

# Assessment of Knowledge about Hypertension among Hypertensive Patients in Babylon Province

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## Abstract

**Background:** Hypertension is one of the most common health problems in the world and it is considered as the most common risk factor for different heart diseases such as coronary heart disease, stroke, renal disease, and peripheral vascular disease. Knowledge plays an important role in controlling hypertension among patients with hypertension and in preventing the long-term complications of hypertension. **Objectives:** To assess the knowledge among patients with hypertension in Al-Hilla city. **Methods:** This study was a “descriptive cross-sectional study” involving about 303 patients with hypertension older than 18 years who came to health-care centers and hospitals; the patients were assessed by a designed questionnaire through the interview method. The data were collected from April to July 2021. **Results:** The mean age of patients with hypertensive was  $54.89 \pm 10.42$ ; females represented 51.2%, whereas males represented 48.8%. Good knowledge about hypertension was 36.0%, average knowledge about hypertension was 42.9%, and poor knowledge about hypertension was 21.1%. There is a relationship between the age and duration of hypertension with knowledge, and there is a significant association between the study variables (age, sex, marital status, educational level, residence, employment status, socioeconomic level, duration of hypertension, family history of hypertension, measurement of hypertension) in our study and knowledge. **Conclusion:** This study in Babylon Province shows that the highest proportion of patients with hypertension have average knowledge about hypertension (42.9%); there is a significant association between age, duration, and study variables (age, sex, marital status, educational level, residence, employment status, socioeconomic level, duration of hypertension, family history of hypertension, measurement of hypertension) with knowledge.

**Keywords:** Blood pressure, hypertension, knowledge

## INTRODUCTION

Hypertension, commonly known as high blood pressure, is defined as a blood pressure reading of 130 mm Hg and higher for the systolic reading and 80 mmHg and higher for the diastolic reading (American Heart Association, 2017).

According to recent studies, hypertension is the single most common risk factor for ill health, contributing to a higher worldwide disability load.<sup>[1]</sup>

Elevated blood pressure is linked to a higher risk of stroke and coronary heart disease, as well as to associated consequences such as heart failure, renal impairment, and retinal hemorrhage.<sup>[2]</sup>

The prevalence and burden of hypertension has increased in low- and middle-income nations, whereas the condition

has either stabilized or dropped in high-income countries. According to some reports, the decline in high-income countries is due to preventive and management initiatives.<sup>[3]</sup>

Many patients with hypertension may be unaware of it early on, because it is rarely accompanied by symptoms and is usually detected through screening or when seeking health care for an unrelated condition. Symptoms such as headache, vertigo, dizziness, and palpitation only appear when blood pressure is extremely high.<sup>[4]</sup>

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Because of its asymptomatic nature, hypertension is known as “the silent killer.”<sup>[5]</sup> The major risk factors for hypertension have been classified by the World Health Organization (WHO) into metabolic, behavioral, and social determinants as well as cardiovascular diseases-related risk factors. The behavioral risk factors of hypertension include unhealthy diet, tobacco, physical inactivity, and harmful use of alcohol, whereas the metabolic risk factors include obesity, diabetes, and elevated blood lipids.<sup>[6]</sup>

Hypertension is divided into primary hypertension and secondary hypertension. Primary hypertension is also called essential hypertension (90%), which results from unknown pathophysiologic etiology and is usually not curable; secondary hypertension (10%) results from specific causes such as chronic kidney disease, hyperparathyroidism, Cushing syndrome, primary aldosteronism, hyperthyroidism, and some medications (e.g., corticosteroids, estrogens, nonsteroidal anti-inflammatory drugs, amphetamines, cyclosporine, erythropoietin). Secondary hypertension can be potentially cured.<sup>[7]</sup>

The importance of hypertension awareness and knowledge, as well as blood pressure education programs have been reported as significant things to control with regard to hypertension in a knowledge, attitude, and patient (KAP) survey, which indicates KAP behaviors regarding health.<sup>[8]</sup>

High-risk populations for hypertension must be educated and their health state should be checked early in order for them to have good and high awareness and greater adherence to treatment when they are diagnosed.<sup>[9]</sup>

Several studies, however, demonstrate that having a strong understanding of hypertension is linked to improved drug adherence.<sup>[10]</sup>

The purpose of this cross-sectional study presented here was to examine the range of knowledge about hypertension among adult patients with hypertension.

### Aim of study

To assess the knowledge about hypertension among patients with hypertension.

