Compliance with Therapeutic Regimen among Hypertensive Patients

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Abstract: **Hypertension is a significant public and medical health issue worldwide. The primary goal of hypertensive patient management is to prevent adverse events, and decrease mortality through a patient's compliance with their therapeutic regimen. The aim of this study was to assess the compliance level with the therapeutic regimen among hypertensive patients. Setting: The study was conducted at the Outpatient Clinic of Main University Hospital, Alexandria, Egypt. Materials and Method: This is a descriptive study. (100) adults hypertensive patients attending the pre-mentioned health setting. Sociodemographic and clinical data interview schedule and Hill Bone Compliance to High Blood Pressure Therapy Scale, were utilized for data collection. Results: The mean age of the studied patients were (42.59 ± 9.73) years old. The majority of the studied patients were male and employed (59.0%, 68.0%) respectively. About two thirds of the studied patients (66.0%) were poor compliance with their therapeutic regimen . Statistically significant differences were detected between total compliance score and age, gender, employment status, educational level, marital status, income, family history, duration of hypertension, smoking, as well as associated diseases (p=0.001, 0.024, 0.007, <0.001, 0.013, 0.004, 0.002, 0.002 , 0.004 , 0.009) respectively. Conclusion: the vast majority of the studied hypertensive patients were poorly compliant with their therapeutic regimen compared to minority of them between average and good compliance. Recommendations: Applying a health teaching program for hypertensive patients to improve their knowledge and their perception about compliance with the therapeutic regimen.**

Keywords: **Compliance, Therapeutic regimen, Hypertension.**

I. INTRODUCTION

Hypertension (HTN) is a significant public and medical health issue worldwide due to its high prevalence and its relationship to expanded the risk of cardiovascular diseases and other adverse events [1, 2]. High blood pressure is characterized as abnormally high arterial blood pressure, according to American Heart Association, systolic blood pressure (SBP) level of ≥140 mmHg and/or diastolic blood pressure (DBP) level ≥ 90 mm Hg on three separate events [3,4].

In such manner, hypertension is a silent killer as very rarely any symptoms can be seen in its early stages until a serious medical crisis happens such as stroke or heart attack. In spite of the fact that most of hypertensive patients remain asymptomatic, a few patients with HTN report lightheadedness, shortness of breath, altered vision, headaches, vertigo or fainting episode [1,5-7].

Hypertension is categorized according to its cause as primary or essential hypertension and secondary hypertension. Primary hypertension represents around 90-95% of all cases of HTN with no clear underlying cause, but appears to be the result of the interplay of complex hereditary and environmental factors such as high dietary sodium, low dietary potassium, low physical activity, obesity and high stress levels. The complex interaction of genetics and environment may influence catecholamines, sodium, insulin and the renin- angiotensin system, causing an increase of the blood pressure. Secondary hypertension represents around 5-10% of the remaining cases; it is caused by a particular underlying mechanism usually including kidneys or endocrine system [8-10].

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Elevated blood pressure is one of the most reasons for cerebrovascular, cardiovascular, renal diseases, retinal hemorrhage and other end organ impairment all around the globe. It is also related to a tremendous public health burden in terms of mortality, morbidity, and health care costs. Globally, the prevalence of hypertension is higher in low income nations compared to middle and high nations [11-14]. In this regard, The World Health Organization (WHO) estimates that about 1.13 billion people worldwide have hypertension. The number of those patients in 2025 was predicted to increase by about 60%. In Egypt, the prevalence rate of HTN is 26.3% among the adult population and its occurrence increases with aging [15-17].

Hypertension is a typical chronic disease is agreeable to control by compliance with appropriate medication or significant lifestyle modifications [18]. However, insufficient knowledge about the severity of the illness and the significance of the treatment, co-morbid medical conditions, drugs adverse effects, the cost of treatment, forgetfulness and lack of motivation to life changes in terms of dietary sodium restriction, regular physical activity, weight reduction and follow up may comprise the boundaries to compliance behavior [19-21].

