Razi International Medical Journal
RIMJ
Journal homepage: www.rimj.org/pubs/index.php/journal

RESEARCH ARTICLE

Hypertension and health-related quality of life among Afghan school teachers: a cross-sectional study

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ARTICLE INFO

Open Access

Received:
2024-02-01
Accepted:
2024-05-17
Published:
2024-05-31

Keywords:
Hypertension
Quality of life
School teachers
Herat-Afghanistan

ABSTRACT

Background: Hypertension, commonly known as high blood pressure, is a global health concern that significantly impacts the quality of life. The primary objective of this study was to evaluate health-related quality of life and the factors associated with it in hypertensive patients across the physical, psychological, social, and environmental domains.

Methods: A cross-sectional investigation was conducted involving 503 public school teachers from Herat province of Afghanistan. The World Health Organization Quality of Life Bref 26 (WHOQOL-BREF 26) questionnaire was used to assess quality of life of participants. Each participant's blood pressure was assessed twice. Participants with a systolic blood pressure of 140 mmHg or higher, a diastolic blood pressure of 90 mmHg or higher, or both, were classified as having hypertension.

Results: Of the 503 participants, 23.5% of them had hypertension. Age group, gender, and aware of hypertension were significantly associated with presence of hypertension. Physical domain, psychological domain, and social relationship domain were significantly associated with prevalence of hypertension.

Conclusion: This study underscores the significant impact of hypertension on the health-related quality of life among Afghan school teachers. Effective management strategies targeting physical, psychological, and social health are essential to mitigate the adverse effects of hypertension. Further research should explore the role of cultural and occupational factors in shaping the quality of life in this population.

Introduction

Hypertension, commonly known as high blood pressure, is a global health concern that significantly impacts the quality of life. It is a condition where the force of the blood against the artery walls is too high, often leading to serious health complications if left unmanaged. Hypertension can be classified as either

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Cite this article as Hypertension and health-related quality of life among Afghan school teachers: a cross-sectional study. *Razi International Medical Journal, 4(1).* DOI: 10.56101/rimj.v4i1.157

essential or secondary, with the former being the most common and often associated with genetic factors, lifestyle choices, and environmental influences. The pathophysiology of hypertension involves complex interactions between genetic predisposition and various physiological systems, including the autonomic nervous system and the renin-angiotensin-aldosterone system (1).

The epidemiology of hypertension reveals that it affects a significant portion of the adult population globally, with a higher prevalence in low- and middle-income countries. The World Health Organization (WHO) estimates that 1.28 billion adults aged 30–79 years worldwide have hypertension, with the majority living in low- and middle-income countries (2). The prevalence of hypertension is highest in the African Region at 46% of adults aged 25 and above, while the lowest prevalence at 35% is found in the Americas (3). High-income countries generally have a lower prevalence of hypertension (35%) than other groups (40%) (3).

Complications arising from uncontrolled hypertension range from heart disease, stroke, and kidney disease to cognitive impairment and sexual dysfunction (4). These complications underscore the importance of effective management and treatment strategies to mitigate the risks associated with high blood pressure. Studies have shown that managing hypertension effectively can significantly reduce the risk of these complications and improve overall health outcomes (5-6).

In assessing the impact of hypertension on health-related quality of life, the WHOQoL-Bref 26 questionnaire is a valuable tool. It is the condensed version of the comprehensive WHOQOL-100 and is employed to evaluate the participants' quality of life across four domains: physical health, psychological health, social relationships, and environment (7). This instrument has been widely used in various cross-sectional studies to evaluate the quality of life among different populations, including those with chronic conditions like hypertension (8-9).

The relationship between hypertension and health-related quality of life is complex. Several studies have shown that people with hypertension tend to have a lower health-related quality of life (HRQoL) than those with normal blood pressure across various domains, including physical, psychological, social, and environmental aspects (10-13). Additionally, among the elderly population, hypertension has been linked to a decline in HRQoL, particularly in terms of physical functioning. This indicates that hypertension not only affects physical health but also has a profound impact on mental and social well-being (14-17).

Limited research has been conducted on the health-related quality of life and its related factors in patients with hypertension to date. This study specifically focused on lifestyle factors and perceived social support and their impact on the HRQoL of patients with hypertension. The primary objective of this study was to evaluate health-related quality of life and the factors associated with it in hypertensive patients across the physical, psychological, social, and environmental domains (14-20). Through comprehensive studies like the one proposed, we can gain deeper insights into the multifaceted effects of hypertension and enhance our approaches to improving the lives of those affected by this condition.

