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## PUBLIC HEALTH RESEARCH

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### Factors Related to the Quality of Life among Ambulatory Hypertensive Patients in Asia: A Systematic Review

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#### ABSTRACT

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<b>Introduction</b>	Hypertension has emerged as an enormous public health concern in recent decades, exerting detrimental effects on global mortality, morbidity, and disability rates. It serves as a major risk factor for cardiovascular disease and significantly impacts the quality of life of affected individuals. Addressing various factors is crucial to improve patients' quality of life. The primary objective of this study is to explore the factors associated with a deterioration in the quality of life, as well as their impact on the ambulatory hypertensive population residing in Asia.
<b>Methods</b>	The literatures were reviewed from three databases which were WOS, Scopus and PubMed. All published literatures were English articles with free access, published between the years 2014 and 2023, and conducted in the Asian region.
<b>Results</b>	The paper highlights various factors associated with a decreased quality of life. These factors include gender (specifically, being female), older age, limited social support, lower levels of education, and comorbidities leading to reduced financial resources. Additionally, inadequate health literacy, non-compliance with medication regimens, and insufficient understanding of the disease are also linked to a diminished quality of life.
<b>Conclusions</b>	Family and social support play pivotal roles in enhancing the quality of life for individuals with hypertension. Healthcare providers should prioritize the promotion of health literacy and encourage medication adherence to mitigate further complications related to hypertension.
<b>Keywords</b>	Hypertension; Quality of life; Cardiovascular disease; Health literacy; Social support

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## INTRODUCTION

Hypertension, which is categorized as elevated blood pressure levels, is associated with an increased risk of cardiovascular and vascular diseases, potentially leading to hypertensive emergencies or hypertensive urgencies depending on the extent of organ damage.<sup>1</sup> Patients experiencing hypertensive crises may present with nonspecific symptoms such as headaches, dizziness, nausea, vomiting, palpitations, breathing difficulties, chest pain, and peripheral oedema. These symptoms greatly impact patients' daily functioning and overall quality of life.<sup>2</sup> Research consistently demonstrates that individuals with hypertension generally have a lower quality of life compared to those without the condition. Affected individuals may encounter barriers such as limited physical mobility, increased fatigue, and reduced ability to engage in routine activities.<sup>3</sup>

Regrettably, the quality of life of hypertensive patients is often overlooked by healthcare professionals in terms of disease management, mainly due to the absence of unpleasant symptoms or disabling effects.<sup>4</sup> Older individuals, who have the highest prevalence of hypertension and face a greater risk of cardiovascular morbidity and mortality, frequently do not receive adequate treatment for high blood pressure, further compromising their quality of life.<sup>5</sup> Research suggests that untreated high blood pressure has negative impacts on social interactions and cognitive performance, resulting in a decline in overall well-being.<sup>6</sup> Maintaining optimal blood pressure levels is crucial for improving the well-being and quality of life of individuals with hypertension. However, despite our current understanding of hypertension, the control and quality of life of hypertensive patients remain inadequate. Patients also continue to lack understanding and control of the disease even after being diagnosed for several years.<sup>7</sup> Clinical trials that focus on specific medications are the primary form of research in this field, aiming to mitigate the negative consequences of blood pressure regulation on patients' quality of life.<sup>8</sup>

To investigate the true association between quality of life and various factors, this study exclusively focuses on ambulatory patients. Ambulatory patients refer to individuals who possess the ability to walk and receive medical treatment as outpatients, as opposed to being admitted to a hospital. By concentrating on ambulatory patients, we can acquire valuable insights into service utilization patterns and the financial implications associated with outpatient care. It is important to note that hypertension, commonly referred to as high blood pressure, is often managed within an ambulatory care setting.

In addition to examining the factors linked to quality of life, it is crucial to consider the impact of hypertension. The harmful effects of hypertension on several organ systems, including the cardiovascular system, brain, kidneys, and blood vessels, have been extensively documented. Consequently, hypertension results in chronic illness, diminished quality of life, escalated healthcare expenses, and premature retirement or disability.<sup>9</sup> Despite advancements in medical research, a knowledge gap still exists with regards to the factors influencing the quality of life of individuals with hypertension.

The objective of this systematic review is to assess studies conducted between the year 2014 and 2023 that investigate the factors associated with the quality of life among ambulating individuals with hypertension. By undertaking this review, we aim to provide healthcare practitioners with valuable insights into adopting a comprehensive approach to hypertension treatment. Additionally, we hope to identify potential avenues for improving the quality of life of patients living with hypertension.