## MATERIALS AND METHODS

Data were collected from Merjan Teaching and Babylon Maternity and Children Hospitals and from Merjan and Babil Al-Tadrey Health Care Centers in Babylon province. This study was a descriptive cross-sectional one. The data were collected from patients with hypertension who came to the emergency unit, those who were admitted in the wards, from the patients' relatives who were hypertensive, and from the patients who attended health-care centers; the data were collected by a designed questionnaire through an interview method. Data were collected from April to July 2021. Inclusion criteria include patients

with hypertension older than 18 years; exclusion criteria include patients who refuse to participate in answering the questionnaire and who are younger than 18 years.

A pilot study was performed for two days. Overall, 20 patients were taken and excluded from the study to assess their understanding of the questionnaire and to assess the time needed for data collection. The total sample size in this study was 303 patients with hypertension, which was estimated according to the following equation:

$$N = z^2 p (1-p) / d^2$$

$$N = (1.96)^2 * 0.265 (1-0.265) / (0.05)^2$$

$n = 300$ , where  $N$  = sample size,  $Z = 1.96$ ,  $P$  = prevalence, and  $d$  = relative precision = 0.05.

The first part of the questionnaire is about sociodemographic information, which includes: age, sex, marital status, educational level, employment status, residence, socioeconomic level, family history of hypertension, any associated diseases, the duration of hypertension, and the blood pressure reading.

The second part of the questionnaire is about the knowledge of hypertension<sup>[4]</sup> among patients with hypertension, which includes asking the patients about the following with answers (Yes, No, I don't know), including 16 questions that assess the knowledge with 1 point if the answer is “Yes,” 0 point if the answer is “No” or “I don't know” with the score which categorized as poor knowledge if (0–6), average if (7–11) and good if (12–16). This study was approved by the ethical committee of the College of Medicine, University of Babylon. Verbal consent was obtained from each patient prior to data collection, and the aim of the study was explained to each patient.

Statistical analysis was carried out using SPSS version 25. Categorical variables were presented as frequencies and percentages. Continuous variables were presented as (Means  $\pm$  SD). Student t-test was used to compare means between two groups. ANOVA test was used to compare means between three groups or more. Pearson's chi square ( $X^2$ ) and Fisher-exact tests were used to find the association between categorical variables. A value of  $P \leq 0.05$  was considered significant.

### Ethical approval

The study was conducted in accordance with the ethical principles that have their origin in the Declaration of Helsinki. It was carried out with patients verbal and analytical approval before sample was taken. The study

**Table 1: Mean, SD, and range of age and blood pressure**

Study variables	(Means $\pm$ SD)	Range
Age (years)	(54.89 $\pm$ 10.42)	(19–80)
Systolic blood pressure	(140.54 $\pm$ 13.83)	(120–200)
Diastolic blood pressure	(87.23 $\pm$ 9.45)	(70–110)

protocol and the subject information and consent form were reviewed and approved by a local ethics committee according to the document number 414 (including the number and the date in 11/2/2021) to get this approval.

## RESULTS

The patients with hypertension were distributed according to study variables, including age and blood pressure [Table 1].

Figure 1 shows the distribution of patients with hypertension according to knowledge. The largest proportion (42.9%) of patients with hypertension presented with average knowledge, 36.0% have good knowledge, and 21.1% have poor knowledge. \*The scoring system about knowledge includes 16 points, with (12–16) considered as good knowledge, (7–11) considered as average knowledge, and (0–6) considered as poor knowledge.

Table 2 shows the mean difference of age and duration according to knowledge. There were significant differences between the means of study variables by knowledge regarding patients with hypertension.

## DISCUSSION

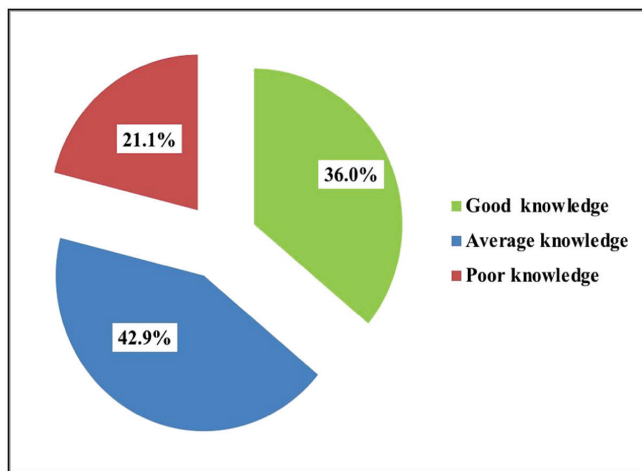
This cross-sectional study which was done on hypertensive patients in Al-Hilla city when mean age was (54.89 ±

10.42) years (range 19–80) and of Systolic BP mean was (140.54 ± 13.83) with range(120–200) while Diastolic BP mean was (87.23± 9.45) with range (70–110), (48.8%) male and (51.2%) female, (86.8%) were married,(32.7%) were secondary education,(33.7%) housewife,(80.9%) urban area,(39.3%) low socioeconomic level, (61.4%) of them had a family history of hypertension,(58.7%) had no history of any associated diseases with (17.2%) had history of diabetes mellitus (43.9%) with duration of hypertension 5–10 years [Table 3].