Materials and Methods

Study participants, study design, and sample size calculation

Between July and September 2023, a cross-sectional investigation was undertaken involving 503 educators employed in public schools within Herat province, Afghanistan. Trained interviewers conducted data collection via face-to-face interactions. Inclusion criteria mandated participants to be aged over 18, proficient in Dari, and to have provided written assent alongside consent forms. The sample size was determined utilizing the formula N = Zα^2P(1−P)/d^2, with a significance level (α) of 0.05 and a Zα value of 1.96. A 5% margin of error was applied to estimate proportions. The study encompassed a total of 503 participants.

Instruments

The present research utilized a structured questionnaire comprising three delineated segments. The initial segment was designed to collect socio-demographic information encompassing variables such

as age, gender, marital status, economic standing, utilization of social media, awareness of hypertension, participation in physical activities, smoking habits, and encounters with adverse events in the preceding month. Adverse events were operationally defined as occurrences or circumstances in the prior month that induced feelings of despondency or depression in the participant, with personal interpretation guiding the determination of what constituted a "negative event." The subsequent segment of the questionnaire delved into aspects concerning quality of life, while the final segment was dedicated to the evaluation of hypertension.

To evaluate the quality of life, the Dari version of the World Health Organization's Quality of Life–Bref (WHOQOL-Bref 26) assessment, comprising 26 items, was employed (21). This scale measures quality of life across four dimensions: physical health, psychological well-being, social relationships, and environmental factors. Each item (e.g., "To what extent do you feel that physical pain prevents you from doing what you need to do?") is rated on a five-point scale ranging from 1 (not at all) to 5 (an extreme amount). Raw scores underwent transformation to a 0-100 range to facilitate comparability with WHOQOL-100. A total score below 46 in any WHOQOL-Bref 26 domain indicated a low quality of life, while scores falling between 46 and 65 signified a moderate quality of life. Scores exceeding 65 denoted a high quality of life (22).

Each participant's blood pressure was assessed twice. Initially, their blood pressure was measured prior to responding to the interview questions. Subsequently, a second measurement was taken after the completion of the interview questions. Participants with a systolic blood pressure of 140 mmHg or higher, a diastolic blood pressure of 90 mmHg or higher, or both, were classified as having hypertension.

Ethical approval

This study received ethical approval from the Afghanistan Center for Epidemiological Studies - Ethical Committee (reference number #23.1.018; 2023). Prior to the commencement of the study, participants were fully briefed on the procedures and objectives. All methodologies adhered strictly to pertinent ethical principles and regulations.

Data analysis

Initially, the data were inputted and structured utilizing Microsoft Excel 2016 to guarantee accuracy and consistency. Subsequent statistical analyses were carried out using Statistical Package for the Social Sciences (SPSS) version 26 (Armonk, NY, USA). Preliminary data examination encompassed descriptive statistics, including the computation of means, standard deviations, frequencies, and percentages. A two-tailed significance level of 0.05 was set as the threshold for determining statistical significance in the analyses.

Results

A total of 503 school teachers participated in this study. Of these participants, 61.2% were female and 89.5% were married. The majority reported a middle-income economic status (82.9%) and a high engagement in social media (70.8%). A significant portion, 23.5%, had hypertension. Almost half of the participants engaged in sports (49.5%), and a low number reported being current cigarette smokers (4.0%). [Table 1]

The breakdown of participants exhibiting a high quality of life (QoL) across the four domains was as follows: 22.5% in the physical health domain, 36.6% in the psychological health domain, 53.7% in the social relationship domain, and 15.5% in the environment domain. [Figure 1]