## METHODS

This systematic review method was guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 review protocol. This study centres around articles that investigate the factors associated with the quality of life in individuals diagnosed with hypertension. The related articles were analysed from three databases (WOS, Scopus, and PubMed) using keywords namely “hypertension”, “hypertensive”, “high blood pressure”, “factors”, “determinants”, “predictors”, “risk factor”, “ambulating”, “outpatient”, “chronic patient” and “quality of life”. The keywords were combined using advance searching of field code (TITLE-ABS-KEY), phrase searching, truncation, and Boolean operator “OR” and “AND.”

The inclusion criteria for this systematic review consisted of articles or studies written in English that investigated the factors associated with the quality of life of ambulatory hypertension patients in Asia. The publication period spanned from year 2014 to 2023. Excluded from this review were case reports, case series, technical notes, and studies involving pediatric patients under the age of 12.

The eligible articles were summarised and categorised based on the outcome of interest which were: i) factors related to quality of life that contribute to its deterioration among ambulatory hypertensive patients, and ii) impact of this study. The process of article search was carried out according to the flow presented in Figure 1.

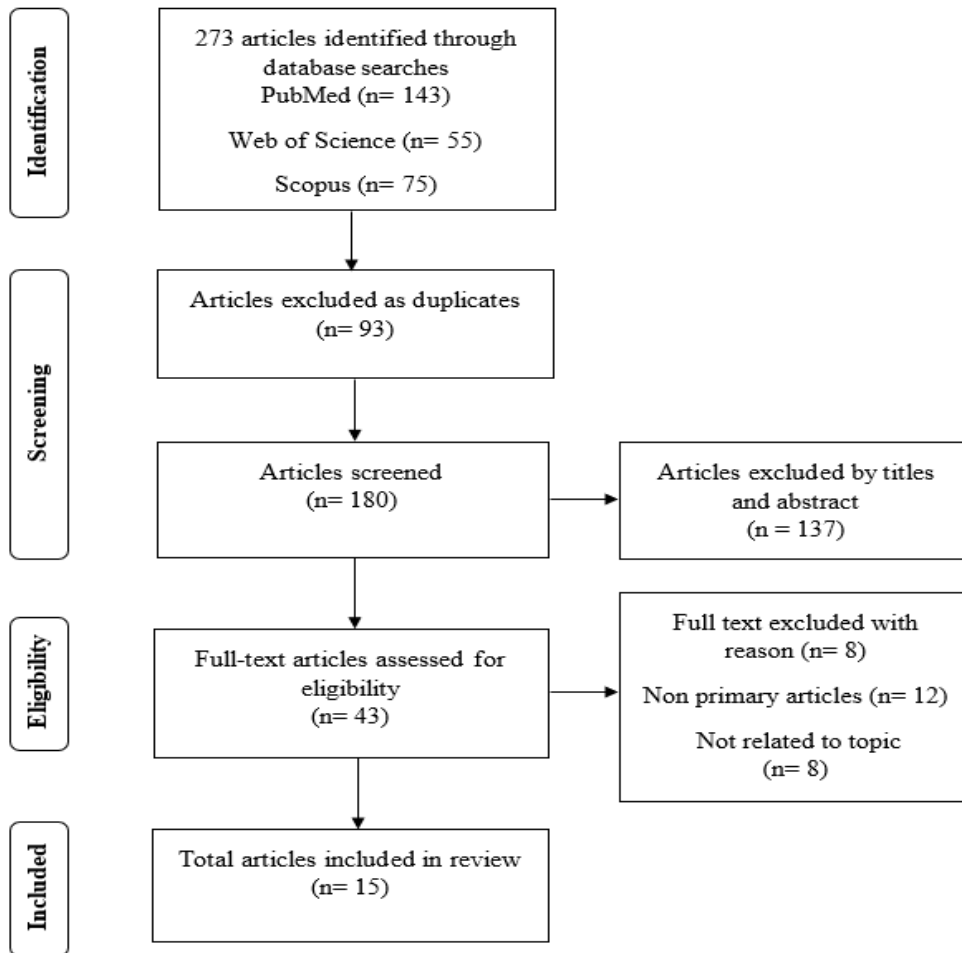


Figure 1 PRISMA flow diagram

Table 1 Summary of study location and design

Study Location	
China	Mi et al. (2015), Zhang et al. (2017), Wang et al. (2017), Li et al. (2018), Chen et al. (2021), Sang et al. (2021) and Zheng et al.(2021)
Korea	Park et al. (2018)
Saudi Arabia	Alshammari et al. (2021)
Lebanon	Jneid et al. (2018)
Vietnam	Ha et al. (2014) and Thuy et al. (2021)
Indonesia	Ambar Relawati et al. (2021)
Thailand	Chantakeeree et al. (2022)
Iran	Ebadi et al.(2020)

