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Level of Knowledge about Hypertension and its Associated Factor among Hypertensive Patients Attending Al-Eskan Primary Health Care Center in Makkah Al-Mokarramah City, 2019 Cross-sectional study

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Abstract:

Aim

To assess the level of knowledge about hypertension among hypertensive patients

Method

Cross-sectional study, among hypertensive patients attending Al-Eskan PHCC during the study period using a validated self-administered questionnaire.

Result

Total of 150 participants with mean age 54.4 ± 8.6 years. Almost the half of participants had a university degree 48.0%m and employee57.3%. The highest participants correct responses regarding HTN was related to receiving medication daily, while the least was related to taking medication in comfort manner and no need for treatment if the lifestyle changing control the HTN. Almost two thirds had a poor knowledge ≤15 scores regarding HTN. While 36% had high knowledge >15, where the mean score was 15.4 ± 4.3, range (0 -22). The highest knowledge scores were among males, Middle Ages, higher educators, employees (p=0.02, p=0.02, p<0.0001, p=0.02).

Conclusion

Patients with poor knowledge about HTN were those younger than 25 years and older than 60 years, have a low educational level, and unemployed.

Primary health care providers are requested to provide the necessary health education on HTN for all patients and must be repeated every visit.

I. INTRODUCTION

1.1BACKGROUND

Hypertension is a chronic condition in which the blood vessels have persistently raised pressure. Blood pressure is created by the force of blood pushing against the walls of blood vessels (arteries) as it is pumped by the heart. The higher the pressure, the harder the heart has to pump. [(1)]

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Worldwide, hypertension is estimated to cause about 12.8% of the total deaths. It is the major risk factor for cardiovascular disease. Heart failure, stroke, renal impairment, peripheral vascular disease, and visual impairment are the most important complications of high blood pressure. [2] The results of the survey directed by the Ministry of Health emphasized that the incidence rate of hypertension in Saudi Arabia is 15,1%, the males' rate reached up to 17,7%, while female's rate12.5%. [3] Lack of knowledge of suitable target BP has been appeared to be associated with poor blood pressure control. Therefore, recognition of gaps in individuals' information about hypertension can help in the improvement of that knowledge and excites patients to change lifestyle for example loss of weight and regular exercise [4,5]. Usually, non-adherence to taking medication arises from a decrease level of knowledge about hypertension and its complications [6]. Previous studies showed that the association between sociodemographic variables and the level of knowledge about hypertension has been emphasized. Understanding the level of Saudi patients' knowledge about hypertension may contribute effectively to healthcare workers' efforts to treat, prevent, and control the illness. It is fundamental for a healthcare worker to improve patient's knowledge about hypertension. [7]

1.2 RATIONALE

As a physician who is being specialized in the field of family medicine, the researcher comes across many hypertension cases at the primary health care level. Each case has its unique personal characteristics that differentiate it from other cases. These differences play a major role in the decisions regarding types of clinical approaches to the care and health education to the patients. The researcher would like to know more about the knowledge of her patients about their disease and its associated factors so that she can be a more effective treating physician.

Moreover, by conducting this research, the researcher will enrich the medical field by providing insight into the hypertensive patients attending the PHCC in Makkah city. Also, it will add more understanding of the patients' comprehension of their disease, which will lead to providing them with better health care.

1.3 AIM OF THE STUDY

To assess the level of knowledge about hypertension among hypertensive patients

1.4 OBJECTIVES

1. To evaluate the level of knowledge about hypertension among hypertensive patients attending Al-Eskan primary health care center in Makkah Al-Mokarramah city.
2. To determine associated factors with the level of knowledge about hypertension among hypertensive patients attending Al-Eskan primary health care center in Makkah Al-Mokarramah city.

II. Literature review

Local studies

In 2017, Alharbi and her colleagues at Ibn Sina College of Medicine, KSA, conducted a cross-sectional study to estimate the level of knowledge of hypertensive patients in Makkah City. The results showed that most of the respondents had good knowledge about hypertension risks, and treatments. There was no significant association between the levels of knowledge and age and gender, while those with higher education levels had a higher level of knowledge. [8]

In 2017, Bakhsh and her colleagues conducted a cross-sectional study among hypertensive patients who attend out-Patient Department of King Abdulaziz University Hospital in Jeddah, Saudi Arabia, to assess knowledge, awareness, and self-care practices of hypertension. The results revealed high-level awareness about hypertension (72.6%), while self-care practices level was low in 74.4% of participants. Awareness, Knowledge and self-management practices were found to be significantly poor among older and lower educated patients. [9]

International Study:

