ISSN: 2961-1989
Academia Research Journal
Volume: 4 Issue: 1, Year 2025
****

Quality of Life among Patient Affected with Hypertension in Kaushallya Memorial Hospital, Kohalpur, Banke

Sabita Acharya[1]

DOI: https://doi.org/10.3126/academia.v4i1.73359

[1]Corresponding Author: Lecturer, Faculty of Nursing, Lord Buddha Education Academy, Nepalgunj Medical college, Email: sabitaacharya1217@gmail.com

Article History: Received: Aug. 8, 2024 Revised: Nov. 22 2024 Received: Dec. 9, 2024

Abstract

Hypertension is defined as the force exerted by circulating blood against the walls of the arteries, the major blood vessels in the body. Quality of life (QoL) is the subjectively determined personal satisfaction with daily life, as influenced by the individual's evaluation of his/her physical, psychological, social, and spiritual wellbeing. The objective of this research was to assess quality of life among patient affected with hypertension in Kaushallya Memorial Hospital, Kohalpur, Banke. A descriptive cross-sectional research design was selected for the study and non-probability purposive sampling technique was used to select 60 hypertensive patients. Standarized questionnaire tool was used to collect data. The collected data were analyzed by using descriptive and inferential (ANOVA) statistic through SPSS version 21. The result of the study revealed that majority of the respondents 42(70.0%) had fair quality of life whereas quarter of the respondents 15(25.05) had poor quality of life and least of the respondents 3(5.0%) had good quality of life. The study shows that a higher Mental Health Scale domain score i.e.18.31±2.64. Role Emotional Scale domain has lowest score 5.05±1.87. It is concluded that general health domain, role physical domain, PFS, role emotional scale, SFS domain and vitality scale domain and role emotional domain of hypertension patient were affected.

Keywords: Hypertension, quality of life, patient, personal satisfaction

Introduction

Hypertension is defined as the force exerted by circulating blood against the walls of the arteries, the major blood vessels in the body. It occurs when blood pressure is too high, typically measured using two numbers: systolic (pressure during heart contractions) and diastolic (pressure during heart relaxation). A diagnosis of hypertension requires systolic readings of ≥140 mmHg and/or diastolic readings of ≥90 mmHg on two different days (World Health Organization [WHO], n.d.). Often referred to as a "silent killer," hypertension typically has no warning signs or symptoms, necessitating regular blood pressure monitoring. Without treatment, extremely high blood pressure (≥180/120 mmHg) has a high likelihood of resulting in fatal outcomes within a year (Trevisol et al., 2012).

Hypertension is a major risk factor for cardiovascular and kidney diseases and accounts for significant global mortality, with over 7.1 million annual deaths attributed to it (Mohan et al., 2013). In 2008, nearly a billion adults aged 25 years and older were hypertensive, with three-quarters living in developing countries (WHO, n.d.). By 2010, the prevalence had grown to over 1.3 billion globally, with an age-standardized prevalence rate of 31.1% (Xu et al., 2016). Contributing factors in developing countries include limited healthcare access, poverty, and high medication costs (Liu et al., 2017).

The relationship between hypertension and quality of life (QoL) is complex. QoL refers to personal satisfaction with life, encompassing physical, psychological, social, and spiritual well-being. The WHO (n.d.) defines QoL as an individual's perception of their position in life relative to their cultural and value systems and personal goals. Studies indicate that hypertension negatively impacts QoL, particularly in physical and mental domains (Bhandari et al., 2016). Factors such as age, gender, and symptom severity influence QoL, with older, widowed, and female patients reporting the most significant impairments (Wang et al., 2019).

Research highlights the socio-economic burden associated with hypertension, particularly in low- and middle-income countries. For example, in China, hypertension prevalence rose from 15.6% in 1991 to 20.9% in 2011 (Kibria et al., 2018). This burden extends to healthcare costs, which represent approximately 10% of total healthcare spending in some regions (WHO, n.d.). Effective management and treatment of hypertension, including lifestyle modifications and pharmacological interventions, are essential for reducing its impact on individuals and health systems (Bezerra & Veiga, 2013).

