FACTORS AFFECTING QUALITY OF LIFE AMONG OLDER ADULTS WITH HYPERTENSION IN WHENZHOU, CHINA

QIONGFANG HU

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENTS FOR MASTER DEGREE OF NURSING SCIENCE
(INTERNATIONAL PROGRAM)
IN ADULT NURSING PATHWAY
FACULTY OF NURSING
BURAPHA UNIVERSITY
2023

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วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรพยาบาลศาสตรมหาบัณฑิต (หลักสูตรนานาชาติ)

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This study aimed to investigate quality of life and its influencing factors of older adults with hypertension in Wenzhou, China. Using simple random sampling, 131 patients with hypertension were recruited from the cardiovascular outpatient department of The Second Affiliated Hospital of Wenzhou Medical University, Wenzhou, China. Research tools included Demographic Record Form, Chinese version of the world health organization quality of life instrument-older adults module, perceived health status questionnaire, Chinese version of the self-care of hypertension inventory in older adults, Chinese version of multidimensional scale of perceived social support. Data analysis was performed using descriptive statistics and stepwise multiple regression analysis.

The results revealed that older adults with hypertension reported having the score of quality of life at moderate level ($M = 75.52$, $SD = 5.86$). The result also found that self-care behavior ($\beta = .421$, $p < .001$), social support ($\beta = .416$, $p < .001$), and perceived health status ($\beta = -.170$, $p < .001$). All the factors explained 82.3% in the variance of QoL among older adults with hypertension ($R^2 = .827$, Adjusted $R^2 = .823$, $F(3, 127) = 202.04$, $p < .001$). Clinical nurses can design and implement culture specific support and care to help older adults with hypertension enhance their quality of life by improving their self-care behavior, perceived health status, and social support in Wenzhou, China.

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Qiongfang Hu

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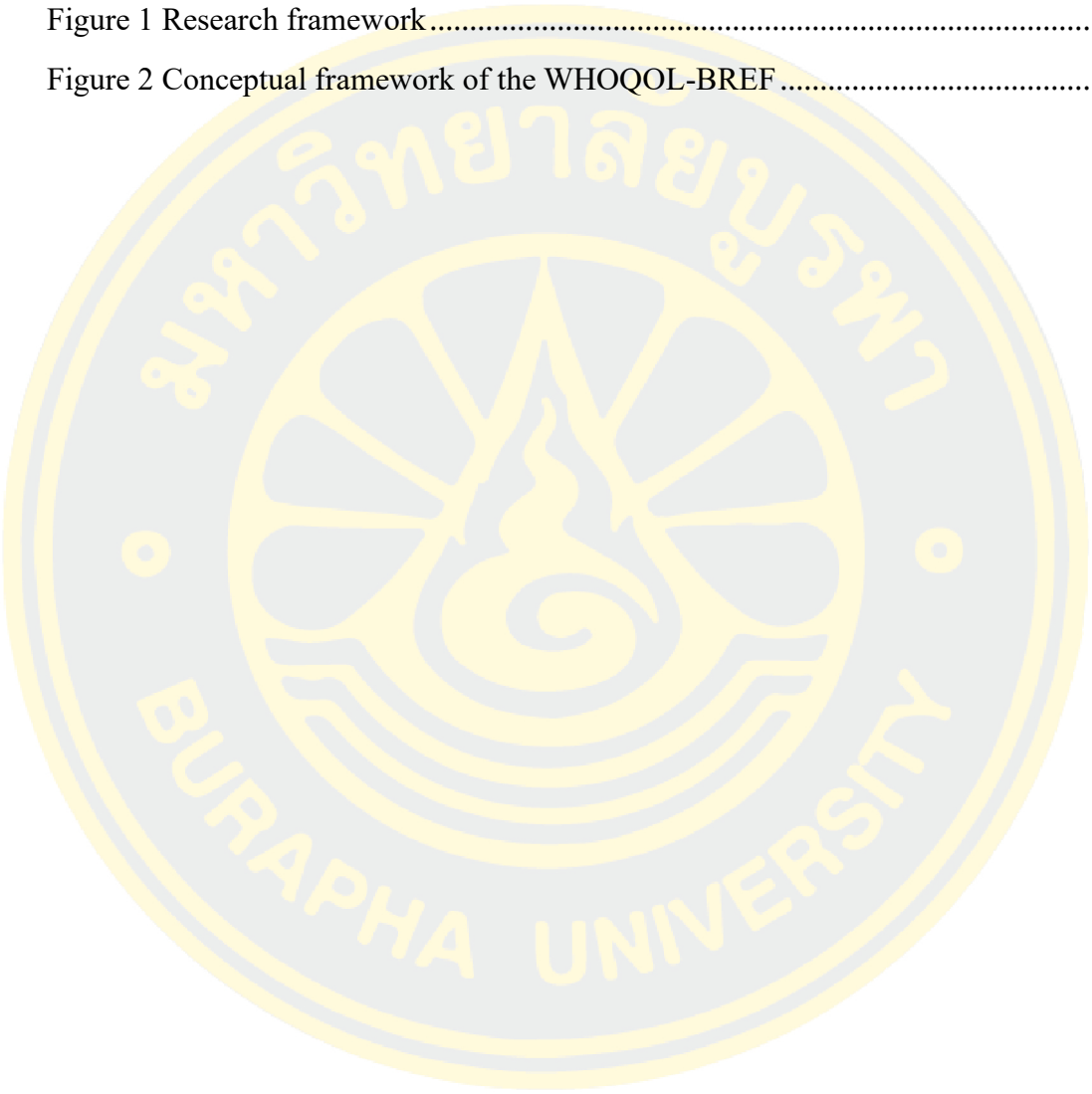

CHAPTER 1

INTRODUCTION

Statements and significance of the problems

Hypertension [HTN] is one of the most common chronic diseases, and a global public health challenge. Hypertension, along with pre-hypertension and other hazardously high blood pressure conditions, is responsible for 8.5 million deaths from stroke, ischemic heart disease, other vascular diseases, and renal disease worldwide each year (Zhou et al., 2021). High prevalence of hypertension is consistent worldwide, it is estimated that the number of people with hypertension will increase by 15% to 20% by 2025, reaching close to 1.5 billion (Williams et al., 2018). The prevalence of hypertension dramatically increases in association with increasing age (Van Bussel et al., 2020). Moreover, hypertension tends to occur more frequently among older adults, the World Health Organization [WHO] has estimated the number of people aged 60 years and over will increase from 1 billion to 1.4 billion between the years 2019 and 2050 (WHO, 2020). Numerous population-based surveys in various regions of the world estimate that approximately 60% to 70% of adults, 65 years and older, currently suffer from hypertension, leading to premature deaths worldwide (Liew et al., 2019; Mills et al., 2020; Zhou et al., 2019). The rapidly aging population has caused challenges to the social security system, including changes in family and social structures, an increased burden of illness, and the risk of disability (Zhao et al., 2014). The harm of hypertension cannot be ignored. Hypertension is the primary risk factor leading to death and the third factor of disease burden in the world (Mills et al., 2020). Hypertension is one of the main causes of death and disability in the elderly population (Oliveros et al., 2020).

Hypertension is the leading modifiable risk-factor for cardiovascular disease, which represents the top cause of death in China (Abubakar et al., 2015;

Naghavi et al., 2017). Hypertension has become a heavy burden on Chinese families and society, along with urbanization, rising incomes, and ageing of the population (Naghavi et al., 2017). According to the latest report, there are approximately 245 million Chinese adults with hypertension (Fan et al., 2020). China has the world's largest elderly population. Data from the National Bureau of Statistics in 2019 showed that, by the end of 2018, China's ageing population aged 60 and above had reached 249 million, accounting for 17.9% of the population (National Bureau of Statistics of China, 2020). It had been found that over 50% of the older people in China, who have target organ damage, experience hypertension (Lu et al., 2017). A study of 784 middle-aged and elderly people in Wenzhou showed that the overweight rate was 37.76%, the central obesity rate was 40.17%, and the dyslipidemia rate was 42.86% (Wang et al., 2020). In 2019, 66.2% of the older people ≥ 65 years of age had hypertension in Wenzhou (Zhang et al., 2020).

Quality of life (QoL) was defined as "individual" 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 concern (Group, 1994). Quality of life is a global measure, it is a concept commonly used in the subjective evaluation of a patient's health status, reflecting the patient's physical, psychological, social and emotional well-being (Brazier et al., 2010; Carr et al., 2001). QoL ratings have been found to be an appropriate metric measurement for the design and implementation of service plans (Degenholtz et al., 2008). As the QoL comprehensively examines the impact of the disease on the patient's life, as well as factors corresponding to their physical and mental health, a growing number of clinicians and policymakers are applying QoL in clinical treatment, drug research, preventive health care, health decision-making and health economic evaluation (Efficace et al., 2007; Pietersma et al., 2013).

Several dimension of life including vitality, social function, mental health, mood and psychological function were reported to be negatively influenced by

hypertension. In addition, several symptoms of hypertension will also disturb daily activity of the people with hypertension. All of these condition will contribute to decrease QoL, especially among elderly population (Haraldstad et al., 2019; Sekeon et al., 2017). A meta-analysis including 20 studies has demonstrated that QoL of patients with hypertension was lower than that of normal individuals (Trevisol et al., 2011). Assessment of QoL is increasingly used in public health research targeting elderly people. With the increase of age, the elasticity and compliance of arteries in elderly hypertensive patients also decrease, the damage to important organs such as the heart and brain is more serious than that of ordinary adults, and the ability to take care of themselves is also significantly reduced (Uchmanowicz et al., 2018b). After a variety of social roles, the relative reduction of social time participation is likely to lead to a decrease in the QoL (Rambod et al., 2020). At present, most studies at home and abroad have shown that the overall QoL of elderly hypertensive patients is significantly lower than that of the normal population (Benetos et al., 2019; Wong et al., 2020). Battersby et al (Battersby et al., 1995) conducted a case-control study on the quality of life of elderly hypertensive patients in the community, and the results showed that elderly hypertensive patients were significantly impaired in health, with worse health indicators, and more symptoms and psychological damage. Domestic studies by Hou et al (Hou et al., 2020) also showed that, compared with healthy people, elderly hypertensive patients had lower health-related quality of life, higher incidence of cardiovascular and cerebrovascular complications, poor health self-evaluation, cognitive ability and life activity ability both decreased.

QoL of the elderly with hypertension was associated with many factors, several studies had been conducted to evaluate the relationship between associating factors and QoL in older adults. Sociodemographic factors displayed a disparity and might affect QoL among older adults with hypertension (Tavares et al., 2015). Increasing age, living alone, and lower education were more likely to be associated with lower QoL (Bhandari et al., 2016). In addition, an increase in the number of

chronic conditions is associated with decreased QoL in older adults (Chen et al., 2020), as higher multimorbidity may affect the severity of the disease leading to less ability to undertake everyday activities, greater social isolation, and lower well-being (Dev et al., 2020). Furthermore, financial limitations for transportation and other expenses may decrease access to healthcare services and restrict lifestyle choices, which in turn may affect poor health conditions and reduce life satisfaction in older adults (Ong-Artborirak & Seangpraw, 2019). The duration of hypertension, in particular, is one of the factors related to QoL; if an older adult has suffered high levels of hypertension for a long time, it affects physical conditions and may lead to poor adherence to treatment resulting in negative health outcomes and poor QoL in old age (Uchmanowicz et al., 2018b). However, perceived health status regarding age-related disease may influence older adults' self-care efforts to retain healthy habits and medication adherence, thus enhancing their QoL (Gu et al., 2019).

The challenge in elderly hypertensive patients is making decisions not on age alone, but on the overall medical, physical, social, and mental characteristics of the patient (Oliveros et al., 2020). The gold standard of treatment for hypertension includes drug and non-drug treatment, which are integral part of treatment recommended by the physicians to prevent complications and in enhancing QoL (Del Pinto & Ferri, 2019). The major strategies for promoting and supporting QoL cover the multidimensional aspects of older persons' lives in terms of healthy ageing (Manasatchakun et al., 2016).

Perceived health status reflecting that people have an integrated perception of their own health, including biological, psychological, and social dimensions (Quesnel–Vallée, 2007). Health status is an important factor that significantly impacts the QoL of the elderly population. The major elements of health status are perceived health, especially psychological well-being, chronic illnesses, and functional status (Al Senany & Al Saif, 2015). When assessing the health of older adults, perceptions of their health provide important information that is complementary to functional

status and medical morbidity. Perceived health status has been shown to be a significant predictor of mortality, morbidity, and health care use, even after controlling for more objective indicators of health (Benyamini & Idler, 1999). In one study of adults with hypertension, perceived poor health was a significant and independent contributor to blood pressure at follow-up (Kaplan, 1987). Chantakeeree et al (Chantakeeree et al., 2021) found that older adults with a higher perceived health status had a better QoL compared to those with poorer perceived health status. The study of Dumitrache et al (Dumitrache et al., 2017) indicated that older Spanish people who perceived their health as in good condition correlated with their ability to maintain health and functionality. Enhancing self-esteem to improve illness can therefore contribute to a higher life satisfaction than among those who have perceived poor health status. Similarly a previous Thai study by Seangpraw et al (Seangpraw et al., 2019) found that older Thai adults who perceived their health status as moderate performed daily functions that could improve their QoL, being able to perform routine activities and participate in community activities, which promoted a good perception of health status and having a good life. Despite the subjective nature of this question, indicator of perceived general health also is a good predictor of people's future health care use and mortality (Palladino et al., 2016). Notwithstanding the growing body of literature in the international arena highlighting and exploring perceived health status among older people in particular, such evidence for Chinese particularly for Whenzhou is scant. Therefore, it is necessary to understand the perceived health status in elderly patients with hypertension in Whenzhou, China.

Self-care behavior is defined as a process by which individuals perform daily behaviors that promote or restore health and well-being and assist in illness prevention and management (Hinkle & Cheever, 2018). Self-care behavior play a very significant role in QoL. Management and effective self-care of hypertension have a vital role in prevention and reduction of complications such as the number of strokes (by 30%–40%) (Bromfield et al., 2014), renal failure, heart cardiovascular complications (by

20%–25%) (Briasoulis et al., 2014), and improving the health of patients with hypertension (Kakhki Ali et al., 2013). Self-care programs in CVDs result in a decrease in the impact of risk factors such as cholesterol level, obesity, and an increase in the quality of life (Chatziefstratiou et al., 2013; Lee et al., 2011). Treatment and management of hypertension are important for decreasing death rates in patients with hypertension (Musini et al., 2009). However, treatment and control rates of hypertension are particularly low in most middle-income countries, and even developed countries have not met the goals to control and treat high blood pressure (Basu & Millett, 2013; Control & Prevention, 2012). The rate of uncontrolled hypertension is higher in elderly populations than in younger populations, and one reason for this is the lack of self-care behavior, such as treatment, medication, diet control, tobacco cessation and physical activity (Brown et al., 2007; Control & Prevention, 2012). In Wenzhou, traditional dietary behavior is an important risk factor for hypertension, including fat-rich and salty, the elderly people especially like lard, pickled vegetables and pickled seafood (Zou et al., 2020). Therefore, self-care can control hypertension, there is a need to improve self-care ability for elderly patients with hypertension to improve blood pressure control (Brown et al., 2007). Understanding the relationship of self-care behaviors and QoL in Whenzhou elderly patients with hypertension is not yet available. Therefore, to understand and confirm relationship between self-care behaviors and QoL in Wenzhou population is necessary.

Social support refers to instrumental, informational, and/or emotional assistance provided by a social network consisting of family members, friends and coworkers (Thoits, 1995). It is one of the most well-documented psychosocial factors associated with physical health outcomes (Compare et al., 2013; Pinquart & Duberstein, 2010), including hypertension (Strogatz & James, 1986). The study found that social support is an important variable that affects the health and disease of older people (Al-Kandari, 2011). Evidence suggests that spouses/partners, families, friends, colleagues, neighbors, and community members can be important sources of social support during

periods of poor health or stress (Heinze et al., 2015). The acquisition and perception of these social support helps patients better control their blood pressure and improve their QoL (Ding et al., 2018; Magrin et al., 2015). However, studies have shown that social support status of elderly hypertensive patients was poor, and the scores of all dimensions were lower than the national standard level in China (Hu et al., 2015; Li et al., 2019). With aging, the increase of disease burden and the decline of QoL, the gap between the elderly and the society is becoming more and more obvious. Wang and colleagues stated that elderly hypertension patients represent a vulnerable population and impairs QoL in both physical and mental domains (Wang et al., 2009). This invisible isolation and generation gap affects the level of support around them as well as their acceptance and utilization of support. In Wenzhou, more and more children are increasingly relocating with their employment, leaving older people at home (Liang & Wu, 2014). Wenzhou merchants create their business network around the globe, they have become the largest overseas-Chinese group to date, with a population of almost 700,000 in 131 countries (Rodrigues, 2018). On the other hand, this undoubtedly results in the serious lack of social support for elderly hypertensive patients in Wenzhou (Liang & Wu, 2014). Considering geographical characteristics, social support is one of the factors that influence individual's QoL and therefore is important for assessing elderly hypertensive patients' social support level in Wenzhou.