According to WHO compliance is defined as the extent to which a person's behavior taking medication, following a diet and/or executing lifestyle changes corresponds with agreed recommendations from a health care provider [22]. Poor compliance is a complex behavioral process and it is affected by many factors such as patient-physician relationship, individual character and the healthcare system [23]. Hypertensive patients are required for compliance with a complicated management protocol that includes sodium restrictions, appointment keeping and following a complex medication regimen. Non compliance to follow the appropriate therapeutic regimen as recommended may lead to poor therapeutic outcomes, wasted health care resources and affect negatively the health and survival rate for those patients [24,25].

Antihypertensive medication non compliance may be intentional or unintentional. Intentional non compliance usually occurred when patients chose to ignore medication recommendations by altering or delaying the dosage of drugs. However, unintentional non compliance is a passive process usually due to a patient forgetful or unconcerned about adhering to their antihypertensive drugs [26]. Regardless of being intentional or unintentional, medication noncompliance averts patients from gaining the full benefit of the prescribe medications as well as increased rates of hospitalizations. Moreover, various studies reported that poor compliance related to non pharmacological management among the hypertensive patients usually associated with serious complications, disability as well as low quality of life [27].

Nurses can play a significant role in enhancing patient compliance to the prescribed therapeutic regimen. As they responsible to help patients understand their disease, acquire skills, knowledge and change attitude necessary to maintain compliance [28]. Also, they play a critical role to help the hypertensive patient and caregiver understand that hypertension is a chronic illness that cannot be cured. The fact that it can be controlled with medications, sodium restrictions, physical activity, periodic follow-up, and other relevant lifestyle modifications need to be emphasized for better compliance [19,29,30]. Thus, this study was conducted to assess the compliance with the therapeutic regimen among hypertensive patients.

The aim of the study: This study aimed to assess the compliance level with the therapeutic regimen among hypertensive patients.

Research question: what is the level of compliance with the therapeutic regimen among hypertensive patients?

II. MATERIALS AND METHOD

Materials

- **Research design:** A descriptive design was utilized for this study.

- **Setting:** the study was conducted at the Outpatient Clinic of Main University Hospital, Alexandria, Egypt.

- **Subjects:** A convenience sample of 100 adults hypertensive patients attending the pre-mentioned health setting and meeting the following criteria, were included:

o Age: 20- 60 years old.

o Had a definite diagnosis of confirmed hypertension.

o Had completed at least one cycle (6 months) of antihypertensive medications.

o Able to communicate verbally.

- **Exclusion criteria:** Patients with hearing problems, mentally challenged, neurologically debilitated were excluded from the study.

- **Sample size calculation:** Epi info -7 programs were used to estimate the sample size using the following parameters:

1- Population size = 130 for 3 months .

2- Expected frequency = 50 %

3-Acceptable error = 5%

4-Confidence co efficient =95 %

5-Minimum sample size =95 patients

- **Tools:** based on an extensive review of related literature; two tools were used for the purpose of data collection [2, 20,21,28].

Tool I: **Sociodemographic and clinical data interview schedule** : it was developed by the researcher to obtain information's about sociodemographic and clinical data of the studied patients. It consists of two parts as follows:

Part I: This part includes questions related to the sociodemographic data of the studied patients as age, gender, employment status, level of education, marital status, income and area of residence .

Part II: It includes questions related to the clinical data of the studied patients as family history, duration of disease, smoking and associated diseases.

Tool II: Hill Bone Compliance to High Blood Pressure Therapy Scale: this scale was adopted from Kim et al (2000) [31]. It was used to assess the level of compliance with the anti-hypertensive regimen. The scale has 14 items focused on three behavioral domains of compliance: medication taking, reducing sodium intake, and appointment keeping.