In other studies in Urban Ghana,<sup>[11]</sup> results indicated that mean age was (64.1±1.31) years (range 27–94), (29.14%) male and (70.82%) female,(30.28%) had no history of any associated diseases while (69.73%) had history of associated diseases. In other study in South Ethiopia<sup>[12]</sup> the results was nearly similar to our study with mean age was (53.9% ± 9.64%) years,(48.8%) male which is similar to our study while(51.2%) female which also similar to our study.

In this study, we found that the largest proportion of patients have average knowledge about hypertension (42.9%), 36.0% have good knowledge, and 21.1% have poor knowledge. So we need more recommendations to our patients about their hypertension knowledge. Another study in Kitwe, Zambia<sup>[4]</sup> also shows that the largest proportion of patients have average knowledge (60.0%), 24.4% have poor knowledge, and only 15.6% have good knowledge.

In our study show significant differences between sex and knowledge ( $P < 0.001$ ) with (62.4%) of patients have good knowledge were males. Other study in Bamenda health of Cameroon<sup>[13]</sup> shows similar result with significant differences between sex and knowledge ( $P = 0.036$ ) with (83.7%) of patients have good knowledge were males; also there is high association between marital status and knowledge ( $P = 0.001$ ) with (90.8%) of patients who have good knowledge were married. Another study in Turkey<sup>[14]</sup> also shows a significant association between marital status and knowledge ( $P = 0.003$ ), with 83.5% of patients having good knowledge and being married, There is also an association between educational status and knowledge ( $P < 0.001$ ), with 59.6% of patients having good knowledge and being highly educated. Another study in Poland<sup>[15]</sup> showed no significant association between educational



**Figure 1:** Distribution of patients with hypertension according to knowledge; mean knowledge was (10.50 ± 3.49)

**Table 2: Mean differences of study variables according to knowledge**

Study variables	Knowledge	N	Mean	SD	F	P Value
Age (years)	Good	109	52.24	10.47	7.424	0.001*
	Average	130	55.43	8.71		
	Poor	64	58.31	12.36		
Duration	Good	109	6.15	4.16	3.050	0.049*
	Average	130	6.16	4.55		
	Poor	64	7.70	4.61		

**Table 3: Distribution of patients with hypertension according to the study**

Study variables	N	%
Sex		
Male	148	48.8
Female	155	51.2
Total	303	100.00%
Marital status		
Married	263	86.8
Single	15	5
Divorced	2	0.7
Widowed	23	7.6
Total	303	100.00%
Educational status		
Illiterate	25	8.3
Primary	83	27.4
Secondary	99	32.7
High education	96	31.7
Total	303	100.00%
Employment status		
Government employee	75	24.8
Free work	85	28.1
Housewife	102	33.7
Retired	41	13.5
Total	303	100.00%
Residence		
Rural area	58	19.1
Urban area	245	80.9
Total	303	100.00%
Socioeconomic level		
High(>1000,000)	69	22.8
Moderate (500,000–1000,000)	115	38
Low (<500,000)	119	39.3
Total	303	100.00%
Family history of hypertension		
Yes	186	61.4
No	117	38.6
Total	303	100.00%
Associated diseases		
No	178	58.7
Diabetes mellitus	52	17.2
Ischemic heart diseases	29	9.6
Renal disease	12	4
Coronary vascular accident	9	3
Thyroid	5	1.7
Multiple diseases	18	5.9
Total	303	100
Duration of hypertension		
Less than five years	24	7.9
5–10 years	133	43.9
10–15 years	71	23.4
15–20 years	33	10.9
Equal or more than 20	42	13.9
Total	303	100

Variables (N = 303)