In studies assessing hypertension's impact on QoL, instruments like the SF-36 health survey and EQ-5D-5L have been employed. A cross-sectional study in Hong Kong found that physical disabilities related to hypertension significantly reduced QoL (Wong et al., 2019). Similarly, a study in Chongqing, China, noted that economic stability and regular physical activity positively influenced QoL, particularly in women (Xiao et al., 2019). These findings

emphasize the need for comprehensive care addressing physical and psychological dimensions of health.

Hypertension is the most prevalent cardiovascular risk factor in the world, increasing significantly with aging. The treatment of arterial hypertension leads to the reduction of the risk of cardiovascular events, such as stroke and heart disease. In the adult population, the prevalence of hypertension is about 30 to 45%, varying between countries. In 2010, more than 1.3 billion adults age ≥ 20-years-old were hypertensive worldwide, representing an estimated global age-standardized prevalence of hypertension of 31.1%. This figure is increasing with ageing and in the developing countries.

Hypertension progresses with mild or no symptoms for many years until it is diagnosed or consequences of end-organ damage emerge. At the moment of the diagnosis, physicians may well assume that the patient will share their optimistic view about the benefit of such diagnosis in face of the existence of many efficacious medical therapies and the usual good prognosis of patients under treatment. Nonetheless, quality of life is a subjective concept that depends on perception and individual preferences. Disease labels and treatment lead to changes in lifestyle that may also affect health-related quality of life (HRQoL) and influence the adherence to treatment, a major issue nowadays for the treatment of hypertension and other chronic diseases.

Cardiovascular disease, including hypertension costs, accounted for about 10% of the total healthcare spending in certain low- and middle-income countries, according to the estimation of global report on non-communicable diseases in 2013. In China, the prevalence of hypertension increased from 15.6% in 1991 to 20.9% in 2011. In addition, hypertension is a major risk factor for cardiovascular diseases and stroke and it requires lifelong medication, which is associated with heavy socio-economic burdens on individuals and health systems. (China National Diabetes and Metabolic Disorders Study).

Quality of life (QoL) is the subjectively determined personal satisfaction with daily life, as influenced by the individual's evaluation of his/her physical, psychological, social, and spiritual wellbeing. World Health Organization defines QoL as “an individual's perception of their position in life in the context of the culture and value systems in which they live, and in relation to their goals, expectations, standards and concerns”.

In different studies conducted to assess the relation between QoL and hypertension, most of the studies reported lower scores in most dimensions as physical capacity, social functioning, mental health, psychological functioning, vitality as compared to general population. Increasing age widowed/separated/single female sex, patient with greater symptom had greater impact on QoL with lower scores on physical and mental domain. Wang and colleagues stated that hypertension represent a vulnerable population and impairs QoL in both physical and mental domains. Carvalho and others pointed out that most of the time hypertension is clinically silent disease but still it impairs QoL.

Objectives of the Study

- To identify Quality of Life among Patient affected with Hypertension at Kaushallya Memorial Hospital, Kohalpur, Banke.
- To assess the Quality of Life among Patient affected with Hypertension.
- To measure the association between Quality of Life among Patient affected with Hypertension with their selected demographic variables.

Limitation of the study

The study was limited to:

- 0nly 60 patients affected with hypertension (both male and female) of Kaushallya Memorial Hospital, Kohalpur-9, Banke were taken for this research.