In 2015, Kilic and colleagues at Yozgat Turkey conducted a cross-sectional study among 485 hypertension patients to investigate the effect of their knowledge about hypertension and socio-demographic characteristics on controlling high blood pressure levels. The results revealed 31.3%, 62.1% and 6.6% for poor, moderate and high level of knowledge

about hypertension respectively. There were no significant effects of socio-demographic characteristics on the knowledge level. [10]

In 2017, Akoko and colleagues, at Cameron, conducted a cross-sectional study among 221 hypertensive patients in the Bamenda Health District, to assess knowledge of hypertension and to define factors influencing the adherence of hypertensive patients with their antihypertensive drugs. The results revealed that 14.0%, 53.4%, and 32.6% of participants had good, moderate, and low knowledge of hypertension, respectively. The antihypertensive medication adherence rate was 43.9%. The independent predictors of noncompliance were forgetfulness (OR = 0.011, 95% CI = 0.002–0.063), lack of motivation (OR = 0.068, 95% CI = 0.017–0.274), and lack of symptoms of the disease (OR = 0.019, 95% CI = 0.02–0.23). There was a significant association between adherence and blood pressure control (p=0.001). They concluded that both levels of knowledge and adherence to treatment were low. [11]
In 2017, Lugo-Mata and colleagues conducted a cross-sectional study with a convenience sample of 188 patients in Venezuela to define factors associated with the level of knowledge about arterial hypertension in primary care patients. The results revealed that the level of knowledge was medium and was associated with age (p = 0.01), a previous diagnosis of hypertension (p = 0.01) and a family history of hypertension (p = 0.001). No association was found with genders, educational level or body mass index. [12]

III. METHODOLOGY

3.1 STUDY DESIGN

Cross-sectional study

3.2 STUDY POPULATION

The study population is all adult hypertensive patients attending Al-Eskan PHCC during the study conduction period.

Eligibility Criteria

a. Inclusion Criteria

- All adult hypertensive patients over the age of 18 years are attending Al-Eskan PHCC.

b. Exclusion criteria

- Patients who refused to participate in the study
- patients who need guardians

3.3 STUDY AREA

Makkah AL-Mokarramah is a city in Saudi Arabia, and it is the holiest city in the world for Muslims. Makkah has 82 PHC divided under 7 main sectors. This study was conducted at Al-Eskan PHCC which is under Al-kaakia sector. Al-Eskan PHCC had JCI accreditation several years. Al-Eskan Family medicine clinics run by certified specialists and consultants.

3.4 SAMPLE SIZE

Total population 210 hypertensive patients in one month**.** The sample size was calculated by Rao soft Website for sample size calculation. It was 150 patients, based on 50% prevalence ,95% confidence level, 5% error and 10% for defaulter and non-respondent.

3.5 SAMPLING TECHNIQUE

Systematic random technique: deciding the factorial by dividing the total population by the required sample size; (210 / 150 = 2). The index case out of 2 should be decided randomly by using a random number generator. The researcher needs around 8 patients daily in one month. She gave a survey to every other patient.

3.6 DATA COLLECTION TOOL

Validated self-administered questionnaire written in Arabic was used for data collection. The questionnaire has been previously used in a similar study conducted in Jordan and has been proved to be valid and reliable[7]. The questionnaire

consists of two main parts, 1st part include demographical characteristics of patients, and 2nd part include hypertension knowledge level scale (HK-LS) which consist of 6 dimensions of knowledge (definition, diet, lifestyle, treatment, compliance, complications). The HK-LS originally established by Erkoc- et al. to assess the knowledge of hypertension in a Turkish population[13]. Evidence from the study of Erkoc et al. supports the instrument's validity and reliability. Hypertension knowledge level scale (HK-LS) had 22 items, distributes through the following sections: Definition, Diet, Life style, Treatment, compliance, Complications. Each correct item was scored 1 point. Incorrect or missing answers were scored 0 points .The total score for HK-LS ranges between 0 and 22. This range was classified into two categories according to the participants score mean ,poor and high.

To assess the participant Knowledge score according to their socioeconomic characteristic, independent t test, and one-way ANOVA were conducted.

3.7 DATA COLLECTION TECHNIQUE

The questionnaire was distributed to the hypertensive patients who attending the chronic disease clinic in Al-Eskan PHCC by the researcher herself in the female section, and under the researcher supervision, a well-trained nurse was distribute questionnaire in the male section while they are at the waiting area.

