Heart & Lung ■■ (2017) ■■–■■

Contents lists available at ScienceDirect

Heart & Lung

journal homepage: www.heartandlung.com

An investigation of factors influencing self-care behaviors in young and middle-aged adults with hypertension based on a health belief model

Chunhua Ma, PhD, RN *

School of Nursing, Guangzhou Medical University, Guangzhou, Guangdong, China

ARTICLE INFO

Article history:
Received 13 July 2017
Accepted 18 December 2017
Available online

Keywords:
Health belief
Hypertension
Self-care
Young and middle-aged adults
Self-efficacy

ABSTRACT

Objectives: To explore whether five variables of the health belief model were factors influencing self-care behaviors in young and middle-aged adults with hypertension.
Background: The self-care behaviors of young and middle-aged adults with hypertension are suboptimal in China, and the factors associated with self-care behaviors have rarely been studied in the population.
Methods: A questionnaire survey was adopted in the study. 382 eligible participants were recruited from two tertiary teaching hospitals using the convenience sampling.
Results: The predictors of self-care behaviors in young and middle-aged adults with hypertension included age, complications related to hypertension, perceived susceptibility, severity, benefits, barriers and self-efficacy. Five aspects of health beliefs model accounted for 47.0% of total variance.
Conclusions: The perceived susceptibility, severity, benefits, barriers, and self-efficacy were key factors affecting self-care behaviors in young and middle-aged adults with hypertension. A health education program targeting improving health beliefs for the population should be developed.

Introduction

Ample evidence supports the suggestion that prevalence of hypertension in adults is increasing throughout the world.[1–3] Evidence from recent systematic reviews and original reports also shows an increasing trend in incidence of hypertension in China.[4,5] Unfortunately, the prevalence of hypertension in young and middle-aged adults (between 18 and 59 years old) is also on the rise.[4] The increasing prevalence of hypertension in the population will result in the likelihood of higher rates of cardiovascular diseases, which will worsen health outcomes for the population and impose great health costs on Chinese healthcare system. Globally, hypertension is ranked first in risk factors for years lived with disability and disability-adjusted life-years and early death between 1990 and 2010.[2,6] Similar results have been obtained in China.[4]

Despite a number of studies confirming that pharmaceutical and non-pharmaceutical therapies are effective in treating hypertension, blood pressure (BP) control is generally suboptimal in China. The rates of treatment and control of hypertension were less than 30%.[5,7] It was much lower for young and middle-aged adults with hypertension; the treatment rate was 28.2%, and the control rate was 8.1%.[8] The non-adherence to hypertension self-care behaviors results in poor BP control.[9,10] A study by Zhang et al. (2012) showed significant correlated relationships between uncontrolled BP and poor self-care behaviors in young and middle-aged adults with hypertension, and poor self-care behaviors accounted for 69.3% variance of uncontrolled BP by multiple linear regression analysis.[11]

Patients' self-care behaviors play an important role in hypertension management, as recommended by the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure and the Chinese Hypertension League.[2,8] Self-care is defined as actions directed toward oneself or one's environment to regulate function in the interest of one's life, integrated function, and well-being.[1] The key domains of hypertension self-care behaviors include regular medication use and lifestyle modifications, such as diet control (a low-sodium and low-fat diet); regular physical activity; restriction of alcohol consumption; tobacco cessation; weight management; self-monitoring of BP; stress reduction; and regular doctor visits.[1,6,12]

Conflict of interests: None competing interests are declared.
Funding: This study is supported by the Guangdong Science and Technology Department, the Guandong Special Program for Scientific Development (No. 2017A020215109).
* *E-mail address:* mawinter@126.com.

0147-9563/$ – see front matter © 2017 Elsevier Inc. All rights reserved.
https://doi.org/10.1016/j.hrtlng.2017.12.001

In China, hypertension healthcare and management is conducted by community healthcare centers and hospitals. The former is responsible for hypertension health education and home visits; the latter take charge of treating hypertension and its complications.[13] All healthcare professionals who work at community healthcare centers or hospitals emphasize the importance and significance of hypertension self-care behaviors in controlling BP and preventing cardiovascular diseases for individuals with hypertension. Cumulative evidence also shows that hypertension self-care is effective in controlling BP and preventing complications related to hypertension such as stroke, myocardial infarction, and chronic heart and kidney failure.[10–12,14] However, the adherence to self-care behaviors was suboptimal in the population with hypertension in China.[9,11,13] For example, Ma and colleagues (2013) conducted a cross-sectional survey about the self-care behaviors of young and middle-aged populations with hypertension and found that 20.8% of patients could adhere to a prescribed antihypertensive medication regimen, 26.7% performed regular physical activity, 14.1% maintained a healthy diet, 2.9% quit smoking, and 5.3% visited the doctor regularly.[15]