Literature review and research gap

A cross-sectional study was conducted to assess the quality of life among patients affected by hypertension in Hong Kong SAR, China, in 2019. Convenient sampling technique was used, and health-related quality of life (HRQoL) was measured using the EuroQol 5-Dimensions instrument with a five-level scale (EQ-5D-5L). The study showed that more respondents were women (53.9%), aged ≥65 years old (60.1%), and had primary educational attainment or below (52.3%). A total of 1,466 respondents (32.4%) also reported suffering from diabetes, heart disease (20.8%), vision problems (1.7%), and cancer (1.5%). In the ordinal least squares model, utility decreased most when patients reported having a physical disability associated with hypertension ($\beta = -0.395$, SE = 0.047), with reductions of 0.128, 0.064, 0.05, and 0.048 for mental problems, cancer, vision problems, and heart problems, respectively. The study concluded that respondents with hypertension reported a low EQ-5D utility score (Wong et al., 2019).

A descriptive cross-sectional study was conducted to assess the quality of life among patients affected by hypertension in a tertiary care hospital in Erode in May 2016. A total of 300 patients were selected during the six-month study period using purposive sampling. The Short Form-36 Item (SF-36) Health Survey Questionnaire was employed to assess the quality of life in hypertensive patients. In this study, mental health (average score: 25.8) was the most affected component, followed by emotional aspects (average score: 33.43) and vitality (average score: 36). Social aspects (average score: 83.14), physical aspects (average score: 75.4), and functional capacities (average score: 67.1) appeared to be least affected. Pain (average score: 49.3) was moderately affected, and physical aspects were the least affected by hypertension. The study concluded that the quality of life is mostly affected in the mental domain among hypertensive patients (Bezerra & Veiga, 2013).

A cross-sectional study was conducted to assess the quality of life among patients affected by hypertension in Chongqing, China, in July 2016. Random sampling technique was

used, and the SF-36 Short Form Health Survey Questionnaire was employed to measure HRQoL. Linear regression analyses revealed that self-perceived low economic burden caused by hypertension and regular physical activity had a positive impact on HRQoL ($p < 0.05$) for both men and women. For women, younger age was associated with higher scores for physical functioning and body pain. Emotional self-regulation had a positive association with women's mental health. Alcohol use among men was associated with higher scores in physical and mental health measures, and emotional self-regulation positively influenced general health. The study concluded that quality of life is most affected by physical functioning (Xiao et al., 2019).

A descriptive cross-sectional study was conducted to assess the quality of life among patients affected by hypertension attending the outpatient department of Manmohan Cardiothoracic Vascular and Transplant Centre in December 2016. The sample size was 237, and data were collected through interviews using the SF-36 Questionnaire. Data analysis using SPSS version 16 showed that p-values < 0.05 were significant. Quality of life was determined by Physical Component Summary (PCS) and Mental Component Summary (MCS). The mean age of participants was 55.02 (±13.375) years, with more than half being male (54.9%). A majority (60.3%) reported living with a partner, and 55.3% had formal education. The median duration of hypertension was two years. Most participants (86.9%) were managed with a single drug, and very few (11.0%) experienced side effects of medication. The study concluded that increasing age, non-formal education, and being single were associated with a lower quality of life (Trevisol et al., 2012).

A cross-sectional study was conducted to assess the quality of life among patients affected by hypertension in the outpatient department of a tertiary care teaching hospital in 2014. Snowball sampling technique was employed. A total of 269 patients participated, with a mean age of 58.25 (±10.35) years and a mean duration of hypertension of 7.65 (±8.00) years. Statistically significant ($p < 0.05$) negative correlations were found between WHOQOL-BREF scores and age, duration of illness, number of symptoms, systolic blood pressure, and the number of drugs prescribed. Conversely, the MINICHAL scale showed statistically significant positive correlations ($p < 0.05$) with the same variables. The study concluded that women had significantly poorer quality of life compared to men (Bhandari et al., 2016).

