive respondents against 0% among the non-hypertensive respondents. Similarly when taking into account the history of paternal hypertension, there were nine (30%) respondents whose fathers were hypertensive compared to the non-hypertensive respondents (0%) (Smeltzer S, 2021).

Moreover, the number of cases with hypertensive disease in pregnancy was also significantly greater when taking into account the personal history of hypertension in pregnancy, eighteen or 60% among the hypertensive women against none of 0% among non-hypertensive pregnant women (Silva LM, et al., 2008). From the result, it can also be observed that when taking into account the personal history of chronic hypertension the number of cases with hypertensive disease in pregnancy was also significantly greater (37%) than the non-hypertensive respondents (0%).

From the data presented, histories of maternal and paternal hypertension as well as histories of hypertension in pregnancy, and chronic hypertension are possible contributing factors to hypertension in pregnancy (Tebeu PM, et al., 2011).

CONCLUSIONS

From the given findings, the following are the conclusions formulated:

1. Majority of the respondents without hypertension belonged to age group 21-30, had no formal education, with 1 to 5 deliveries, no history of ectopic pregnancy and abortion, no history of maternal and paternal hypertension, hypertension in pregnancy, and chronic hypertension
2. Most of the respondents with hypertension belonged to age group 31-40 and had attended either the secondary or university level of education, had 1 to 5 deliveries with no history of ectopic pregnancy and abortion, no history

of paternal hypertension. Most of them have history of hypertension during pregnancy but no history of chronic hypertension.

3. There were differences between the hypertensive and non-hypertensive pregnant women in terms of their socio-demographic characteristics and personal and family history of hypertension but there were no differences between the two groups of respondents in terms of their reproductive characteristics.

Factors contributing to hypertensive disorder of pregnancy which showed differences between the hypertensive and non-hypertensive pregnant women were advanced age (31-40), higher level of education, history of maternal, and paternal hypertension, and personal history of hypertension in pregnancy and chronic hypertension.

RECOMMENDATION

Based on the conclusions, the researcher would like to recommend the following:

1. The government, knowledge of the risk factors for hypertensive disorder in pregnancy may give tracks to the development of strategies for prevention of pregnancy induced hypertension
2. Prevention must include the campaigns and education from the medical and paramedical staff in all levels of health care institutions.
3. The confirmation of these findings should help toward the development of the national strategies of hypertension in pregnancy prevention.
4. For the future researchers, some more extended prospective studies are necessary to confirm the findings of this study. It is also recommended that results be tested statistically using different forms of treatment to determine if there are significant differences between variables used in this study.

REFERENCES

1. Adeyinka DA, Oladimeje O, Idekanbi TI, Adeyinka FE, Falope Y, et al (2010). Outcome of adolescent pregnancies in southwestern Nigeria. *J Matern Fetal Neonatal Med.* 23: 785-789.
2. Assis TR, Viana FP, Rassi S, (2008). Study on the major maternal risk factor in hypertensive syndromes. *Arq Bras Cardiol.* 91: 11-17.
3. Chesley LC (1984). History and epidemiology of preeclampsia-eclampsia. *Clin Obstet Gynecol.* 27: 801-880
4. Niesdiadomy RM (2008). *Foundation of Nursing Research.* New Jersey Pearson Education.
5. Polit D, Beck CT (2003) *Nursing Research: Principles and Methods,* Philadelphia: Lippincot.
6. Smeltzer S, Bare B (2001). *Brunner and Suddarth's Textbook of Medical Surgical Nursing.*
7. Silva LM, Coolman M, Steegers EA, Jaddoe VW, Moll HA, et al (2008). Low socioeconomic status is a risk factor for preeclampsia: the Generation R Study. *J Hypertens.* 26: 1200-1208.
8. Tebeu PM, Fomate P, Mbu R, Fosso G, Biyaga PT, et al (2011). Risk Factors for Hypertensive Disorders in Pregnancy: a report from the Maroua Regional Hospital Cameroon. *J reprod Infertile.* 12: 227-234.