- **The medication taking subscales** includes 8 items to assess medication taking behavior as (how often do you forget to take your HBP medicine?, how often do you decide not to take your HBP medicine?, how often do you run out of HBP pills?, how often do you skip your HBP medicine?, how often do you miss taking your HBP medicine when you feel better ?, how often do you miss taking your HBP medicine when you feel sick? , how often do you take someone else's HBP pills?, how often do you miss taking your HBP pills ,when you are careless?).

- **The sodium subscales** includes 3 items to assess dietary intake of salty foods (how often do you eat salty food?, how often do you shalk salt on your food before you eat it ?, how often do you eat fast).

- **The appointment keeping subscale** includes 3 items to assess appointment for physician visits and prescription refills as (how often do you make the next appointment before you leave the doctor, how often do you miss scheduled appointments? how often do you forget to get prescriptions filled?).

o Each item is a four point response format, all of the time (4), most of the time (3), some of the time (2) and none of the time (1). Answers of the studied patients were recorded, scored, and then summed together. The total score ranges from 14 "minimum" to 56" maximum". A score of 14-28 is interpreted as good compliance, 29-42 as average, and 43-56 as poor compliance.

Method

- An official written permission to carry out the study was obtained from the hospital directors at the selected setting, after explanation of the aim of the study.

- Tool I was developed by the researcher based on a recent review of literature and tool II was adopted from Kim et al.

- Content and construct validity of the study tool were established by a jury of five experts in the fields of Medical Surgical Nursing and Cardiology. The necessary modifications were introduced accordingly.

• Reliability of the tool was tested using Cronbach's Alpha Coefficient Test (0.74 and 0.84), which denotes high reliability.

• **A pilot study** was conducted on 10% of the studied patients to test clarity, feasibility and applicability of the tools and no modifications were done accordingly. The pilot sample was excluded from the study subjects.

• **Data collection:**

o Every patient was individually interviewed after a brief explanation of the purpose of the study. The interview took around 20 minutes each.

o Data was collected over a period of 3 months starting from March to May 2019.

• **Ethical considerations**:

For each included subject the following issues were considered:

o Informed written consent for voluntary participation in the study was obtained from the hypertensive patients after explaining the aim of the study. For illiterate patients, verbal explanation of the study purpose, and patients' oral consents were secured.

o Subject's privacy and anonymity were assured.

o The patient's right to withdraw from the study was respected.

o Data confidentiality was considered and respected.

• **Statistical analysis of the data**

Data was fed to the computer and analyzed using IBM SPSS software package version 20.0 [32] . Qualitative data were described using numbers and percent Quantitative data were described using range (minimum and maximum), mean, and standard deviation. The significance of the obtained results was judged at the 5% level.

The used tests were

1 - Chi-square test

For categorical variables, to compare between different groups

2 - Fisher's Exact or Monte Carlo correction

Correction for chi-square when more than 20% of the cells have expected count less than 5.

III. RESULTS

Table (1) : Shows distribution of the studied patients according to their sociodemographic data. The table illustrates that the mean age of the studied patients was (42.59 ± 9.73) years old. The majority of the studied patients were male and employed (59.0%, 68.0%) respectively. More than one third of patients (37.0%) are read and write. Additionally, the majority of the studied patients were married, had insufficient income per month and more than half of them had lived in urban areas (65.0%, 68.0%, 58.0%) respectively.

Table (1): Distribution of the studied patients according to their sociodemographic data (n =100)

Sociodemographic data	No.	%
Age		
≤30	7	7.0
30-40	29	29.0
40-50	43	43.0
≥50	21	21.0
Min. – Max.	20.0 – 60.0	
Mean ± SD.	42.59 ± 9.73	

Gender		
Male	59	59.0
Female	41	41.0
Employment status		
Unemployed	32	32.0
Employed	68	68.0
Level of education		
Illiterate	25	25.0
Read & write	37	37.0
Diploma degree	25	25.0
Highly educated	13	13.0
Marital status		
Single	21	21.0
Married	65	65.0
Widow	10	10.0
Divorced	4	4.0
Income (From patient's point of view)		
Not enough	68	68.0
Enough	32	32.0
Area of residence		
Urban	58	58.0
Rural	42	42.0

Table (2): Presents distribution of the studied patients according to their clinical data. The majority of the studied patients (64.0%) had a family history of hypertension and more than half (63.0%) of them had the disease for equal or more than five years. Slightly more than half (57.0%) of the studied patients had smoker and more than two thirds (72.0%) of them had associated diseases.