A questionnaire-based study was conducted in Poland in 2014 to assess the quality of life among hypertensive patients who had been under treatment for at least three months. The study included 12,525 patients, and HRQoL was evaluated using the Medical Outcomes Study 36-Item Short Form Health Survey (SF-36). Coexisting diseases were reported by 7,986 patients (63.8%), with lower HRQoL values significantly associated with conditions like obstructive respiratory disease, degenerative disc disease, radiculopathy, coronary artery disease, and stroke. HRQoL decreased significantly with age and the duration of antihypertensive therapy (>2 years). Men and participants with higher education reported higher HRQoL values, whereas participants who were obese or had visceral obesity reported lower HRQoL scores (Mohan et al., 2013).

After reviewing related literature, it was found that health-related quality of life is significantly influenced by marital status, educational level, duration of hypertension, blood pressure status, and the presence of health complaints. Physical and mental domains are the most affected in people with hypertension. This research is distinct, as no prior studies have addressed this issue in the specific hospital, which is relatively new.

Methodology

.

Research design

Simple descriptive cross- sectional study design was adopted to find out quality of life among patient affected with hypertension in Kaushallya Memorial Hospital, Kohalpur- 9, Banke.

Setting of the study

The study was conducted in Kaushallya Memorial Hospital Kohalpur 9, Banke.

Geographical introduction

Kaushallya Memorial Hospital is located in Kohalpur, Banke. Kohalpur is a Sub-Metropolitan city in Banke district, Nepal. It lies on the Terai plains near the Southern border with Bahraich district in Uttar-Pradesh. Kohalpur is 153 kilometre south-west of Ghorahi and 16 KM south of Nepalgunj.

Study population

The study population refers to both male and female was affected by hypertension at Kaushallya Memorial Hospital, Kohalpur-9, Banke.

Sample size

Sample size was 60.

Sampling technique

Non- probability purposive sampling technique was used.

Sample selection criteria

Inclusion criteria

The study included:

- Both male and female patient was affected by hypertension who were ≥20 years at Kaushallya Memorial Hospital, Kohalpur-9, Banke.
- Those who were willing to participate in the study.
- Those who were available during the time of data collection.

Data Collection Tools

A Standardized Tool Short Form (SF-36) was used as a research tool. Questionnaire was consisting of two parts.

*Part I***:** Performa to collect socio- demographic data.

Part II: Structured Standarized tool Short Form (SF 36) questionnaire to obtain data on quality of life.

Data collection technique

Face to face interview technique was used to collect the data.

Data collection procedure

- Request letter from the college was submitted to Kaushallya Memorial Hospital, Kohalpur-9, Banke.
- Administrative approval was taken from Kaushallya Memorial Hospital, Kohalpur-9, Banke.
- The objective of the study was explained to the respondents and included in the study according to their willingness of the respondent.
- Informed written consent was obtained from all the respondents.
- Data was collected by using structured questionnaire Short Form-36.
- The data was collected by using face to face interview technique.

Ethical consideration

The permission was obtained from the Kaushallya Memorial Hospital Kohalpur-9, Banke. Informed consent from respondent was taken before starting questionnaire. Confidentiality and privacy was maintained. Responded wasn't be influenced by any means to participate in the study. The data wasn't personalized and the data was used for the purpose of study only.

Data analysis and Interpretation

Description of socio demographic characteristics of hypertension patients

The participant subjects were drawn from Kaushallya Memorial hospital, Kohalpur, Banke. A total of 60 hypertensive people were included in the study. Information of personal variables of hypertensive patients i.e. age**,** sex**,** religion**,** educational status, occupation, marital status, types of family, duration of illness, family history of hypertension and knowledge of hypertension were included.

