


Self-rated health and psychological health among hypertensive patients in Palestine

Health Psychology Open
July-December 2020: 1–10
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DOI: 10.1177/2055102920973258
journals.sagepub.com/home/hpo



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Abstract

The study has investigated the self-rated psychological health of hypertensive patients in Palestine. To that end, a stratified random sample of 502 hypertensive patients (*aged* ≥ 18 years) was asked to complete a validated Arabic version of the General Health Questionnaire (GHQ-28). After collection, the data were analyzed using descriptive statistics, Mann–Whitney *U* test and logistic regression. In this study, it was found the mean scores for GHQ were statistically higher for females than males ($p < 0.05$). The females were found to be 1.701 (95% CI = 1.025–2.823) times more at risk of psychological disorders compared to males. In conclusion, improvement of social determinants of hypertensive patients can make a difference in their psychological/mental health.

Keywords

General Health Questionnaire, hypertension, Palestine, psychological health, self-rated health

Introduction

Hypertension is an important public health challenge worldwide. It contributes to the onset of heart diseases, strokes, kidney failure, premature mortality, and disability (Deleu et al., 2006; WHO, 2013).

Hypertension and related complications are responsible for approximately 9.4 million deaths worldwide every year. The number of hypertensive patients is expected to rise to 1.56 billion by 2025 (Rajati et al., 2019). In the United States, healthcare-associated with hypertension cost about \$131 billion. This warrants intense effort toward hypertension prevention and management (Kirkland et al., 2018).

A study of the prevalence, awareness, treatment, and control of hypertension in four Middle Eastern countries was conducted in 2017. The prevalence of hypertension was found to be the highest among participants who had primary education or had no education. However, it was found to be higher in rural communities compared with urban ones. The same study indicated that the prevalence of hypertension peaked in the United Arab Emirates but was the lowest in Iran. The Occupied Palestinian Territories (OPT) and Saudi Arabia recorded better awareness, treatment, and control of hypertension when compared with the United Arab Emirates and Iran (Yusufali et al., 2017).

The overall prevalence of hypertension in Palestine was 28%; however, only 10% achieved targeted control of blood pressure as some did not have adequate knowledge about their conditions and treatments which in a way affected negatively their health-related quality of life (HRQOL) (Al-Jabi et al., 2015; Khmour et al., 2013; Ogunlana et al., 2009; Saleem et al., 2011). From these findings, the authors concluded that hypertension and its complications constituted a health issue in Palestine.

Self-rated health plays a major role in assessing an individual's health status (Idler and Benyamini, 1997). It has been noted by Jylhä (2009) that both body and mind are influenced by socioeconomic and lifestyle factors (Taloyan et al., 2019). In their study, Chandola and Jenkinson (2000) examined the association of self-rated health with more objective measures of morbidity in different ethnic groups. They found that poor

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self-rated health was associated with greater morbidity of hypertension, presence of cardiovascular disease or diabetes and limited health and number of visits to doctors within each ethnic group (Chandola and Jenkinson, 2000). Other studies demonstrated that psychological factors were also important etiological drivers for the development of hypertension (Footman et al., 2013; Ringoir et al., 2014). To illustrate, results from the National Health Interview Survey, conducted between 2004 and 2013, suggested that psychological distress was associated with higher odds of hypertension after adjusting other risk factors of high blood pressure (Ojike et al., 2016). In the same field, a cross-sectional study about the effects of psychological stress on the hypertension of middle-aged Chinese revealed that the psychological stress was associated with an increased risk for hypertension (Hu et al., 2015). Another study of nine countries in the former Soviet Union also found that there was a significant association between psychological distress and hypertension in the region (Footman et al., 2013).

Many tools were used to assess Health-Related Quality of Life with patients having hypertension (HRQOL) (Carvalho et al., 2012; Melchioris et al., 2010; Xu, 1999). The General Health Questionnaire (GHQ-28) was one of these tools as it is a self-report screening measure used to detect possible psychological disorders. The GHQ-28 has been divided into four subscales: somatic symptoms (items 1–7) (factor A); anxiety/insomnia (items 8–14) (factor B); social dysfunction (items 15–21) (factor C); and severe depression (items 22–28) (factor D) (Aderibigbe et al., 1996; Darves-Bornoz et al., 1998; Goldberg, 1972).