Table (2): Distribution of the studied patients according to their clinical data   (n =100)

Clinical data	No.	%
Family history		
No	36	36.0
Yes	64	64.0
Duration of hypertension		
<5 years	37	37.0
≥ 5 years	63	63.0
Smoking		
Not smoker	43	43.0
Smoker	57	57.0
Associated diseases		
No	28	28.0
Yes	72	72.0

Table (3): Presents distribution of the studied patients according to their total compliance score .Less than one quarter of the studied patients (15.0% , 19.0%) between good and average compliance with their therapeutic regimen respectively , while about two thirds of them (66.0%) were poor compliance. The patients studied had a total mean score of 42.17 ± 7.81 and total mean precent score of 67.07 ± 18.60.

Table (3): Distribution of the studied patients according to their total compliance score (n =100)

Total compliance score	No.	%
Good compliance (14-28)	15	15.0
Average (29-42)	19	19.0
Poor compliance (43-56)	66	66.0

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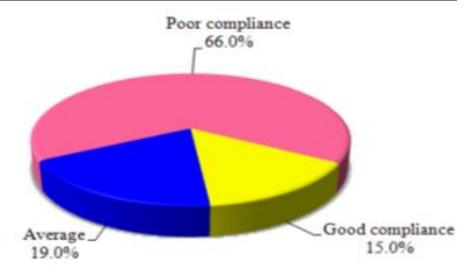| Total score	
Min. – Max.	28.0 – 52.0
Mean ± SD.	42.17 ± 7.81
% score	
Min. – Max.	33.33 – 90.48
Mean ± SD.	67.07 ± 18.60

Figure (1): Distribution of the studied patients according to their total compliance score (n =100)

Table (4) : Presents a descriptive analysis of the studied patients according to their total compliance score and its dimensions , concerning compliance with sodium restrictions , the table illustrates that (3.0%, 45.0%) of the studied patients were good and average compliance with sodium restrictions respectively . More than one third of the studied patients (37.0% , 26.0%) had an average compliance with appointment keeping and medications respectively .Contradictory, it was found that more than half of the studied patients (59.0%, 52.0%,52.0%) had poor compliance with medications, sodium restrictions and appointment keeping respectively . The mean total compliance percent score regarding medications , sodium restrictions and appointment keeping were 67.83 ± 24.71, 68.56 ± 19.92 and 63.56 ± 27.04 respectively.

Table (4): A descriptive analysis of the studied patients according to their total compliance score and its dimensions (n =100)

Total compliance score	Good compliance		Average		Poor compliance		Total score	% score
	No.	%	No.	%	No.	%	Mean ± SD.	Mean ± SD.
Medications	15	15.0	26	26.0	59	59.0	24.28 ± 5.93	67.83 ± 24.71
Sodium restrictions	3	3.0	45	45.0	52	52.0	9.17 ± 1.79	68.56 ± 19.92
Appointment keeping	11	11.0	37	37.0	52	52.0	8.72 ± 2.43	63.56 ± 27.04
Overall compliance	**15**	**15.0**	**19**	**19.0**	**66**	**66.0**	**42.17 ± 7.81**	**67.07 ± 18.60**

Table (5): Reveals relationship between total compliance score of the studied patients with their sociodemographic data. The highest proportion of the studied patients had a poor level of compliance with their therapeutic regimen , in relation to the socio-demographic data, more than half of them were between the age group of 40 to 50 years old , males, unemployed, illiterate, single and had not enough monthly income , (69.8%,76.3%,87.5%,88.0%, 81.0% and 69.1%)

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respectively. Statistically significant differences were detected between age, gender , employment status , educational level, marital status, income   and total compliance score (P= ^{MC}0.001, 0.024, 0.007, ^{MC}<0.001,^{MC}0.013 and 0.004) respectively. Also , no statistical significant relationship was detected between area of residence and total compliance score p= 0.051.