3.8 STUDY VARIABLES

Dependent variables:

- Knowledge about hypertensive (definition, diet, lifestyle, treatment, compliance, complications)

Independent variables:

- Age
- Gender
- Nationality
- Education
- Occupation

3.9 DATA ENTRY AND ANALYSIS

Data were entered and analyzed using IBM SPSS version 22.0. Descriptive statistics for all the major study variables generated, including the mean ,standard deviation, and frequency distribution.

independent t tests and one-way ANOVA were used to test differences in knowledge on the basis of sociodemographic categories.

All tests conducted at a level of significance a=0.05; results with p-values< **0.05**considered "statistically significant

3.10 PILOT STUDY

A pilot study was conducted on 10% of the sample size only, which are approximately 15 patients among who were not included in the actual study.

3.11 ETHICAL CONSIDERATION

- Research committee approval.
- Written consent for data collection from each participant

3.12 BUDGET

Self-funded

IV. Results

Response rate

All the 150 participants who were present at the time of study responded (i.e., 100% response rate).

Table (1): Socio-demographic characteristics of participants'

Characteristics	No. = ***150***	%
Gender		
• Male	75	50.0
• Female	75	50.0
Age groups		
• <25 years	1	.7
• 26-45 years	21	14.0
• 46-60 years	97	64.7
• > 60 years	31	20.7
Mean ± SD.	54.4 ± 8.6	
Range	25 – 75	
Nationality		
• Saudi	147	98.0
• Non-Saudi	3	2.0
Educational status		
• Primary	11	7.3
• Intermediate	26	17.3
• Secondary (High school)	33	22.0
• University	72	48.0
• Postgraduate	8	5.4
Employment status		
• Employed	86	57.3
• Unemployed	64	42.7

Data presented as numbers and percentages

Socio-demographic characteristics of participants'

The minimum and maximum age of participants were 25 and 75 years old respectively. The majority of the participants were Saudi, almost the half of participants had university degree 48.0%, and more than half were employee 57.3%. **(Table1)**

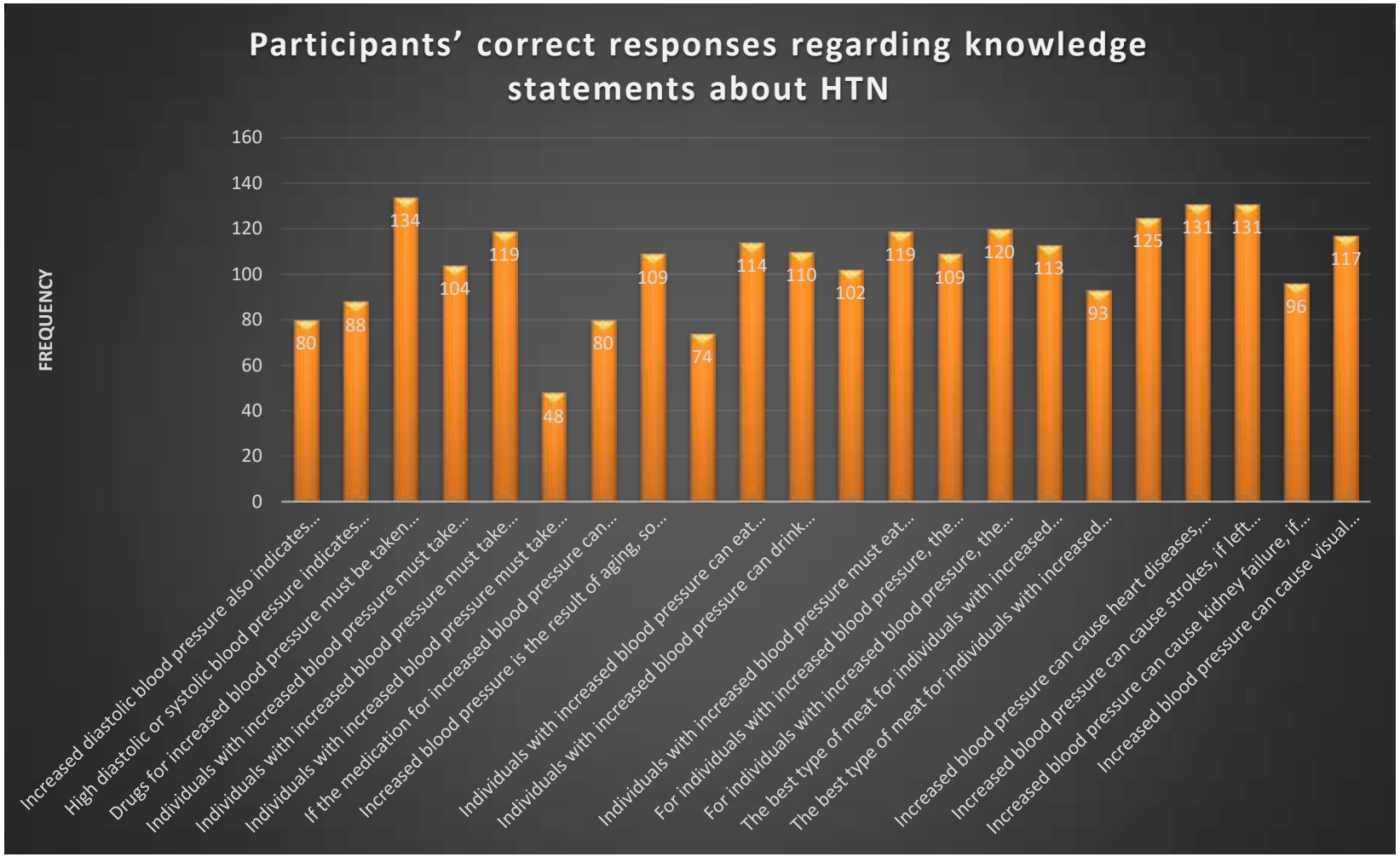
Table (2): Participants' correct responses regarding knowledge statements about HTN