Table 2 Description of articles based on outcome measure

Category	No. of studies	Article No.
Medication Adherence	4	[2][6][7][11]
Comorbidities	4	[1][2][12][14][15]
Health Literacy	4	[2][4][7][10]
Sociodemographic factors	8	[3][4][5][8][9][12][14][15]
Health promoting lifestyle.	2	[5][15]
Psychological well-being	2	[4][9]
Social support	4	[6][8][11][13]

**Table 3** Summary of studies

No.	Author (Year), Country	Title	Study Design	Population	Factor related to QOL	Outcome of the Study
1.	Ha et al. (2014), Vietnam <sup>10</sup>	Quality of life among people living with hypertension in a rural Vietnam community.	Cross-Sectional	N= 275 The study population consisted of hypertensive individuals aged 50 years and older residing in a rural community in Vietnam.	The presence of co-morbidities highlights the need for early diagnosis and effective treatment of chronic conditions to improve the quality of life.	These comorbidities were significantly and negatively associated with the quality of life among hypertensive patients in this study. This highlights the importance of timely diagnosis and effective treatment of chronic conditions to maintain a satisfactory quality of life.
2.	Mi et al. (2015), China <sup>11</sup>	Association between awareness of hypertension and health-related quality of life in a cross-sectional population-based study in rural area of Northwest China.	Cross-Sectional	N=1035 The study was conducted in the Hantai district of Hanzhong city, located in the province of Shaanxi, China.	A factor that is closely associated with the quality of life is awareness, which is an essential component of health literacy. This study also discusses comorbidities and medication adherence as factors.	The study's findings revealed a negative correlation between awareness of hypertension and quality of life in rural areas of western China. Other factors, such as the presence of comorbidities associated with antihypertensive medication, may potentially contribute to the diminished health-related quality of life (HRQoL) among individuals with hypertension who are aware of their condition.
3.	Zhang et al. (2017), China <sup>12</sup>	Health-related quality of life among adults with and without hypertension : A population-based survey using EQ-5D in Shandong, China.	Cross-Sectional	N=419 A study was conducted on hypertensive individuals residing in Shandong, China.	Sociodemographic factors are the only factors shown to be related to the quality of life in this study.	The study revealed that individuals diagnosed with hypertension exhibit a diminished health-related quality of life (HRQoL). Various factors were identified as noteworthy determinants of HRQoL in hypertensive patients, including educational attainment, presence of complications, household income, and family history.
4.	Wang et al. (2017),	The effect of health	Cross-Sectional	N=882 Conducted in a	The study observed that the	Lower levels of health literacy and

	China <sup>13</sup>	literacy and self-management efficacy on the health related quality of life of hypertensive patients in a western rural area of China: A cross-sectional study.		rural area of southwestern China, specifically within six towns.	quality of life factor was health literacy, psychological well-being, and sociodemographic factors.	psychological well-being, such as self-management efficacy, can have an impact on the relationship with health-related quality of life (HRQOL). Conversely, advancing age and lower educational attainment have been identified as factors associated with a decreased quality of life.
5.	Li et al. (2018), China <sup>14</sup>	Correlations between health-promoting lifestyle and health-related quality of life among elderly people with hypertension in Hengyang, Hunan, China.	Cross-Sectional	N=530 Elderly patients diagnosed with hypertension who were selected from a community health service centre located in Hengyang, Hunan province, China.	Sociodemographic factors and health-promoting lifestyles play a crucial role in enhancing the quality of life for individuals with hypertension.	A substantial correlation was discovered between decreased HRQOL and female gender, older age, lower educational achievement, unmarried status, occupation, and reduced income. This investigation underscores the significance of advocating for health promoting lifestyle (HPL), encompassing assuming accountability for one's well-being and participating in physical activities, in order to advance HRQOL among hypertensive elderly patients.
6.	Jneid et al. (2018), Lebanon <sup>15</sup>	Quality of Life and its association with treatment satisfaction, adherence to medication, and trust in physician among patients with hypertension : A cross-sectional designed study.	Cross-Sectional	N=196 The study was conducted in medical care offices in Beirut, North, and South Lebanon.	Improved medication adherence and social support are pivotal factors in enhancing the quality of life for individuals diagnosed with hypertension.	Medication adherence and social support are crucial determinants that significantly impact and reduce the overall quality of life score among individuals diagnosed with hypertension.
7.	Park et al.	The effects	Cross-	N=166	This study	Significant