Table (5): Relationship between total compliance score of the studied patients with their sociodemographic data (n =100)

Sociodemographic data	N	Total compliance score						χ^2	p
		Good compliance		Average compliance		Poor compliance			
		No.	%	No.	%	No.	%		
Age									
≤30	**7**	2	28.6	1	14.3	4	57.1	19.694*	^{MC}p= 0.001*
30-40	**29**	10	34.5	1	3.5	18	62.1		
40-50	**43**	3	7.0	10	23.3	30	69.8		
≥50	**21**	0	0.0	7	33.3	14	66.7		
Gender									
Male	**59**	5	8.5	9	15.3	45	76.3	7.448*	0.024*
Female	**41**	10	24.4	10	24.4	21	51.2		
Employment status									
Unemployed	**32**	1	3.1	3	9.4	28	87.5	10.014*	0.007*
Employed	**68**	14	20.6	16	23.5	38	55.9		
Level of education									
Illiterate	**25**	1	4.0	2	8.0	22	88.0	26.983*	^{MC}p= <0.001*
Read & write	**37**	14	37.8	8	21.6	15	40.5		
Diploma degree	**25**	0	0.0	7	28.0	18	72.0		
Highly educated	**13**	0	0.0	11	84.6	2	15.4		
Marital status									
Single	**21**	0	0.0	4	19.0	17	81.0	14.010*	^{MC}p= 0.013*
Married	**65**	9	13.8	42	64.6	14	21.5		
Widow	**10**	4	40.0	0	0.0	6	60.0		
Divorced	**4**	2	50.0	1	25.0	1	25.0		
Income									
Not enough	**68**	5	7.4	16	23.5	47	69.1	10.892*	0.004*
Enough	**32**	10	31.3	3	9.4	19	59.4		
Area of residence									
Urban	**58**	13	22.4	10	17.2	35	60.3	5.954	0.051
Rural	**42**	2	4.8	9	21.4	31	73.8		

χ^2: **Chi square test**   MC: **Monte Carlo**

p: p value for association between different categories

*: Statistically significant at p ≤ 0.05

Table (6): Presents relationship between total compliance score of the studied patients with their clinical data. The majority of poor compliance studied patients were a smoker, without a family history of disease, their duration of hypertension equal or more than five years and had associated diseases (77.2 %, 86.1%,68.3%,69.4%) respectively. Statistically significant differences were observed between total compliance score and family history , duration of hypertension , smoking as well as associated diseases (P= 0.002, 0.002, 0.004 and 0.009) respectively.

Table (6): Relationship between total compliance score of the studied patients with their clinical data   (n =100)

Clinical data	N	Total compliance score						χ^2	p
		Good compliance		Average compliance		Poor compliance			
		No.	%	No.	%	No.	%		
Family history									
No	**36**	0	0.0	5	13.9	31	86.1	12.658*	0.002*
Yes	**64**	15	23.4	14	21.9	35	54.7		
Duration of hypertention									
<5 years	**37**	11	29.7	3	8.1	23	62.2	12.293*	0.002*
≥ 5 years	**63**	4	6.3	16	25.4	43	68.3		
Smoking									
Not smoker	**43**	12	27.9	9	20.9	22	51.2	11.042*	0.004*
Smoker	**57**	3	5.3	10	17.5	44	77.2		
Associated diseases									
No	**28**	9	32.1	3	10.7	16	57.1	9.486*	0.009*
Yes	**72**	6	8.3	16	22.2	50	69.4		