**Table 4: Association between knowledge and study variables**

Study variables	Knowledge			Total	P Value
	Good	Average	Poor		
<b>Sex</b>					
Male	68 (62.4%)	62 (47.4%)	18 (28.1%)	148 (48.8%)	<0.001*
Female	41 (37.6%)	68 (52.3%)	46 (71.9%)	155 (51.2%)	
Total	109 (100.0%)	130 (100.0%)	64 (100.0%)	303 (100.0%)	
<b>Marital status</b>					
Married	99 (90.8%)	117 (90.0%)	47 (73.4%)	263 (86.8%)	0.001
Single	7 (6.4%)	5 (3.8%)	3 (4.7%)	15 (5.0%)	
Divorced	0 (0.0%)	1 (0.8%)	1 (1.6%)	2 (0.7%)	
Widowed	3 (2.8%)	7 (5.4%)	13 (20.3%)	23 (7.6%)	
Total	109 (100.0%)	130 (100.0%)	64 (100.0%)	303 (100.0%)	
<b>Educational status</b>					
Illiterate	1 (0.9%)	11 (8.5%)	13 (20.3%)	25 (8.3%)	<0.001*
Primary	9 (8.3%)	45 (34.6%)	29 (45.3%)	83 (27.4%)	
Secondary	34 (31.2%)	47 (36.2%)	18 (28.1%)	99 (32.7%)	
High education	65 (59.6%)	27 (20.8%)	4 (6.3%)	96 (31.7%)	
Total	109 (100.0%)	130 (100.0%)	64 (100.0%)	303 (100.0%)	
<b>Employment status</b>					
Government employee	54 (49.5%)	21 (16.2%)	0 (0.0%)	75 (24.8%)	<0.001*
Free work	25 (22.9%)	42 (32.3%)	18 (28.1%)	85 (28.1%)	
Housewife	12 (11.0%)	48 (36.9%)	42 (65.6%)	102 (33.7%)	
Retired	18 (16.5%)	19 (14.6%)	4 (6.3%)	41 (13.5%)	
Total	109 (100.0%)	130 (100.0%)	64 (100.0%)	303 (100.0%)	
<b>Residence</b>					
Rural area	9 (8.3%)	26 (20.0%)	23 (35.9%)	58 (19.1%)	<0.001*
Urban area	100 (91.7%)	104 (80.0%)	41 (64.1%)	145 (80.9%)	
Total	109 (100.0%)	130 (100.0%)	64 (100.0%)	303 (100.0%)	
<b>Socioeconomic level</b>					
High (>1000,000)	43 (39.4%)	24 (18.5%)	2 (3.1%)	69 (22.8%)	<0.001*
Moderate (500,000 1000,000)	48 (44.0%)	50 (38.5%)	17 (26.6%)	115 (38.0%)	
Low (<500,000)	18 (16.5%)	56 (43.1%)	45 (70.3%)	119 (39.3%)	
Total	109 (100.0%)	130 (100.0%)	64 (100.0%)	303 (100.0%)	
<b>Family history</b>					
Yes	79 (72.5%)	71 (54.6%)	36 (56.3%)	186 (61.4%)	0.012*
No	30 (27.2%)	59 (45.4%)	28 (43.8%)	117 (38.6%)	
Total	109 (100.0%)	130 (100.0%)	64 (100.0%)	303 (100.0%)	
<b>Duration</b>					
Less than five years	11 (10.1%)	11 (8.5%)	2 (3.1%)	24 (7.9%)	0.293
5–10 years	53 (48.6%)	52 (40.0%)	28 (43.8%)	133 (43.9%)	
10–15 years	24 (22.0%)	28 (21.5%)	19 (29.7%)	71 (23.4%)	
15–20 years	8 (7.3%)	16 (12.3%)	9 (14.1%)	33 (10.9%)	
Equal to or more than 20 years	13 (11.9%)	223 (17.7%)	6 (9.4%)	42 (13.9%)	

status and knowledge. Regarding the employment status in our study, an association is observed between knowledge and employment status ( $P < 0.001$ ), with 49.5% of patients having good knowledge and being government employees. Another study in the United States<sup>[16]</sup> showed no significant association between employment status and knowledge ( $P = 0.12$ ) and high education (90.1%). There is a significant association between knowledge and residence ( $P < 0.001$ ), with 91.7% of patients having good knowledge and living in urban areas.

There is also a significant association between knowledge and socioeconomic level ( $P < 0.001$ ), with 44.0% of patients having good knowledge and a moderate socioeconomic level. Another study in Turkey<sup>[14]</sup> showed no significant association between knowledge and socioeconomic level ( $P = 0.2$ ). Regarding family history, our study also showed a significant association between knowledge and family history ( $P = 0.012$ ); 72.5% of patients having good knowledge had a positive family history of hypertension. Another study in Baghdad, Iraq<sup>[17]</sup> also

showed a significant association between knowledge and family history ( $P < 0.001$ ); 67.4% of patients having good knowledge had a positive family history of hypertension [Table 4].

## CONCLUSIONS

In this study, it was found that the highest proportion of patients with hypertension (42.9%) have average knowledge about their hypertension (65.3%). There was a correlation between age and knowledge. The patients who belong to the younger age groups have good knowledge. Also, there was an association between the duration of hypertension and knowledge, whereby the patients who have a less duration of hypertension have good knowledge. There was also a significant association between the knowledge about hypertension and study variables (sex, educational and employment status, socioeconomic level, marital status, residence, and family history of hypertension).

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## Conflicts of interest

There are no conflicts of interest.

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