HTN	No.	%
Definition		
Increased diastolic blood pressure also indicates increased blood pressure. ***(yes)***	80	53.3
High diastolic or systolic blood pressure indicates increased blood pressure. ***(yes)***	88	58.7
Medical Treatment		
Drugs for increased blood pressure must be taken every day. ***(yes)***	134	89.3
Individuals with increased blood pressure must take their medication only when they feel ill. ***(no)***	104	69.3
Individuals with increased blood pressure must take their medication throughout their life. ***(yes)***	119	79.3
Individuals with increased blood pressure must take their medication in a manner that makes them feel good. ***(no)***	48	32.0

Drug Compliance		
If the medication for increased blood pressure can control blood pressure, there is no need to change lifestyles. ***(no)***	80	53.3
Increased blood pressure is the result of aging, so treatment is unnecessary. ***(no)***	109	72.7
If individuals with increased blood pressure change their lifestyles, there is no need for treatment. ***(no)***	74	49.3
Individuals with increased blood pressure can eat salty foods as long as they take their drugs regularly. ***(no)***	114	76.0
Lifestyle		
Individuals with increased blood pressure can drink alcoholic beverages. ***(no)***	110	73.3
Individuals with increased blood pressure must not smoke. ***(yes)***	102	68.0
Individuals with increased blood pressure must eat fruits and vegetables frequently. ***(yes)***	119	79.3
For individuals with increased blood pressure, the best cooking method is frying. ***(no)***	109	72.7
For individuals with increased blood pressure, the best cooking method is boiling or grilling. ***(yes)***	120	80.0
Diet		
The best type of meat for individuals with increased blood pressure is white meat. ***(yes)***	113	75.3
The best type of meat for individuals with increased blood pressure is red meat. ***(no)***	93	62.0
Complications		
Increased blood pressure can cause premature death if left untreated. ***(yes)***	125	83.3
Increased blood pressure can cause heart diseases, such as heart attack if left untreated. ***(yes)***	131	87.3
Increased blood pressure can cause strokes if left untreated. ***(yes)***	131	87.3
Increased blood pressure can cause kidney failure if left untreated. ***(yes)***	96	64.0
Increased blood pressure can cause visual disturbances if left untreated. ***(yes)***	117	78.0
Total	**150**	**100.0%**

Data presented as numbers and percentages

Figure (1): Particiants' correct responses regarding knowledge statements about HTN



Participants' correct responses regarding knowledge statements about HTN

Table (2) and *Figure (1)*, show that the highest participants correct responses regarding HTN were related to receiving medication daily 134 (89.3%), causing heart diseases and stroke equally 131 (87.3%) and causing premature death 125 (83.3%). While the least were related to taking medication in comfort manner 48 (32.0%), and no need for treatment if the lifestyle changing control the HTN 74 (49.3%).**(Table 2 & Figure 6)**

***Table (3) Participants' knowledge grades about* HTN**

Variables	No. ***= 150***	%
Level of knowledge		
• Poor ≤15 or (≤68%)	96	64.0
• High > 15 (>68%)	54	36.0
Score Mean ± SD.	15.4 ± 4.3	
Range	0 - 22	
Score Percentage Mean ± SD.	70.2 ± 19.6	
Range	0-100	

Participants' knowledge grades about HTN

Table (3), show that 96 (64%) of participants had a poor knowledge <68% or (≤15) as the mean score regarding HTN. While 54 (36%) had high knowledge >68% or (>15) as a mean score, where the mean score was 15.4 ± 4.3, rang (0-22), and the mean percentage70.2 ± 19.6 (0-100).