χ^2: **Chi square test**   MC: **Monte Carlo**

p: p value for association between different categories

*: Statistically significant at p ≤ 0.05

IV. DISCUSSION

Hypertension is a chief public health problem in both developed and developing countries. In spite of hypertension is a treatable condition, but without effective management it leads to serious adverse events such as stroke and cardiovascular disorders which in most cases result in patient's disability. To a great extent its adverse events can be prevented by early detection of cases and proper management . The first line of management for hypertension is a compliance with therapeutic regimens in terms of lifestyle modifications and compliance with medications. The poor control of hypertension is related to poor compliance with the therapeutic regimen . As compliance improves the outcome of hypertension, understanding its pattern is an important step in evaluating the effect of a hypertension therapeutic regimen[28] .

Regarding to studied patients total compliance score:

This study findings indicated that the total compliance score varies among hypertensive patients . The majority of those patients were poor compliance with medications , sodium restrictions and appointment keeping compared to less than one quarter of them between average and good compliance . This may be due to several factors such as lack of patient education about the disease , complexity of the regimen , forgetfulness , lack of effective social support networks , most patients have passive attitudes towards taking medications, particularly if they feel better. Moreover , poor relationship between the patient and the physician, the asymptomatic nature of the hypertension as well as negative emotions associated with the disease are considered other factors affect negatively on the compliance level [2].

This finding is supported by Mahmoud M (2012) who reported in a previous study that the majority of their studied patients showed poor compliance with exercise , medications, dietary regimen and periodic medical checkup [33]. Also Alefan et al (2019) who found that , the rate of compliance with therapeutic regimen recommendations among their studied patients was low and less than one quarter of them were fully adherent to healthy lifestyle behaviors [34] .Whereas

our findings contradicted by with the findings of Dharan and Moly (2017) who illusterated that, most of their studied patients had good and average compliance to anti hypertensive therapeutic regimen compered to one quarter of them had poor compliance [20].

Regarding to sociodemographic and clinical data as well as its relationship with total compliance score

Concerning sociodemographic data , the main findings of the current study revealed that, the majority of the studied patients were in the middle age group of 40-50 years old, males, employed, illiterate , married, urban residents and hadn't enough income as reported by the studied patients. These findings were in line with the results of a study performed by Alefan et al (2019) and Akoko et al (2017)who found a similar findings except for the age and gender , the majority of their studied patients were females and over the age of 50 years old [34,35].

Concerning clinical data , the results revealed that the majority of the studied patients were smokers , have a family history of hypertension , and the duration of their disease is five years or more , Also more than two thirds of them reported associated diseases. These findings are consistent with Mahmoud (2012) who illustrated that, most of their studied participants were active smoker and reported co-morbidities diseases [33]. However , our findings disagree with the results of a study performed by Adisa et al (2018) who reported that,the majority of their participants have less than five years duration of hypertension and around one quarter of them with more than five years duration [36].

Various factors influence the patient's compliance level, these might be related to biosocidemographic characteristics of the patients such as age, gender, employment status, level of education, marital status, income, family history, duration of disease, smoking and associated diseases. The present study revealed that poor compliance with therapeutic regimen was significantly affected by age especially among middle age patients. It could be attributed to that , middle age patients usually have different priorities in their daily life as well as because of their work and different commitments, they will be unable to spend a long time waiting for clinic appointments.This result was in agreement with Jin et al . (2008) who found a positive significant association between poor compliance with therapeutic regimen and the age of the patients[37] . In contrast with other study conducted by Akoko et al (2017) who illustrated that no significant association between compliance level and patient age [35].

Regarding gender and employment status, the present study showed that , The majority of poor compliance studied patients to therapeutic regimen were males and unemployed . Also statistically significant relationship was found between total compliance score with gender and employment status. This result was in line with Tilea et al (2018) who found a positive association between low adherence level and male gender [38]. However , our findings are contradicted with Padhy et al . (2016) and Akoko et al (2017) findings who illustrated that , men adhere more effectively to the therapeutic regimen than female , also no significant association between compliance and gender as well as occupational status [39, 35].