Table 1

Frequency and Percentage Distribution of Respondents in Terms of Selected Socio-Demographic Variables, Educational Status, Occupation, Marital Status, Family Type, Duration of Illness, Family History of Hypertension, Other Diseases, and Knowledge about Hypertension (n=60)

Demographic Questions	Frequency	Percentage (%)
Age		
20-40	13	21.7
41-60	29	48.3
61-80	18	30
Sex		
Male	34	56.7
Female	25	41.7
Religion		
Hindu	53	88.3
Muslim	1	1.7
Christian	6	10
Educational Status		
No formal education	19	31.7
Primary education	8	13.3
Secondary education	24	40
Higher secondary education	8	13.3
Graduate and above	1	1.7
Occupation		
Student	3	5
Government employee	8	13.3
Private employee	14	23.3
Self-employed	35	58.3
Type of Family		
Nuclear	25	41.7
Joint	4	6.7
Duration of Illness		
6 months to 1 year	13	21.7
Above 1 year	47	78.3
Family History of Hypertension		
Yes	12	20
No	10	16.7
Knowledge about Hypertension		
Yes	10	16.7
No	50	83.3

Table 1 reveals that nearly half (48.3%) of the respondents were aged 41-60 years, with the least (21.7%) in the 20-40 age group. More than half (56.7%) were male, while 41.7% were

female. The majority (88.3%) of respondents identified as Hindu, with smaller proportions of Christians (10%) and Muslims (1.7%). Regarding education, most respondents (40%) had secondary-level education, while only 1.7% were graduates or above. In terms of occupation, the majority (58.3%) were self-employed, with students comprising the smallest group (5%). Most respondents (90%) were married, while 6.7% were widowed, and 3.3% were unmarried. Nearly half (41.7%) belonged to nuclear families, with only 6.7% from joint families. A significant proportion (78.3%) had been living with hypertension for more than one year, and 21.7% had been diagnosed for 6 months to 1 year. While 20% had a family history of hypertension, 81.7% reported no other diseases besides hypertension. Lastly, 83.3% of respondents lacked knowledge about hypertension, highlighting a critical gap in awareness.

Quality of Life among Patient with Hypertension

Table 2

Integrated Table of Quality of Life Assessment Among Hypertensive Individuals (n=60)

Variables	Categories	Frequency	Percentage (%)
General Health			
General health status	Excellent	1	1.7
	Very Good	1	1.7
	Good	13	21.7
	Fair	33	55
	Poor	12	20
Compared to a year ago	Much better now	10	16.7
	Somewhat better now	9	15
	About the same	36	60
	Somewhat worse now	0	0
	Much worse now	5	8.3
Physical Limitations			
Lifting or carrying groceries	Limited a lot	27	45
	Limited a little	30	50
	Not limited at all	3	5
Climbing several flights of stairs	Limited a lot	12	20
	Limited a little	42	70
	Not limited at all	6	10
Bending, kneeling, or stooping	Limited a lot	21	35
	Limited a little	35	58.3
	Not limited at all	4	6.7
Emotional and Social Interference			

Variables	Categories	Frequency	Percentage (%)
Physical health/emotional problems affecting social activities (past 4 weeks)	Not at all	1	1.7
	Slightly	21	35
	Moderately	35	58.3
	Severe	3	5
Pain Interference			
Pain interfered with normal work (past 4 weeks)	Not at all	4	6.7
	A little bit	19	31.7
	Moderately	21	35
	Quite a bit	14	23.3
	Extremely	2	3.3

The table summarizes the quality of life among hypertensive individuals across various domains. Most respondents rated their general health as "Fair" (55%), with 60% reporting no change compared to the previous year. Physical activities were notably limited, with 70% struggling with tasks like climbing stairs and 58.3% experiencing difficulty with bending or kneeling. Emotional and social health were moderately impacted for 58.3% of individuals, while pain moderately interfered with normal work for 35%. These findings highlight substantial physical and emotional challenges, emphasizing the need for targeted interventions to improve overall well-being.