Table (4) Participants' knowledge grades according to their socio-demographic characteristics

Characteristics	Mean	±	SD	test	P value
Gender				T=2.4	0.02*
• Male	16.26	±	3.72		
• Female	14.61	±	4.72		
Age groups				F=3.4	0.02*
• 26-45 years	12.95	±	6.24		
• 46-60 years	16.08	±	3.58		
• > 60 years	15.22	±	4.41		
Educational status				F=13.	0.0001
• Primary	10.63	±	5.92	3	**
• Intermediate	13.50	±	3.98		
• Secondary	13.84	±	3.48		
• University	17.26	±	3.41		
• Postgraduate	18.50		3.16		
Employment status				T=2.5	0.02*
• Employed	16.15	±	4.22		
• Unemployed	14.46	±	4.32		

Data presented as mean and SD.
The total number of participants *was equal* 150*.*
Comparisons were made using one-way ANOVA and independent t test
** Statistically significance at the <0.05 level.*
*** Extremely statistically significance at the <0.0001 level.*

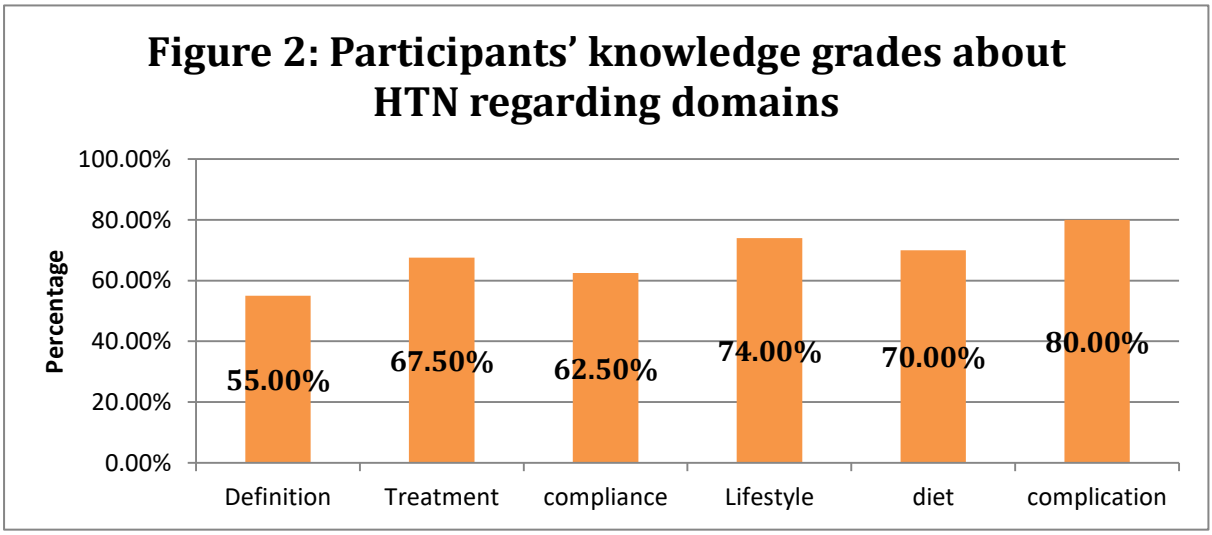
Participants' knowledge grades according to their socio-demographic characteristics

Table (4) shows that participants' knowledge grades regarding HTN were associated significantly with their age (p=0.02). With the highest knowledge score among 46-60 years participants 16.08± 3.58 and the lowest knowledge score among 25-45 years participants 12.95 ± 6.24. Participants' knowledge grades regarding HTN associated significantly with their educational status (p<0.0001), with the highest knowledge score among postgraduate 18.50± 3.16, and the lowest knowledge score among primary 10.63±5.92. Participants' good knowledge grades were significantly higher among employed than unemployed participants 16.15± 4.22 vs. 14.46± 4.32, (p=0.02). Participants' good knowledge grades were significantly higher among male than female participants 16.26± 3.72 vs. 14.61± 4.72, (p=0.02). **(Table 4)**

Table (5) Participants' knowledge grades about HTN regarding domains:

Domain	Mean	±	SD	Rang (min-Max)	Percentage
Definition	1.1	±	0.9	(0-2)	55.0%
Treatment	2.7	±	0.9	(0-4)	67.5%
compliance	2.5	±	1.0	(0-4)	62.5%
Lifestyle	3.7	±	1.1	(0-5)	74.0%
Diet	1.4	±	0.7	(0-2)	70.0%
complication	4.0	±	1.2	(0-5)	80.0%

Data presented as mean and SD.