The findings of this study revealed that , highly statistically significant relationship was found between total compliance score and educational level , as more than three quarter of poor compliance studied patients to therapeutic regimen were illiterate . It could be attributed to that lack of knowledge about the severity and chronisity of the disease may be affected negatively on the compliance level . These findings are supported by Osamor et al . (2011) who mentioned that low level of education and poor socioeconomic status have a significant effect on the compliance level [2].

Limited income with high financial burden associated with therapeutic regimen will probably affect total compliance score. This may explain the result of the present study , which revealed a significant difference between total compliance score and income of hypertensive patients. This result is supported Osamor et al . (2011) who reported significant and positive relationship between poor socioeconomic status and poor compliance to the therapeutic regimen [2]. On the other hand, the result of the current study contradicts with Alefan et al . (2019) and Mathew et al . (2016) who found that no significant difference between total compliance score and economic status of hypertensive patients [34, 40].

As regards marital status, the present study revealed a statistically significant relationship between marital status and total compliance score. In which, the majority of the studied patients were poor compliance to therapeutic regimen had single, while more than half of them who average compliance had married. It could be due to that the support of the spouse helps married patients to more comply with the therapeutic regimen than single.This finding was supported by Okoro et al. (2012) who claimed that married patients were found to be significantly more compliant than single patients . However , our findings contradicted with Akoko et al . (2017) who reported that no significant association between compliance level and marital status [41, 35].

Moreover , the present study revealed no statistically significant relationship between total compliance score and area of residence. This result in line with Tilea et al. (2018) who reported no statistically significant association between compliance to therapeutic regimen and the residence area where p = 0.07 [38].

Duration of chronic disease may influence patients' compliance with a therapeutic regimen. The longer the duration of the disease, the more evident to become noncompliant, the present study revealed that, More than half of poor compliance studied patients with their therapeutic regimen have the disease for five years or more, also   statistical significant difference between the duration of the hypertension   and   the total compliance score with therapeutic regimen was observed. This finding was contradicted with Gupta et al. (2018) reported that sociodemographic variables and duration of hypertension have no significant effect on compliance to the therapeutic regimen [42].

Regarding smoking and associated diseases , the current study results denoted that there was a statistical significant relationship between total compliance score   with smoking   and   associated disease , as more than half of poor compliance studied patients with their therapeutic regimen were smoked and have associated diseases . This result was supported by Dharan et al. (2017) and Mahmoud (2012) who reported that the level of compliance with therapeutic regimen was found to be lower in patients with associated comorbidities and smoker [20,33].

Therapeutic regimen compliance is considered a key factor for successful management and achieving blood pressure control in patients with hypertension. Hence, assessment of the compliance with the therapeutic regimen among those patients is very important .

V. CONCLUSION

Based on the findings of the present study it could be concluded that , the vast majority of the studied hypertensive patients were poorly compliant with their therapeutic regimens compared to minority of them between average and good compliance with their therapeutic regimen.   Socioeconomic and clinical characteristics of the studied patients affected significantly on the total compliance score , as most patients in the middle age group 40-50 years old , male , unemployed , illiterate , single , without enough income, have a family history of disease , smokers , the duration of hypertension equal or more than 5 years and with associated diseases were poorly complaint .

VI. RECOMMENDATIONS

• Applying a health teaching program for hypertensive patients to improve their knowledge and their perception about compliance with the therapeutic regimen .

• Developed hand out about dietary recommendations for hypertensive patients should be available for each patient.

• Training programs should be provided to health care providers to upgrade their knowledge and skills regarding the therapeutic regimen of the hypertensive patients.

• Social support is highly advocated key factor in compliance success.

• The factors that hinder the hypertensive patients to comply with their therapeutic regimen should be detected and solved by the health care providers

• Further studies by utilizing a large sample of hypertensive patients should done to assess the compliance with the therapeutic regimen among those patients in different hospitals .

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