The age factor is one of the factors that play an important role in the incidence of hypertension. Elevated blood pressure increases with age-most rapidly over age 60 (Musini et al., 2019). Previous studies showed that hypertension had high incidence at the age group of 60-69 years (Mirzaei et al., 2020; Salkic et al., 2014). Many studies have indicated that the younger elderly(< 70 years) and the older elderly(≥ 70 years) differed in many characteristics, such as physical or psychological health conditions, economic condition, relationship with society, and education level . It was found that diagnosed with stage 3 hypertension was associated with higher risks of cardiovascular mortality and all-cause mortality, which were stronger among

patients with age at diagnosis of 60-69 years compared with those with age at diagnosis of 70-85 years (). The patients with age at 60-69 years are highly representative and have a high demand for quality of life, but has a high prevalence of chronic diseases such as hypertension and is significantly affected by the disease, they hope to get care and professional help (Wu et al., 2023). Therefore, we chose the age group of 60-69 years elderly hypertensive patients as target research subjects.

Although there were many studies on the influencing factors of QoL among hypertensive patients in China, there were few in-depth researches on the specific factors. For example, the effect of perceived health status on the QoL of patients with hypertension. Previous studies in China focused on analyzing the influencing factors of patient adherence and the treatment of hypertension. In addition, most of the previous studies were carried out in all adult with hypertension, few studies had evaluated the overall health status of patient with hypertension in specific ages.

Accordingly, under the guidance of the conceptual framework of WHOQOL-BREF, this study explored the status of quality of life elderly patients with hypertension and examine whether perceived health status, self-care behavior, and social support are predicting factors of quality of life elderly patients with hypertension in Wenzhou, China. Further, with difference in culture, values, beliefs, physical, and social characteristics of Wenzhou population with hypertension, the findings from other studies may not be same with Wenzhou population. We aimed to explore the age-specific nature among the hypertensive elderly by analyzing the interaction between the predictors and quality of life among elderly hypertensive patients in Wenzhou, China. Understanding QoL among elderly patients with hypertension in Wenzhou would help healthcare managers design and implement culture specific support and care, then improve the health outcomes and quality of life of elderly hypertensive patients.

Research objectives

The objectives of the study are to:

1. To describe quality of life among older adults with hypertension in Wenzhou, China.

2. To examine the predictive power of perceived health status, self-care behavior and social support on quality of life among older adults with hypertension in Wenzhou, China.

Research hypotheses

Factors including perceived health status, self-care behavior and social support can combinedly predict quality of life among older adults with hypertension.

Conceptual framework

The conceptual framework of this study is based on the four-factor model of the WHOQOL-BREF proposed by the WHOQOL group (Putri et al., 2019). This instrument, by focusing on individuals' own views of their well-being, provides a new perspective on life.

According to the conceptual framework, two aspects essential to QoL are "a) Overall QOL; b) General Health. Informed by the WHOQOL-BREF, QoL includes the following domains: 1) physical health, 2) psychological health, 3) social relationships and 4) environmental health.

Under the guidance of the WHOQOL-BREF framework and literature review, compared the concepts in the theoretical framework with the concepts involved in our study, concretized the concept of variables in our research problems, based on the characteristics of elderly hypertensive patients. In previous studies, the factors with high correlation with the quality of life among elderly patients with hypertension were selected as the independent variables, and they were the changeable influencing factors. Therefore, guided by the WHOQOL-BREF

conceptual framework, in this study, perceived health status, self-care behavior and social support were selected to examine their predictive ability in QoL among older adults with hypertension in Wenzhou, China.

Perceived health status, self-care behavior, and social support as the independent variables and quality of life as the dependent variable. Research conceptual framework for this study is shown in figure 1.

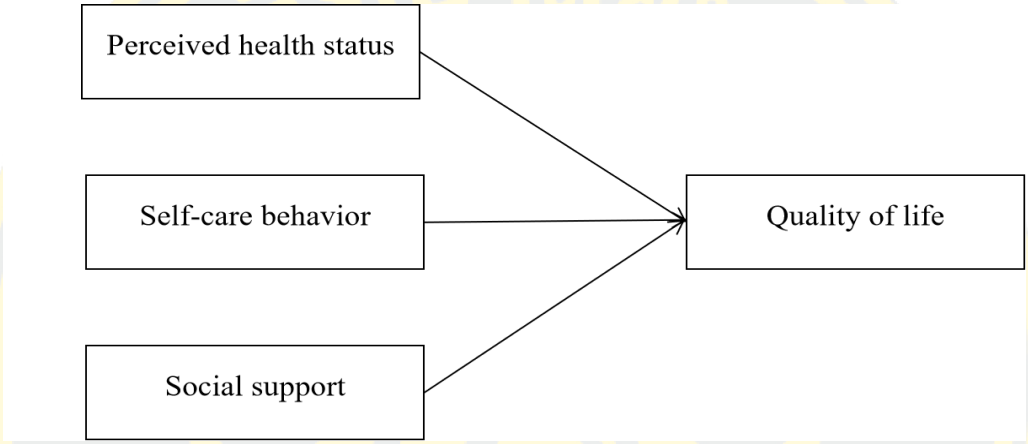

Figure 1 Research framework

Definition of terms

The definitions of variables in this study are as follows:

Older adults with hypertension refers to elderly people aged 60 years and older who were diagnosed with hypertension in Wenzhou, China.

Quality of life refers to "individual" 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 (Group, 1994). It was measured by the Chinese version of the world health organization quality of life instrument-older adults module (WHOQOL-OLD) (Zou et al., 2020).

Perceived health status refers to the perception of older adults towards to their own health, including biological, psychological, and social dimensions. It was measured commonly as a single question by asking respondents to evaluate their own

state of health in general categories (i.e., excellent, good, fair, poor) (Lewis & Riegel, 2010).

Self-care behavior refers to as a process by older adults with hypertension perform daily behaviors that promote or restore health and well-being and assist in illness prevention and management (Hinkle & Cheever, 2018). It was measured by the Chinese version of the self-care of hypertension inventory in older adults (Zhao et al., 2019).

Social support refers to the actual receiving about emotional, informational, appraisal, and tangible supports. It was measured by the Chinese version of Multidimensional Scale of Perceived Social Support (MSPSS-C) (Chou, 2000).

CHAPTER 2

LITERATURE REVIEWS

This chapter presented an overview of hypertension, quality of life among older adults with hypertension, Zhan's QoL Model, and factors related to quality of life among older adults with hypertension as following below:

1. Overview of hypertension
   1.1 Definition of hypertension
   1.2 Classification of hypertension
   1.3 Risk factors for hypertension
   1.4 Pathophysiology and complications of hypertension in the elderly
   1.5 Older adults with hypertension in China context
2. Quality of life and hypertension
   2.1 Definition and concept of quality of life
   2.2 Quality of life among older adults with hypertension
3. The World Health Organization Quality of Life
4. Factors influencing quality of life among older adults with hypertension
   4.1 Perceived health status
   4.2 Self-care behavior
   4.3 Social support
5. Summary

Overview of hypertension

Hypertension is the most common non-infectious chronic diseases. It has been identified as the leading risk factor for mortality, and is ranked third as a cause of disability-adjusted life years (DALYs) worldwide (Abubakar et al., 2015; Naghavi et al., 2017). The number of people diagnosed with systolic blood pressure greater

than or equal to 140 mmHg peaked from 442 million in 1990 to 874 million in 2015 which accounted for 14% of deaths and 143 million disability adjusted life years, and is predicted that by the year 2025, there will be 1.56 billion people with hypertension (Forouzanfar et al., 2017). This high prevalence of hypertension is consistent worldwide, and hypertension becomes progressively more common with advancing age, with a prevalence of > 60% in people aged > 60 years (Williams et al., 2018). Likewise, hypertension as a public health challenge is similarly observed in China. A recent large population survey in China revealed that in 2019, 245 million Chinese adults have hypertension (Diseases, 2020). Data from the National Bureau of Statistics in 2019 show that, by the end of 2018, China's ageing population aged 60 and above had reached 249 million, accounting for 17.9% of the population (National Bureau of Statistics of China, 2020). It had been found that over 50% of the older people in China, who have target organ damage, experience hypertension (Lu et al., 2017). In 2019, 66.2% of the older people ≥ 65 years of age had hypertension in Wenzhou (Zhang et al., 2020).

1. Definition of hypertension

Blood pressure represents the force exerted by the blood against the wall of the arteries as it is pumped out of the heart; and when the pressure against the arterial wall remains persistently raised, it is called hypertension (Carretero & Oparil, 2000). Hypertension is a long-term medical condition that requires continuing medical care and ongoing patient self-management education and support to prevent acute complications and to reduce the risk of long-term complications, and can increase the risk of heart, brain, kidney and other diseases (Burnier & Egan, 2019).

The American College of Cardiology (ACC)/American Heart Association [AHA] hypertension guideline substantially modified the threshold values for hypertension definition to ≥ 130/ 80 mmHg, which represents the most important change in the last 20 years. The categories within the hypertensive group are reduced to two (stage 1, defined as BP values between 130–139 and/ or 80–89 mmHg and

stage 2, ≥ 140/ 90 mmHg). Within the non-hypertensive categories, subjects with systolic BP [SBP] between 120 and 129, and diastolic BP [DBP] < 80 mmHg, are classified as having elevated BP. Normal BP is considered when values are < 120/ 80 mmHg (Carey, Whelton, et al., 2018).

The European Society of Cardiology [ESC]/ European Society of Hypertension [ESH] hypertension guidelines maintain the same classification of BP categories contained in previous documents. Hypertension continues to be defined as BP greater than 140/90 mmHg, with hypertensive patients divided into three categories (grades 1, 2, or 3), depending on the magnitude of BP elevation. Normotensives are also separated as optimal (< 120/ 80 mmHg), normal (120-129/ 80–85 mmHg), or high-normal (130-139/ 85–89 mmHg) categories (Williams et al., 2018).

Hypertension in the elderly is defined as systolic blood pressure (SBP) ≥ 140 mmHg and/or diastolic blood pressure (DBP) ≥ 90 mmHg measured three times in different days among patients aged ≥ 65 years without any previous antihypertensive drugs treatment. If elderly patients have hypertension history, and they are now receiving antihypertensive drugs therapy, they should be diagnosed with hypertension in the elderly though the blood pressure (BP) < 140/90 mmHg (Hua et al., 2019).

2. Classification of hypertension

Broadly, hypertension is classified into primary and secondary hypertension. Primary hypertension is diagnosed in the absence of an identifiable secondary cause. Primary hypertension is the most common type of hypertension and represents 90-95 % of all cases of hypertension (Hajjar & Kotchen, 2003; Kjeldsen, 2018).

Usually people with essential hypertension have no symptoms, but people may experience frequent headaches, tiredness, dizziness, or nose bleeds. Its pathogenesis is believed to be the interaction between genetic and environmental or lifestyle factors (Fagard, 2005). Factors that obesity, smoking, alcohol, diet, and heredity all play a role in essential hypertension (Carey, Muntner, et al., 2018).

The most common cause of secondary hypertension is an abnormality in the arteries supplying blood to the kidneys (Grossman & Porth, 2013). Other causes include airway obstruction during sleep, diseases and tumors of the adrenal glands, hormone abnormalities, thyroid disease, and too much salt or alcohol in the diet. Drugs can cause secondary hypertension, including over-the-counter medications such as ibuprofen (Motrin, Advil, and others) and pseudoephedrine (Afrin, Sudafed, and others) (Konstantinos & Tziomalos, 2019).

There are a number of forms of hypertension. These include: white coat hypertension, meaning that blood pressure is high in clinical settings but not at other times; malignant hypertension or hypertensive emergency, when the patient's organs may be damaged as a result of the high blood pressure; and resistant hypertension, which is when the patient's blood pressure does not respond to therapeutic lifestyle changes and at least two other anti-hypertensive drugs (Rosendorff, 2013; Wolf et al., 2018).

The categories of geriatric hypertension are the same with the categories of hypertension in adults (Hua et al., 2019).

3. Risk factors for hypertension

Sociodemographic, environmental and behavioral factors are likely to be the main contributors to racial and ethnic differences in mean BP and prevalence of hypertension (Kaufman et al., 2015). In addition, several modifiable risk factors, including high sodium intake, low potassium intake, alcohol consumption, obesity, lack of physical activity, and unhealthy diet are associated with increased risk of hypertension (Kaufman et al., 2015; Whelton et al., 2016).

3.1 High sodium intake

Animal experiments, observational epidemiologic studies, and randomized clinical trials have demonstrated a causal relationship between sodium intake and elevated BP (He & Whelton, 2002). Several meta-analyses of clinical trials have shown that sodium reduction significantly lowers BP in hypertensive and

normotensive individuals (He et al., 2013). Despite the strong positive association between dietary sodium intake, BP and risk of hypertension, the associations of sodium intake with risk of CVD, CKD, and mortality are inconsistent (Newberry et al., 2018). Some studies have found a positive association between dietary sodium intake and these clinical outcomes, whereas others have found inverse, J-shaped or U-shaped associations (He et al., 2013). These conflicting findings can likely be partly explained by methodological limitations, such as systematic and random error in sodium measurements, reverse causality, insufficient statistical power, residual confounding, and inadequate follow up duration (Newberry et al., 2018). In summary, dietary sodium reduction should be recommended to lower population BP levels and risk of hypertension. More research is needed, however, to determine optimal dietary sodium intake for the prevention of CVD, CKD and mortality.

3.2 Low potassium intake

Observational epidemiological studies have reported an inverse association of dietary potassium intake with BP levels and hypertension (Whelton et al., 1997). Randomized clinical trials have shown that potassium supplementation lowers BP in hypertensive and normotensive individuals (Cappuccio & MacGregor, 1991; Poorolajal et al., 2017). In a meta-analysis of 33 randomized controlled trials with 2,609 participants, potassium supplementation was associated with significant reductions in mean systolic and diastolic BP of 3.11 mmHg (95% CI 1.91–4.31) and 1.97 mmHg (95% CI 0.52–3.42), respectively (Whelton et al., 1997). In 31 trials with urinary potassium measurements, the median net increase in potassium excretion in the potassium supplementation group versus the control group was 50 mmol per day; in 21 (68%) of these trials, the net difference in potassium excretion was ≥40 mmol per day (Whelton et al., 1997). The effects of potassium supplementation seemed to be greater in black individuals and in those eating a high sodium diet (Newberry et al., 2018). Increasing potassium intake, especially from fruits and vegetables, is therefore recommended for the prevention and treatment of hypertension (Whelton et al., 2002).

3.3 Alcohol consumption

Numerous observational epidemiologic studies have reported that high alcohol consumption is a risk factor for elevated BP (Fuchs et al., 2001; Klatsky et al., 1977). The Atherosclerosis Risk in Communities Study reported a J-shaped association between alcohol consumption and risk of hypertension (Fuchs et al., 2001). In a large prospective cohort study of over 500,000 Chinese adults, however, self-reported usual alcohol intake and genotype-predicted alcohol intake were both positively and linearly associated with BP. A recent meta-analysis of 36 trials with 2,865 participants showed that a reduction in alcohol intake was not associated with a significant reduction in BP in individuals who drank two or fewer drinks per day. However, a 50% reduction in alcohol intake was significantly associated with a 5.50 (95% CI 4.30 to 6.70) mmHg lower systolic BP and a 3.97 (3.25 to 4.70) mmHg lower diastolic BP in participants who drank six or more drinks per day (Roerecke et al., 2017). These findings suggest that reducing alcohol intake should be recommended as an important component of lifestyle modification for the prevention and treatment of hypertension in people who are heavy drinkers.

3.4 Lack of physical activity

Epidemiological studies have reported an inverse relationship between physical activity, BP and hypertension (Lesniak & Dubbert, 2001). Even modest levels of physical activity (such as walking to work) are associated with a decrease in the risk of incident hypertension (Hayashi et al., 1999). Randomized controlled trials and meta-analyses have demonstrated that physical activity lowers BP in hypertensive and normotensive individuals . For example, a meta-analysis of 54 randomized controlled trials with 2,419 participants reported that aerobic exercise was associated with a significant reduction in mean systolic BP of 3.84 mmHg (95% CI 2.72–4.97) and diastolic BP of 2.58 mmHg (95% CI 1.81–3.35) (Whelton et al., 2002). Aerobic exercise-induced BP reductions were consistent in hypertensive and normotensive participants and in overweight and normal weight participants. These findings

indicate that physical activity is an effective lifestyle intervention for the prevention and treatment of hypertension.

3.5 Overweight and obesity

Epidemiological studies have consistently identified a direct relationship between BMI and BP that is continuous and almost linear, with no evidence of a threshold (He et al., 1994; Huang et al., 1998). In a meta-analysis of 25 randomized controlled trials with 4,874 participants, a net reduction in body weight of 5.1 kg (95% CI 4.25–6.03) owing to calorie restriction, increased physical activity, or both, reduced systolic BP by 4.44 mmHg (95% CI 2.95–5.93) and diastolic BP by 3.57 mmHg (95% CI 2.25–4.88). BP reductions were 1.05 mmHg (95% CI 0.66–1.43) systolic and 0.92 mmHg (95% CI 0.55–1.28) diastolic when expressed per kilogram of weight loss (Neter et al., 2003).

3.6 Unhealthy diet

In addition to sodium and potassium, several macronutrients are associated with BP, including dietary fiber, protein, and fat (Appel et al., 2006). Vegetarian and Mediterranean dietary patterns are also associated with BP reduction (Nordmann et al., 2011; Yokoyama et al., 2014). A meta-analysis of 7 randomized controlled trials with a total of 311 participants reported that vegetarian diets (defined as diets that never or rarely included meat) were associated with a mean reduction in systolic BP of 4.8 mmHg (95% CI 3.1–6.6) and diastolic BP of 2.2 mmHg (95% CI 1.1–3.5). 101 Mediterranean diets are characterized by moderate fat intake (primarily from olive oil and nuts), low consumption of red meat, and high consumption of vegetables (Nordmann et al., 2011). A meta-analysis of 6 trials with a total of 2,650 participants reported a modest but significant reduction in systolic BP of 1.7 mmHg (95% CI 0.1–3.4) and diastolic BP of 1.5 mmHg (95% CI 0.8–2.1) in Mediterranean diets compared to low-fat diets (Nordmann et al., 2011).

