

**Life experiences of patients before having hypertension: a qualitative study**Afzal Shamsi<sup>1</sup>, Nahid Dehghan Nayeri<sup>2</sup>, Maryam Esmaeili<sup>3</sup>

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**Type of article:** Original**Abstract**

**Introduction:** Identification of causes of hypertension on the basis of the perspectives and experiences of patients is the key to success in health plans of these patients. The aim of this study was to describe the experiences of life before becoming hypertensive patients.

**Methods:** This qualitative study was conducted during August 2015 to April 2016. Twenty-seven hypertensive patients referred to hospitals affiliated to Tehran University of Medical Sciences were selected based on purposive sampling, and semi-structured in-depth interviews were conducted with them. The data were analyzed by the content analysis method and using qualitative data analysis software MAXqda 2011.

**Results:** Three main categories were extracted from data analysis. Patients experienced factors such as negligence and neglect, life stress, lack of healthy lifestyles and abuse awareness, spirituality abandonment in the main category of “personal experience,” factors such as family conflicts, heredity, inappropriate nutritional and life style in the main category of “family life,” and also factors such as job stress, economic problems, urbanization, chemical agents during the war in the main category of “social life.”

**Conclusions:** Based on the findings, patients before becoming hypertensive under the influence of their culture and beliefs had experienced many risk factors associated with hypertension. Comprehensive planning and appropriate to the cultural, social, and beliefs context about the prevention and correction of these factors is necessary.

**Keywords:** Hypertension, Qualitative research, Life experience

**1. Introduction**

In recent decades, rapid social and economic changes have led to increments in prevalence of high blood pressure in Mediterranean and Middle Eastern countries (1). Iran is a Middle Eastern middle-income country with diverse ethnicities and lifestyles (2). There is strong proof that, in Iran, the rapid increase in the prevalence of HTN has started more recently (3). A systematic review of published studies from Iran has estimated that the overall prevalence of hypertension was approximately 23%. Also, the maximum and minimum prevalence of hypertension in these studies were in Tehran (47.0%) and Ghazvin (6.9%), respectively (4). High blood pressure and its complications have been recognized responsible for most deaths in all regions of Iran (5). This disease damages organs of the body as an independent risk factor (6) and causes problems such as cerebrovascular disease, coronary disease, heart failure, chronic renal failure, and vascular disease (7, 8). Although high blood pressure is associated with many problems, it is easily preventable (9). Studies have shown that identification and controlling the causes of high blood pressure can help prevent developing this disease and its complications (10). In this context, the general recommendations have been brought up, e.g., physical activity, consumption of fruits and green vegetables, cutting

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tobacco and alcoholic beverages (11), hiking, mental health, and the use of leisure facilities, in order to prevent development of hypertension. However, following these recommendations is typically based on the different cultures, attitudes, and awareness. For example, in some American cultures, obesity and consumption of high-fat foods is high despite the knowledge that healthy foods are common and accessible (12), i.e., due to the poor dietary habits in the Iranian people, salt intake is typically more than double the recommended amount by the World Organization of Health (13). The results of a study in Tehran revealed that the cause of neglect and lack of respect for healthy lifestyles by the participants is limited knowledge and unawareness of hypertensive and its risk factors (14). Lack of awareness regarding the risk factors for developing hypertension and inadequate knowledge about appropriate preventive measures could lead to delay in diagnosis and inadequate control of blood pressure (15). In addition to these factors, living in crowded cities and/or limited availability and access to health services, social protection, public attitudes toward neighborhood health, and health-related behaviors play important roles in the development of high blood pressure (16). The World Health Organization reported that the risk of high blood pressure in African countries in urban areas is more than in rural areas (17). Therefore, increasing urbanization may be an important threat to public health regarding hypertension, especially in developing countries (18). Khatib et al. showed in systematic reviews of several qualitative researches that high volume work, living in crowded and unsafe neighborhoods, urban pollution, and traffic susceptibility play roles in creating high blood pressure (19). In this context, the results of studies revealed that the prevalence of hypertension in Tehran was higher than in other cities of Iran (14, 4). High prevalence of hypertension in Tehran has been associated with urbanization problems and lifestyle changes (18). Studies that have examined the risk factors for high blood pressure have obtained different conclusions about risk factors associated with hypertension; its causes include factors such as genetics, race, generation status (20), nationality, attitudes, beliefs (9), cultural, social, environmental, and economic subjects (16). Marshall et al., in a systematic review on qualitative research, showed that, in different ethnicities, causes of high blood pressure or aggravation factors are different. Therefore, in order to better and deeper understand the causes of high blood pressure, the perspectives and experiences of patients should be profoundly examined. In this systematic review, it was concluded that, in the view of the patients, the lack of attention of health teams toward high blood pressure and its causes is one of the key obstacles to the success of health programs for these patients (9). Therefore, identification of these factors is important from the perspective of patients and based on their experiences and can lead to the effective production of knowledge in this field to improve general health (21). In order to truly understand these factors, the experiences and perspectives of these individuals can be used in qualitative studies (22). Due to the above reasons, and, in order to increase our knowledge of the risk factors and causes of hypertension based on individual, cultural, social, and economic circumstances, this study was conducted aimed to explore experiences of life before becoming hypertensive patients.