	(2018), Korea <sup>16</sup>	of medication adherence and health literacy on health-related quality of life in older people with hypertension	Sectional	A study was conducted at 16 registered public health centres in Busan, South Korea.	investigates the correlation between medication adherence, health literacy, and their influence on quality of life.	correlations were observed among medication adherence, health literacy, and diminished quality of life in elderly individuals diagnosed with hypertension.
8.	Ebadi et al.(2020), Iran <sup>17</sup>	Investigation of the quality of life of patients with hypertension in health centres.	Cross-Sectional	N=137 The study was conducted in the health centres of Mahdasht, located in Karaj, Iran.	The study revealed that sociodemographic and social support are related to quality of life among individuals diagnosed with hypertension.	When analyzing sociodemographic factors, it was observed that education level, occupation, and duration of hypertension exhibited the most significant correlation with a lower quality of life among patients. It is noteworthy to mention that social support also exerted a notable influence on all aspects of the quality of life.
9.	Chen et al. (2021), China <sup>18</sup>	Health-related quality of life of middle-aged and elderly people with hypertension : A cross-sectional survey from a rural area in China.	Cross-Sectional	N= 500 Hypertensive patients from four towns of Zhushan, Xiaoguan, Jiaoyuan, and Wanzhai, China.	Factors related to sociodemographic variables and the psychological well-being of hypertensive patients.	Sociodemographic factors, such as lower levels of education and income, as well as reduced psychological well-being, are expected to exert a detrimental influence on both the physical and mental component summaries within the context of this study.
10.	Alshammari et al. (2021), Saudi Arabia <sup>19</sup>	Quality of life and awareness of hypertension among hypertensive patients in Saudi Arabia.	Cross-Sectional	N=437 Hypertension patients aged more than 18 years old from outpatient clinic of the King Saud University Medical City, a tertiary care setting in Riyadh, Saudi Arabia.	Emphasizing the influence of heightened health literacy on enhanced quality of life.	The study unveiled a significant correlation between individuals' understanding of hypertension, specifically their comprehension of and adherence to recommended blood pressure thresholds, which have a profound impact on their quality of life
11.	Ambar Relawati et al. (2021),	Dominant factors affecting the	Cross-Sectional	N=107 The study population	Medication adherence and social support	Compliance with antihypertensive medication and the

	Indonesia <sup>20</sup>	quality of life of hypertension patients in rural and sub-urban area in Yogyakarta.		consisted of hypertension patient in the working area of the Kasihan 1 Health Center, Yogyakarta.	are important factors that impact the quality of life of individuals with hypertension.	presence of family support were found to be significant factors strongly linked to the quality of life of individuals with hypertension in Yogyakarta. These findings underscore the crucial role that treatment adherence and familial support play in enhancing the overall well-being of patients.
12.	Sang et al. (2021), China <sup>21</sup>	The influencing factors of health-related quality of life among rural hypertensive individuals: A cross-sectional study	Cross-Sectional	N=8128 Participant from the rural area of Henan province with a diagnosis of hypertension.	Sociodemographic factors and comorbidities displayed a negative correlation with health-related quality of life (HRQoL) in this study.	The study unveiled a detrimental correlation between hypertension and Quality of Life among individuals residing in rural areas. Factors such as advanced age, the presence of concurrent medical conditions, and gender(women) were determined to have an adverse influence on quality of life.
13.	Thuy et al. (2021), Vietnam <sup>22</sup>	Blood pressure control and associations with social support among hypertensive outpatients in a developing country.	Cross-Sectional	N=220 A study on patients with hypertension in an urban hospital in Hanoi, Vietnam.	The quality of life experienced by individuals with hypertension is affected by the presence of social support.	Social support not only contributes to the improvement of psychological well-being, but also plays a vital role in enhancing the overall quality of life for individuals diagnosed with hypertension.
14.	Zheng et al. (2021), China <sup>23</sup>	Health-related quality of life and its influencing factors for elderly patients with hypertension : evidence from Heilongjiang Province, China.	Cross-Sectional	N=705 Study conducted in Heilongjiang, China.	Factors that are associated with the quality of life among elderly patients with hypertension encompass sociodemographic factors and comorbidities.	The findings of the study concerning elderly individuals diagnosed with hypertension indicate that sociodemographic variables, including female gender, advanced age, lower education level,coexisting disease and reduced income level, were associated with significantly lower health utility index scores compared to

15.	Chantakeere et al. (2022), Thailand <sup>24</sup>	Factors affecting quality of life among older adults with hypertension in urban and rural areas in Thailand: A cross-sectional study.	Cross-Sectional	N=420 The study was conducted in Thailand, specifically in a province located in the eastern region.	Factors associated with the quality of life among older adults with hypertension encompass sociodemographic factors, health promoting lifestyle and the presence of comorbidities.	the general population residing in Heilongjiang, China. Health-promoting lifestyles have been recognized as significant predictors of the quality of life among older adults residing in both urban and rural areas. Additionally, factors such as comorbidity and perceived health status have been found to have a noteworthy influence on the quality of life, particularly within urban settings.
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## RESULTS

There are 43 full-text articles that fulfilled the inclusion criteria but only 15 articles discussed the factors associated with poor quality of life among ambulatory hypertensive population in Asia region. Based on Table 1, the studies predominantly concentrated on countries including China, Korea, Saudi Arabia, Lebanon, Vietnam, Indonesia, Thailand, and Iran. In terms of study methodology, the majority of the studies employed an observational approach, specifically utilizing a cross-sectional study design.