Participants' knowledge grades about HTN regarding domains:

Table (5) and Figure (2), show that the lowest percentage was for definition domain (55.0%) with mean score 1.1±0.9. While the highest mean score was for complication domain (80.0%) with mean score 4.0±1.2. **(Table 5)**

Table (6) Participants' knowledge of definition according to their socio-demographic characteristics

Characteristics	Mean	±	SD	test	P value
Gender				T=0,8	0,37
• Male	1.2	±	0.9		
• Female	1.0	±	0.8		
Age groups				F=0,71	0,55
• 26-45 years	1.0	±	0.9		
• 46-60 years	1.2	±	0.9		
• > 60 years	1.0	±	0.9		
Educational status				F=6,4	0.0001**
• Primary	0.6	±	0.5		
• Intermediate	0.6	±	0.5		
• Secondary	1.1	±	0.9		
• University	1.4	±	0.9		
• Postgraduate	1.4	±	0.9		
Employment status				T=4,7	0.01*
• Employed	1.3	±	0.9		
• Unemployed	0.9	±	0.9		

Data presented as mean and SD.

The total number of participants *was equal* 150*.*

Comparisons were made using one way ANOVA and independent t test

** Statistically significance at the <0.05 level.*

*** Extremely statistically significance at the <0.0001 level.*

Participants' knowledge of definition according to their socio-demographic characteristics

Table (6) shows that participants' knowledge of HYN definition were associated significantly with their employment status (p=0.01). With the highest knowledge score among employed. Participants' knowledge of HYN definition were associated significantly with their educational status (p<0.0001), with the highest knowledge score among postgraduate and university degree 1.4±0.9, and the lowest knowledge score among primary 0.6±0.5. There was no significant association regarding gender and age (**Table 6)**

Table (7) Participants' knowledge of treatment according to their socio-demographic characteristics

Characteristics	Mean	±	SD	Test	P value
Gender				T=3.1	0.08
• Male	2.8	±	0.9		
• Female	2.5	±	0.9		
Age groups				F=2.8	0.04*
• 26-45 years	2.4	±	1.0		
• 46-60 years	2.9	±	0.9		
• > 60 years	2.4	±	1.0		
Educational status				F=9.3	0.0001**
• Primary	1.6	±	0.9		
• Intermediate	2.2	±	0.8		
• Secondary	2.5	±	0.8		
• University	3.0	±	0.9		
• Postgraduate	3.2		0.9		

Employment status				T=4.8	0.009*
• Employed	2.9	±	0.9		
• Unemployed	2.4	±	0.9		

Data presented as mean and SD.
The total number of participants *was equal* 150.
Comparisons were made using one way ANOVA and independent t test
** Statistically significance at the <0.05 level.*
*** Extremely statistically significance at the <0.0001 level.*

Participants' knowledge of treatment according to their socio-demographic characteristics

Table (7) shows that participants' knowledge of HYN treatment were associated significantly with their employment status (p=0.009). With the highest knowledge score among employed. Participants' knowledge of HYN treatment were associated significantly with their educational status (p<0.0001), with the highest knowledge score among postgraduate 3.2±0.9, and the lowest knowledge score among primary 1.6±0.9. Participants' knowledge of HYN treatment were associated significantly with their age (p=0.04), with the highest knowledge score among group age (46-60) 2.9±0.9. There was no significant association regarding gender. **(Table 7)**

Table (8) Participants' knowledge of compliance according to their socio-demographic characteristics

Characteristics	Mean	±	SD	Test	P value
Gender				T=3.7	0.06
• Male	2.7	±	1.0		
• Female	2.3	±	1.0		
Age groups				F=2.6	0.05
• 26-45 years	2.0	±	1.0		
• 46-60 years	2.7	±	1.2		
• > 60 years	2.3	±	1.0		
Educational status				F=7.5	0.0001**
• Primary	1.8	±	0.9		
• Intermediate	1.9	±	1.0		
• secondary	2.0	±	1.0		
• University	3.0	±	1.0		
• Postgraduate	3.2		1.0		
Employment status				T=2.1	0.12
• Employed	2.6	±	1.2		
• Unemployed	2.3	±	1.2		

Data presented as mean and SD.
The total number of participants *was equal* 150.
Comparisons were made using one-way ANOVA and independent t test
** Statistically significance at the <0.05 level.*
*** Extremely statistically significance at the <0.0001 level.*

Participants' knowledge of compliance according to their socio-demographic characteristics