Several significant factors, namely gender (Marília et al., 2013), age (Font et al., 2012; Mansi et al., 2016), income (Figueiredo et al., 2014), family size (Ghimire et al., 2017), socioeconomic level/status, occupation (Hegazy and Elshazly, 2017), marital status (Bairami et al., 2017), physical activity (Berendes et al., 2013; Cuevas et al., 2007; Shishavan et al., 2017; Xu et al., 2016), and health literacy (Barrón-Rivera et al., 1998; Wang et al., 2017) were found to be associated with health-related quality of life (HRQOL).

Aims of current study

Psychological health of hypertensive patients was not extensively examined in Palestine. This study has sought first investigate the self-rated health and psychological health of hypertensive patients using a validated Arabic version of the General Health Questionnaire (GHQ-28) (Thabet and Vostanis, 2005), and second to find out whether there were differences in the participants' responses to the (GHQ-28) regarding their demographic variables.

Methodology

Study setting

According to the Palestinian Central Bureau of Statistics (2016), the population of Palestine was 4,816,503. Of these,

60.9% lived in West Bank and 39.1% lived in the Gaza Strip. Population distribution by sex showed that 50.8% of Palestinians were males and 49.2% were females.

When it comes to health care services, the Ministry of Health (MOH) is considered the main provider of secondary health care services (hospitals) in Palestine. There are 81 hospitals in the West Bank and the Gaza Strip. These hospitals have a total of 6146 beds. The West Bank, including East Jerusalem, has a total bed capacity of 3747 beds. There are 27 hospitals owned and run by Palestinian MOH with a total bed capacity of 3325 beds. Non-Governmental Organizations (NGOs) have 34 hospitals with a capacity of 2061 beds; besides, the private sector has 16 hospitals with a capacity of 536 beds. The *United Nations Relief and Works Agency* (UNRWA) has one hospital in Qalqiliya with a capacity of 63 beds. The Military Medical Services has three hospitals in the Gaza Strip with a capacity of 161 beds. The hospital beds of MOH cover almost all specialities, including general surgery services, sub-specialities, internal medicine, pediatrics, psychiatric, and other specialities. Rehabilitation and physiotherapy services are offered by the NGOs. The MOH hospitals also provide services to patients through outpatient clinics, emergency departments and hemodialysis units (Palestinian Health Information Center, 2016).

The most recent data on hypertension from the Palestinian Hypertension Project (PHP) showed a prevalence rate of 27.6%. The blood pressure control in Palestine was between 27% and 40%. Moreover, several factors contribute to poor control of hypertension, including non-adherence to drug regimens, frustration with the treatment and obesity (Hallak et al., 2017).

This study was conducted between July and August 2018 in the outpatient clinics of the Rafidia Surgical Hospital, A-Najah National University Teaching Hospital, Specialized Arab Hospital in Nablus, Dr. Shahid Thabet Hospital in Tulkarm, Dr. Shahid Sulaiman Hospital in Jenin and Salfeet Hospital in Salfeet.

Ethics

Participants were informed about the general purposes of the study and were asked to give their informed consent. The informed consent forms were kept securely in the locked cabinets of the investigator's office. The names of the participants were not printed on the questionnaire. The current study was approved by the Office of the Institutional Review Board of An-Najah National University and Ministry of Health's General Directorate of Health Education

Procedure and subjects

This research was a descriptive study. A stratified random sample of 502 hypertensive patients (aged ≥ 18 years) were informed about the general purposes of the study and were asked to give their informed consent. Fifty of them (9.96%) failed to respond. Another twelve (2.39%) were excluded

because two of them complained of depression and the rest had cancer. Hypertensive patients who had one or more of cancer, epilepsy, schizophrenia, depression, anxiety disorder, conversion disorder, mania, post-traumatic stress disorder, and addiction were excluded from the study. A total of 444 participants gave their informed consent and completed the GHQ. A field researcher administered the questionnaire verbally to the participants who couldn't read or write. The data collection took place at hypertension clinics.