### Medication Adherence in Hypertensive Patients

Improving medication adherence is crucial for achieving and maintaining optimal blood pressure levels in individuals diagnosed with hypertension. Inadequate adherence to antihypertensive medications can lead to uncontrolled hypertension, increasing the risk of complications and negatively impacting the patient's quality of life.<sup>25</sup> We found four studies focusing on elucidating the reasons behind medication adherence.<sup>11,14,15,20</sup> These studies demonstrate a strong association between medication adherence, treatment satisfaction, and overall quality of life. Notably, they emphasize the importance of therapeutic satisfaction as a critical factor influencing medication adherence. This encompasses how patients evaluate their medication in terms of administration method, immediate effects, and long-term outcomes.<sup>26</sup>

A study conducted in China found that a noteworthy challenge in upholding elevated levels of medication adherence among individuals with hypertension is the influence on their overall quality of life.<sup>11</sup> According to this study, individuals with Asian cultural backgrounds often perceive medications as unsafe and unsuitable for regular consumption as prescribed.<sup>27</sup> Furthermore, the study

suggests that better treatment satisfaction and adherence are associated with an improved quality of life, male gender, and overall contentment with the treatment plan.<sup>28</sup> Meanwhile, a study conducted by Li et al mentioned that similar studies have also reported a positive association between treatment satisfaction and adherence to antihypertensive therapy.<sup>14</sup> Additionally, this evidence suggests that treatment adherence is positively influenced by the number of daily medications taken. In other words, patients who are prescribed a greater number of pills tend to have lower rates of compliance with the treatment.

In order to enhance medication adherence among patients with hypertension, it is imperative to gain a thorough understanding of the factors that influence adherence and utilize this knowledge to inform intervention strategies. Selecting the appropriate medication can effectively address symptoms associated with hypertension, such as headaches, dizziness, and fatigue, as highlighted in the study by Jneid et al.<sup>15</sup> By consistently adhering to the prescribed medication, symptom management can be optimized, leading to an improvement in the patient's overall well-being. Furthermore, a study from Indonesia highlighted the significance of cultivating a favourable rapport between healthcare professionals and patients, emphasizing its influence on treatment adherence.<sup>20</sup> Research has also consistently demonstrated a substantial and statistically significant association between treatment satisfaction and adherence to hypertension medication.

### Presence of Comorbidities Among Patients with Hypertension

The presence of comorbidities such as diabetes, obesity, cardiovascular diseases, and kidney disease significantly impacts the quality of life of



individuals with hypertension. These conditions have adverse effects on their overall health and well-being, resulting in increased complications, reduced functional abilities, and a complex interplay of physiological and psychological factors that contribute to a decreased quality of life. For instance, a study conducted in Vietnam indicated that individuals with hypertension may encounter challenges in regulating their blood sugar levels, thereby increasing their susceptibility to complications including nerve damage, kidney disease, and cardiovascular problems.<sup>10</sup>

Moreover, as mentioned by Mi et al, individuals with comorbidities find it more challenging to treat hypertension.<sup>11</sup> They may need to take multiple medications, adhere to strict dietary and lifestyle changes, and undergo frequent medical appointments and tests. For example, individuals with both hypertension and obesity may face more challenges in managing their blood pressure due to the additional strain on their cardiovascular system.<sup>29</sup> These comorbidities not only worsen symptoms and increase the treatment burden but also limit physical function.

Furthermore, individuals with multiple chronic conditions often face financial burdens due to various expenses such as medication costs, frequent medical appointments, and specialized care. This is highlighted in two articles from China.<sup>21,23</sup> Consequently, it can be challenging for individuals to access the essential healthcare services they need. This financial strain, along with limitations in physical function and mobility, leads to social isolation and a decrease in participation in community and social activities, ultimately negatively impacting the overall quality of life.

Managing multiple health issues can be challenging and have an impact on daily activities and overall health. To enhance the well-being of individuals with hypertension, it is crucial to recognize and address the effects of comorbidities.<sup>24</sup> This will aid in formulating tailored and effective strategies.

#### Health Literacy and Improving Quality of Life in Hypertensive Patients

Health literacy and quality of life are closely linked in patients diagnosed with hypertension. A greater level of health literacy can significantly influence an individual's ability to effectively manage their hypertension and improve their quality of life. In the context of hypertension, health literacy plays a critical role in helping patients comprehend their condition, its causes, and the necessary measures to control it, as well as raising awareness about the disease.<sup>24</sup> The study validates that individuals who have a better understanding of their health status experience an enhancement in their quality of life.