Table (8) shows that participants' knowledge of compliance were associated significantly with their educational status (p<0.0001), with the highest knowledge score among postgraduate 3.2±1.0, and the lowest knowledge score among primary 1.8±0.9. There was no significant association regarding gender, age, and employment status. **(Table 8)**

Table (9) Participants' knowledge of lifestyle according to their socio-demographic characteristics

Characteristics	Mean	±	SD	Test	P value
Gender				T=3.6	0.06
• Male	3.9	±	1.1		
• Female	3.5	±	1.1		
Age groups				F=4.5	0.004*
• 26-45 years	2.9	±	1.2		
• 46-60 years	3.9	±	1.2		
• > 60 years	3.9	±	1.3		
Educational status				F=2.6	0.04*
• Primary	3.0	±	1.4		
• Intermediate	3.4	±	1.3		
• secondary	3.6	±	1.0		
• University	4.0	±	1.2		
• Postgraduate	4.3	±	1.2		
Employment status				T=0.02	0.97
• Employed	3.7	±	1.3		
• Unemployed	3.7	±	1.3		

Data presented as mean and SD.
The total number of participants *was equal* 150*.*
Comparisons were made using one-way ANOVA and independent t test
** Statistically significance at the <0.05 level.*
*** Extremely statistically significance at the <0.0001 level.*

Participants' knowledge of lifestyle according to their socio-demographic characteristics

Table (9) shows that participants' knowledge of lifestyle were associated significantly with their educational status (p=0.04), with the highest knowledge score among postgraduate 4.3±1.2, and the lowest knowledge score among primary 3.0±1.4. Participants' knowledge of lifestyle were associated significantly with their age (p=0.004), with the highest knowledge score among group age (46-60) and (>60 years) 3.9±1.3. There was no significant association regarding gender and employment status. **(Table 9)**

Table (10) Participants' knowledge of diet according to their socio-demographic characteristics

Characteristics	Mean	±	SD	test	P value
Gender				T=0.4	0.84
• Male	1.4	±	0.7		
• Female	1.4	±	0.7		
Age groups				F=1.2	0.33
• 26-45 years	1.3	±	0.8		
• 46-60 years	1.4	±	0.8		
• > 60 years	1.5	±	0.8		
Educational status				F=4.4	0.002*
• Primary	0.8	±	0.5		
• Intermediate	1.2	±	0.8		
• secondary	1.4	±	0.8		
• University	1.5	±	0.8		
• Postgraduate	1.9	±	0.8		

Employment status				T=0.43	0.65
• Employed	1.4	±	0.7		
• Unemployed	1.3	±	0.7		

Data presented as mean and SD.
The total number of participants *was equal* 150*.*
Comparisons were made using one way ANOVA and independent t test
** Statistically significance at the <0.05 level.*
*** Extremely statistically significance at the <0.0001 level.*

Participants' knowledge of diet according to their socio-demographic characteristics

Table (10) shows that participants' knowledge of diet were associated significantly with their educational status (p=0.002), with the highest knowledge score among postgraduate 1.9±0.8, and the lowest knowledge score among primary 0.8±0.5. There was no significant association regarding gender, age, and employment status. **(Table 10)**

Table (11) Participants' knowledge of complication according to their socio-demographic characteristics

Characteristics	Mean	±	SD	test	P value
Gender				T=4.4	0.04*
• Male	4.2	±	1.2		
• Female	3.7	±	1.3		
Age groups				F=2.1	0.09
• 26-45 years	3.3	±	1.5		
• 46-60 years	4.1	±	1.3		
• > 60 years	4.2	±	1.2		
Educational status				F=4.8	0.001*
• Primary	2.9	±	1.5		
• Intermediate	3.5	±	1.5		
• Secondary	3.7	±	1.3		
• University	4.4	±	1.2		
• Postgraduate	4.6	±	1.1		
Employment status				T=0.86	0.43
• Employed	4.1	±	1.3		
• Unemployed	3.9	±	1.3		

Data presented as mean and SD.
The total number of participants *was equal* 150*.*
Comparisons were made using one-way ANOVA and independent t test
** Statistically significance at the <0.05 level.*
*** Extremely statistically significance at the <0.0001 level.*

Participants' knowledge of complication according to their socio-demographic characteristics

Table (11) shows that participants' knowledge of complications was associated significantly with their educational status (p=0.001), with the highest knowledge score among postgraduate 4.6±1.1, and the lowest knowledge score among primary 2.9±1.5. Participants' knowledge of complication was associated significantly with gender (p=0.04), with the highest knowledge score male 4.2±1.2. There was no significant association regarding age and employment status. **(Table 11)**

V. Discussion

Globally, hypertension is one of the most critical health problems, where both developed and developing countries suffered from this silent killer which kills 8 million every year around the world. Almost 1 billion people have high blood pressure. WHO reported that in 2025 almost 1.56 billion adults would be living with hypertension. In addition, it is one of the most important causes of early death and the problem is raising. However, awareness, treatment, and control rates are very bad [8,14].