Table 3

Association of Quality of Life (QOL) with Selected Demographic Variables

Demographic Variable	Domain	P-Value	Significance
Age	General Health	0.050	Significant
Gender	None	>0.05	Non-Significant
Religion	None	>0.05	Non-Significant
Education Status	None	>0.05	Non-Significant
Occupation	None	>0.05	Non-Significant
Marital Status	Role Physical Scale	0.041	Significant
Family Type	PFS	0.051	Significant
Family Type	Role Emotional Scale	0.055	Significant
Duration of Illness	Role Emotional Scale	0.017	Significant
Duration of Illness	SFS	0.015	Significant
Information Knowledge	Vitality Scale	0.054	Significant
Other Diseases	None	>0.05	Non-Significant

This table summarizes significant findings from the association between demographic variables and QOL domains among patients with hypertension in Kaushallya Memorial Hospital, Kohalpur, Banke. The table examined the association between the quality of life (QoL) of patients with hypertension and selected demographic variables at Kaushallya Memorial Hospital, Kohalpur, Banke. Among the domains analyzed, a significant association was found between general health and age (p=0.050), as well as between role physical scale and marital status (p=0.041). Family type was significantly associated with PFS (p=0.051) and role emotional scale (p=0.055). Duration of illness showed significant associations with role emotional scale (p=0.017) and SFS (p=0.015). Knowledge of hypertension was significantly associated with vitality scale (p=0.054). However, no significant associations were observed between QoL and other variables such as gender, religion, educational status, occupation, and most domains of QoL, as the majority of p-values exceeded 0.05. These findings indicate that specific demographic factors influence particular QoL domains among hypertensive patients, emphasizing the importance of personalized care strategies.

Discussion, Findings and Conclusion,

Discussion

The findings of this study underscore the multifaceted impact of hypertension on the quality of life (QoL) of patients and the significant influence of certain socio-demographic variables. The majority of participants were middle-aged (41-60 years), with males comprising a slight majority. This aligns with global trends indicating that middle age and male gender often correlate with higher hypertension prevalence due to lifestyle factors and biological predispositions. The predominance of Hindu participants reflects the local demographic composition of the region. The educational background revealed that a significant proportion of participants had secondary-level education or no formal education, suggesting a potential gap in health literacy. Notably, a majority were self-employed, pointing to a possible link between occupational stress and hypertension.

Quality of life assessment revealed significant limitations in physical activities, with a notable proportion of participants experiencing difficulties in tasks like climbing stairs and bending. Emotional and social domains were also moderately impacted, with over half of the respondents reporting interference in social activities due to physical or emotional health problems. Pain was a frequent issue, further diminishing overall well-being.

The statistical analysis revealed significant associations between specific demographic variables and QoL domains. Age significantly influenced general health, highlighting the potential cumulative burden of hypertension with advancing age. Marital status and family type were significantly associated with role physical and emotional scales, suggesting that family structure and marital support might mitigate or exacerbate the impact of hypertension. Duration

of illness was strongly associated with role emotional and social functioning scales, indicating the long-term emotional toll of chronic illness. Knowledge of hypertension was linked to the vitality scale, emphasizing the importance of awareness and education in improving patients' energy levels and overall well-being.

However, certain variables, including gender, religion, education, and occupation, showed no significant associations with QoL domains, suggesting that these factors might not directly impact the perceived quality of life among hypertensive patients in this specific population. The lack of knowledge about hypertension among 83.3% of respondents underscores a critical gap in awareness, which could contribute to suboptimal disease management and lower QoL.

Findings

1. The majority of participants were middle-aged (41-60 years) and predominantly male.
2. Most respondents reported limited physical functioning, particularly in tasks like climbing stairs and bending.
3. Emotional and social health were moderately impacted for over half of the participants.
4. Pain moderately interfered with daily activities in 35% of respondents.
5. Significant associations were found between:
    - Age and general health.
    - Marital status and role physical scale.
    - Family type and role emotional and physical functioning scales.
    - Duration of illness and role emotional/social functioning scales.
    - Knowledge of hypertension and vitality scale.
6. A significant knowledge gap about hypertension was observed, with 83.3% of respondents lacking awareness.
7. Gender, religion, education, and occupation were not significantly associated with QoL domains.