## **2. Material and Methods**

### **2.1. Settings and Participants**

This is a qualitative study with a content analysis approach. This study was conducted from August 2015 to April 2016. Participants in this study included 27 patients with hypertension who were referred to health centers affiliated with Tehran University of Medical Sciences. In order to study multiple variables related to the subject and obtaining the best understanding of the studied phenomenon, purposeful sampling was used with maximum variation (by age, sex, education, marital status, and duration) (22). Inclusion criteria included a desire to participate in the study, having the ability to share the experiences, fluency in Farsi, hypertension according to medical diagnosis, and being older than 18 years. The exclusion criteria of the study were having a cognitive impairment and/or mental illness confirmed by a physician or the individual patient. Sampling continued until data saturation.

### **2.2. Data collection**

The main method of data collection in this study was profound semi-structured interview. Researchers explained the aim and the questions of the study for each participant. If subjects agreed to participate in the study and signed informed consent, the interview was conducted based on the comfort of the participant at the agreed-upon time and place. Interviews were conducted in a private room. Each interview began with general questions such as “What do you think caused severe hypertension?” “Why do you think you do not comply?” and “When and in what situations do you usually have high blood pressure?” Participants were asked to express their experience and understanding before becoming hypertensive. Interviews continued to gain a deeper understanding of the studied phenomenon. The interview was recorded using a digital voice recorder. Each interview was transcribed and then analyzed step by step. The duration of each meeting was between 90–45 minutes based on the tolerance and interests of participants to describe their experiences. If necessary, a second session of the interview was implemented. Interviews were

drawn to the second session with three of the participants. The three interviews are in excess of 27 interviews with key participants.

### 2.3. Data analysis and data trustworthiness

In order to analyze the views and experiences of participants, content analysis was used due to Graneheim and Landman (23). Contractual content analysis is a regular coding and data classification, which is used to identify implicit and explicit themes or patterns of text data through a systematic approach (24). For the analysis, at first, each interview was written on paper. For obtaining a general understanding of the text, the interview text was read several times, and then the data were divided into semantic units, and a concept name (code) was assigned to them. Codes with similar concepts were put together in a group and categories were formed. Categories and codes for each interview were constantly compared with other interviews until subcategories and main categories were formed. With data saturation, interviews were stopped. Saturation was detected by repetition and confirmed using information previously collected data. Finally, identifying the main categories that emerged from participants' experiences and perspectives analysis was completed. We then tried to find the highest homogeneity between the classes and the highest heterogeneity between the classes. MAXqda 2011 software was used to classify the transcribed data. To ensure accuracy of the data, the proposed Guba and Lincoln (23) indexes were used. Validation of data was demonstrated with continuous data comparison. Long-term engagement with participants and devoting sufficient time for data collection also was conducted for a better understanding of their experiences. Data reliability was obtained using the techniques of the participants reviewing. The reliability of data was confirmed using the reviewing technique of the participants. Research team weekly meetings and discussions were implemented about the collected information for obtaining data reliability. Additionally, three experts in qualitative research (peer review), in the course of analyzing and interpreting the data, had very close cooperation with the research team. Data verifiability was confirmed using systematic data collection and retaining the documentation for the research. For transmission of data, sampling with maximum diversity was used so that samples were selected from both sexes, with different age, education, and jobs and multiple clinical centers affiliated with Tehran University of Medical Sciences.