A number of studies revealed that various factors affected self-care behaviors in adults with hypertension, such as demographic and clinical factors, disease knowledge, cultural beliefs and practices, family members, perceived barriers, self-efficacy, social support, and depression.[1,14,16–18] Previous studies related to self-care by patients with hypertension almost focused on the elderly; young and middle-aged adults were regarded merely as a subgroup. Moreover, few studies have explored the factors influencing self-care behaviors by using solid theory for the population. Despite the heightened prevalence of hypertension in young and middle-aged adults, their self-care behaviors are suboptimal, and factors influencing self-care behaviors have rarely been studied in China. Identifying factors associated with self-care behaviors in young and middle-aged adults with hypertension is an important first step toward guiding the planning, development, and delivery of appropriate nursing intervention for this population, which, ultimately, will prevent the development of cardiovascular diseases and improve health outcomes.[6] Therefore, this study was undertaken to identify factors affecting self-care behaviors in young and middle-aged adults with hypertension based on the health belief model (HBM). HBM consists of five important constructs, such as perceived susceptibility, perceived severity, perceived benefits, perceived barriers and self-efficacy.[19,20] The objectives of this study were to explore whether five variables were factors influencing self-care behaviors in young and middle-aged adults with hypertension.

Theoretical framework

The most frequently used model for investigating behavior changes and disease prevention in a hypertension population is the health belief model (HBM). The HBM reveals the relationship between health beliefs and self-care behaviors, assuming that preventive behaviors depend on the individual's beliefs.[6,14,19–22] Based on this model, adoption of self-care behaviors by young and middle-aged adults with hypertension requires their realization that they are susceptible and liable to develop hypertension complications (perceived susceptibility); that hypertension and its complications worsen health outcomes (cardiovascular diseases) and do harm to health (perceived severity); that self-care behaviors have some benefits for them (perceived benefits); that there are some barriers against behavior modifications (perceived barriers); that family members, relatives, neighbors, health care professionals, and mass media (TV, Internet, newspaper, broadcast) encourage them to adopt healthy behaviors (cues to action); and, finally, that they can control BP through self-care behaviors (self-efficacy).

Taken together, we integrated key concepts from the HBM and additional variables from empirical literatures to explore predictors systematically to influence hypertension self-care behaviors in young and middle-aged adults. These findings can help Chinese healthcare professionals to focus their efforts on these variables to develop tailored, effective interventions.

Methodology

Study design

The cross-sectional design was used in the study. Participants were recruited from two outpatient departments of cardiovascular disease in two tertiary teaching hospitals, Yuexiu District, Guangzhou, southern China. The convenience sampling was adopted to choose the eligible participants. Data collection was conducted from September 2015 to March 2016 by four trained undergraduate nursing students. The measuring instruments included the demographic and clinical characteristics questionnaires, health belief questionnaire for hypertensive patients, and the hypertension self-care behavior questionnaire.

G-power analysis was adopted to calculate the sample size. A minimum sample size of 300 was determined to achieve 80% power, using $\alpha = 0.05$ and effect size = 0.25.[23] Three hundred eighty-two participants agreed to participate in the study, which met the requirement of sample size.

Participants

Patients were invited to attend the study when meeting the following inclusion criteria: (1) aged between 18 and 59 years; (2) diagnosed with essential hypertension by a cardiovascular physician; (3) no cognitive and mental disorders; and (4) agreed to join the study. Exclusion criteria were pregnant women and patients with secondary hypertension. Young and middle-aged adults are defined as aged between 18 and 59 years based on the age criterion of the China Population Association.

Implementation

Ethical approval was first obtained from the Research Ethics Committee of Guangzhou Medical University before data collection. Informed consent was also obtained from eligible participants. The data were collected by four undergraduate nursing students (two undergraduate nursing students at each outpatient department), who served as research assistants. Data collection was conducted five times every week based on research schedule, 150 minutes each time. Nursing students received five hours of training before collecting data. The training included the aim of the study, instruments used, and method of data collection. A pilot study was conducted to help nursing students learn how to collect patients' data after finishing training. Each student was asked to collect 10 questionnaires; these questionnaires were only used to practice data collection, not as the data of the study.

Data collection covered four steps in the study. At first, all participants were given an introduction letter describing the study at two outpatient departments of cardiovascular diseases when they came to outpatient departments to visit a doctor. Second, nurses on duty identified potential participants by their medical records; the eligible patients were invited to join the study. Then, nurses who did not attend the study measured BP for approval patients. BP was measured in the sitting position, using an appropriately sized cuff and calibrated sphygmomanometer after an initial rest period of 10 minutes. BP was measured twice at a five-minute interval. The average of two readings was used as patients' BP values. Third,