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A cross-sectional survey of self-rated health and its determinants in patients with hypertension☆,☆☆

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ABSTRACT

Aim: The purpose of the study is to investigate the levels of self-rated health, blood pressure control, understand their relationships between the self-rated health and blood pressure control, and to identify the extent to which demographic, disease and psychosocial factors predict the self-rated health of hypertensive patients.
Methods: The study adopted a cross-sectional design. Nine hundred forty-two subjects with essential hypertension were invited to join the study, 807 completed the survey. Self-report questionnaires were used to collect data. The hierarchical logistic regression was used to test the determinants of self-rated health status.
Results: Of all the subjects, 59.3% rated their health status as good, and 41.7% perceived their health status as poor. In terms of levels of blood pressure control, nurse-measured blood pressure showed that 40.2% of the subjects had good control levels, 59.8% for poor control levels. There were positive relationships between good self-rated health and controlled blood pressure of hypertensive patients ($p < 0.05$). The logistic regression model showed that the determinants of subjects' self-rated health included income (OR = 4.28; 95% CI = 1.86–6.25), duration of hypertension diagnosis (OR = 4.06; 95% CI = 2.17–6.35), treatment adherence (OR = 9.02; 95% CI = 5.36–15.51), physical activity (OR = 13.81; 95% CI = 10.16–19.57) and social support (OR = 8.63; 95% CI = 7.17–11.35).
Conclusions: The self-rated health status and blood pressure control for patients with hypertension is suboptimal, effective strategies should be developed to improve patients' general health.

1. Introduction

Hypertension is a chronic medical condition in which the blood pressure (BP) in the arteries is elevated (Egan, Zhao, & Axon, 2010). It is a major risk factor for myocardial infarction, heart failure, stroke, aneurysms of the arteries, peripheral arterial disease, and is also a cause of chronic kidney disease (Kearney et al., 2005). Moderate elevation of BP is related to a shortened life expectancy (Kearney et al., 2005). The incidence of hypertension is increasing all over the world. Kearney et al. (2005) estimated that the morbidity of hypertension was 26% of the adult population worldwide in 2000, and the prevalence would increase by 24% in developed countries and 80% in developing countries in 2025. Results of a recent adult-based study conducted in China revealed that the prevalence of hypertension was gradually on the rise. The overall morbidity of hypertension was found to be over 18.8% each year in China, it is estimated that there were 200 million diagnosed hypertensive patients in 2009 (Ma, Chen, You, Luo, & Xing, 2012; Wang, 2011).

Maximizing health and minimizing illness and disability associated with hypertension-related complications are major goals for individuals with hypertension and for healthcare professionals. One predictor of health outcome is an individual's self-rated health (SRH) (Lewis & Riegel, 2010). When assessing the health of hypertensive subjects, their SRH provide important information that is supplementary to medical morbidity and functional status. After controlling many objective indicators of health, SRH has still been confirmed to be an important determinant of health status, health care use, morbidity and mortality in population with chronic diseases (Benyamini & Idler, 1999). Therefore, SRH has received growing attention in the medical fields. This concept concentrates on the assessment of an individual's health or health-related quality of life (QoL) and well-being. SRH is a subjective measure that can be counted at an individual level. It gives a sign of how an individual feels about the condition of his own health. If one person feels good, it implies that his health is either excellent or good. If one feels bad, his health is evaluated as either poor or bad. SRH is thus a significant component of general health and QoL (Ojanlatva et al., 2006).

SRH is usually examined using one question asking individuals to assess their own health status in general categories (e.g., good, fair

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and bad). Despite the simplicity of measurement, this single item has been found to catch SRH as a multidimensional notion that focuses on an individual's cognitive awareness and explanation of physiological, psychological and sociological health (Puts et al., 2013; Schuz, Wurm, Schollgen, & Tesch-Romer, 2011). However, the levels of individuals' SRH are also easy to be influenced by above-mentioned multidimensional elements. The numerous earlier studies had found that many factors were thought to be relevant to an individual's SRH, including personal variables (e.g., demographic, physiological, psychological and social factors), health/illness variables (e.g., health status, injury, disease and risk factors), and environmental variables (e.g., physical and cultural factors) (Kartal & īnci, 2010; Stover, Skelly, Holditch-Davis, & Dunn, 2001). In addition, physical health and the absence or presence of chronic diseases are also regarded as the main variables that impact on SRH (Alexopoulos & Geitona, 2009).

BP value is of significance to impact on SRH and QoL for patients with hypertension. In one study of hypertensive subjects, self-rated poor health was an independent and significant contributor to uncontrolled BP in a follow-up study (Kaplan, 1987). However, the clear relationships of both SRH and BP control had not completely validated in previous researches. As well known, uncontrolled BP leads to complications related to hypertension, decreased QoL, and reduced well-being. Therefore, exploring their relationships is a focus in the present study.