The present study aimed to assess the level of knowledge about hypertension among hypertensive patients and to determine the factors associated with insufficient knowledge among them.

Results of this study showed that almost two-thirds 64% of the patients attending Al-Eskan PHCC had a poor knowledge regarding HTN. The low levels of patients' knowledge regarding HTN have been reported by several studies, of which it is similar to, Kilic et al., in Turkey, reported that poor, moderate, and good level of knowledge about HTN were 31.3%, 62.1%, and 6.6% respectively. [10] Polańska et al., in Poland, reported that (63.1%) of patients had a low level of knowledge. [15]

The study of Alharbi, in Makkah Saudi Arabia, reported that (40%) of patients had poor knowledge. [8] Eshah and Aldakan , in Jordan, reported that The mean (SD) total knowledge about hypertension was 73.65 (16.00), which reflect the good level of knowledge. [7] Also Motlagh et al., in Iran, reported that only (25.28%) of patients had a good level of knowledge. [16]

These results revealed that the low levels of patient's knowledge regarding HTN is a common problem and have been reported by several studies. Therefore, primary health care providers should be guided to concentrate more on providing health education on HTN to all patients during their routine appointment.

The study of Alharbi, in Saudi Arabia, found that the importance of HTN treatment was the most frequently identified knowledge (95%), and 88.9% know that HTN could cause death. [8]

Polańska et al., in Poland, reported that the highest level of knoweldge was for complications domain. While the lowest level of knoweldge was for diet domain. They expalined that by the fact that being hypertensive rises the patient's level of knowledge concerning the illness and stimulation to learn. [15]

Findings of the present study showed that participants' knowledge grades regarding HTN, in general, were significantly better among male, middle age, higher educated, and being employees.

The study of Akoko et al., in Cameron found that high-education level, being male, and younger than 63 know more about HTN than others. [11]

Kilic et al., in Turkey reported a significant association between patients' higher educational level and younger age and higher knowledge level about HTN. [10]

Findings of the present study showed that male showed a higher level of knowledge grades regarding HTN complication.

In Contrast, Eshah and Al-daken in Jordan reported that higher knowledge level of definition and complication were associated significantly with being female (t = j2.22, P = .027) and (t = j2.64, P= .009) respectively. [7]

Findings of the present study showed that a higher educational level showed a higher level of knowledge grades regarding HTN definition, treatment, complains, lifestyle, diet, and complication.

Findings of the present study showed that employees patients showed a higher level of knowledge grades regarding HTN definition, and treatment.

According to educational level, and occupation, this could be explained by the facts that educational and employed person have more chances to receive information from media, books, and journals and also, they have access to the internet to see more information about disease and health promotion and prevention and share experience with others.

Overall, the findings of the current study indicate the importance of receiving the correct education messages from their proper sources.

VI. Conclusion

Based on the findings of the researcher study, the following can be concluded:

- About two-third of patients have poor knowledge regarding HTN, and one-third of them had good knowledge.
- The highest participants' correct responses regarding HTN were related to receiving the medications daily, untreated HTN causes CVD, stroke and premature death. While the least identified HTN were following doctor instruction in taking medication not by mode, changing life style not enough medication must be taken and definition of HTN.
- The poor rate of knowledge was for definition domain, and the highest rate was for complications domain.
- Patients with poor knowledge about HTN were those younger than 25 years and older than 60 years, have a low educational level, and unemployed.

VII. Recommendation

Based on the findings of the researcher study, the following can be recommended:

- Primary health care providers are requested to provide the necessary health education on HTN for all patients and must be repeated at every visit.
- Health education messages to patients about HTN should cover the main points of the knowledge gap, especially adherence to treatment and definitions.
- Health education messages about HTN to patients should be iplement for those who are young and old, low educational level, and unemployed.
- Encourage the patients to talk and ask about HTN with their doctors.
- Write a brochure about HTN to be distributed to patients.
- Further nation-wide studies on assessment of patients' knowledge regarding HTN need to be conducted in larger sample size and regions other than Makkah Al-Mukarramah, to identify the level and distribution of different knowledge grades as well as the areas and topics of knowledge shortages.
- The administrators in MOH should try to organize and conduct health education programs about HTN in simple and familiar language among community through mass media to raise public awareness and knowledge regarding HTN.

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