Through health literacy, patients are empowered to engage in self-care practices and

make important lifestyle adjustments to effectively manage hypertension. According to study from Lebanon,<sup>15</sup> patients with low health literacy may face difficulties in understanding the medical terminology associated with hypertension, which can hinder their ability to grasp treatment options and adhere to their medication regimen.<sup>16</sup> This lack of understanding leads to poor medication adherence, inadequate lifestyle modifications, and overall suboptimal management of hypertension.<sup>30</sup>

However, it is important to acknowledge the potential limitations and challenges associated with relying solely on health literacy as an indicator of improved outcomes. Studies conducted in the Middle East, specifically in Lebanon and Saudi Arabia, have shown that individuals with sufficient health literacy may face challenges in effectively managing hypertension. These difficulties can arise from multiple factors, including cognitive impairment, language barriers, and cultural differences.<sup>17,19</sup> This emphasizes the importance of cultivating stronger patient-provider relationships, which can ultimately result in improved health outcomes and contribute to an overall higher quality of life.

While health literacy is undoubtedly valuable in empowering hypertension patients to make informed decisions and manage their condition, it is crucial to recognize the broader systemic and provider-related factors that contribute to the quality of life of these individuals. Taking a comprehensive approach that considers the intersection of health literacy, healthcare access, and patient-provider communication is essential in addressing the complex needs of hypertension patients and promoting a better quality of life.

#### Factors related to sociodemographic factors and their influence on quality of life

Social demography involves the analysis of population characteristics and behaviours to gain a better understanding of the group composition and provide more relevant services. These characteristics typically include age, gender, education level, income, marital status, place of residence, occupation, duration of disease, and family history.

Based on the findings of this systematic review, it is apparent that eight studies have been conducted to investigate the association between sociodemographic factors and the quality of life among individuals with hypertension.<sup>12,13,16,17,18,21,23,24</sup> The findings consistently demonstrate that individuals with hypertension generally experience a reduced quality of life when compared in terms of sociodemographic factors. Older individuals with hypertension often have a higher risk of developing various cardiovascular diseases, including heart failure, atrial fibrillation, stroke, kidney diseases, and

dementia. These risk factors collectively contribute to the overall deterioration of the quality of life in this population.<sup>31</sup> For instance, older women tend to experience a lower quality of life compared to older men.<sup>21</sup>

The findings of these studies are consistent with the results of the present study, which suggests that individuals with low income who are affected by hypertension may struggle with the financial burden imposed by their illness, leading to a negative impact on their overall quality of life.<sup>10</sup> This is in line with previous research indicating that participants with lower incomes tend to have lower scores in all dimensions of health-related quality of life<sup>14</sup>. High-income hypertensive patients, on the other hand, are less likely to face issues with transportation, regular physical activity, anxiety, and depression compared to their low-income counterparts.<sup>32</sup> Furthermore, studies conducted in China and Thailand,<sup>21,23,24</sup> have demonstrated that patients who have convenient access to medical facilities for both treatment and follow-up tend to experience a better quality of life in comparison to individuals residing in rural or remote areas.

A study conducted in Iran has shown a correlation between education level and enhanced quality of life.<sup>17</sup> Furthermore, individuals with lower educational attainment and longer duration of chronic illness are more prone to experiencing elevated levels of depression and a decline in their overall quality of life.<sup>14</sup> Conversely, a stronger educational background is linked to better financial support, increased understanding of diseases, and improved adherence to treatment and follow-up.<sup>33</sup> These findings underscore the importance of educational programs aimed at raising awareness of diseases among the elderly population. Healthcare professionals and nurses have a vital role to play in providing education and promoting health literacy to enhance understanding of hypertension and its impact on health.<sup>34</sup>

In summary, hypertensive patients with low sociodemographic factors are those who face challenging social and economic conditions. These conditions include low income, limited educational opportunities and restricted access to healthcare, and they have a profound impact on an individual's circumstances and well-being. Consequently, individuals in these circumstances may find it difficult to improve their overall quality of life and manage their illness effectively, ultimately affecting their quality of life.<sup>35</sup>

**Health-promoting lifestyle (HPL) and quality of life in hypertensive patients**

The link between a health-promoting lifestyle and the quality of life of elderly patients with hypertension is significant and interconnected.<sup>36</sup> It involves taking a proactive approach to health, focusing on self-care and making healthy lifestyle

choices. Our review indicates that the findings of this study will provide valuable insights into the importance of health-promoting behaviours in enhancing quality of life.