3.7 Other potential risk factors

Several other potential risk factors for hypertension have been proposed, including cigarette smoking, air pollution, psychological stress, sleep disorders and noise exposure (Mills et al., 2020). In summary, observational studies have reported weak or moderate associations between these potential risk factors and risk of hypertension. However, there is insufficient evidence from randomized clinical trials to support causal relationships between these potential risk factors and risk of hypertension. Overall, the currently available data suggest that these potential risk factors have limited effect on BP in the general population (Manohar et al., 2017; Yang et al., 2018).

4. Pathophysiology and complications of hypertension in the elderly

Hypertension is a rather simple phenotype characterized by an increase in systemic blood pressure above an arbitrarily defined threshold. Yet, the mechanisms leading to the increase in blood pressure are extremely complex and involved a wide variety of neurohormonal, renal, metabolic, and vascular factors (Majumder & Wu, 2015). In the present study, pathophysiology of hypertension was focused on primary hypertension. The causes of hypertension differ substantially in young children, in middle-aged men and women, and in the elderly. There are specific underlying mechanisms of HTN in older persons, including mechanical hemodynamic changes, arterial stiffness, neurohormonal and autonomic dysregulation, and the aging kidney (Lionakis et al., 2012).

Aging results in several structural and functional changes in the arterial vasculature. Over time, the arteries stiffen, with fracturing of the elastic lamellae and intimal hyperplasia is seen in the aorta. The stiffened arteries have decreased capacitance, and limited recoil, with subsequent difficulty to accommodate volume changes throughout the cardiac cycle. Both systolic BP (SBP) and diastolic BP (DBP) increase with age, however, after the age of 60 years, the central arterial stiffness predominates, and as a consequence, SBP continues to rise while the DBP declines

thereafter (Pinto, 2007). This results in isolated systolic HTN and a widened pulse pressure. The latter increases with age independently of mean BP or any other determinant factors. Sasaki et al (Sasaki et al., 2018) have shown that NT-proBNP concentrations may be a marker of not only ventricular dysfunction, but also arterial stiffness in the older population without CVD disease. NT-proBNP was positively associated with SBP, whereas a U-shaped association was found between DBP and NT-proBNP.

Furthermore, there are hemodynamic mechanical changes that alter wave reflection causing a reduction in the aortic elasticity, as well as loss of recoil during diastole. There is also increase in pulse pressure and pulse-wave velocity. The change in arterial structure causes an increase in the reflected pressure waves added to the forward pressure waves in the ascending aorta that further augments the central SBP (Oliveros et al., 2020).

Over time, endothelial dysfunction occurs, inducing an elevation in endothelin-1 and decreasing bioavailability of nitric oxide, which affects arterial dilation (McEniery et al., 2005). Other neurohormonal mechanisms include a decline in the renin-angiotensin aldosterone system, with plasma renin levels by age 60 declining to 40% to 60% of younger individuals (Epstein, 1996). Plasma aldosterone levels also decrease, predisposing individuals to drug-related hyperkalemia (Fleg, 1986). Some authors have described increased peripheral plasma norepinephrine related to age (Goldstein, 1981; Veith et al., 1986), which is thought to be a compensatory mechanism for reduction in beta-adrenergic responsiveness with aging (Ferrara et al., 2014).

Reduced baroreflex sensitivity with age and loss of artery compliance causes orthostatic hypotension, defined as a reduction in SBP by at least 20 mmHg or DBP by at least 10 mmHg within 3 minutes of standing (Pinto, 2007). Orthostatic hypotension carries a prevalence of 18% in older adults and is associated with increased falls and cerebrovascular effects (Rutan et al., 1992; Valbusa et al., 2012). Valbusa et al

(Valbusa et al., 2012) showed that beta-blockers were associated with increased likelihood of developing orthostatic hypotension. The older adults rely on an increased cardiac output due to increased heart rate, as opposed to changes in their stiff arteries to achieve postural homeostasis. There is also evidence of orthostatic HTN and its association with cerebrovascular events in older adults (Kario et al., 2002). A randomized clinical trial suggested that non-institutionalized elderly targeting a SBP <120 mmHg was not associated with significant increases in orthostatic hypotension (Williamson et al., 2016).

Postprandial hypotension in geriatric patients is an underrecognized cause of syncope (Luciano et al., 2010). The mechanism is unclear, but ambulatory BP monitoring and symptoms can give a diagnosis. The patient can be advised to increase water intake before eating or substituting six smaller meals daily for three larger meals (Luciano et al., 2010). Older adults have an increase frequency of postprandial hypotension. Patients with HF, syncope, Parkinson's disease, end-stage renal disease on dialysis, autonomic dysfunction can have postprandial hypotension (Mehagnoul-Schipper et al., 2001; Mehagnoul-Schipper et al., 2002; van Kraaij et al., 1999). Frail older adults with postprandial hypotension increase their postprandial BP and heart rate when walking (Jansen, 2005).

The aging changes in the kidney are increased salt sensitivity due to a decline in the activity of the sodium/potassium and calcium adenosine triphosphate pumps, which prompts vasoconstriction and vascular resistance (Zemel & Sowers, 1988). Lastly, HTN in the elderly is also associated with increased risk of ischemic and hemorrhagic strokes (Bulpitt et al., 2003; Perry Jr et al., 2000), vascular dementia, Alzheimer's disease (Rosendorff et al., 2007), coronary artery disease and events (Vaccarino et al., 2000), atrial fibrillation, chronic kidney disease and retinal diseases.

Quality of life and hypertension

1. Definition and concept of quality of life

Quality of life (QoL) was defined as “individual” 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 (Group, 1994). In public health and medicine, the concept of quality of life refers to an individual’s perception of happiness and satisfaction with life and position in life in the context of the culture and value systems in which they live and in relation to their expectations, values, and concerns (Group, 1998). Many years ago, interest in the concept of quality of life has increased significantly, both in research and clinical practice. QoL is a multi-dimensional, subjective, and dynamic phenomenon (Bakas et al., 2012). QoL is a concept commonly used in the subjective evaluation of a patient’s health status, reflecting the patient’s physical, psychological, social and emotional well-being (Brazier et al., 2010; Carr et al., 2001). QoL ratings have been found to be an appropriate metric measurement for the design and implementation of service plans (Degenholtz et al., 2008). As the QoL comprehensively examines the impact of the disease on the patient’s life, as well as factors corresponding to their physical and mental health, a growing number of clinicians and policymakers are applying QoL in clinical treatment, drug research, preventive health care, health decision-making and health economic evaluation (Efficace et al., 2007; Pietersma et al., 2013).

In recent years, much attention has been focused on exploring the impact of physical and mental illness on overall QoL. The switch to the measurement of psychosocial issues in addition to biomedical measures has been shown to play an important role in ensuring positive patient outcome from both a clinician’s and patient’s perspective, and is an important outcome measure when evaluating treatment (Skevington, 1999). In addition, ongoing evaluation of QoL in normal healthy individuals, and specific general populations, such as the elderly, has also received attention. It has previously been argued that due to the subjective nature of an

individual's "quality of life", this is a difficult concept to measure and to define, but that in general terms it may be viewed as a multidimensional concept emphasizing the self-perceptions of an individual's current state of mind (Bonomi et al., 2000). Indeed a major challenge in defining quality of life might be in exploring which domains should be encompassed in the overall definition of this construct. However, investigations would indicate that for an effective explanation to be derived, it is essential to view QoL as a concept consisting of a number of social, environmental, psychological and physical values (Theofilou, 2013).

2. Quality of life among older adults with hypertension

The definition of older adults is different from country to country, it depend on the societies' perspective of each country. Most developed world countries have accepted the chronological age of 65 years as a definition of elderly or older adults, but the social security and retirement system and other related public policy systems use 60 years old as a benchmark for old age in China (Lu et al., 2019). In this study, we chose the age group of 60–69 years elderly hypertensive patients as target research subjects, these older adults are defined base on the law of China. Older adults are generally defined according to a range of characteristics including: chronological age, change in social role, and changes in functional abilities. In addition to being an unavoidable physiologic process, aging is one of the most important causes of decrease in life quality due to its chronologic, biological, social, and psychological dimensions (DeLisa et al., 2005; Lu et al., 2019).

Several dimension of life including vitality, social function, mental health, mood and psychological function were reported to be negatively influenced by hypertension. In addition, several symptoms of hypertension will also disturb daily activity of the people with hypertension. All of these condition will contribute to decrease QoL, especially among elderly population (Haraldstad et al., 2019; Sekeon et al., 2017). A meta-analysis including 20 studies has demonstrated that QoL of patients with hypertension was lower than that of normal individuals (Trevisol et al., 2011).

Assessment of QoL is increasingly used in public health research targeting elderly people. With the increase of age, the elasticity and compliance of arteries in elderly hypertensive patients also decrease, the damage to important organs such as the heart and brain is more serious than that of ordinary adults, and the ability to take care of themselves is also significantly reduced (Uchmanowicz et al., 2018b). After a variety of social roles, the relative reduction of social time participation is likely to lead to a decrease in the QoL (Rambod et al., 2020). At present, most studies at home and abroad have shown that the overall QoL of elderly hypertensive patients is significantly lower than that of the normal population (Benetos et al., 2019; Wong et al., 2020). Battersby et al (Battersby et al., 1995) conducted a case-control study on the quality of life of elderly hypertensive patients in the community, and the results showed that elderly hypertensive patients were significantly impaired in health, with worse health indicators, and more symptoms and psychological damage. Domestic studies by Hou et al (Hou et al., 2020) also show that, compared with healthy people, elderly hypertensive patients have lower QoL, higher incidence of cardiovascular and cerebrovascular complications, poor health self-evaluation, cognitive ability and life activity ability both decreased.

QoL of the elderly with hypertension was associated with many factors, several studies have been conducted to evaluate the relationship between associating factors and QoL in older adults. Sociodemographic factors display a disparity and may affect QoL among older adults with hypertension (Tavares et al., 2015). Increasing age, living alone, and lower education are more likely to be associated with lower QoL (Bhandari et al., 2016). In addition, an increase in the number of chronic conditions is associated with decreased QoL in older adults (Chen et al., 2020), as higher multimorbidity may affect the severity of the disease leading to less ability to undertake everyday activities, greater social isolation, and lower well-being (Dev et al., 2020). Furthermore, financial limitations for transportation and other expenses may decrease access to healthcare services and restrict lifestyle choices, which in turn may affect

poor health conditions and reduce life satisfaction in older adults (Ong-Artborirak & Seangpraw, 2019). The duration of hypertension, in particular, is one of the factors related to QoL; if an older adult has suffered high levels of hypertension for a long time, it affects physical conditions and may lead to poor adherence to treatment resulting in negative health outcomes and poor QoL in old age (Uchmanowicz et al., 2018b). However, perceived health status regarding age-related disease may influence older adults' self-care efforts to retain healthy habits and medication adherence, thus enhancing their QoL (Gu et al., 2019).

The challenge in elderly hypertensive patients is making decisions not on age alone, but on the overall medical, physical, social, and mental characteristics of the patient (Oliveros et al., 2020). The gold standard of treatment for hypertension includes drug and non-drug treatment, which are integral part of treatment recommended by the physicians to prevent complications and in enhancing quality of life (Del Pinto & Ferri, 2019). The major strategies for promoting and supporting QoL cover the multidimensional aspects of older persons' lives in terms of healthy ageing (Manasatchakun et al., 2016).

There has been little research evaluating the QoL for the Chinese older patient with hypertension. As a consequence, there has been limited understanding of the current status of the QoL in the Chinese older patient with hypertension and little understanding of how the QoL in the Chinese older patient with hypertension is similar or different to those in other countries.

The World Health Organization Quality of Life

The World Health Organization Quality of Life (WHOQOL) Group was founded in 1991 to develop a disease-independent and universally applicable health questionnaire. The constitution of WHO defines quality of life 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 (T.

W. Group, 1998). It is a broad ranging concept affected in a complex way by the person's physical health, psychological state, personal beliefs, social relationships and their relationship to salient features of their environment (Group, 1994). The WHOQOL instruments place primary importance on the perception of the individual Most assessments in medicine are obtained by examinations by health workers and laboratory tests. The WHOQOL instruments, by focusing on individuals' own views of their well being, provide a new perspective on disease (Vahedi, 2010). WHO, with the aid of 15 collaborating centres around the world, has therefore developed two instruments for measuring quality of life (the WHOQOL-100 and the WHOQOL-BREF), that can be used in a variety of cultural settings whilst allowing the results from different populations and countries to be compared. These instruments have many uses, including use in medical practice, research, audit, and in policy making (Skevington et al., 2004).

In medical practice

In clinical practice the WHOQOL instruments may be used with other forms of assessment, giving valuable information that can indicate areas in which a person is most affected and help the practitioner in making the best choices in patient care. In addition they may be used to measure change in quality of life over the course of treatment.

Improving the doctor-patient relationship

By increasing the physician's understanding of how disease affects a patient's quality of life, the interaction between patient and doctor will change and improve. This gives more meaning and fulfilment to the work of the doctor and leads to the patient being provided with more comprehensive health care. Because a more complete form of assessment covering different aspects of patients' functioning is being carried out, patients themselves may find their health care more meaningful.

In assessing the effectiveness and relative merits of different treatments

The WHOQOL instruments can form a part of the evaluation of treatments. For example, chemotherapy for cancer may prolong a person's life, but may only do so at considerable cost to their quality of life. By using the WHOQOL instruments to look at changes in the person's well being over the course of treatment, a much fuller picture can be gained.

In health services evaluation

In the periodic review of the completeness and quality of medical services, the patients' concerns are of importance. The instruments provide an invaluable supplementary appraisal of health care services, by yielding a measure of the relationship between the health care service and patients' quality of life, and also by directly presenting a measure of patients' perception of the quality and availability of health care.

In research

The WHOQOL instruments provide new insights into the nature of disease by assessing how disease impairs the subjective well being of a person across a whole range of areas.

In policy making

When health providers implement new policies it is important that the effect of policy changes on the quality of life of people in contact with health services is evaluated. The WHOQOL instruments allow such monitoring of policy changes.

The conceptual framework of the four-factor model of the WHOQOL-BREF was showed in figure 2.

Domain	Facets incorporated within domains
1. Physical health	Activities of daily living Dependence on medicinal substances and medical aids Energy and fatigue Mobility Pain and discomfort Sleep and rest Work Capacity
2. Psychological	Bodily image and appearance Negative feelings Positive feelings Self-esteem Spirituality / Religion / Personal beliefs Thinking, learning, memory and concentration
3. Social relationships	Personal relationships Social support Sexual activity
4. Environment	Financial resources Freedom, physical safety and security Health and social care: accessibility and quality Home environment Opportunities for acquiring new information and skills Participation in and opportunities for recreation / leisure activities Physical environment (pollution / noise / traffic / climate) Transport

Figure 2 Conceptual framework of the WHOQOL-BREF

The WHOQOL-BREF is a Patient-Reported Outcome (PRO) instrument that can assess the global health status of patients independently of disease across 4 health domains with 24 different domain aspects (Who, 1997). Overall, it includes the 26 most important of the WHOQOL-100's 100 questions, representing a considerable and necessary reduction: physical health (7 items), psychological health (6 items), social relationships (3 items), and environmental health (8 items); it also contains QOL and general health items. The physical health domain includes items on mobility, daily activities, functional capacity, energy, pain, and sleep. The psychological domain measures include self-image, negative thoughts, positive attitudes, self-esteem, mentality, learning ability, memory concentration, religion, and the mental status. The social relationships domain contains questions on personal

relationships, social support, and sex life. The environmental health domain covers issues related to financial resources, safety, health and social services, living physical environment, opportunities to acquire new skills and knowledge, recreation, general environment (noise, air pollution, etc.), and transportation. The patient's recall period covers the past 2 weeks. The WHOQOL-BREF is one of the best-known instruments that has been developed for cross-cultural comparisons of quality of life and is available in more than 40 languages (Organization, 1998). All in all, the WHOQOL-BREF is a valid, established, and meaningful PRO instrument for assessing the global health status of patients regardless of their disease (Skevington & McCrate, 2012; Vahedi, 2010).

Therefore, guiding by the conceptual framework of the WHOQOL-BREF, in this study, perceived health status, self-care behavior and social support were presented as the independent variables and might influence the QoL among older adults with hypertension.

Factors affecting quality of life among older adults with hypertension

There were many studies of correlates or predictors of QoL among older adults with hypertension from various countries, yet the results were inconsistent throughout the variables. In this study, perceived health status, self-care behavior and social support were selected to examine their predictive ability in QoL among older adults with hypertension.

Perceived health status

According to the conceptual framework of the WHOQOL-BREF (Kim, 2020), perceived health status is categorized in general health. Perceived health status reflecting that people have an integrated perception of their own health, including biological, psychological, and social dimensions (Quesnel‐Vallée, 2007). When assessing the health of older adults, perceptions of their health provide important information that is complementary to functional status and medical morbidity.