Measures

General Health Questionnaire-28 (GHQ-28) is a self-report screening measure used to detect features that distinguish psychiatric patients from individuals who consider themselves to be healthy (Bell et al., 2005; Bhui and Goldberg, 2000; Cano et al., 2001; Crosier and Rodgers, 2007; Duran et al., 2004; Goldberg, 1972; Hosain et al., 2007; Murad et al., 2004; Onder et al., 2006; Richard et al., 2004; Sartorius et al., 1993; Tiemens and Simon, 1996; Uner et al., 2008; Willmont et al., 2004; Wilmont et al., 2008). It was developed and validated by Goldberg (1978) obtaining a sensitivity of 87 % and specificities of 75% (Goldberg and Bridges, 1987). GHQ-28 has been translated into 38 languages (Sterling, 2011).

The 28-item GHQ assesses the respondent's current state and asks if that differs from his or her usual state. Seven items were formulated positively (e.g., Do you feel perfectly well and in good health?), and 21 items were formulated negatively (e.g., Do you feel sick?).

In the case of the positive items, the following scale was used: 1=more than usual, 2=as usual, 3=less than usual, and 4=much less than usual. In the case of the negative items, the following scale was used: 1=not at all, 2=not more than usual, 3=a little more than usual, and 4=much more than usual was used with a cutoff score for the case of 5, at which level the questionnaire has a reported sensitivity of 73.3% by Kihç (1996). Cronbach's alpha for factors was as follows: factor A=0.821, factor B=0.811, factor C=0.855, and factor D=0.755. Responses were scored using GHQ scoring (0–0–1–1).

General demographic characteristics

Socio-demographic variables concerning age, gender, educational level, marital status, monthly income, employment, and inclusion criteria for participants' health condition have been assessed.

Data analysis

Statistical analyses were performed, using IBM SPSS 21.0. Pearson's chi-square (χ^2) test "goodness of fit" statistic, and Mann-Whitney U test were used to compare two sample means that came from the same population. Logistic regression model included age, gender, level of education,

Table 1. Demographic characteristic of respondents (n=440).

Characteristics	n	%
Age		
34–18	17	3.9
45–35	47	10.7
55–46	104	23.6
64–56	137	31.1
≤65	135	30.7
Gender		
Female	261	59.3
Male	179	40.7
Level of education		
Illiterate	81	18.4
Primary school	154	35
High school	112	25.5
University	93	21.1
Marital status		
Single	33	7.5
Married	348	79.1
Others (divorced, widowed)	59	13.4
Monthly income (ILS)		
<1450	230	52.3
1450–2500	103	23.4
2501–3500	50	11.4
>3501	57	13
Employment		
Employed	105	23.9
Unemployed	306	69.5
Retired	29	6.6
Diseases		
Diabetes	179	40.7
Kidney diseases	84	19.1
Coronary heart disease	54	12.3
Stroke	12	2.7
None of the above	199	45.2
Total	440	100

marital status, monthly income, employment, diabetes, kidney diseases, coronary heart disease and stroke. They were used to examine the multivariate relationships between the aforementioned independent variables and mental health problems. Odds Ratio (OR) was given, and the significance was set at $p < 0.05$.

Results

After data analysis, it was found that nearly one third 31.1% of the participants were (56–64 years). Two-thirds were females 59.3% and married 79.1%. About 69.5% of participants reported that they were unemployed and 52.3% had a low monthly income <1450. Nearly one quarter 25.5% of participants had completed their secondary grade as opposed to 21.1% who had university education. The health status of participants showed that 40.7% were diabetic and 19.1% had kidney diseases. The characteristics of respondents and descriptive results are shown in Table 1.