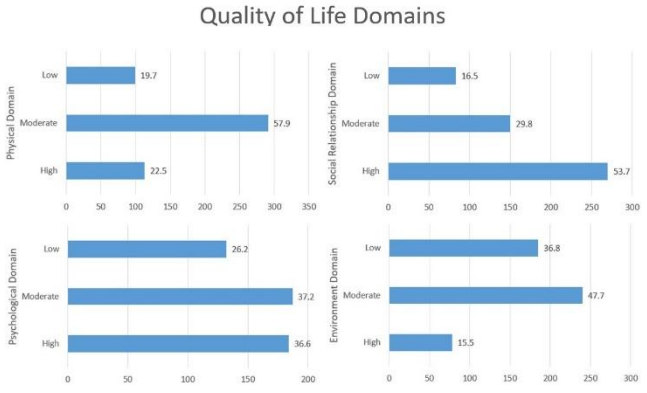

Figure 1. Domains of quality of life of participants

Table 1: Characteristics distribution of the participants

Characteristic	Number (N)	Percentage (%)
Age group		
25–39-years	295	58.6
40–80-years	208	41.4
Gender		
Male	195	38.8
Female	308	61.2
Marital status		
Single	53	10.5
Married	450	89.5
Economic status		
High income	12	2.4
Middle income	417	82.9
Low income	74	14.7
Social media use		
Yes	356	70.8
No	147	29.2
Aware of hypertension		
Yes	116	23.1
No	387	76.9
Engage in sports		
Yes	249	49.5
No	254	50.5
Cigarette smoker		
Yes	20	4.0
No	483	96.0
Blood pressure		
Normotensive	385	76.5
Hypertensive	118	23.5
Event		
Yes	159	31.6
No	344	68.4
Total	**503**	**100.0**

Hypertension was more prevalent in older adults (28.4% in those aged 40–80 vs. 20.0% in those aged 25–39) and males (30.3%) compared to females (19.2%). Of all the participants with hypertension around (14.0%) did not know about having hypertension previously. Other factors like marital status, economic status, social media use, sports engagement, smoking, and event participation did not show significant associations with hypertension. [Table 2]

Table 2: Association of hypertension with participants' sociodemographic characteristics

Characteristic	Categories	Blood Pressure		*p*-value
		Normotensive	Hypertensive	
		N (%)	N (%)	
Age group	25–39-years	236 (80.0)	59 (20.0)	.029
	40–80-years	149 (71.6)	59 (28.4)	
Gender	Male	136 (69.7)	59 (30.3)	.004
	Female	249 (80.8)	59 (19.2)	
Marital status	Single	49 (79.2)	11 (20.8)	.623
	Married	343 (76.2)	107 (23.8)	
Economic status	High income	6 (50.0)	6 (50.0)	.073
	Middle income	324 (77.7)	93 (22.3)	
	Low income	55 (74.3)	19 (25.7)	
Social media use	Yes	274 (77.0)	82 (23.0)	.726
	No	111 (75.5)	36 (24.5)	
Aware of hypertension	Yes	52 (44.8)	64 (55.2)	<.001
	No	333 (86.0)	54 (14.0)	
Engage in sports	Yes	193 (77.5)	56 (22.5)	.611
	No	192 (75.6)	62 (24.4)	
Cigarette smoker	Yes	14 (70.0)	6 (30.0)	.481
	No	371 (76.8)	112 (23.2)	
Event	Yes	118 (74.2)	41 (25.8)	.402
	No	267 (77.6)	77 (22.4)	
Total		**385 (76.5)**	**118 (23.5)**	

Individuals categorized with high scores in the physical (85.0%), psychological (83.2%), and social relationship domains (80.0%) exhibited lower hypertension prevalence compared to those in the moderate or low categories, representing a compression of 15.0%, 16.8%, and 20.0%, respectively. Conversely, no significant correlations were observed between hypertension prevalence and self-rated quality of life, satisfaction with health, or the environment domain. The study sample comprised 76.5% normotensive and 23.5% hypertensive individuals. [Table 3]

Discussion

This study aimed to evaluate the impact of hypertension on the health-related quality of life (HRQoL) among Afghan school teachers using the WHOQoL-Bref 26 questionnaire. The findings provide significant insights into the prevalence of hypertension and its relationship with various domains of quality of life in this population.

The prevalence of hypertension among the study participants was 23.5%, which is consistent with global trends indicating a significant burden of hypertension in both low and middle income countries (2). The higher prevalence in older adults (28.4% in those aged 40–80) and males (30.3%) compared to their younger and female counterparts aligns with existing research that identifies age and gender as significant risk factors for hypertension (1-3). Moreover, participants with hypertension reported significantly lower quality of life in the physical, psychological, and social relationship domains compared to those with normal blood pressure, emphasizing the profound impact of hypertension on overall well-being.