Perceived health status has been shown to be a significant predictor of mortality, morbidity, and health care use in other populations, even after controlling for more objective indicators of health (Benyamini & Idler, 1999). In one study of adults with hypertension, perceived poor health was a significant and independent contributor to blood pressure at follow-up (Kaplan, 1987). Chantakeeree et al (Chantakeeree et al., 2021) found that older adults with a higher perceived health status had a better QoL compared to those with poorer perceived health status. The study of Dumitrache et al (Dumitrache et al., 2017) indicated that older Spanish people who perceived their health as in good condition correlated with their ability to maintain health and functionality. Enhancing self-esteem to improve illness can therefore contribute to a higher life satisfaction than among those who have perceived poor health status. Similarly a previous Thai study by Seangpraw et al (Seangpraw et al., 2019) found that older Thai adults who perceived their health status as moderate performed daily functions that could improve their QoL, being able to perform routine activities and participate in community activities, which promoted a good perception of health status and having a good life.

Self-care behavior

Patients' therapeutic compliance is categorized into the physical health domain to the conceptual framework of the WHOQOL-BREF. This factor has been identified as an important factor influencing QoL in previous studies (Franchini et al., 2020; Isik et al., 2019). Poor control and lack of hypertension awareness will often seriously affect a patient's quality of life, especially among the older adults. Self-care, as an effective method of secondary prevention of hypertension, has been documented as one of the main determinants of hypertension control (Eckel et al., 2014; Li et al., 2015). Management and effective self-care of hypertension have a vital role in prevention and reduction of complications such as the number of strokes (by 30%–40%) (Bromfield et al., 2014), renal failure, heart cardiovascular complications (by 20%–25%) (Briasoulis et al., 2014), and improving the health of patients with

hypertension (Kakhki Ali et al., 2013). Self-care programs in CVDs result in a decrease in the impact of risk factors such as cholesterol level, obesity, and an increase in the quality of life (Chatziefstratiou et al., 2013; Lee et al., 2011). Treatment and management of hypertension are important for decreasing death rates in patients with hypertension (Musini et al., 2009). However, treatment and control rates of hypertension are particularly low in most middle-income countries, and even developed countries have not met the goals to control and treat high blood pressure (Basu & Millett, 2013; Control & Prevention, 2012). The rate of uncontrolled hypertension is higher in elderly populations than in younger populations, and one reason for this is the lack of self-care behaviour, such as treatment, medication, diet control, tobacco cessation and physical activity (Brown et al., 2007; Control & Prevention, 2012). Therefore, self-care can control hypertension, there is a need to improve self-care ability for elderly patients with hypertension to improve blood pressure control (Brown et al., 2007).

Social support

Further, social support, a factor in social relationships domain, has been found significantly associated with QoL among patient with various chronic diseases including hypertension (Alshraifeen et al., 2020; Haya et al., 2019). It is one of the most well-documented psychosocial factors associated with physical health outcomes (Compare et al., 2013; Pinquart & Duberstein, 2010), including hypertension (Strogatz & James, 1986). The study found that social support is an important variable that affects the health and disease of older people (Al-Kandari, 2011). Evidence suggests that spouses/partners, families, friends, colleagues, neighbors, and community members can be important sources of social support during periods of poor health or stress (Heinze et al., 2015). The acquisition and perception of these social support helps patients better control their blood pressure and improve their quality of life (Ding et al., 2018; Magrin et al., 2015). However, studies have shown that social support status of elderly hypertensive patients was poor, and the scores of all dimensions were lower

than the national standard level in China (Hu et al., 2015; Li et al., 2019). With aging, the increase of disease burden and the decline of quality of life, the gap between the elderly and the society is becoming more and more obvious. Wang and colleagues stated that elderly hypertension patients represent a vulnerable population and impairs QoL in both physical and mental domains (Wang et al., 2009). This invisible isolation and generation gap affects the level of support around them as well as their acceptance and utilization of support.

Summary

The ageing population in China continues are increasing in this decade, understanding about the quality of life of the aged population has become a particular area of interest. Hypertension is one of the most danger and common diseases in older adults and it's prevalence is increasing year by year. In addition, the literature reviews also indicated that older adults with hypertension have lower quality of life than others. Although numerous studies were conducted to examine QoL and its predictors among older adults with hypertension in various countries. However, no published studies have examined factors predicting the QoL among older adults with hypertension in Wenzhou, China. Therefore, the researcher found the necessary to conduct a study about quality of life among older adults with hypertension in Wenzhou, China. The results of this study will fulfill the gap and provide scientific evidence for nursing practice and nursing research development aiming at improving the quality of life for older adults with hypertension in the future.

CHAPTER 3

RESEARCH METHODOLOGY

This chapter introduces on the following issues: research design, setting of the study, population and sample, research instruments, protection of human subjects, data collection procedure, and data analysis.

Research design

A predictive correlational study design was applied to describe QoL among older adults with hypertension, and examine the predictive power of perceived health status, self-care behavior and social support on QoL among older adults with hypertension.

Setting of the study

This study was conducted with older adults with hypertension who visited the cardiovascular outpatient department of the Second Affiliated Hospital of Wenzhou Medical University from November to December, 2022. This hospital is a provincial general hospital with 3401 beds. The hospital opens from Monday to Sunday and working times from 08:00 to 12:00 am and from 01:00 to 04:30 pm. and will be closed on public holidays.

Population and sample

Population

The populations in this study were patients aged 60 years and over with hypertension who visited the cardiovascular outpatient department of the Second Affiliated Hospital of Wenzhou Medical University.

Sample

The populations in this study were older adults with hypertension who visited the cardiovascular outpatient department of The Second Affiliated Hospital of Wenzhou Medical University. The sample was selected based on the inclusion criteria:

1. Patients with hypertension who have been diagnosed with hypertension by the physician for at least 6 months.
2. Age ranged from 60-69 years old.
3. No serious complications of hypertension such as paralysis, and NYHA (New York Heart Association) stage four heart failure.
4. Able to read, write, and understand Chinese.
5. Willing to participate in the study.

Sample size

The sample size calculation for the study was conducted by G*Power 3.1 version prior to study commencement. Given the researcher aimed to examine the three predictors of quality of life among older adults with hypertension, thus the linear multiple regression was chosen as type of statistical test in G*Power program with an alpha of 0.05, a power of 0.95, and a medium effect size of 0.15 (Tabachnick et al., 2007). The required sample size is 119 participants. In this study, 10% of sample size (12 participants) will be added in case incomplete data collection (Little & Rubin, 2002). Therefore, 131 participants will be needed in total.

Sampling technique

Simple random sampling method was used in this study. Older adults with hypertension who met the inclusion criteria were randomly selected from the older adults with hypertension who visited the cardiovascular outpatient department of The Second Affiliated Hospital of Wenzhou Medical University for follow up treatment. The number of patients with hypertension who visited the cardiovascular outpatient

department of The Second Affiliated Hospital of Wenzhou Medical University on average per day is 50. Methods of recruitment were as follows:

1. The participant lists were obtained from the computer system of outpatient patients who signed in every day at the cardiovascular outpatient department of the Second Affiliated Hospital of Wenzhou Medical University. The sampling frame was attained by collecting the registration numbers distributed during the period from 08:00 to 12:00 am and from 01:00 to 04:30 pm after screening those meeting the inclusion criteria.

2. The researcher assigned a numerical label for each participant and wrote them on slips of paper. After that, the researcher put these slips of paper in the box and mix well.

3. About 5 to 10 individuals were randomly selected per day, it depend on the number of patients visited the the cardiovascular outpatient department on that day. The researcher asked permission from older adults with hypertension to participate in the study and to sign on consent form, then interviewed them individually. Guided participants to fill in the questionnaires. Data were collected according to above steps until the sample size was completed.

Research instruments

The research instruments were used in this study, including the demographic questionnaire, the Chinese version of the world health organization quality of life instrument-older adults module, the perceived health status questionnaire, the Chinese version of the self-care of hypertension inventory in older adults, the Chinese version of the multidimensional scale of perceived social support. Details of questionnaires are showed as follows:

1. Demographic questionnaire

The demographic questionnaire was developed by the researcher, asking patients about age, gender, education, marital status, occupation, type of hypertension, and hypertension complications.

2. The Chinese version of the world health organization quality of life instrument-older adults module (WHOQOL-OLD)

The Chinese version of the world health organization quality of life instrument-older adults module (WHOQOL-OLD) was developed to measure the quality of life for Chinese old population of healthy individuals, as well as those who are experiencing an illness. This questionnaire comprises 24 items belonging to six domains: sensory abilities, autonomy, past, present, and future activities, social participation, death and dying, and intimacy (4 items for each domain). The responses were rated on a 5-point scale (1–5). The domain score was calculated by summing the item scores, with a range from 4 to 20; higher scores equal better quality of life. The internal consistency reliability of the WHOQOL-OLD was 0.892, the intra-class correlation coefficient between test and retest results in subscale score and total score were all over 0.7 (Liu et al., 2013). The total score ranges from 24 to 120 with a higher score denoting better QoL.

3. Perceived health status questionnaire

Perceived health status was assessed by asking participants to respond to the question: “Would you say your health, in general, is excellent, good, fair, or poor?” The reply alternatives ranged from 1 to 4, where 1 = excellent, 2 = good, 3 = fair, and 4 = poor (Lewis & Riegel, 2010). The total score ranges from 1 to 4 with a higher score denoting poor health status, the scoring of perceived health status in this case was classified into 3 levels, including low health status (3.1-4.0), moderate health status (2.1-3.0), and high health status (1.0-2.0).

4. The Chinese version of the self-care of hypertension inventory in older adults (SC-HI)

The Chinese version of the self-care of hypertension inventory in older adults (SC-HI) as a measurement of self-care abilities of patients with hypertension at each stage of the self-care process (maintenance, management, and confidence).The adapted Chinese SC-HI is a self-rating scale that includes 23 items divided across 3 subscales: Self-care Maintenance (items 1Y11), Self-care Management (items 12Y17), and Self-care Confidence (items 18Y23). The Self-care Maintenance domain includes self-monitoring and treatment adherence, with scores ranging from 1 to 4 ("never or rarely" to "always or daily"). In the Self-care Management domain, 1 item about recognizing symptoms ranges from 0 to 4 to capture a fully negative response ("I did not recognize it" to "very quickly"). The other 4 items about dealing with symptoms are scored from 1 to 4 ("not quickly" to "very quickly"). The remaining item about evaluating the intervention effectiveness is scored from 0 to 4 (0, "I did not try anything"; 1, "not sure"; to 4, "very sure"). Finally, in the Self-care Confidence domain, 6 items are all scored from 1 to 4 ("not confident" to "extremely confident"). The item-level content validity index had a range of 0.833 to 1. The scale-level content validity average method and Cronbach's alpha were 0.986 and 0.858 for the total scale, respectively. The test/retest reliability was 0.949 (Zhao et al., 2019). The total score ranges from 23 to 92 with a higher score denoting better self-care, the scoring of self-care in this case was classified into 3 levels, including low self-care (23-46), moderate self-care (47-69), and good self-care (70-92).

5. The Chinese version of Multidimensional Scale of Perceived Social Support (MSPSS-C)

Social support was assessed using the 12-items version of the Chinese version of Multidimensional Scale of Perceived Social Support (MSPSS-C). This scale measured perceived social support from three domains: support from family, support from friends and support from significant others. The Chinese version

(MSPSS-C) has demonstrated high internal consistency with a Cronbach's alpha equal to 0.89; therefore, its validity and reliability are confirmed (Chou, 2000). The item has a 7-point rating ranging from "very strongly disagree" to "very strongly agree". The possible range of total score is 12-84. A higher total score reflects stronger social support. Based on the author's suggestion, score transformation should be (Zimet et al., 1988): score 12 to 36 could be considered low support, 37 to 60 could be considered moderate support, 61 to 84 could be considered high support.

Quality of instruments

1. Validity, since all the scales used in this study have already been validated. The researcher used all of these scales without modification. Therefore, the content validity in this study was skipped.

2. Reliabilities, for this study, the reliability of each instrument was tested with 30 participants as a tryout prior to the formal data collection. The Cronbach's alpha coefficient was used to determine the reliability for the world health organization quality of life instrument-older adults module (WHOQOL-OLD), the self-care of hypertension inventory in older adults (SC-HI), and multidimensional scale of Perceived Social Support (MSPSS-C). The results of Cronbach's alpha test for the world health organization quality of life instrument-older adults module (WHOQOL-OLD) was .71, the self-care of hypertension inventory in older adults (SC-HI) was .89, and multidimensional scale of Perceived Social Support (MSPSS-C) was .84.

Protection of human subjects

This study was conducted with respect to human rights. Human subject's approval was obtained from the Ethical Approval Committee, Burapha University, Thailand, and the Second Affiliated Hospital of Wenzhou Medical University, China. The process of data collection was started once the researcher granted the permission

from related authorities of particular setting. The human subject protection for patients who participated in this study was maintained. There was research assistant who is a registered nurse to help for data collection. The researcher explained to the research assistant regarding study details such as research objective, study sample, inclusion criteria of participants, method of data collection and how to administer the questionnaires to the participants. All the participants were informed clearly about the study details as well as data collecting procedure. The researcher or research assistant gave information sheet, informed consent sheet and explain the research objectives, method, procedures of this study. Participants were not asked for their names. This study did not cause any harm to participants.

The participants were patients who voluntary in this study. Consent form was signed by voluntary participants prior to the data collection. The researcher explained all details in each part of questionnaires and asked them to fill the questionnaires by themselves in the private room located in the cardiovascular outpatient department of The Second Affiliated Hospital of Wenzhou Medical University. During that time the researcher was around in order to answer the participants about the questions which might have occurred. The participant's anonymity and confidentiality were respected. Only code numbers were used and all pieces information collected from the participants were kept confidential and were used only for the purpose study. The result was reported as group data. All data were stored in a specific file using password and only researcher could access this file. The data will be destroyed after one year of the study.

Data collection procedure

Data collection procedures in this study were performed by the researcher. The procedures for data collection were as follows:

1. After the proposal was approved by the institutional review board, Burapha University, the researcher submitted recommendations for ethical review to the IRB

of BUU and the IRB of the Second Affiliated Hospital of Wenzhou Medical University in China.

2. The researcher asked the Graduate School of BUU and the Second Affiliated Hospital of Wenzhou Medical University in China for permission to collect data on the goals and procedures of the research information.

3. After the researcher obtained the permission of the Second Affiliated Hospital of Wenzhou Medical University, China. The researcher explained the data collection procedures to the cardiovascular outpatient department staff and got their cooperation.

4. Considering the situation of the coronavirus in 2022 (COVID-19), the researcher wore masks all the time and reminded patients to wear masks all the time. At the cardiovascular outpatient department entrance, patients were required to go through a temperature screening and showed a health QR code (an official way to declare residents' health status). Those patients who displayed a green code and a temperature below 37.3 were allowed entry into the outpatient department.

5. The researcher used a simple random sampling to select about 5-10 participants per day. Data collection was conducted on working days from 08:00 to 12:00 am and from 01:00 to 04:30 pm.

6. The nurse in the outpatient departments searched the registration to find the clients who met the inclusion criteria. The older adults with hypertension were asked whether they were interested in participating in the study or not. If they were, the outpatient nurse contacted the researcher.

7. The researcher introduced herself and informed the participants and their families about the objectives of the study, ethical issues, human protection, and data collection procedures of the study. Written consents were signed after the participants understood and were willing. Every participant maintained one-meter social distancing from other participants and researchers.

8. These data were collected through a self-reporting questionnaire in a

special private room, keeping the environment quiet, and prepared reading glasses to ensure that the participants could see clearly. The room was routinely disinfected daily. The participants started with the demographic questionnaire. The second was the Chinese version of the world health organization quality of life instrument-older adults module Scale. The third was Perceived health status questionnaire. The fourth was the Chinese version of the self-care of hypertension inventory in older adults Scale. The fifth was the Chinese version of Multidimensional Scale of Perceived Social Support Scale. It took about half an hour to one hour to complete the questionnaires. The researcher ensured that participants could meet the doctor in time after the questionnaires were completed.

9. After completing the questionnaires, participants were reminded to take any belongings away. Public goods including pens were disinfected with alcohol cotton after use.

10. The researcher checked if the questionnaires had been filled and completed after the participants submit them, after having the whole information, data were coded and entered into a computer spreadsheet.

11. This process was repeated until the required sample size was reached.

12. Terminal criteria: if the person felt unwell, the researcher stopped collecting data immediately, sought help from other medical staff, and took good care of the patient.

Data analysis

Data were analyzed by IBM SPSS 26.0 software in this study. The significance level of statistical test was set at $\alpha = 0.05$. Statistics were used for data analysis. The analysis was as follows:

1. Descriptive statistics include frequency, percentage, mean, and standard deviation was used to describe demographic data.

2. Variable description was analyzed by range, mean, and standard deviation.

3. Predictors of QoL among older adults with hypertension were examined by stepwise multiple regression analysis.

CHAPTER 4

RESULTS

This chapter presents the findings of the study. The purposes of the study were to describe QoL among older adults with hypertension in Wenzhou, China, and examine the predictive power of perceived health status, self-care behavior and social support on QoL among older adults with hypertension in Wenzhou, China. The findings of this study were presented as follows:

Part 1 Descriptions of demographic characteristics older adults with hypertension.

Part 2 Descriptive of selected factors and quality of life among older adults with hypertension.

Part 3 Examination of the predictive power of perceived health status, self-care behavior and social support on quality of life among older adults with hypertension.