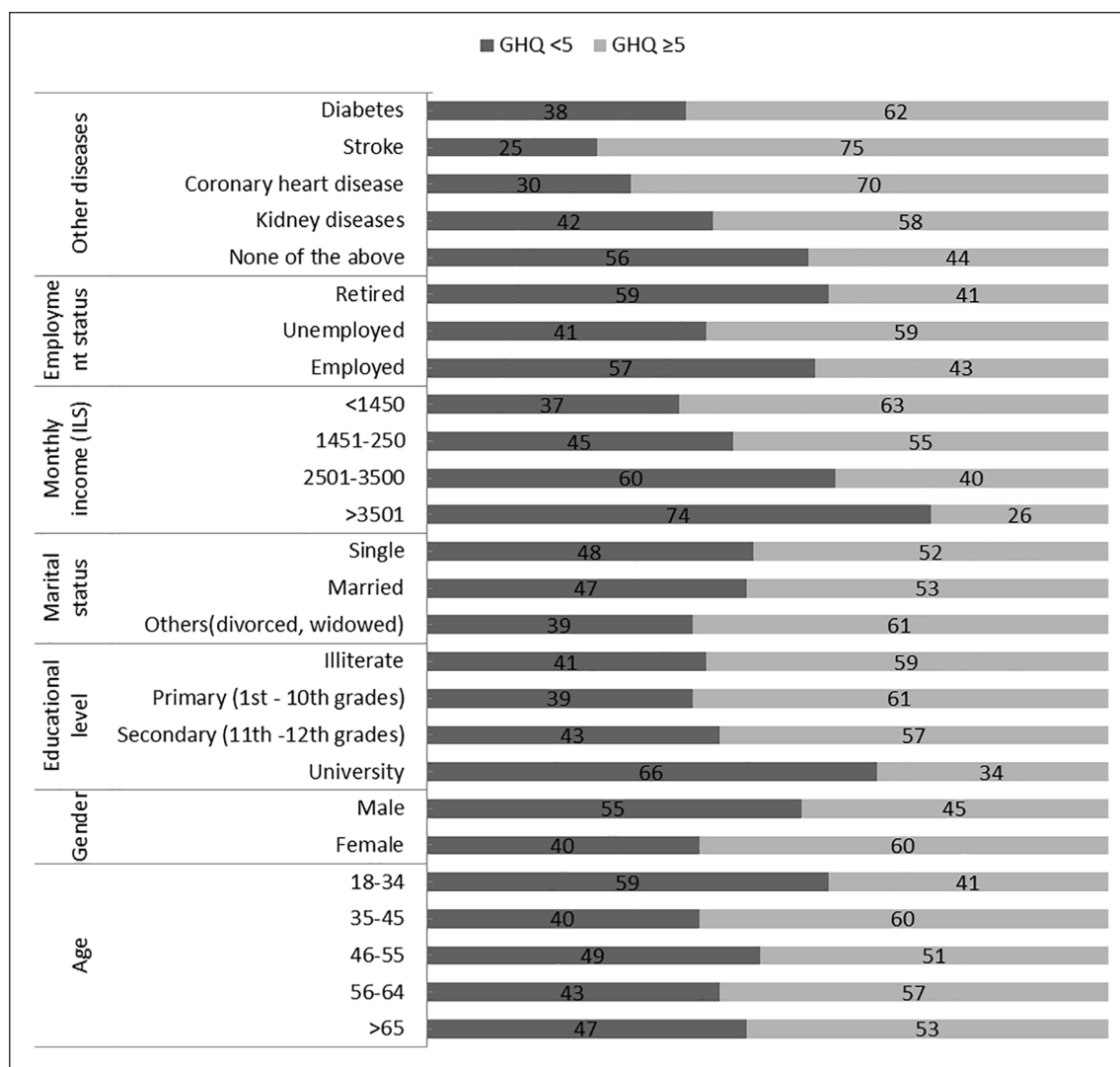


Figure 1. GHQ scores according to descriptive variables.

The results of the internal consistency were calculated, using Cronbach's alpha described in this paper (Alpha=0.913). They showed great similarity to another study (Cheung and Spears, 1994). For a 28-item GHQ Alpha was 0.93 (Barrón-Rivera et al., 1998). The subscales were between 0.755 and 0.855 (factor A=0.821, factor B=0.811, factor C=0.855, and factor D=0.755).

About 54% of participants in the study (60% of women and 45% of men) were found to have psychological disorders. The GHQ score, according to the descriptive variables, has been presented in Figure 1. The prevalence was found to be statistically $p < 0.05$ higher among females having a monthly income between 1451 and 2500, and suffering from diabetes and coronary heart diseases.