Although SRH of hypertensive patients has gotten close attention in western countries, few studies have attempted to describe the levels of SRH and its determinants for patients with hypertension in China. If this information could be obtained, the individuals with hypertension who are at risk for poor health outcomes could be identified, and the effective strategies will be developed for hypertension treatment and healthcare in China. Therefore, this study was conducted in order to get an overall understanding of SRH status for Chinese hypertensive patients.

2. Research design and methodology

2.1. Aim

This study was designed to test the levels of SRH, BP control, and describe their relationships between SRH and BP control, and identify the extent to which demographic, disease and psychosocial factors determined the SRH status among community-dwelling patients with hypertension. Qualified subjects older than 18 years who lived in Haizhu District of Guangzhou City in China were invited to join the study.

2.2. Design

A cross-sectional design was adopted to facilitate the survey about SRH status, BP control levels and determinants of SRH. Subjects with hypertension were recruited from two community health centers in Haizhu District of Guangzhou City in China. One was a hospital based practice; another was community based practice.

2.3. Subjects

The study adopted a convenient sampling method to enlist the subjects. The subjects were recruited from the cardiovascular outpatient department of two community health centers. Inclusion criteria: (1) Subjects older than 18 years of age, agreed to attend the study. (2) Subjects diagnosed as essential hypertension by cardiovascular physician (Wang, 2011). Exclusion criteria: (1) secondary hypertensive patients; (2) women with pregnancy.

2.4. Measurements

2.4.1. Personal sheet

(1) The demographic data covered age, gender, marital status, educational level, income, health insurance and employment; (2) disease-related data included duration of diagnosis, treatment adherence, physical activity, systolic blood pressure (SBP) and diastolic blood pressure (DBP); (3) psychosocial factor was tested by social support.

2.4.2. Self-rated health status

SRH was tested by asking subjects to respond to the question: "Would you say your health, in general, is very good, good, fair, bad or very bad?" The reply alternatives ranged from 1 to 5, where 1 = very bad, 2 = bad, 3 = fair, 4 = good and 5 = very good. In accordance with previous literatures, "very good" and "good" answers were classified together as "good" (i.e. good SRH), while other answers were ranked as "poor" (i.e. poor SRH) (Alexopoulos & Geitona, 2009; Eller, Holle, Landgraf, & Mielck, 2008; Kaplan et al., 1996).

2.4.3. Treatment adherence questionnaire of patients with hypertension (TAQPH)

The study used TAQPH to test the level of treatment adherence of hypertensive patients (Ma et al., 2012). It was a 4-point Likert-type scale that included 28 items grouped into six factors labeled as follows: medication, exercise, diet, weight control, stimulation and relieving stress. The higher scores implied better adherence to treatment. Content validity index was 0.93. Cronbach's α of the overall scale was 0.86 and 0.82 for the test–retest reliability.

2.4.4. The social support rating scale (SSRS)

The SSRS was developed and validated by Xiao (1994), and had been used widely in China and Japan. It was composed of 10 items that evaluated three kinds of social support, including objective support, subjective support and utilization of support resources. Each item asked the respondent to indicate the degree to get support from family members, friends, relatives and social organizations. Scores of ten items were summed to reveal each individual response. The higher the score is, the more social support there is for respondent. The scale had good internal consistency ranging from 0.89 to 0.94, and test–retest reliability was 0.92.

2.5. Procedure

The data were collected at cardiovascular outpatient department in two community health centers by two research assistants from November 2013 to May 2014. Subjects were given standardized instructions before completing these forms. A private room was provided subjects to complete questionnaires to maintain confidentiality. They put finished scales into a box that was deposited in a convenient place for survey responses. A registered nurse took BP for subjects when they came to outpatient department after an initial rest period of 10 min. BP was measured in the sitting position using a suitable sized cuff and calibrated mercury column sphygmomanometer. The average of two readings was tested as subjects' BP values.

2.6. Ethical considerations

Approval was obtained from the Ethical Committee of Guangzhou Medical University. Written content from subjects was obtained before interviewing. Permission from two community health centers in which the study performed was also obtained. All of subjects' information of used scales would be kept confidential and used only for research purposes.

2.7. Statistical analyses

All data were analyzed using SPSS version 17.0 (SPSS, Chicago, Illinois, USA). Descriptive statistic methods were used to analyze the characteristics of the study subjects; SRH status and BP control levels. The relationships between SRH status and BP values were examined using chi-square test. The hierarchical logistic regression was used to