Part 1 Description of demographic characteristics of older adults with hypertension

A total number of 131 older adults with hypertension visiting the cardiovascular outpatient department of The Second Affiliated Hospital of Wenzhou Medical University in this study. The sample consisted of 105 males (80.15%) and 26 females (19.85%). The age of participants ranged from 60 years old to 69 years old with the mean age of 64.7 years. 60.3% of participants lived in the city, 39.7% of participants lived in the rural. More than half of the participants had completed primary level of education (52.67 %), 38.17% of participants had junior high school degree, a small percentage of participants (8.39%) had senior high school degree. Majority of the participants (97.7%) was married. The occupation of 95.4% of

participants had no occupation. Most of participants (97.7%) was primary hypertension. 94.6% of participants had none hypertension complication. The demographic characteristics information of the participants are described in table 1.

Table 1 Demographic characteristics of participants (n = 131)

Characteristics	**Number (n)**	**Percentage (%)**
Gender		
Male	105	80.15
Female	26	19.85
Age (M = 64.69, SD = 2.68, Min = 60, Max = 69)		
60-64	60	45.80
65-69	71	54.20
Residence		
City	79	60.30
Rural	52	39.70
Educational background		
Illiterate	1	0.77
Primary	69	52.67
Junior high school	50	38.17
Senior high school	11	8.39
Marital status		
Married	128	97.70
Divorced	1	0.77
Widowed	2	1.53
Occupation		
Employed	6	4.60
No occupation	125	95.40

Table 1 (Continued)

Characteristics	Number (*n*)	Percentage (%)
Type of hypertension		
Primary hypertension	128	97.70
Secondary hypertension	3	2.30
Hypertension complications		
None	124	94.60
Myocardial infarction	2	1.53
Coronary revascularization	5	3.81

Part 2 Description of selected factors and quality of life among older adults with hypertension.

1. Description of quality of life among older adults with hypertension

QoL examined in this study consisted of six dimensions including sensory abilities, autonomy, past, present, and future activities, social participation, death and dying, and intimacy. Description of the results are described in table 2. The mean score of quality of life of the sample was at moderate level (*M* = 75.52, *SD* = 5.86, Min = 60, Max = 93), the possible score ranged from 24-120 with higher score indicated higher psychological well-being. For six dimensions, the mean score for each dimension is: sensory abilities (*M* =10.54, *SD* =2.597), autonomy (*M* =13.50, *SD*=2.579), past, present, and future activities (*M* =12.53, *SD* =2.761), social participation (*M* =15.13, *SD* =1.734), death and dying (*M* =11.85, *SD* =2.047), and intimacy (*M* =11.97, *SD* =2.731). (Table 2)

Table 2 Description of quality of life among older adults with hypertension (*n* = 131)

Variables	Possible score	Actual score	*M*	*SD*	Level
Overall Quality of life	**24-120**	**60-93**	**75.52**	**5.86**	**moderate**
Sensory abilities	4-20	5-19	10.54	2.597	
Autonomy	4-20	7-20	13.50	2.579	
Past, present, and future activities	4-20	7-19	12.53	2.761	
Social participation	4-20	9-19	15.13	1.734	
Death and dying	4-20	6-16	11.85	2.047	
Intimacy	4-20	7-18	11.97	2.731	

2. **Description of selected factors**

The descriptions of selected factors related to QoL among older adults with hypertension consist of perceived health status, self-care behavior and social support and are described in table 3. It showed that perceived health status was moderate level (*M* = 2.86, *SD* = .64), self-care behavior was moderate level (*M* = 57.95, *SD* = 6.31), and social support was moderate level (*M* = 55.53, *SD* = 6.84).

Table 3 Description of selected factors related to quality of life (*n* = 131)

Variables	Possible score	Actual score	*M*	*SD*	Level
Perceived health status	1-4	1-4	2.86	.64	moderate
Self-care behavior	23-92	43-75	57.95	6.31	moderate
Social support	12-84	37-77	55.53	6.84	moderate

Part 3 Examination of the predictive power of perceived health status, self-care behavior and social support on quality of life among older adults with hypertension.

Stepwise multiple regression analysis was used to predict quality of life among older adults with hypertension in Wenzhou, China. Assumption of regression analysis were tested including normality of dependent and independent variables, autocorrelation, multicollinearity, homoscedasticity, and linearity. For normality, normal distribution was tested using both Kolmogorov-Smirnov with significance value > .05 and Skewness-Kurtosis coefficient with significance value between -1.96 to +1.96. Autocorrelation means the scores of a sample are not independent. Autocorrelation can be known through Durbin-Watson value. In the model summary table, Durbin-Watson value in this study equals to 1.991 indicated no autocorrelation. In the collinearity statistics, the tolerance values were all greater than .20 and Variance Inflation Factor (VIF) values were less than 4, it means no multicollinearity among predictors. The value of standard residual was between +3.00 and -3.00, it means no multivariate outlier. Linearity was tested using both statistic and scatterplot. There were all significant for indicating linearity. Scatterplot of regression standardized residual were on the same straight line, therefore linearity and homoscedasticity assumption was met.

According results of stepwise multiple regression analysis, table 4 showed the factors affecting quality of life among older adults with hypertension.

From table 5, the results showed that self-care behavior (β = .421, p <.001), social support (β = .416, p <.001), and perceived health status (β =-.170, p <.001) were significant predictors of QoL among older adults with hypertension and accounted for 82.7% in the variance of QoL among older adults with hypertension (R^2 = .827, Adjusted R^2 = .823, $F_{(3, 127)}$= 202.04, p < .001). The prediction equation based on raw scores was showed as follows:

QoL = 37.52 + .39(self-care behavior) + .36(social support) - 1.56(perceived health status).

Table 4 Results of final model of stepwise multiple regression analysis for variables predicting quality of life among older adults with hypertension (n = 131)

Independent variables	***b***	***SE*(*b*)**	**Beta**	***t***	***p*-value**
1. Self-care behavior	0.39	7.41	0.42	5.76	< .001
2. Social support	0.36	0.06	0.41	6.02	< .001
3. Perceived health status	-1.56	0.41	-0.17	-3.80	< .001
Constant	37.52	3.25		1156	< .001
R^2 = .827, Adjusted R^2 = .823, $F_{(3, 127)}$= 202.04, p < .001					

CHAPTER 5
CONCLUSION AND DISCUSSION

A predictive correlational study design aims to describe QoL among older adults with hypertension, and examine the predictive power of perceived health status, self-care behavior and social support on QoL among older adults with hypertension in Wenzhou, China. A simple random sampling was conducted to recruit 131 older adults with hypertension who visited the cardiovascular outpatient department of The Second Affiliated Hospital of Wenzhou Medical University. The research instruments consist of demographic data questionnaire, the world health organization quality of life instrument-older adults module (WHOQOL-OLD), the perceived health status questionnaire, the self-care of hypertension inventory in older adults (SC-HI), and the multidimensional scale of perceived social support (MSPSS-C). The results of Cronbach's alpha test for the world health organization quality of life instrument-older adults module (WHOQOL-OLD) was .71, the self-care of hypertension inventory in older adults (SC-HI) was .89, and the multidimensional scale of perceived social support (MSPSS-C) was .84. Data were collected during November to December, 2022. Descriptive statistics and stepwise multiple regression were used to analyze data.

Conclusion

1. Most of participants (80.15%) were male. The age of participants ranged from 60 years old to 69 years old with the mean age of 64.7 years. 60.3% of participants lived in the city, 39.7% of participants lived in the rural. More than half of the participants had completed primary level of education (52.67 %). Majority of the participants (97.7%) was married. The professional of 95.4% of participants had no occupation. Most of participants (97.7%) was primary hypertension. 94.6% of participants had none hypertension complication.

2. Quality of life, perceived health status, self-care behavior, and social support were considered as moderate level (M = 75.52, SD = 5.86; M = 2.86, SD = .64; M = 57.95, SD = 6.31; M = 55.53, SD = 6.84).

3. The stepwise multiple regression analysis showed that self-care behavior (β = .421, p <.001), social support (β = .416, p <.001), and perceived health status (β =-.170, p <.001) were significant predictors of QoL among older adults with hypertension and accounted for 82.7% in the variance of QoL among older adults with hypertension (R^2 = .827, $F_{(3, 127)}$= 202.04, p < .001). The prediction equation based on raw scores was showed as follows:

QoL = 37.52 + .39(self-care behavior) + .36(social support) - 1.56(perceived health status)

4.The results showed that the QoL among older adults with hypertension in this study was at a moderate level. Perceived health status, self-care behavior and social support were significant predictors of QoL among older adults with hypertension.

Discussion

The findings of this study were discussed as follows:

1. Quality of life

In the current study, the most of participants have moderate level of quality of life (M = 75.52, SD = 5.86, Min = 60, Max = 93), the possible score range from 24-120 with higher score indicated higher quality of life. For six dimensions, they all were classified in the moderate levels. The score for each dimension is: sensory abilities (M =10.54, SD =2.597), autonomy (M =13.50, SD=2.579), past, present, and future activities (M =12.53, SD =2.761), social participation (M =15.13, SD =1.734), death and dying (M =11.85, SD =2.047), and intimacy (M =11.97, SD =2.731). This indicates that older adult with hypertension have moderate level of QoL in Wenzhou, China. Li et al. showed that quality of life among elderly people with hypertension in a community in Hengyang, Hunan, China was at moderate level (54.36 ± 21.18), in this study quality of life was measured by the Short Form Health Survey Questionnaire (SF-36), the age of the participants ≥ 60 years (Li et al., 2018). Cabral et al. stated that elderly people (68.3±6.4 years) with hypertension in Barreiras – Bahia/Brazil measured by the WHOQOL-OLD questionnaire was at moderate level (M =78.2, SD =18.2) (W. Group, 1998). Therefore, our study and other studies all

reflect that QoL of patients with hypertension was lower than that of normal individuals, and needs to be paid attention to and urgently needs to be improved.

The finding of this study can be explained by following possible reasons. Several dimension of life including vitality, social function, mental health, mood and psychological function were reported to be negatively influenced by hypertension, they were all the important domains of the quality of life (Cabral et al., 2020; Trevisol et al., 2011). It is possible that hypertension is a chronic disease which progresses with age and increasingly affects health Older adults generally have a range of characteristics including: chronological age, change in social role, and changes in functional abilities (Zhan, 1992). Previous studies showed that hypertension is a chronic disease which progresses with age and increasingly affects health, the functions and immunity of the body gradually decline with age, the damage to important organs such as the heart and brain is more serious than that of ordinary adults, then affect QoL (Hertzog et al., 2008; Stanton & Revenson, 2011). In this study, the mean age of the participants was 64.69 years old (SD = 2.68, Min = 60, Max = 69), they were all older adults based on the law of China,aging caused negative effects on QoL among older adults with hypertension. It was consistent with the conclusion of a previous study that utilized the EQ-5D-3L that the HRQoL of those aged 60 years and above with hypertension gradually decreased with age (Lionakis et al., 2012).

Likewise, the QoL of elderly females with hypertension was also lower compared to their male counterparts in the present study. Similar gender difference that QoL of females with hypertension was also lower than QoL of males with hypertension had been found in Japan and South Korea populations (Fujikawa et al., 2011; Zheng et al., 2021). There is some evidence that women tend to perceive more symptoms related to vitality (such as general fatigue) than do men (Bardage & Isacson, 2001; Lee & So, 2012). Some researchers who found similar results state that women have poorer QoL because of hormonal factors and of the fact that they are more attentive to internal states (Banegas et al., 2007; Brown et al., 2000). In China, there are the gender inequities in areas such as socioeconomic status (Bardage & Isacson, 2001), education (Yao et al., 2019), and health (Zhang et al., 2017). Hence, a low QoL among elderly females with hypertension would be expected.

In this study, the scores of the QoL among older adults with hypertension in Wenzhou were higher in social participation and autonomy, and the lower in sensory abilities and death and dying.

The dimension of social participation higher score may because the positive attributes of the Wenzhou spirit such as the idea of practical and the willing of hard working(Liang et al., 2019). It indicated that the elderly hypertension patients in Wenzhou hope to have more opportunities to participate in social activities, also hope to get more recognition. Social participation is one of the socio-cultural-environmental factors affecting QOL according to the conceptual framework of the WHOQOL-BREF (Parris, 2017). Social activities which are a true welfare factor, and that, by influencing both their number and frequency, they can be considered an estimate of quality of life, therefore, they are the social factors that generate or predict health in the elderly (W. Group, 1998). Studies had showed that regular social activities had positive roles in relation to hypertensive patients' physical and social functions (Appel et al., 2003; Rondón García & Ramírez Navarrro, 2018). All of the above are the reasons for the higher score of social participation in this study.

Autonomy is one of the personal background factors affecting QoL, it is the cognitive component of self, it focuses on the individual's assessment and evaluation of himself or herself as an object m the life experience (Goldman et al., 2003). Wenzhou people often place great value on their independence and their ability to do things on their own, do not want to depend on the care of others, and highlight the importance of self-care (Cummins, 1997). Another reason for the higher score of autonomy is that men generally value self-reliance more than women, and protecting their present and future autonomy (Chen et al., 2021), and most of participants (80.15%) was males in this study. It was found that the more complications, the worse the autonomy of hypertension patients (Oshana, 2016). In addition, in the present study, 94.6% of the participants had none complication. It also explained the higher score of autonomy in current study.

The dimension of the sensory abilities have the lowest score, which may be due to the fact that the age of our populations is ranged from 60 to 69 years old (M = 64.69, SD = 2.68), and there is no obvious impairment of sensory abilities, which has little impact on the daily work and QoL of the elderly.

When looking at death and dying, it was surprised to find that the score of death and dying was not high in this study. In China, people rarely talk about life-and-death and believe that talking about death will bring bad luck, almost all elderly people formed the concept of life and death through their own experience and perception without relevant education (Lei et al., 2022; Soni et al., 2010). It could explain that the participants in this study were all elderly, with the increase of life experience, the acceptance of death with elderly is higher. It was found that frequent exposure to death and dying was largely positive (Zhang et al., 2019).

2. Factors affecting quality of life

2.1 Self-care behavior

Self-care behavior was significant predictor of quality of life. Research result showed that self-care behavior could significantly and positively predict the quality of life among older adults with hypertension ($\beta = .421$, $p < .001$). This result is similar to many other studies which show that self-care behavior is a strong predictor of QoL in many countries and across many different settings . The study of Yatim et al (2019) indicated that a number of patient-, family- and community-level motivators to patients' hypertension self-management have been identified, and efforts to tailor behavioural interventions to sustain daily self-care behavior during social and cultural events are imperative. Self-care is the process used to change QoL, self-care behavior is the practice of maintaining one's health through preventative and health-promoting behavior (Sinclair, 2011).

Previous studies showed that the QoL scores of subjects were positively connected with self-care abilities, more attention should be paid to self-care behaviors improvements in order to promote better QoL of older adults with hypertension (; Acton & Malathum, 2000). This was consistent with the results of the present study. Self-care is critical for the control of hypertension, improving the level of self-care behavior is a necessary first step toward ameliorating the global pandemic of hypertension (Han et al., 2014). Thus, investigating the actions of self-care and support them in improving the independence of older people in family and society. This would becomes a priority for the nursing care and health team. Overall, the self-care behavior was at higher level, which meant that it predicted better QoL.

2.2 Social support

Social support was significant predictor of quality of life. Research result showed that social support could significantly and positively predict the quality of life among older adults with hypertension ($\beta = .416$, $p < .001$). The following reasons from previous studies explained that social support could strongly predict the QoL of patient, patients who perceived more social support were more likely to experience better QoL in social domain. First, a well supported and a socially integrated patient with hypertension is probably subject to social control which facilitates adherence to healthy behaviors, compliance to medication, and meeting medical appointments, thus promoting physical QoL (Ding et al., 2018; Magrin et al., 2015). Second, a higher perceived social support assists in the recognition of self worth resulting in a positive effect, thereby, increasing motivation for self-care, reducing psychological despair, and increasing psychological and social QoL (Chang & Lee, 2015; Du et al., 2022). Third, increased social support may also provide tangible and economic support to cater medical treatment and related expenses, thereby, increasing physical and environmental QoL (Walker et al., 2015). Fourth, a higher perceived social support in terms of extended social network is likely to provide multiple sources of information with a greater probability to access more accurate information to deal with symptoms (Fatima & Jibeen, 2019). Finally, social support can protect patients from potentially deteriorative effects of stressful situation of cardiovascular disease(Goswami et al., 2010).

However, studies have shown that social support status of elderly hypertensive patients was poor, and the scores of all dimensions were lower than the national standard level in China (Hu et al., 2015; Li et al., 2019). In Wenzhou, more and more people are increasingly relocating with their employment, leaving older people at home (Liang & Wu, 2014). On the other hand, they may not be able to visit their parents for a long time, this undoubtedly results in the lack of social support for elderly people in Wenzhou (Liang & Wu, 2014). The finding of our study showed that men received lesser social support than women, the explanation for these sex differences might be that women are better at expressing their needs and help than men, they had more support available to them than men which should be related to an

enhanced quality of life (Austin et al., 2012). Additionally, women reported higher needs for emotional support, and higher perceived social support (Vila, 2021).

2.3 Perceived health status

Perceived health status was significant predictor of quality of life. Research result showed that perceived health status could negatively predict the quality of life among older adults with hypertension (β =- .170, $p < .001$). This study showed that there were more than half the participants had health status perceptions at a moderate level followed by low and high levels. Our study also observed that among older adults women generally report worse health status than do men, and that health status deteriorated markedly with increasing age in Wenzhou. One explanation for these sex differences might be that women are more attentive to their internal state then men (Helgeson, 2003). Dumitrache et al indicated that health impairment, restrictions in daily life activities due to health problems and perceived health had a negative impact on participant' life satisfaction (Lee et al., 2015). This was consistent with the results of our study. Health status is an important factor that significantly impacts the QoL of the elderly population(Al Senany & Al Saif, 2015). However, it had been confirmed that if the older adults perceived their health status in a more positive light, they might stay motivated to take good care of themselves and live longer-leading to a good QoL (Mwanyangala et al., 2010).