### 2.4. Ethical considerations

The present study is obtained from the nursing doctoral thesis in Tehran University of Medical Sciences, which was approved by the Tehran University of Medical Sciences Research Ethics Committee, which has a code of ethics (IR.TUMS.REC.1394.1497). Objectives and methods used in the study were fully explained to the participants. The purposes and methods applied in this research were completely explained to participants. All participants signed informed consent before entering the research. They also were assured about confidentiality and anonymity in the study. They were told that the study is voluntarily and that unsubscribing was possible at any stage of the study while there are no consequences for them. All participants were volunteers, and written consent was obtained from each of them in which the voluntary nature of the participation was mentioned. Time and place of the interview were determined with the agreement of the participants based on their preferences.

## 3. Results

The age range of participants was 28 to 74 years (mean age  $52.62 \pm 1.18$ ). A total of 27 people were interviewed among which 12 subjects were men, and 26 subjects were married. Other specifications of the participants are shown in Table 1. Three main categories of "personal experience," "family life," and "social life" were extracted from data analysis that is obtained from the experiences of patients before having the risk of hypertension (Table 2). Below, the meaning of each of these classes provided for participants with the use of direct quotations.

**Table 1.** Specifications of participants

Condition	n (%)
Gender	
Male	12 (44.4)
Female	15 (55.6)
Education level	
Illiterate	7 (25.9)
Under graduated	15 (55.6)
Educated in university	5 (18.5)
Job	
Employee	6 (22.2)
Retired	3 (11.1)
Self-employed	6 (22.2)
Housewife	12 (44.5)

**Table 2.** Main categories and primary categories extracted from participants' experience

Main Category	Primary Categories
Individual experiences	Negligence and ignorance Life stress The lack of healthy life styles and abuse awareness Leaving Spirituality
Family life	Family conflicts Inheritance Dysfunctional eating style
Social life	Job stress Financial problems Urbanization Chemical agents during the war

### 3.1. Individual experiences

All participants believed that they have contributed to the development of their blood pressure. All participants before becoming hypertensive had experiences about the negligence and ignorance about nutrition, obesity, exercise, and smoking and knew this as one of the reasons for their disease and hypertension, although some of the participants were aware of the consequences of an unhealthy lifestyle as a result of negligence. The remarkable point is that this neglect was higher in participants with an education level. Men had experienced lack of observation of diet (such as eating salty foods and high fat) more than women, while women further experienced smoking, obesity, and physical inactivity. P25: "... because I worked too much and walked also too much, I did not believe in diet, I thought that I could eat any food and fire all of them" (male aged 25). All participants before becoming hypertensive had experienced types of conflicts such as life stress, anxiety, life occupations, and so on. These patients believed that increase in the stress long-term tolerance of them were the most important reasons for having high blood pressure. Those tensions were experienced by women more than men. The remarkable point is that most of the participants thought that the main reason for their daily stresses was modern advancement of technology, which had played a role in the risk of hypertension. This belief was higher among younger patients. P3: "I think, being hypertensive was mainly due to my stresses ... my life tensions were too much, the life stresses were causes of my hypertension" (Male aged 28). A number of participants expressed that pre-hypertensive they had abused their awareness and unhealthy lifestyle. The elderly and low-educated patients further expressed this lack of awareness. The remarkable point is that most of the participants believed they had higher awareness than their family relatives and elders; thus, their knowledge of scientific sources wasn't credible. They knew the lifestyle of their family elderly and followed the patterns; they believed that they should follow the lifestyle of their elders. Neither of these participants before becoming hypertensive had the experience of visiting a doctor or referring to a science book for information on healthy lifestyles. Some of them did not believe in medical advice and thought medicines prescribed for them were harmful chemicals. P14: "I did not fully understand and had less time information at that time. Whatever the adults told us I accepted for example, they said traditional oil was very good, eat too much ... but now the doctors prohibit eating it" (female aged 68). Most participants (n = 15) believed that leaving spirituality and being away from God was one of the most important factors in the development of the hypertension. Of those, women believed it more than men. Participants had expressed that they experienced lack of relaxation in their life followed by being aware of God and leaving religious practice (prayer, Quran, and remembrance of God), which was an important factor for the development of hypertension. P9: "... a thing that brings variety of diseases in human, especially blood pressure bar is discomfort and stress of being away from god, when you are with God your nerve is comfort ... I was away from God before becoming hypertensive" (female aged 71).