Conclusion

This study highlights the substantial physical, emotional, and social challenges faced by hypertensive patients, particularly those with limited knowledge about their condition. Demographic factors such as age, marital status, family type, and duration of illness significantly influence specific QoL domains, indicating the need for targeted, patient-centered interventions. Addressing the identified knowledge gap through health education programs could enhance disease management and improve overall quality of life. These findings underscore the importance of incorporating socio-demographic considerations into hypertension care strategies to ensure effective and holistic patient support.

References

Bezerra, S. M., & Veiga, E. V. (2013). Quality of life among people with hypertension served in units of family health strategies. *Journal of Nursing UFPE Online, 7*(12), 7055–7063.

Bhandari, N., Bhusal, B. R., K.C., T., & Lawot, I. (2016). Quality of life of patients with hypertension in Kathmandu. *International Journal of Nursing Sciences, 3*(4), 379–384.

Borges, J. W., Moreira, T. M., Schmitt, J., Andrade, D. F., Barbetta, P. A., Souza, A. C., Lima, D. B., & Carvalho, I. S. (2017). Measuring the quality of life in hypertension according to Item Response Theory. *Revista de Saúde Pública, 51,* 45.

Huang, Y., Guo, P., Karmacharya, B. M., Seeruttun, S. R., Xu, D. R., & Hao, Y. (2019). Prevalence of hypertension and prehypertension in Nepal: A systematic review and meta-analysis. *Global Health Research and Policy, 4*(1), 11.

Hypertension. (n.d.). Retrieved January 25, 2021, from https://www.who.int/news-room/fact-sheets/detail/hypertension

Kibria, G. M. A., Swasey, K., K.C., A., Mirbolouk, M., Sakib, M. N., Sharmeen, A., et al. (2018). Estimated change in prevalence of hypertension in Nepal following application of the 2017 ACC/AHA guideline. *JAMA Network Open, 1*(3), e180606.

Liu, X., Gu, W., Li, Z., Lei, H., Li, G., & Huang, W. (2017). Hypertension prevalence, awareness, treatment, control, and associated factors in Southwest China: An update. *Journal of Hypertension, 35*(3), 637–644.

Mohan, V., Seedat, Y. K., & Pradeepa, R. (2013). The rising burden of diabetes and hypertension in Southeast Asian and African regions: Need for effective strategies for prevention and control in primary health care settings. *International Journal of Hypertension, 2013,* 409083.

Sheikh, K. A., El-Setouhy, M., Yagoub, U., Alsanosy, R., & Ahmed, Z. (2014). Khat chewing and health-related quality of life: Cross-sectional study in Jazan region, Kingdom of Saudi Arabia. *Health and Quality of Life Outcomes, 12*(1), 1–10.

Trevisol, D. J., Moreira, L. B., Fuchs, F. D., & Fuchs, S. C. (2012). Health-related quality of life is worse in individuals with hypertension under drug treatment: Results of a population-based study. *Journal of Human Hypertension, 26*(6), 374–380.

Wakabayas, M. (2013). Socioeconomic factors influencing the prevalence of hypertension in the rural elderly population of Thai Binh province, northern Vietnam. *International Journal of Collaborative Research on Internal Medicine and Public Health, 5*(7).

Wong, E. L., Xu, R. H., & Cheung, A. W. (2019). Health-related quality of life among patients with hypertension: Population-based survey using EQ-5D-5L in Hong Kong SAR, China. *BMJ Open, 9*(9), e032544.

Xiao, M., Zhang, F., Xiao, N., Bu, X., Tang, X., & Long, Q. (2019). Health-related quality of life of hypertension patients: A population-based cross-sectional study in Chongqing, China. *International Journal of Environmental Research and Public Health, 16*(13), 2348.

Xu, X., Rao, Y., Shi, Z., Liu, L., Chen, C., & Zhao, Y. (2016). Hypertension impact on health-related quality of life: A cross-sectional survey among middle-aged adults in Chongqing, China. *International Journal of Hypertension, 2016.*