In China, a population-based health-related QoL study was measured in 2010. The findings showed that as older adults aged, they had a higher number of physically unhealthy days (over 2.7 days/month). Among those over 75 years of age, there were reports of poorer health at almost 5 times higher than 18-24 years old. With advancing age, healthy adults typically exhibit decreases in performance across many different cognitive abilities such as memory, processing speed, spatial ability, and abstract reasoning (Tucker-Drob et al., 2019). In older adults, the good ability to perceive the general health condition is associated with the memory (Wong et al., 2005). In the present study, the participants had satisfactory cognitive ability. Thus, they could remember and recognize their health problems or disease and its impact on their QoL in terms of functional capacity; physical, social and emotional aspects; pain; vitality; and mental health (Ware Jr et al., 1996; Wong et al., 2005).

Implications of the findings

Few of the studies, however, evaluated health-related quality of life among older adults with hypertensives using a comprehensive well-validated instrument. The findings of this study can be applied for clinical nursing practice, nursing research and nursing education as follows:

1. For clinical nursing practice

The results of this study provided the nurses an understanding about QoL among older adults with hypertension in Wenzhou. In addition, the confirmation of the relationships of QoL, self-care behavior, social support, perceived health status provided the basis for clinical nurses to understand the role of these factors while taking care for the older patients with hypertension. Nurses can provide information about QoL and motivate individuals to overcome barriers to practice health promoting behaviors to improve QoL. Further, nurses can also be confident in developing nursing plans, for helping patients to have better health promoting behaviors in all domains of QoL. Strategies to improve QoL of older adults among older adults with hypertension should focus on the aspects of QoL, including personal background factors, health-related factors, and socio-cultural-environmental factors.

2. For nursing education

The findings of this study identified factors including self-care behavior, social support, perceived health status can predict the QoL among older hypertensive patients. Thus, educating nursing students on these variables with focused to Wenzhou culture may be needed, and strengthening their knowledge about QoL and hypertension.

3. For research

The findings identified the predictors of the QoL among older hypertensive patients in Wenzhou. In the future, the results from this study may be used to explore intervention measures as well as nursing plan in order to modify QoL among older adults with hypertension.

Recommendations for future research

Based on the results of the study, following are the recommendations for future research:

1. Although this study was carried out in a provincial general hospital, which is an apex hospital in Wenzhou, it is acknowledged that the findings from a single setting seem not to be strong enough to represent all characteristics of older adults with hypertension in Wenzhou. Thus, it is recommended that study should be replicated in multiple settings in order to enhance the generalization of the findings. The results from this study may also be used for further research to explore the influences of these variables on QoL as well as in order to modify QoL among older hypertensive patients in Wenzhou.

2. Future research should take account environmental factors (e.g., public transportation availability, leisure opportunities, medical service accessibility) related to living areas, as these may act as facilitators or barriers to QoL among older hypertensive patients. The development of intervention study to explore the effectiveness of the predictors is also recommended.

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APPENDIX

APPENDIX A

Questionaire

Dear patients,

I, a graduate student of Burapha University & Wenzhou Medical University, am conducting research entitled “Factors affecting quality of life among older adults with hypertension in Whenzhou, China”. Hypertension is one of the most danger and common diseases in older adults and it’s prevalence is increasing year by year. However, older adults with hypertension have lower quality of life than others. Understanding the quality of life of older adults with hypertension and its predictors can provide targeted interventions for older adults with hypertension, aiming to improve the quality of life of older adults with hypertension. In order to better understand the factors affecting quality of life among older adults with hypertension, we will conduct relevant investigations. With your voluntarily participating in the study, it will take time about 30-60 minutes to answer five questionnaires. These questionnaires include:

1. The Demographic data questionnaire
2. The Chinese version of the world health organization quality of life instrument-older adults’ module
3. Perceived health status questionnaire
4. The Chinese version of the self-care of hypertension inventory in older adults
5. The Chinese version of multidimensional scale of perceived social support

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Questionnaires

Factors affecting quality of life among older adults with hypertension in Whenzhou, China

The questionnaires include 5 parts as follows:

Part 1. The Demographic data questionnaire with 8 items.

Part 2. The Chinese version of the world health organization quality of life instrument-older adults' module with 24 items.

Part 3. Perceived health status questionnaire with 1 items.

Part 4. The Chinese version of the self-care of hypertension inventory in older adults with 23 items.

Part 5. The Chinese version of multidimensional scale of perceived social support with 12 items.

Please read each question carefully and then chose the answer that you think suitable on your conditions.

Part 1: The Demographic data questionnaire

Direction: Please read the questions in part 1 carefully and give an honest answer. Please choose the answer as follow by tick ☑ or write down your answers in the space provided.

1. Age: ……

2. Gender: ☐ Man ☐ Female

3. Residence: ☐ City ☐ Rural

4. Educational background

☐ Illiterate

☐ Primary

☐ Junior high school (JHS)

☐ Senior high school (SHS)

☐ Tertiary

5.Marital status:

☐ Unmarried

☐ Married

☐ Divorced

☐ Widowed

6.Professional:

☐ On-the-job

☐ Departure

7.Type of hypertension：

☐ Essential hypertension

☐ Secondary hypertension

☐ unknown

8.Hypertension complications：

8.1Cerebrovascular disease：

☐ Ischemic stroke

☐ Cerebral hemorrhage

☐ Transient ischemic attack

8.2Heart disease：

☐ Myocardial infarction

☐ Angina pectoris

☐Coronary revascularization

☐ Congestive heart failure

8.3Kidney disease：

☐ Diabetic nephropathy

☐ Renal failure

8.4Vascular disease：

☐ Dissecting aneurysm

☐ Symptomatic arterial disease

8.5Severe hypertensive retinopathy：

☐ Bleed or exude

☐ Optic papilledema

8.6 ☐ None of the above

Part 2: The Chinese version of the world health organization quality of life instrument-older adults' module

Direction: This part is to about your knowledge of quality of life. Below are some statements with which some people agree and others disagree. There is no right or wrong answer (I totally agree = 5, I agree = 4, I have no idea = 3, I disagree = 2 and I totally disagree = 1). Please read and think about it carefully and choose the suitable one on your condition. Please choose the answer as follow by tick √ .

Dimension	Item
Sensory abilities (OLD-SAB)	1. Impairments to senses affect daily life. I totally agree I Agree I have no idea I disagree I totally disagree 5 4 3 2 1
	2. Rate sensory functioning. I totally agree I Agree I have no idea I disagree I totally disagree 5 4 3 2 1
	3. Loss of sensory abilities affect participation in activities. I totally agree I Agree I have no idea I disagree I totally disagree 5 4 3 2 1
	4. Problems with sensory functioning affect ability to interact. I totally agree I Agree I have no idea I disagree I totally disagree 5 4 3 2 1
Autonomy (OLD-AUT)	5. Freedom to make own decisions. I totally agree I Agree I have no idea I disagree I totally disagree 5 4 3 2 1
	6. Feel in control of your future. I totally agree I Agree I have no idea I disagree I totally disagree 5 4 3 2 1
	7. Able to do things you'd like to. I totally agree I Agree I have no idea I disagree I totally disagree 5 4 3 2 1
	8. People around you are respectful of your freedom. I totally agree I Agree I have no idea I disagree I totally disagree 5 4 3 2 1
Death and dying (OLD-DAD)	9. Concerned about the way you will die. I totally agree I Agree I have no idea I disagree I totally disagree 5 4 3 2 1
	10. Afraid of not being able to control death. I totally agree I Agree I have no idea I disagree I totally disagree 5 4 3 2 1
	11. Scared of dying. I totally agree I Agree I have no idea I disagree I totally disagree 5 4 3 2 1
	12. Fear pain before death. I totally agree I Agree I have no idea I disagree I totally disagree 5 4 3 2 1
Past, present, and future activities (OLD-PPF)	13. Happy with things to look forward to. I totally agree I Agree I have no idea I disagree I totally disagree 5 4 3 2 1
	14. Satisfied with opportunities to continue achieving. I totally agree I Agree I have no idea I disagree I totally disagree 5 4 3 2 1

	15. Received the recognition you deserve in life. I totally agree I Agree I have no idea I disagree I totally disagree 5 4 3 2 1
	16. Satisfied with what you've achieved in life. I totally agree I Agree I have no idea I disagree I totally disagree 5 4 3 2 1
Social participation (OLD-SOP)	17. Satisfied with the way you use your time. I totally agree I Agree I have no idea I disagree I totally disagree 5 4 3 2 1
	18. Satisfied with level of activity. I totally agree I Agree I have no idea I disagree I totally disagree 5 4 3 2 1
	19. Have enough to do each day. I totally agree I Agree I have no idea I disagree I totally disagree 5 4 3 2 1
	20. Satisfied with opportunity to participate in community. I totally agree I Agree I have no idea I disagree I totally disagree 5 4 3 2 1
Intimacy (OLD-INT)	21. Feel a sense of companionship in life. I totally agree I Agree I have no idea I disagree I totally disagree 5 4 3 2 1
	22. Experience love in your life. I totally agree I Agree I have no idea I disagree I totally disagree 5 4 3 2 1
	23. Opportunities to love. I totally agree I Agree I have no idea I disagree I totally disagree 5 4 3 2 1
	24. Opportunities to be loved. I totally agree I Agree I have no idea I disagree I totally disagree 5 4 3 2 1

Part 3: Perceived health status questionnaire

Direction: This part is about your perceived health status to hypertension. Please read this question and tick ‘√’ in the item of response most appropriate for you. There is no right or wrong answer.

Would you say your health, in general, is excellent, good, fair, or poor?

1 = excellent

2 = good

3 = fair

4 = poor

Part 4: The Chinese version of the self-care of hypertension inventory in older adults

Direction: This part is about the self-care of hypertension. Think about how you have been feeling in the last month.

SECTION A:

Listed below are common instructions given to persons with high blood pressure. How routinely do you do the following? Please tick ‘ √ ’ for each item. (Never or rarely =1, Sometimes =2, Frequently=3, Always or daily=4).

Item	Never or rarely 1	2	Sometimes 3	Frequently daily 4	Always or
1. Check your blood pressure?					
2. Eat lots of fruits and vegetables?					
3. Do some physical activity?					
4. Keep doctor or nurse appointments?					
5. Eat a low salt diet?					
6. Exercise for 30 minutes?					
7. Take medicines as prescribed?					
8. Ask for low salt items when eating out or visiting others?					
9. Use a system to help you remember your medicines? For example, use a pill box or reminders.					
10. Eat a low fat diet?					
11. Try to lose weight or control your body weight?					

SECTION B:

Many patients have difficulty controlling their blood pressure.

In the past month, has your blood pressure been high, even briefly? Please choose the answer as follow by tick ‘ √ ’ .

0) No

1) Yes

12. If you had trouble controlling your blood pressure in the past month…
(tick ‘ √ ’ one number)

Have not had this	**I did not recognize it**	**Not Quickly Somewhat Quickly Quickly Very Quickly**
How quickly did you recognize that your blood pressure was up? **N/A**	0	1 2 3 4

Listed below are actions that people use to control their blood pressure. If your blood pressure goes up, how likely are you to try one of these actions?

(tick ‘ √ ’ for each remedy, not Likely=1, Somewhat Likely=2, Likely=3, Very Likely =4)

Item	**Not Likely Somewhat Likely Likely Very Likely**
13.Reduce the salt in your diet	
14.Reduce your stress level	
15.Be careful to take your prescription medicines more regularly	
16.Call your doctor/ nurse for guidance	

17.Think of an action you tried the last time your blood pressure was up,
(tick ‘ √ ’ one number)

I did not try anything	**I did not recognize it**	**Not Sure Somewhat Sure Sure Very Sure**
How sure were you the action helped or did not help?	0	1 2 3 4

SECTION C:

In general, how confident are you that you can:

(tick ‘ √ ’ one number, Not Confident=1, Somewhat Confident=2, Very Confident=3, Extremely Confident=4)

Item	Not Confident 1	Somewhat Confident 2	Very Confident 3	Extremely Confident 4
18.Control your blood pressure?				
19.Follow your treatment regimen?				
20.Recognize changes in your health?				
21.Evaluate changes in your blood pressure?				
22.Take action that will control your blood pressure?				
23.Evaluate how well an action works?				

Part 5: The Chinese version of multidimensional scale of perceived social support

Direction: This part is to about your knowledge of social support. Below are some statements with which some people agree and others disagree. We are interested in how you feel about the following statements. Read each statement carefully. Indicate how you feel about each statement. There is no right or wrong answer (Very Strongly Disagree = 1, Strongly Disagree = 2, Mildly Disagree = 3, Neutral = 4, Mildly Agree = 5, Strongly Agree= 6, Very Strongly Agree= 7). Please read and think about it carefully and choose the suitable one on your condition. Please choose the answer as follow by tick √ .

1. There is a special person who is around when I am in need.

Very Strongly Disagree	Strongly Disagree	Mildly Disagree	Neutral	Mildly Agree	Strongly Agree	Very Strongly Agree
1	2	3	4	5	6	7

2. There is a special person with whom I can share my joys and sorrows.

Very Strongly Disagree Strongly Disagree Mildly Disagree Neutral Mildly Agree Strongly Agree Very Strongly Agree

1 2 3 4 5 6 7

3. My family really tries to help me.

Very Strongly Disagree Strongly Disagree Mildly Disagree Neutral Mildly Agree Strongly Agree Very Strongly Agree

1 2 3 4 5 6 7

4. I get the emotional help and support I need from my family.

Very Strongly Disagree Strongly Disagree Mildly Disagree Neutral Mildly Agree Strongly Agree Very Strongly Agree

1 2 3 4 5 6 7

5. I have a special person who is a real source of comfort to me.

Very Strongly Disagree Strongly Disagree Mildly Disagree Neutral Mildly Agree Strongly Agree Very Strongly Agree

1 2 3 4 5 6 7

6. My friends really try to help me.

Very Strongly Disagree Strongly Disagree Mildly Disagree Neutral Mildly Agree Strongly Agree Very Strongly Agree

1 2 3 4 5 6 7

7. I can count on my friends when things go wrong.

Very Strongly Disagree Strongly Disagree Mildly Disagree Neutral Mildly Agree Strongly Agree Very Strongly Agree

1 2 3 4 5 6 7

8. I can talk about my problems with my family.

Very Strongly Disagree Strongly Disagree Mildly Disagree Neutral Mildly Agree Strongly Agree Very Strongly Agree

1 2 3 4 5 6 7

9. I have friends with whom I can share my joys and sorrows.

Very Strongly Disagree	Strongly Disagree	Mildly Disagree	Neutral	Mildly Agree	Strongly Agree	Very Strongly Agree
1	2	3	4	5	6	7

10. There is a special persons in my life who cares about my feelings.

Very Strongly Disagree	Strongly Disagree	Mildly Disagree	Neutral	Mildly Agree	Strongly Agree	Very Strongly Agree
1	2	3	4	5	6	7

11. My family is willing to help me make decisions.

Very Strongly Disagree	Strongly Disagree	Mildly Disagree	Neutral	Mildly Agree	Strongly Agree	Very Strongly Agree
1	2	3	4	5	6	7

12. I can talk about my problems with my friends.

Very Strongly Disagree	Strongly Disagree	Mildly Disagree	Neutral	Mildly Agree	Strongly Agree	Very Strongly Agree
1	2	3	4	5	6	7

亲爱的患者，

我是泰国东方大学和温州医科大学的研究生。正在进行题为“中国温州地区老年高血压患者生活质量的影响因素”的研究。高血压是老年人最危险、最常见的疾病之一，其发病率逐年上升。然而，患有高血压的老年人的生活质量比其他人低。了解老年高血压患者的生活质量及其预测因子，可以为老年高血压患者提供有针对性的干预措施，旨在提高老年高血压患者的生活质量。为了更好地了解影响老年高血压患者生活质量的因素，我们将进行相关调查。现在，需要您填写5个问卷，大约需要占用您30-60分钟宝贵的时间。这些问卷包括:

1. 人口学问卷
2. 中文版世界卫生组织生命质量量表老年人模块
3. 感知健康状况问卷
4. 中文版老年人高血压自我护理量表
5. 中文版感知社会支持多维量表

胡琼芳

研究生

成人护理专业

泰国东方大学联合温州医科大学

问卷表格

中国温州地区老年高血压患者生活质量的影响因素

问卷调查包括以下5个部分:

第一部分：人口数据问卷，共8题。

第二部分：中文版世界卫生组织生命质量量表老年人模块，共24题。

第三部分：感知健康状况问卷，共1题。

第四部分：中文版老年人高血压自我护理量表，共23题。

第五部分：中文版社会支持感知多维量表，共12题。

请仔细阅读每个问题，然后根据自己的情况选择合适的答案。

第一部分: 人口数据问卷

注意:请仔细阅读第一部分的问题，并如实回答。请在下列空格内打勾☑或在空格内填写答案。

1. 年龄: ……

2. 性别: □ 男性 ☐ 女性

3. 居住地: □ 城市 ☐ 农村

4. 学历：

□ 文盲

□ 小学

□ 初中

□ 高中

□ 大学及以上

5. 婚姻状况

□ 未婚

□ 已婚

□ 离婚

□ 丧偶

□ 同居

6. 职业

☐ 在职 ☐ 离职

7. 高血压类型

☐ 原发性高血压

☐ 继发性高血压

☐ 不详

8. 高血压并发症

8.1脑血管疾病

□ 缺血性卒中

☐ 脑出血

☐ 短暂性脑缺血发作

8.2心脏疾病

☐心肌梗死

☐心绞痛

☐冠状动脉血运重建

☐充血性心力衰竭

8.3肾脏疾病

☐糖尿病性肾病

☐肾功能衰竭

8.4血管疾病

☐夹层动脉瘤

☐症状性动脉疾病

8.5重度高血压性视网膜病变

☐出血或渗出

☐视乳头水肿

8.6 ☐以上情况均无

第二部分: 中文版世界卫生组织生命质量量表老年人模块

说明: 这一部分是关于你的生活质量的知识。下面是一些部分人同意，部分人不同意的陈述。没有正确或错误的答案（我完全同意= 5，我同意= 4，我不知道= 3，我不同意= 2，我完全不同意= 1）。请仔细阅读并考虑，根据你的情况选择合适的答案，在选中的数字前打勾。

维度	项目
感官能力	1. 感官障碍影响日常生活。 我完全同意 我同意 我不知道 我不同意 我完全不同意 5 4 3 2 1
	2. 感觉功能。 我完全同意 我同意 我不知道 我不同意 我完全不同意 5 4 3 2 1
	3. 感觉能力的丧失影响活动的参与。 我完全同意 我同意 我不知道 我不同意 我完全不同意 5 4 3 2 1
	4. 感觉功能的问题会影响互动能力。 我完全同意 我同意 我不知道 我不同意 我完全不同意

维度	项目
	5 4 3 2 1
自主性	5. 自己做决定的自由。 我完全同意 我同意 我不知道 我不同意 我完全不同意 5 4 3 2 1
	6. 感觉自己能掌控未来。 我完全同意 我同意 我不知道 我不同意 我完全不同意 5 4 3 2 1
	7. 能做你想做的事。 我完全同意 我同意 我不知道 我不同意 我完全不同意 5 4 3 2 1
	8. 你周围的人尊重你的自由。 我完全同意 我同意 我不知道 我不同意 我完全不同意 5 4 3 2 1
死亡和临终	9. 担心你的死法。 我完全同意 我同意 我不知道 我不同意 我完全不同意 5 4 3 2 1
	10. 害怕无法控制死亡。 我完全同意 我同意 我不知道 我不同意 我完全不同意 5 4 3 2 1
	11. 害怕死亡。 我完全同意 我同意 我不知道 我不同意 我完全不同意 5 4 3 2 1
	12. 死前怕痛。 我完全同意 我同意 我不知道 我不同意 我完全不同意 5 4 3 2 1
过去、现在和未来的活动	13. 对有盼头的事很开心。 我完全同意 我同意 我不知道 我不同意 我完全不同意 5 4 3 2 1
	14. 满意的机会继续实现。 我完全同意 我同意 我不知道 我不同意 我完全不同意 5 4 3 2 1
	15. 得到了你生命中应得的认可。 我完全同意 我同意 我不知道 我不同意 我完全不同意 5 4 3 2 1
	16. 对自己在生活中取得的成就感到满意。 我完全同意 我同意 我不知道 我不同意 我完全不同意 5 4 3 2 1
社会参与度	17. 对你利用时间的方式很满意。 我完全同意 我同意 我不知道 我不同意 我完全不同意 5 4 3 2 1
	18. 对活动水平满意。 我完全同意 我同意 我不知道 我不同意 我完全不同意 5 4 3 2 1
	19. 每天要有足够的事情做。 我完全同意 我同意 我不知道 我不同意 我完全不同意 5 4 3 2 1
	20. 满意有机会参与社区。 我完全同意 我同意 我不知道 我不同意 我完全不同意 5 4 3 2 1
亲切感	21. 在生活中感受一种陪伴的感觉。 我完全同意 我同意 我不知道 我不同意 我完全不同意 5 4 3 2 1

维度	项目
	22. 在生活中体验爱。 我完全同意 我同意 我不知道 我不同意 我完全不同意 5 4 3 2 1
	23. 爱的机会。 我完全同意 我同意 我不知道 我不同意 我完全不同意 5 4 3 2 1
	24. 被爱的机会。 我完全同意 我同意 我不知道 我不同意 我完全不同意 5 4 3 2 1

第三部分: 感知健康状况问卷

说明：这部分是关于你对高血压的健康状况的感知。请阅读这个问题，并在最适合你的回答上打“ √ ”。没有正确或错误的答案。

你认为你的健康状况一般来说是非常好、好、一般还是差?

1 = 非常好

2 = 好

3 = 一般

4 = 差

第四部分：中文版老年人高血压自我护理量表

说明：这部分是关于高血压的自我护理。请想一下过去一个月您的身体状况。

第一部分：

下面列出的是给高血压患者的常见指导。你通常是如何做以下事情的？请在每一项上选择一个数字打“√”。（从不或几乎不=1，有时=2，经常=3，总是或每天=4）。

项目	从不或几乎不 1	2	有时 3	经常 4	总是或每天
1. 检查您的血压？	1		2	3	4
2. 吃很多水果和蔬菜？	1		2	3	4
3. 做一些身体活动？	1		2	3	4
4. 按时找医生或护士就诊？	1		2	3	4
5. 少盐饮食？	1		2	3	4
6. 锻炼 30 分钟？	1	2	3	4	
7. 遵医嘱服药？	1		2	3	4
8. 在外就餐或去拜访他人时要求低盐饮食？	1		2	3	4
9. 使用一套方法提醒您记得服药？（如药盒或提醒器等）	1		2	3	4
10. 低脂饮食？	1		2	3	4
11. 尝试减肥或控制体重？	1		2	3	4

第二部分:

许多病人有血压控制的困难。在过去的一个月里，您有血压高，即使是短暂地升高吗？请选一个答案打“ √ ”。

0）没有

1）有

12. 如果您在过去一个月有血压控制方面的困难，那……

没有这种情况	我没有识别出	不快 有些快 快 非常快
您有多快辨识出自己的血压上升了？ 不适用	0	1 2 3 4

以下是人们常用的一些控制血压的方法。若您的血压升高，您尝试使用其中一种方法的可能性有多大？ （在每个补救措施上打“√”，不会=1，有点可能=2，可能=3，非常可能= 4）

项目	不会	有点可能	可能	非常可能
13.减少饮食中的盐分	1	2	3	4
14.减少压力	1	2	3	4
15.谨慎地按医嘱更规律地服药	1	2	3	4
16.寻求医生/护士的指导	1	2	3	4

17.回想您上次血压升高时您所尝试的方法。

（请选出下列其中一项打“√”）

我没有尝试任何方法	我没有识别出	不确定 有点确定 确定 非常确定
您有多确信该方法对您有帮助或没有帮助？	0	1 2 3 4

第三部分:

总的来说，您有多少信心可以做到下列情况：

（请选出下列其中一项打“√”）

项目	没有信心	有点信心	很有信心	完全有信心
18. 控制您的血压？	1	2	3	4
19. 遵循治疗方案？	1	2	3	4
20. 辨别到您健康的改变？	1	2	3	4

21. 评价您血压的变化？ 1 2 3 4

22. 采取方法控制您的血压？ 1 2 3 4

23. 评价方法的有效性？ 1 2 3 4

第五部分：中文版感知社会支持多维量表

说明：这部分是关于社会支持的知识。下面是一些部分人同意，部分人不同意的陈述。我们很想知道你对以下陈述的看法。仔细阅读每一个陈述。指出你对每句话的感觉。没有正确或错误的答案(极不同意= 1，很不同意= 2，稍不同意= 3，中立= 4，稍同意= 5，很同意= 6，极同意= 7)。请仔细阅读和考虑，并根据你的情况选择合适的。请选出下列其中一项打“√”。

1. 在我遇到问题时有些人（领导、亲戚、同事）会出现在我的身旁。

极不同意 很不同意 稍不同意 中立 稍同意 很同意 极同意

1 2 3 4 5 6 7

2. 我能够与有些人（领导、亲戚、同事）共享快乐与优伤。

极不同意 很不同意 稍不同意 中立 稍同意 很同意 极同意

1 2 3 4 5 6 7

3. 我的家庭能够切实具体地给我帮助 。

极不同意 很不同意 稍不同意 中立 稍同意 很同意 极同意

1 2 3 4 5 6 7

4. 在需要时我能够从家庭获得感情上的帮助和支持。

极不同意　很不同意　稍不同意　中立　稍同意　很同意　极同意

1　2　3　4　5　6　7

5. 当我有困难时有些人（领导、亲戚、同事）是安慰我的真正源泉。

极不同意　很不同意　稍不同意　中立　稍同意　很同意　极同意

1　2　3　4　5　6　7

6. 我的朋友们能真正的帮助我。

极不同意　很不同意　稍不同意　中立　稍同意　很同意　极同意

1　2　3　4　5　6　7

7. 在发生困难时我可以依靠我的朋友们。

极不同意　很不同意　稍不同意　中立　稍同意　很同意　极同意

1　2　3　4　5　6　7

8. 我能与自己的家庭谈论我的难题。

极不同意　很不同意　稍不同意　中立　稍同意　很同意　极同意

1　2　3　4　5　6　7

9. 我的朋友们能与我分享快乐与优伤。

极不同意　很不同意　稍不同意　中立　稍同意　很同意　极同意

1　2　3　4　5　6　7

10. 在我的生活中有某些人（领导、亲戚、同事）关心着我的感情。

极不同意　很不同意　稍不同意　中立　稍同意　很同意　极同意

1　2　3　4　5　6　7

11. 我的家庭能心甘情愿协助我做出各种决定。

极不同意　很不同意　稍不同意　中立　稍同意　很同意　极同意

1　2　3　4　5　6　7

12. 我能与朋友们讨论自己的难题。

极不同意　很不同意　稍不同意　中立　稍同意　很同意　极同意

1　2　3　4　5　6　7

APPENDIX B

IRB Approval

AF 06-03.1

เอกสารแสดงความยินยอม
ของผู้เข้าร่วมโครงการวิจัย (Consent Form)

รหัสโครงการวิจัย : .....
(สำนักงานคณะกรรมการพิจารณาจริยธรรมในมนุษย์ มหาวิทยาลัยบูรพา เป็นผู้ออกรหัสโครงการวิจัย)
โครงการวิจัยเรื่อง Factors Affecting Quality of Life among Older Adults with Hypertension in Wenzhou, China
ให้คำยินยอม วันที่ ..... เดือน ..... พ.ศ. .....

Before giving my signature below, I have been informed by researcher, Mrs. Qiongfang Hu, about the purposes, method, procedures, benefits and possible risks associated with participation in this study thoroughly, and I understood all of the explanations. I consent voluntarily to participate in this study. I understand that I have the right to leave the study any time I want, without fearing that it might affect the medical services I will receive.

The researcher Mrs. Qiongfang Hu has explained to me that all data and information of the participants will be kept confidential and only be used for this study. I have read and understood the information related to participation in this study clearly and I am signing this consent form.

Signature …… Participant

(……)

MHESI 8137/1446

Graduate School, Burapha University
169 Longhaad Bangsaen Rd.
Saensuk, Muang, Chonburi
Thailand, 20131

October 7th, 2022

To The director of the Second Affiliated Hospital of Wenzhou Medical University,

Enclosure: 1. Certificate ethics document of Burapha University
2. Research Instruments

On behalf of the Graduate School, Burapha University, I would like to request permission for Mrs. Qiongfang Hu to collect data for conducting research.

Mrs. Qiongfang Hu, ID 63910138, a graduate student of the Master of Nursing Science program (International Program) in Adult Nursing Pathway, Faculty of Nursing, Burapha University, Thailand, was approved her thesis proposal entitled: "Factors affecting quality of life among older adults with hypertension in Wenzhou, China" under supervision of Assist. Prof. Dr. Pornchai Jullamate as the principle advisor. She proposes to collect data from 131 patients with hypertension who visited the Cardiovascular outpatient department of the Second Affiliated Hospital of Wenzhou Medical University. The participants will be recruited from who have been diagnosed with primary hypertension by the physician for at least 1 year, age ranged from 60 - 69 years old, no serious complications of hypertension such as paralysis, and NYHA stage four heart failure, be able to read, write, and understand Chinese, and be willing to participate in the study. Participants who had physical or psychological disorders, hearing or visual impairments, and difficulty with language comprehension and expression are not included in this research.

The data collection will be carried out from October 17 - 31, 2022. In this regard, you can contact Mrs. Qiongfang Hu via mobile phone +86-1588-8215-019 or E-mail: thepeople@126.com

Please do not hesitate to contact me if you need further relevant queries.

Sincerely yours,

(Assoc. Prof. Dr. Nujjaree Chaimongkol)
Dean of Graduate School, Burapha University

Graduate School Office
Tel: +66 3810 2700 ext. 701, 705, 707
E-mail: grd.buu@go.buu.ac.th
http://grd.buu.ac.th

MHESI 8137/1445

Graduate School, Burapha University
169 Longhaad Bangsaen Rd.
Saensuk, Muang, Chonburi
Thailand, 20131

October 7th, 2022

To The director of the Second Affiliated Hospital of Wenzhou Medical University,

Enclosure: 1. Certificate ethics document of Burapha University
2. Research Instruments (Try out)

On behalf of the Graduate School, Burapha University, I would like to request permission for Mrs. Qiongfang Hu to collect data for testing the reliability of the research instruments.

Mrs. Qiongfang Hu, ID 63910138, a graduate student of the Master of Nursing Science program (International Program) in Adult Nursing Pathway, Faculty of Nursing, Burapha University, Thailand, was approved her thesis proposal entitled: "Factors affecting quality of life among older adults with hypertension in Wenzhou, China" under supervision of Assist. Prof. Dr. Pornchai Jullamate as the principle advisor. She proposes to collect data from 30 patients with hypertension who visited the Cardiovascular outpatient department of the Second Affiliated Hospital of Wenzhou Medical University. The participants will be recruited from who have been diagnosed with primary hypertension by the physician for at least 1 year, age ranged from 60 - 69 years old, no serious complications of hypertension such as paralysis, and NYHA stage four heart failure, be able to read, write, and understand Chinese, and be willing to participate in the study. Participants who had physical or psychological disorders, hearing or visual impairments, and difficulty with language comprehension and expression are not included in this research.

The data collection will be carried out from October 10 - 31, 2022. In this regard, you can contact Mrs. Qiongfang Hu via mobile phone +86-1588-8215-019 or E-mail: thepeople@126.com

Please do not hesitate to contact me if you need further relevant queries.

Sincerely yours,

(Assoc. Prof. Dr. Nujjaree Chaimongkol)
Dean of Graduate School, Burapha University

Graduate School Office
Tel: +66 3810 2700 ext. 701, 705, 707
E-mail: grd.buu@go.buu.ac.th
http://grd.buu.ac.th

Please type or write with readable hand writing

GRD-109 (Eng)
(Try out)

Graduate School Burapha University
Request form for issuing a requesting letter for data collection (Try out)

To Dean of Graduate School

I am (Mr./Mrs./Ms.) Qiongfang Hu Student ID #.....63910138.....

❑ Doctoral degree ❑ Master degree - plan ☑ A ○ B Study type ☑ Full-time ○ Part-time

Program Master of Nursing Science Major/Pathway Adult Nursing Faculty Faculty of nursing

Telephone +86-15888215019 E-mail thepeople@126.com

Doctoral dissertation/ Master thesis/ IS **Title**: Factors Affecting Quality of Life among Older Adults with Hypertension in Wenzhou, China

Principal advisor' name.....Asst. Prof. Dr. Pornchai Jullamate.....

I would like to request for issuing **a requesting letter for data collection (Try out)**:

By issuing to (name of the director of Institute/ University/ Organization)

The director of the Second Affiliated Hospital of Wenzhou Medical University

Institute/ University/ Organization/ Department/ Division The cardiovascular outpatient department of The Second Affiliated Hospital of Wenzhou Medical University

To collect data from (details of participants and sample size)

Target population: The target population of this study will be the patients aged 60 years and over with hypertension who visited the cardiovascular outpatient department of The Second Affiliated Hospital of Wenzhou Medical University.

Sample size: 30 participants.

Sampling method:

Sample was selected based on the inclusion criteria:

1. Patients with hypertension who have been diagnosed with primary hypertension by the physician for at least 1 year.
2. Age ranged from 60-69 years old.
3. No serious complications of hypertension such as paralysis, and NYHA (New York Heart Association) stage four heart failure.
4. Able to read, write, and understand Chinese.
5. Willing to participate in the study.

Exclusion criteria for patients are as follows:

1. They had physical or psychological disorders.
2. They had hearing or visual impairments.
3. They had difficulty with language comprehension and expression.

Duration of data collection: from date...10th... October ...2022.....to.....31th...October ...2022...

My contact information: # cellphone and E-mail +86-15888215019 and thepeople@126.com

With this request, I have enclosed documents...1...copies

1) A copy of proof of ethical approval from Burapha university, and
2) Research instruments

Please be informed accordingly,

Student's name .....Qiongfang Hu.....

(.....Qiongfang Hu .....)

Date...3... Month... October...Year...2022.....