A study from China emphasizes that individuals who prioritize their health and well-being are likely to experience a higher quality of life compared to those who engage in unhealthy behaviours.<sup>13</sup> Another study further supports this research by examining how different aspects of a health-promoting lifestyle contribute to improving quality of life across diverse populations and settings.<sup>24</sup> This investigation underscores the significance of advocating for a health-promoting lifestyle (HPL), which entails taking responsibility for one's well-being and engaging in physical activities, in order to enhance quality of life among hypertensive elderly patients.

Health-promoting lifestyles have been identified as significant predictors of quality of life among older adults residing in both urban and rural areas. Adopting a health-promoting lifestyle can help prevent chronic diseases, improve physical and mental health, and enhance overall quality of life.

**Psychological well-being of patients with hypertension**

Psychological well-being is a crucial aspect for patients with hypertension. They often face various challenges that impact their overall well-being, including stress, anxiety, depression, and coping mechanisms. Managing a chronic condition like hypertension, in addition to coping with daily stressors, can exacerbate blood pressure levels and increase the likelihood of experiencing cardiovascular events.<sup>37</sup> Additionally, being constantly aware of their condition and potential complications can contribute to feelings of anxiety. Psychological stress and anxiety have a significant influence on the quality of life of patients with hypertension.<sup>38</sup> Thus, addressing these psychological factors and the fear of hypertensive crises or long-term health issues is vital for enhancing well-being and improving their quality of life.

On the other hand, coping mechanisms and resilience play a crucial role in the psychological well-being of patients with hypertension, as stated in a study conducted by Wang et al.<sup>13</sup> Effective coping strategies help individuals manage the emotional burden of living with a chronic condition. Healthcare professionals should support patients in developing healthy coping mechanisms and resilience to navigate the challenges posed by hypertension.

A study conducted in China suggests that the introduction of support systems, such as counselling services and support groups, significantly impacts the quality of life of individuals diagnosed with hypertension, thus

enhancing their psychological well-being.<sup>18</sup> These resources enable individuals to address their psychological concerns, seek guidance in managing stress and anxiety, and receive emotional support from peers who can understand their experiences. Recognizing psychological well-being as an integral part of hypertension management improves overall well-being and quality of life.<sup>39</sup> However, it is important to consider the counterargument that relying solely on psychological interventions may have limitations. Medical management and comorbidities also play a significant role in the well-being of patients with hypertension.

**Enhancing Quality of Life Through Social Support**  
Social support refers to the knowledge, assistance, and emotional backing that individuals receive from their family and friends. Positive relationships with loved ones contribute to good social support and enhance overall quality of life.<sup>22</sup> According to a study published in Lebanon, the support provided by family, friends, and healthcare providers can significantly affect the quality of life for patients with hypertension.<sup>15</sup> Furthermore, a separate study conducted in Iran also indicates that promoting partners or spouses to offer diverse forms of support, including information, emotional support, financial aid, and caregiving, results in noteworthy advantages.<sup>17</sup> This leads to open communication within support networks, which facilitates decision-making in the management of hypertension. Involving family and friends in treatment discussions leads to improved health outcomes, including reminders for medication, assistance during challenging periods, help with purchasing medications, and aid during illness.<sup>40</sup>

Facilitating behavioural changes related to health requires motivation and effort from both patients and their support systems. This proposition is substantiated by the findings of Ambar Relawati et al, which unveil that patients who receive encouragement and support from their family or community exhibit greater motivation to effectuate positive changes.<sup>20</sup> Conversely, another study noted that social support additionally acts as a protective barrier against stress and anxiety, both of which are prevalent psychological factors contributing to the development of hypertension.<sup>22</sup> A resilient support system helps mitigate the detrimental effects of stress and anxiety on the overall well-being of patients.

In conclusion, it can be observed that negative relationships have an adverse effect on the physical, social, and emotional well-being of individuals, in contrast to positive familial connections. It is imperative for healthcare providers to acknowledge the significance of social support in determining the overall quality of life for individuals with hypertension. By prioritizing holistic care that encompasses the patient's social environment and

support networks, healthcare professionals can effectively address the needs of these individuals.

## DISCUSSION

This systematic review aimed to investigate the factors associated with the relationship between hypertension and quality of life. Most studies included in this review found that individuals with hypertension generally had a lower quality of life compared to those without hypertension.<sup>41</sup> However, it is important to note that the cross-sectional studies included in this review had different objectives and criteria for assessing quality of life. Despite these differences, the majority of studies still identified a poorer quality of life among hypertensive patients.<sup>42</sup>

The majority of the studies examined various factors that are associated with a decline in quality of life. These contributing factors include gender (specifically, being female), older age, limited social support, lower levels of education, and a health-promoting lifestyle that leads to decreased financial resources.<sup>43</sup> Additionally, inadequate health literacy, non-compliance with medication regimens, and insufficient understanding of the nature of the disease are linked to a reduced quality of life.<sup>44</sup>

Several studies have also assessed the quality of life among hypertensive outpatients who have other health conditions, including heart failure, diabetes, and stress. For instance, Ha et al and Mi et al conducted studies that compared the quality of life between hypertensive outpatients with comorbidities and those without comorbidities, as opposed to comparing it to normotensive individuals with and without comorbidities.<sup>10,11</sup> This particular approach may potentially result in an overestimation of the apparent decline in quality of life among hypertensive patients.