Several studies have highlighted the prevalence and determinants of hypertension in Afghanistan. For instance, Nabi et al. (2019) assessed hypertension prevalence and associated risk factors in a rural community in Afghanistan, finding significant links between hypertension and various sociodemographic factors (23). Similarly, Mohammad et al. (2020) studied hypertension prevalence and its associated factors among adults in Kabul, Afghanistan, highlighting the urban-rural disparity in hypertension rates (24).

Table 3: Association of quality of life of participants with presence of hypertension

Quality of life	Categories	Blood Pressure		*p*-value
		Normotensive	Hypertensive	
		N (%)	N (%)	
How would you rate your quality of life?	Very poor	12 (80.0)	3 (20.0)	.579
	Poor	13 (65.0)	7 (35.0)	
	Neither poor nor good	151 (77.4)	44 (22.6)	
	Good	152 (78.4)	42 (21.6)	
	Very good	57 (72.2)	22 (27.8)	
How satisfied are you with your health?	Very dissatisfied	9 (100.0)	0 (0.0)	.110
	Dissatisfied	23 (63.9)	13 (36.1)	
	Neither satisfied nor dissatisfied	154 (74.4)	53 (25.6)	
	Satisfied	138 (79.3)	36 (20.7)	
	Very satisfied	61 (79.2)	16 (20.8)	
Physical domain	Low	67 (67.7)	32 (32.3)	.012
	Moderate	222 (76.3)	69 (23.7)	
	High	96 (85.0)	17 (15.0)	
Psychological domain	Low	96 (72.7)	36 (27.3)	.029
	Moderate	136 (72.7)	51 (27.3)	
	High	153 (83.2)	31 (16.8)	
Social relationship domain	Low	54 (65.1)	29 (34.9)	.019
	Moderate	115 (76.7)	35 (23.3)	
	High	216 (80.0)	54 (20.0)	
Environment domain	Low	136 (73.5)	49 (26.5)	.229
	Moderate	184 (76.7)	56 (23.3)	
	High	65 (83.3)	13 (16.7)	
Total		**385 (76.5)**	**118 (23.5)**	

Comparatively, a study in Pakistan reported a hypertension prevalence of 26%, which is similar to our findings. This study also noted a higher prevalence in older adults and males, corroborating the trends observed in our research (17). In Bangladesh, Hussain et al. (2017) found a hypertension prevalence of 25%, also supporting our results (13). Conversely, a study in Nepal reported a slightly lower prevalence of 20%, suggesting regional variations in hypertension rates (15).

Hypertension was significantly more prevalent in males (30.3%) than in females (18.7%), with a p-value of less than 0.05 indicating a statistically significant difference. This finding corresponds with earlier research, which has reported higher rates of hypertension among males due to factors such as lifestyle differences and biological susceptibility (1-3).

The impact of hypertension on HRQoL was evident across multiple domains. Participants with hypertension reported significantly lower quality of life in the physical, psychological, and social relationship domains compared to those with normal blood pressure. This aligns with previous studies indicating that hypertension negatively impacts physical health and is associated with increased psychological stress and poorer social interactions (8, 9). For instance, a study conducted in Dessie City, Northeast Ethiopia, found that hypertensive patients had reduced HRQoL in similar domains (6).

In the physical health domain, 22.5% of participants reported a high quality of life. Hypertensive individuals showed a significantly lower prevalence of high physical health and quality of life than normotensive individuals (8). This finding underscores the detrimental effects of hypertension on physical functioning and overall health. Research from other regions supports this conclusion, showing that hypertension considerably worsens physical health and heightens the risk of comorbidities like cardiovascular disease and diabetes (10, 25).

For instance, a study in Sweden found a significant association between hypertension and lower physical health-related quality of life (HRQoL), primarily due to its contribution to cardiovascular

diseases (11). Similarly, Wang et al. (2009) reported that hypertension adversely affects physical functioning in the elderly Chinese population, which aligns with our findings (12). Furthermore, a study in India observed that hypertensive patients had significantly lower physical functioning scores compared to non-hypertensive individuals (33-34). Additionally, a study in Pakistan reported similar results, highlighting the global impact of hypertension on physical health (17).

In the psychological health domain, 36.6% of participants reported a high quality of life. Hypertension was associated with lower scores in this domain, reflecting the psychological burden and stress of managing a chronic condition. This finding aligns with findings from Chin et al. (2014), who reported that hypertension, diabetes, and cardiovascular disease negatively affect the psychological health of elderly individuals (10). Other studies have also shown that hypertension can lead to increased anxiety, depression, and reduced mental well-being (26-27).