In contrast, illiterate males who had a low income, or were unemployed and suffering from diabetes, coronary heart disease and stroke were significantly at more risk of psychological disorders than other males.

Figure 1 also shows that marital status (divorced, widowed), low education level, low-income level and worse health status constituted a trigger factor for psychological disorders among hypertensive patients in Palestine. The figure also reveals that young hypertensive patients were more likely to have psychological disorders than the older ones.

Table 2 shows the main outputs from the estimated multivariable logistic regression coefficients and odds ratios. Variables entered in the model were age, gender, level of education, marital status, monthly income, employment, and disease.

No statistically significant differences in self-rated health were observed between age groups, educational levels, employment and marital status. Pertaining to gender, females were 1.701 (95% CI=1.025–2.823) times more at risk of psychological disorders than males. Participants who had an income level between 1451 and 2500 ILS were two times more likely to develop psychological disorders

Table 2. Estimated multivariable logistic regression coefficients and odds ratios.

Variable	n (%)	B	p	Adjusted OR	95% CI
Age					
18–34	17(3.9)			1	
35–45	47(10.7)	0.247	0.694	1.281	0.373–54.4
46–55	104(23.6)	0.616	0.126	1.851	0.84–4.078
56–64	137(31.1)	0.136	0.67	1.146	0.613–2.144
>65	135(30.7)	0.144	0.612	1.155	0.662–2.013
Gender					
Male	179(40.7)			1	
Female	261(59.3)	0.531	0.04	1.701	1.025–2.823
Level of education					
Illiterate	154(35)			1	
Primary (1st–10th grades)	112(25.5)	0.58	0.069	1.786	0.957–3.333
Secondary (11th–12th grades)	81(18.4)	0.513	0.721	1.393	0.825–3.451
University	93(21.1)	0.465	0.264	1.592	0.705–3.597
Marital status					
Married	33(7.5)			1	
Single	59(13.4)	–0.233	0.568	0.792	0.356–1.762
Other(divorced, widowed)	348(79.1)	0.059	0.867	1.06	0.533–2.108
Monthly income					
<1450	230(52.3)			1	
2500–1451	103(23.4)	1.204	0.002	3.334	1.561–7.123
3500–2501	50(11.4)	1.037	0.008	2.821	1.318–6.039
>3501	57(13)	0.455	0.301	1.577	0.666–3.736
Employment					
Employed	105(23.9)			1	
Unemployed	306(69.5)	–0.121	0.813	0.886	0.325–2.412
Retired	29(6.6)	–0.333	0.506	0.717	0.269–1.911
Diseases					
Diabetes					
No	261(59.3)			1	
Yes	179(40.7)	0.409	0.059	1.505	0.984–2.302
Kidney diseases					
No	356(80.9)			1	
Yes	84(19.1)	0.132	0.63	1.141	0.667–1.952
Coronary heart disease					
No	386(87.7)			1	
Yes	54(12.3)	0.738	0.032	2.091	1.064–4.111
Stroke					
No	428(97.3)			1	
Yes	12(2.7)	0.712	0.316	2.038	0.506–8.203

compared with ones who earned a monthly income of ≥ 350 ILS. This could be attributed to the income level, which is lower than the costs of the primary services and requirements due to ongoing severe restrictions imposed by the Israel and the internal political divide in Palestine. Hypertensive patients who were between 46 and 55 years were 1.851 (95% CI=0.84–4.078) times more likely to have psychological disorders than those between 18 and 34. Finally, those who had chronic disease (coronary heart disease and /or stroke, for example, were nearly two times at greater risk compared to those who hadn't. In contrast, the odds ratio for those who had diabetes were nearly 1.5 times compared with those who were not diabetic.

The mean scores for GHQ, according to gender, have been presented in Figure 2. Factor A (somatic symptoms), factor B (anxiety and insomnia), factor C (social dysfunction), and factor D (severe depression) of a female were statistically higher than a male counterpart ($p < 0.05$).

Discussion

This study has examined the relationship between psychological health disorders, as measured by GHQ-28, and hypertensive patients in Palestine.