Principal advisor acknowledged	Dean of Faculty/College acknowledged	Dean of Graduate School approved
Agreed Pornchai	Agreed Pornchai	
(Signed)..... (Asst. Prof. Dr. Pornchai Jullamate)	(Signed)..... (Asst. Prof. Dr. Pornchai Jullamate)	(Signed)..... (Assoc. Prof. Dr. Nujjaree Chaimongkol)
Date..... 4 Oct 2022	Date..... 4 Oct 2022	Date..... 7 October 2022

Please type or write with readable hand writing

GRD-109 (Eng)
(Main Study)

Graduate School Burapha University
Request form for issuing a requesting letter for data collection (Main Study)

To Dean of Graduate School

I am (Mr./Mrs./Ms.) Qiongfang Hu Student ID #.....63910138.....

❑ Doctoral degree ❑ Master degree - plan ☑ A ○ B Study type ☑ Full-time ○ Part-time

Program Master of Nursing Science Major/Pathway Adult Nursing Faculty Faculty of nursing

Telephone +86-15888215019 E-mail thepeople@126.com

Doctoral dissertation/ Master thesis/ IS **Title**: Factors Affecting Quality of Life among Older Adults with Hypertension in Wenzhou, China

Principal advisor' name.....Asst. Prof. Dr. Pornchai Jullamate.....

I would like to request for issuing **a requesting letter for data collection (Main Study)**:

By issuing to (name of the director of Institute/ University/ Organization)

The director of the Second Affiliated Hospital of Wenzhou Medical University

Institute/ University/ Organization/ Department/ Division The cardiovascular outpatient department of The Second Affiliated Hospital of Wenzhou Medical University

To collect data from (details of participants and sample size) .....

Target population: The target population of this study will be the patients aged 60 years and over with hypertension who visited the cardiovascular outpatient department of The Second Affiliated Hospital of Wenzhou Medical University.

Sample size: 131 participants.

Sampling method:

Sample was selected based on the inclusion criteria:

1. Patients with hypertension who have been diagnosed with primary hypertension by the physician for at least 1 year.
2. Age ranged from 60-69 years old.
3. No serious complications of hypertension such as paralysis, and NYHA (New York Heart Association) stage four heart failure.
4. Able to read, write, and understand Chinese.
5. Willing to participate in the study.

Exclusion criteria for patients are as follows:

1. They had physical or psychological disorders.
2. They had hearing or visual impairments.
3. They had difficulty with language comprehension and expression.

Duration of data collection: from date...17th... October ...2022.....to.....31th...October ...2022.....

My contact information: # cellphone and E-mail +86-15888215019 and thepeople@126.com

With this request, I have enclosed documents...1...copies

1) A copy of proof of ethical approval from Burapha university, and
2) Research instruments

Please be informed accordingly,

Student's name .....Qiongfang Hu.....

(.....Qiongfang Hu .....)

Date...03... Month... October...Year...2022.....

Principal advisor acknowledged	Dean of Faculty/College acknowledged	Dean of Graduate School approved
Agreed (Signed).....Pornchai..... (Asst. Prof. Dr. Pornchai Jullamate) Date.....- 4 OCT 2022.....	Agreed (Signed).....Pornchai..... (Asst. Prof. Dr. Pornchai Jullamate) Date.....- 4 OCT 2022.....	(Signed)..... (Assoc. Prof. Dr. Nujjaree Chaimongkol) Date.....7 October 2022.....

温州医科大学附属第二医院 温州医科大学附属育英儿童医院医学伦理委员会 AF/SW-01-3.0

涉及人的生物医学研究伦理审查批件

Ethics Committee Approval Letter of Biomedical Research Involving Humans

批件号 Approval NO.：伦审（2022-K-129-01）

项目名称 Study Title	生活质量模式指导下温州市老年高血压患者生活质量的相关因素分析		
项目来源 Source	自选课题		
受理号 Acceptance Number	2022-K-129-01		
主要研究者 Principal Investigator	胡琼芳	承担科室 Responsible Department	心血管内科
审查类别 Category of Review	初始审查	审查方式 Type of Review	简易审查
审查日期 Date of Review	2022 年 9 月 27 日	审查地点 Location of Review	/
审查文件清单 Items Reviewed	1. 初始审查申请表 2. 研究者履历 3. 试验方案（版本号：V1.0；版本日期：2022.08.29） 4. 知情同意书（版本号：V1.1；版本日期：2022.09.05） 5. 病例报告表（版本号：V1.0；版本日期：2022.08.29）		
审评意见 Evaluation	批准		
审查决定 Decision	委员会对该项目的审查决定为：☑批准（Approval）		
主任委员签字 Chair Signature			
签发日期 Date of issue	2022 年 9 月 27 日		
医学伦理委员会 Stamp of EC	医学伦理委员会盖章		
批件有效期 Period of Validity	自本医学伦理委员会初始审查批准之日起一年内，本临床研究应在本院启动。逾期未启动的，本批件自行废止。		
年度/定期跟踪审查 Continue Review	审查频率为该研究批准之日起每 12 月一次，首次请于 2023 年 9 月 26 日前 1 个月递交研究进展报告。 医学伦理委员会有根据实际进展情况改变跟踪审查频率的权利。		
声明 Statement	本医学伦理委员会的职责、人员组成、操作程序及记录遵循《涉及人的生物医学研究伦理审查办法》、《涉及人的健康相关研究国际伦理准则》、《赫尔辛基宣言》、GCP 和 ICH-GCP 等国际伦理指南和国内相关法律法规。		

注意事项：

1. 请遵循我国相关法律、法规和规章中的伦理原则。
2. 请遵循经本医学伦理委员会批准的临床研究方案、知情同意书、招募材料等开展本研究，保护受试者的健康与权利。对研究方案、知情同意书和招募材料等的任何修改，均须得到本医学伦理委员会审查同意后方可实施。
3. 在本院发生的 SAE/SUSAR 以及研发期间安全性更新报告须按照 NMPA/GCP 最新要求及时递交本医学伦理委员会，国内外其它中心发生的 SAE/SUSAR 需定期汇总、评估后递交本医学伦理委员会。
4. 根据报告情况，本医学伦理委员会有权对其评估做出新的决定。
5. 自今日起，无论研究开始与否，请在跟踪审查日到期前 1 个月提交研究进展报告。
6. 申办方应当向组长单位医学伦理委员会提交中心研究进展报告汇总；当出现任何可能显著影响研究进行或增加受试者危险的情况时，请申请人及时向本医学伦理委员会提交书面报告。
7. 研究纳入了不符合纳入标准或符合排除标准的受试者，符合中止研究规定而未让受试者退出研究，给予错误治疗或剂量，给予方案禁止的合并用药等没有遵从方案开展研究的情况；或可能对受试者的权益或健康以及研究的科学性造成不良影响等违背 GCP 原则的情况，请申办方、监查员或研究者提交违背方案报告。
8. 申请人暂停或提前终止临床研究，请及时提交暂停或终止研究报告。
9. 完成临床研究，请申请人提交结题报告。
10. 凡涉及中国人类遗传资源采集标本、收集数据等研究项目，必须获得中国人类遗传资源管理办公室批准后方可在本中心开展研究。
11. 凡经本医学伦理委员会批准的研究项目在实施前，申请人应按相关规定在国家卫健委、药审中心等的临床研究登记备案信息系统平台登记研究项目相关信息。

AF 06-02

เอกสารชี้แจงผู้เข้าร่วมโครงการวิจัย
(Participant Information Sheet)

รหัสโครงการวิจัย : .....G-HS 062/02565.....
(สำนักงานคณะกรรมการพิจารณาจริยธรรมในมนุษย์ มหาวิทยาลัยบูรพา เป็นผู้ออกรหัสโครงการวิจัย)
โครงการวิจัยเรื่อง: Factors Affecting Quality of Life among Older Adults with Hypertension in Wenzhou, China

เรียน .....

Dear participants

I am Mrs Qiongfang Hu, a student in Master of Nursing Science (International Program) Faculty of Nursing, Burapha University Thailand. **My study is** "Factors affecting quality of life among older adults with hypertension in Wenzhou, China" . The objectives are to describe quality of life among older adults with hypertension in Wenzhou, China; and to examine the predictive power of perceived health status, self-care behavior and social support on quality of life among older adults with hypertension in Wenzhou, China.

This study will be a survey study. Participating in this study is voluntary. If you agree to participate in this study, you will answer the following questionnaires before the examination, which will take approximately 30-60 minutes. During the data collection period, the researcher will clarify any questions posed by the participants for clarity regarding the language or content. You will not get any direct benefits by participating in this study. However, the information you provide will be valuable to identify factors affecting quality of life among older adults with hypertension. By understanding the factors that affect quality of life among older adults with hypertension, staff can provide scientific evidence for nursing practice and nursing research development aiming at improving the quality of life for older adults with hypertension. There will be no identified physical and psychological risk to the person participating in the study and no risk to the society.

During the study, you have the right not to answer questions, and you also have the right to change your minds and refuse to participate in the project at any time, and the refusal would not affect the medical services you received. Any information collected from this study, including your identity, will be kept confidential. A coding number will be assigned to you and your name will not be used. Findings from the study will be presented as a group of participants and no specific information from any individual participant will be disclosed. All data will be accessible only to the researcher which will be destroyed one year after publishing the findings.

AF 06-02

You will receive a further explanation of the nature of the study upon its completion, if you wish.

The research will be conducted by Mrs. Qiongfang Hu under the supervision of my major-advisor, Assistant Professor Dr. Pornchai Jullamate. If you have any questions, please contact me at mobile number: + 86 **15888215019** or by email **thepeople@126.com** and/ or my advisor's e-mail address pornchai@buu.ac.th. Or you may contact Burapha University Institutional Review **Board (BUU-IRB) telephone number +6638 102620**. Your cooperation is greatly appreciated. You will be given a copy of this consent form to keep.

Qiongfang Hu

APPENDIX C

Permission for using instruments

For the Self-care of Hypertension Inventory's permission

发件人: Qiongfang Hu<thepeople@126.com>
收件人: vdickson<vdickson@nyu.edu>
时 间: 2022年04月27日 23:41 (星期三)

发送状态: 发送成功 查看详情

翻译成中文

您的邮箱安全待提升！仅需1分钟，安全性提升30%，一键升级>>

Distinguished Professor:

I am Mrs Qiongfang Hu, a student in Master of Nursing Science (International Program) Faculty of Nursing, Burapha University Thailand and Wenzhou Medical University China. I'm sorry to bother you. My study is "Factors affecting quality of life among older adults with hypertension in Whenzhou, China". May I get your permission to use your Self-care of Hypertension Inventory for my master's thesis? Thank you very much for your support.

Best regards,

Mrs Qiongfang Hu

Faculty of Nursing, Burapha University and Wenzhou Medical University

Tel: (+86) 15888215019

Re: Re: For the Self-care of Hypertension Inventory's permission

发件人: Victoria Vaughan Dickson<vdickson@nyu.edu> (由 vd30@nyu.edu 代发，帮助)
收件人: Qiongfang Hu<thepeople@126.com>
抄送人: Barbara Riegel (briegel@nursing.upenn.edu)<briegel@nursing.upenn.edu>
时 间: 2022年04月30日 00:11 (星期六)
附 件: 1个 (Instrument Use Agreement_SC-HI_v3_Hu.pdf) 查看附件

翻译成中文

您的邮箱安全待提升！仅需1分钟，安全性提升30%，一键升级>>

Here is the signed agreement. The Chinese translation of SC-HI v3.0 should now be posted on the website.
Thank you for using this instrument in your research.
Best- Dr. Dickson

On Thu, Apr 28, 2022 at 9:59 AM Qiongfang Hu <thepeople@126.com> wrote:

Instrument Use Agreement

I, _(Qiongfang Hu)_, am requesting to use the _(SC-HI V3.0)_ instrument in _(Chinese language)_.

I agree to these Terms and Conditions:

- Not to change the self-care instrument in anyway without explicit permission of the instrument author.
- To calculate scores in the manner prescribed (see website and publications).
- To properly cite the instrument in all publications using it, referring to the original publication.
- To not include the instrument itself in any publication because that transfers the copyright to the journal publisher.

The instrument authors agree to these Terms and Conditions:

- You have permission to use this instrument in your research now and in perpetuity, if the terms and conditions of this agreement continue to be met.

Signature of User:_____Qiongfang Hu_____
Date:___April 28, 2022_____

Victoria Vaughan Dickson

Signature of Instrument Author:____ _____Date: 4/29/2022_____

For the Multidimensional Scale of Perceived Social Support scale's permission

安全浏览模式 | 优化阅读 | 精简信息

发件人：Qiongfang Hu<thepeople@126.com>

收件人：gzimet<gzimet@iupui.edu>

时 间：2022年04月27日 23:04 (星期三)

发送状态：发送成功 查看详情

翻译成中文

您的邮箱安全待提升！仅需1分钟，安全性提升30%，一键升级>>

Distinguished Professor:

I am Mrs Qiongfang Hu, a student in Master of Nursing Science (International Program) Faculty of Nursing, Burapha University Thailand and Wenzhou Medical University China. I'm sorry to bother you. My study is "Factors affecting quality of life among older adults with hypertension in Whenzhou, China". May I get your permission to use your "Multidimensional Scale of Perceived Social Support，MSPSS" scale for my master's thesis? Thank you very much for your support.

Best regards,

Mrs Qiongfang Hu

Faculty of Nursing, Burapha University and Wenzhou Medical University

Tel: (+86) 15888215019

RE: [External] For the Multidimensional Scale of Perceived Social Support scale's permission

安全浏览模式 精简信息

发件人：Zimet, Gregory D<gzimet@iu.edu>

收件人：Qiongfang Hu<thepeople@126.com>

时 间：2022年04月27日 23:49 (星期三)

附 件：4个 (0732 Zimet - MSPSS - Chapter 1998.pdf 等) 查看附件

邮件已被回复 查看详情

翻译成中文

您的邮箱安全待提升！仅需1分钟，安全性提升30%，一键升级>>

Dear Mrs Qiongfang Hu,

You have my permission to use the Multidimensional Scale of Perceived Social Support (MSPSS) in your research. I have attached the original English language version of the scale (with scoring information on the 2nd page), a document listing several of the articles that have reported on the reliability and validity of the MSPSS, and a chapter that I wrote about the scale.

Also attached is a simplified Chinese translation of the MSPSS, which may be useful to you.
I hope your research goes well.

Best regards,

Greg Zimet

Gregory D. Zimet, PhD, FSAHM

Professor of Pediatrics & Clinical Psychology

Co-Director, IUPUI Center for HPV Research

Division of Adolescent Medicine | Department of Pediatrics

410 W. 10th Street | HS 1001

Indianapolis, IN 46202

+1.317.274.8812 tel

+1.317.274.0133 fax

Fw:For the WHOQOL-OLD scale's permission

安全浏览模式 | 优化阅读 | 精简信息

发件人：Qiongfang Hu<thepeople@126.com>
收件人：fangjq<fangjq@mail.sysu.edu.cn>
时 间：2022年05月12日 10:15 (星期四)

发送状态：发送成功 查看详情
翻译成中文
您的邮箱安全待提升！仅需1分钟，安全性提升30%，一键升级>>

Distinguished Professor:

I am Mrs Qiongfang Hu, a student in Master of Nursing Science (International Program) Faculty of Nursing, Burapha University Thailand and Wenzhou Medical University China. I'm sorry to bother you. My study is "Factors affecting quality of life among older adults with hypertension in Whenzhou, China". May I get your permission to use your WHOQOL-OLD scale for my master's thesis? Thank you very much for your support.

Best regards,

Mrs Qiongfang Hu

Faculty of Nursing, Burapha University and Wenzhou Medical University

Tel: (+86) 15888215019

Re: Fw:For the WHOQOL-OLD scale's permission

安全浏览模式

发件人：方积乾<fangjq@mail.sysu.edu.cn>
收件人：Qiongfang Hu<thepeople@126.com>
时 间：2022年05月14日 16:40 (星期六)

邮件已被回复 查看详情
翻译成中文
您的邮箱安全待提升！仅需1分钟，安全性提升30%，一键升级>>

Dear Mrs Qiongfang Hu, Yes, You are allowed to use the WHOQOL-OLD scale for your master's thesis for sure.

Jiqian Fang.

-----原始邮件-----
发件人:"Qiongfang Hu" <thepeople@126.com>
发送时间:2022-05-12 10:15:15 (星期四)
收件人: fangjq@mail.sysu.edu.cn
抄送:
主题: Fw:For the WHOQOL-OLD scale's permission

WHOQOL-OLD

安全浏览模式 | 优化阅读 | 精简信息

发件人：galion<galion88@163.com>
收件人：我<thepeople@126.com>
抄送人：郝老师<haoyt@mail.sysu.edu.cn>
时 间：2022年06月10日 15:34 (星期五)
附 件：1个（WHOQOL-OLD.rar）查看附件

邮件已被回复 查看详情
您的邮箱安全待提升！仅需1分钟，安全性提升30%，一键升级>>

胡琼芳，

你好！我是郝元涛老师的学生李佳玲，帮老师管理WHOQOL的相关量表，附件是您在邮件中提到需要用到的WHOQOL相关量表及评分细则，请查收！
关于WHOQOL中文版量表的使用有以下三点说明：
1、如果只是作为学术研究的用途，我们可以免费提供WHOQOL中文版量表；
2、在使用WHOQOL中文版量表之前请填写相关的使用登记表（见附件），将填写完的电子版登记表以E-mail方式发给我，另附上一份填写完的纸质版登记表以邮寄的方式寄回给我们（注：纸质版的签名一栏请用手写），请寄到地址：广州市越秀区中山二路74号中山大学北校区微生物楼328（邮编510080）王馨苒（收） Tel：18826072879；
3、使用了WHOQOL中文版量表的研究所发表的文章请引用我们发表过的相关文章作为参考文献。
有任何疑问可以随时与我联系。
祝顺利！
李佳玲

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