Furthermore, the evaluation of quality of life was often a secondary objective in these studies. Some studies only provided summary scores, while others focused on domain-specific scores or solely reported statistically significant differences.<sup>45</sup> Instead of categorizing individuals as having good or poor quality of life, it is more meaningful to compare groups or populations. This approach allows us to conclude that individuals with higher scores tend to have better health-related quality of life (HRQL) than those with lower scores. Studies that investigated sociodemographic domains consistently reported lower scores in hypertensive patients, although some results only reach marginal significance.<sup>46</sup>

However, two studies by Ambar Relawati et al and Jneid et al identified specific domains that affected the quality of life of hypertensive patients, such as medication adherence, and social support. The reasons for these differences may be attributed to population characteristics or chance

occurrences.<sup>47</sup> However, the cross-sectional design of all the reviewed studies prevents us from establishing the direction of causality. It is also worth noting that individuals with hypertension may have a lower quality of life due to their awareness of the disease rather than the disease itself.<sup>48</sup>

Additionally, the use of different health literacy questionnaires for diagnosing hypertension could impact the association between hypertension and quality of life.<sup>49</sup> Some cross-sectional studies found that health literacy played a significant role in helping patients understand their condition, its causes, and the necessary steps for management. It also increased awareness of the disease, which often led to negative feelings towards the illness itself.<sup>50</sup> Previous research has demonstrated that acknowledging one's health literacy status in relation to disease management can exert a substantial influence on one's quality of life, particularly in the case of individuals with hypertension. It is widely acknowledged that limited health literacy can contribute to suboptimal adherence to medication among individuals with chronic diseases. Those who perceive themselves as unwell or encounter difficulties in adhering to medication regimens may experience a diminished quality of life compared to individuals who do not have hypertension.<sup>51</sup>

Shifting the focus of chronic illness care from medical interventions to improving patients' quality of life (QoL) is a key topic of academic discourse. Individuals with chronic diseases are encouraged to engage in activities that promote health in order to reduce healthcare costs and enhance their overall quality of life.<sup>52</sup> Obtaining a comprehensive understanding of hypertension and effective blood pressure management can significantly decrease the risk of complications. Including patients and their families in the collaborative treatment planning process, particularly in the case of ambulatory patients, enhances their understanding and improves the overall quality of care for individuals with hypertension.

#### Strength and Limitation

To the best of the author's knowledge, this study represents the initial exploration of various factors that may potentially influence the quality of life among ambulatory hypertension patients. The conclusive analysis of this review highlights a significant association between hypertension and quality of life. Multiple factors can be targeted for interventions aimed at enhancing the quality of life among ambulatory hypertension patients.

However, our study had several limitations. Firstly, we restricted our analysis to studies conducted solely in the English language, potentially limiting the scope of our findings. Although we had a relatively small number of

studies, the overall results consistently showed that individuals with hypertension have a lower quality of life. Secondly, we did not examine the relationship between different drug treatments and quality of life, which poses a challenge for the public health sector in providing specific recommendations. This limited range of suggestions may lead to conflicting information and hinder the development of effective interventions. Therefore, future researchers should conduct more comprehensive investigations using multiple databases to obtain specific information. Lastly, both individual findings from cross-sectional studies and aggregated estimates from quality-of-life studies suggest that individuals with hypertension may experience a slightly lower quality of life. However, further investigation is needed to determine if this decrease in quality of life is due to health literacy and awareness of hypertension, rather than high blood pressure itself.

## CONCLUSION

In conclusion, hypertension is a significant health issue, but the rate of control for this condition remains suboptimal. This is influenced by factors such as low health literacy, poor adherence to medication, lack of social and psychological support, and financial constraints. Therefore, it is crucial for public health policies to prioritize the promotion of healthier dietary patterns and lifestyles and compliance to treatment. Additionally, implementing a screening protocol for hypertension at the community level and utilizing effective and evidence-based antihypertensive agents are of utmost importance. Despite unresolved scientific inquiries, adopting these measures is essential.

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#### Competing Interests

The authors declare that there is no conflict of interest.

#### Ethical Approval

Not applicable

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