As mentioned earlier, 54% of hypertensive patients in Palestine had psychological disorders. This high prevalence

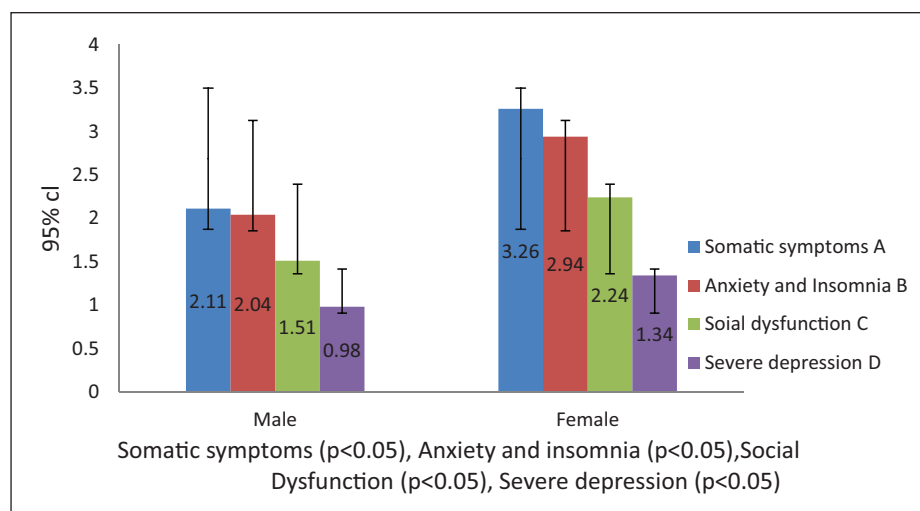


Figure 2. Total and factor mean scores for GHQ according to gender.

reflects the obstacles impeding the enjoyment of high attainable standard of health for Palestinians living under occupation, including barriers and lack of access to adequate health care provision, access to health care, determinants of health beyond health care and health attacks (WHO, 2019).

These stressors naturally have affected hypertensive patients' mental and physical health. Therefore, the treatment plan for hypertensive patients with stress resulting from very stressful life conditions, such as those experienced by Palestinians, must necessarily be accompanied by psychological care and follow up (Williams, 2018).

The mean scores for factors A (somatic symptoms), B (anxiety and insomnia), C (social dysfunction) and D (severe depression) of females were statistically higher than those of males' ($p < 0.05$). The females were more at risk of psychological disorders compared with males. This is likewise consistent with findings from a similar study (Hamrah et al., 2018 and Kadioğlu et al., 2013). There was also a significant association between mental health status and hypertension in women, which leads to an increase in hospital inpatient visits for women (Rozario and Masho, 2018).

A large number of studies have provided strong evidence that gender-based differences contribute significantly to the higher prevalence of depression and anxiety disorders in women when compared to men. The interaction between biological and social vulnerability genetic and biological factors play some role in the higher prevalence of depressive and anxiety disorders among women (World Health Organization, 2002).

Furthermore, anxiety disorders are not only more prevalent, but also more disabling in women than in men (McLean et al., 2011).

Women are more often exposed to stressful and emotional problems and more often faced with negative conditions and feelings (Kvrgic, 2013). In our case, women in Palestine who are mothers and wives of captives are often

responsible for the daily welfare of their families alongside the daily routine activities. Side by side they face the same stress and hard socioeconomic life that all women face worldwide.

The study has revealed that unemployed Palestinian males had a greater risk of psychological disorders than employed males. Understanding the effects of unemployment on mental health requires consideration of the interactions among gender, family responsibilities, and social class (Artazcoz et al., 2004). However, other studies have shown that the employed participants had a greater risk of developing mental health problems than the unemployed because of work pressure and work environment challenges (Landsbergis and Hatch, 1996; Peter and Siegrist, 1997). In Palestine, the unemployment rate was 31% of the labor force participants (Palestinian Central Bureau of Statistics, 2018). Males are often the breadwinners of families and have to meet all their needs which somehow might be more stressful than work and workplace environment.