A study by Li et al. (2005) in Sweden found that individuals with hypertension reported lower scores in mental health, highlighting the psychological burden of the condition (11). Similarly, research in Korea demonstrated that hypertension significantly affects mental health, contributing to higher levels of stress and depression (30). Additionally, a study in Bangladesh found that hypertensive individuals had significantly higher levels of anxiety and depression compared to their normotensive counterparts (35). In India, a similar study reported that hypertensive patients had lower psychological well-being scores, supporting our findings (36).

In the social relationships domain, 53.7% of participants reported a high quality of life. However, hypertensive individuals reported poorer social relationships, which could be due to the stigma and isolation often associated with chronic illnesses (6). This finding is affirmed by previous research indicating that hypertension can lead to social withdrawal and decreased social support (28). Conversely, some studies have found no significant impact of hypertension on social relationships, suggesting that cultural and contextual factors might play a role in this domain (29).

For instance, a study in Bangladesh found that hypertensive individuals often experience social isolation and reduced social support, which aligns with our findings (13). On the other hand, a study in Nepal reported no significant differences in social HRQoL between hypertensive and non-hypertensive individuals, suggesting the influence of cultural factors (15). Additionally, a study in urban India found that social support and community engagement were crucial in mitigating the negative social impacts of hypertension (36).

Interestingly, no significant correlation was observed between hypertension prevalence and quality of life in the environmental domain. This may be attributed to cultural factors or specific stressors associated with the teaching profession in Afghanistan, which may influence self-perception of health and environmental satisfaction differently (7). Other studies have shown mixed results in this domain, with some reporting significant impacts of hypertension on environmental quality of life and others finding no substantial effects (30-32).

A study in urban Pakistan reported significant environmental HRQoL impairments in hypertensive individuals, likely due to urban stressors and poor living conditions (17). In contrast, a study in the Federally Administered Tribal Areas (FATA) of Pakistan found no significant environmental HRQoL differences, suggesting regional and cultural variations (18). Similarly, a study in Nepal reported no significant differences in environmental HRQoL between hypertensive and non-hypertensive individuals (15). A study in India also found no significant differences in environmental HRQoL, further supporting the notion that this domain may be influenced by specific contextual factors (37-38).

The study also highlighted the importance of lifestyle factors in managing hypertension and improving quality of life. High engagement in social media was associated with a lower prevalence of hypertension (20.1% among high users vs. 27.6% among low users), with a p-value <0.05. This finding

suggests that social media engagement may provide a platform for health information dissemination and social support, potentially contributing to better hypertension management (8). Several existing studies support this finding. For example, a study in South Korea found that social media use was positively associated with health literacy and health-promoting behaviors, which can contribute to better management of chronic conditions like hypertension (39-40).

Similarly, research in the United States indicated that social media can facilitate peer support and information exchange, leading to improved health outcomes for individuals with chronic diseases (41). However, contrasting findings exist. A study in China found that excessive use of social media was associated with negative health behaviors, including poor diet and physical inactivity, which could exacerbate hypertension (42). These mixed results highlight the complexity of social media's impact on health and underscore the need for context-specific interventions.

Hypertension was significantly more prevalent among smokers (34.2%) compared to non-smokers (22.1%), with a p-value of less than 0.05. Smoking is a recognized risk factor for hypertension, as it negatively impacts blood vessels and overall cardiovascular health.

Participants engaged in sports had a lower prevalence of hypertension (18.3%) compared to those not engaged (25.7%), with a p-value <0.05. Physical activity is known to help manage blood pressure and improve cardiovascular health (5, 15).

Furthermore, awareness and engagement in hypertension management activities were also identified as crucial factors. A study in urban Lahore, Pakistan, found that higher awareness and proactive management of hypertension were associated with better HRQoL (17). Engaging in sports and regular physical activity has also been shown to improve both physical and psychological health outcomes in hypertensive individuals (37).

Conclusion

This study underscores the significant impact of hypertension on the health-related quality of life among Afghan school teachers. Effective management strategies targeting physical, psychological, and social health are essential to mitigate the adverse effects of hypertension. Further research should explore the role of cultural and occupational factors in shaping the quality of life in this population.

Authors contribution

All of the authors contributed equally.

Funding

None.

Conflict of Interest

None.

Acknowledgement

We thank the reviewers for their helpful comments that helped us improve the quality of our article.

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