The present study has found that illiteracy also had an effect on the psychological health of hypertensive males in Palestine. This supports the argument that low literacy is a psychological health care issue, and it is necessary for clinicians to evaluate routinely their patients' literacy skills (Ogunlana et al., 2009). Therefore, adequate education should be provided in health centers to increase the health literacy and knowledge about hypertension in hypertensive people to improve their behavior and health (Charge et al., 2018). It is important to note that the Palestinians -in general- consider education an exit from the pressing conditions of occupation that they are living in and a primary active factor in changing the quality of their life for the better. Illiteracy rates among the Palestinian population (aged 15 years and above) dropped from 13.9% in 1997 to 2.8% in 2018 (Palestinian Central Bureau of Statistics, 2018).

Furthermore, the results of this study showed that hypertensive patients who had been divorced or widowed were at the risk of developing psychological disorders compared with those who were single. Therefore, marriage has an effect on mental health across societies. It lowers depression, anxiety, suicide risk, and substance abuse (Spiker, 2014). The present study strengthens the role of social networks such as marital relationships in understanding health behaviors and health outcomes among the population (Christakis and Fowler, 2008; Molloy et al., 2009).

Finally, the results of this study have proved -like other studies- that patients with hypertension and stroke have a lower health-related quality of life than the ones with hypertension only (Angeleri et al., 1993; De Haan et al., 1995). Coronary heart diseases contribute to psychological distress and depression. This illustrates that both males and females of coronary heart disease patients significantly have a risk of developing psychological and mental health disorder than others (Virtanen et al., 2017). Another study revealed that poorer HRQOL might play a role in subsequent cardiovascular events or complications among hypertensive patients (Li et al., 2005).

The findings and recommendations of this study are consistent with several works and studies, Spruill (2010); Sparrenberger et al. (2009); Steptoe (2000) that the causes of hypertension cannot be explained by physiological, genetic, and lifestyle factors, as the evidence supports the role of psychosocial factors (i.e., occupational stress, mental health, personality factors, housing instability, social support, sleep quality) as primary risk factors for hypertension (Cuffee et al., 2014). As a result, the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (2003, 1997, and 1993) recommended psychosocial intervention as a means to control the onset of hypertension (Cuffee et al., 2014). In 2020, International Society of Hypertension (ISH) has developed worldwide practice guidelines for the management of hypertension in adults, aged 18 years and older by Healthy lifestyle choices that can prevent or delay the onset of high BP and can reduce cardiovascular risk (Unger et al., 2020).

Conclusions and recommendations

The prevalence of psychological disorders among hypertensive patients in Palestine was high. One can conclude that the disadvantaged groups, like hypertensive females, the unemployed, the low-income level patients, the illiterate, and those who have more than one disease are at a greater risk of suffering from psychological disorders than others in Palestine.

Therefore, social and official institutions should make serious efforts to improve health- social determinants in Palestine.

In the light of the coronavirus pandemic, the researcher also suggests conducting a study on the effects of infection on the mental health both men and women.

This study was conducted in the northern and central areas of the West Bank. In order to find out whether the results represent the Palestinian hypertensive patients, similar studies should be conducted in other parts of Palestine.

Acknowledgements

The authors are kindly acknowledging the General Directorate of Education in Health at the Palestinian Ministry of Health Dr. Amal Abu Awad and Dr. Iyad Al Ali the Scientific Research Coordinator, Faculty of Medicine and Health Sciences, A-Najah National University for facilitating the visiting of health care institutions in Nablus District, Ramallah District, Salfet District, Tulkarm District and Jenin District for the collection of the required data.

Authors' contributions

All authors listed have contributed to the work and approved it for publication. The authors have worked in an organized manner. Dr. Wafaa has designed the study, communicated the key persons, supervised the work and revised the manuscript. Ms Taghreed Najem, Aziza Khalil and Jiyana Suleiman have *Made the statistical analysis and written the manuscript*. Ms Areej Dabas, Rasmiiya Abdullah and Noor Shareef have *distributed the questionnaire to the health care institutions at West Bank*. Ms Taghreed Khraiweh has edited the language of the manuscript.

Data availability

The data are available from the corresponding author on a reasonable request.

Declaration of conflicting interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This study was conducted as a graduation project for a BSc graduate studying in the Faculty of Medicine and Health Sciences at An-Najah National University. It received no funding from any source.

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