### 3.2. Family life

All participants believed that families play roles in the development of hypertension through factors such as poor nutrition style of family, inheritance, and family conflicts. According to some participants, poor nutrition style of families has been among the main reasons for the prevalence of hypertension. They had the experience of consumption of high-fat and salty foods in the family before becoming hypertensive. The experience is further expressed by men. Some women participants believed that they have been the reasons behind eating the wrong foods and cooking and that family had a lesser role in this regard. The important point is that most participants (n=12) had a positive family history of hypertension, while, despite observation of complications of hypertension in their family, they continued an improper feeding style. P27: "My family also had ignorance in some issues; they

could cook lower fatty foods, but they did not. In our house, breakfast, lunch, and dinner are fatty, solid oil is used. We ate plant or low fat foods in less time” (Male aged 45). Some patients (n=14) noted inheritance as the reasons for hypertension. They blamed their families for being hypertensive. These beliefs were observed more in older and less educated women. P14: “My mom had high blood pressure, my grandmother had high blood pressure, too, and it came to me ... if they were not hypertensive then I was not hypertensive ...” (68-year-old illiterate women). Some of the participants (n=19) before becoming hypertensive had experienced some problems such as arguing with family, child-bearing stress, death of family members, unemployment of children, spouse neglect, husband addictions, and others. They believed that these factors played important roles in the development of hypertension. The conflict was experienced in women more than in men. The important point is that respondents were younger or were recently diagnosed with high blood pressure and had experienced this conflict more; the main cause of tensions and conflicts in their life before becoming hypertensive was expressed in the indiscriminate use of cyberspace by family members and their addiction to the Internet. P25: “... I think I have blood pressure because I’m nervous. It’s true, I was an aggressive man, but my family was guilty, they didn’t understand they always argue with me in the house ... Finally, I got sick ...” (male aged 55).

### **3.3. Social life**

The participants believed that social environment as job stress, economic problems, urbanization, and chemical agents during the war contributed to the development of hypertension. Some of the participants (n=11) suggested that job stress is involved in the development of hypertension. Most of these patients were older and more experienced. In addition, this belief was highly observed in respondents who were higher educated as well as had no management responsibility in their jobs. P17: “I had so much stress in my job, I had the responsibility of the department, and I liked the works to be regular in a day, but I did not know this would be the cause of blood pressure. Job stress had effects in the home also; all the things should be regular, and finally it brought stress” (male aged 63). One of the factors that participants had experienced before hypertension and knew it as the cause of blood pressure was economic problems. The experience was greater in men than in women. Most participants expressed that economic problems have a negative impact on most aspects of life, particularly on mental aspects, which caused family conflicts and problems and played an important role in the development of hypertension. P23: “... poor economy makes people have high blood pressure during life ... my economic status was not good; I was all ashamed of my wife and family. Mental pressure was so high that it led to high blood pressure” (male aged 43). Participants had experienced residing in the crowded and bustling city of Tehran and the ensuing problems such as air pollution, congestion, high cost of living, low emotion, tenants, and repeatedly moving home before becoming hypertensive and recognizing the risk factors for having blood pressure. This belief in men was more than in women. Most of the participants were born and lived in small towns and, in recent years, had migrated to Tehran. P12: “... life in Tehran was one of factors for my high blood pressure. Pollution, overcrowding, long distances, kids go to school in big city are all worries. You get away from your family, and it is hard ...” (female aged 39). Three participants, who experienced presence in the battlefield and exposure to chemical agents, knew exposure to the chemical agents during the war as the factors that affect high blood pressure. The participants expressed that they had experienced mental and physical complications after exposure to the chemical agents that were effective on them for being hypertensive. The remarkable point is that these patients lived more than 20 years with chemical agents and, during the recent years, had been hypertensive. They also expressed individual and family risk factors of hypertension but further emphasized the role of these agents. P11: “... From the time that I was exposed to chemicals in the war in Iraq, it affected my blood pressure. I think the main cause of blood pressure originated from chemicals during the war...” (male aged 54). The most important finding of this study was that the majority of participants had experienced a series of these factors and believed that increase in the number of agents played a role in the risk of developing hypertension more than the intensity of a single factor. They expressed that moving toward modern life, the frequency and intensity of these factors also increases. P25: “... On the one hand, family problems, on the other hand economic problems, they cooperated in developing my blood pressure, I accept and I blame myself ...” (Male aged 55).

## **4. Discussion**

Based on the findings, participants in the study believed that, with negligence and carelessness in the fields of nutrition, exercise, and obesity, tobacco use had contributed to the development of their blood pressure. In several studies, factors such as physical inactivity, smoking, obesity, high blood cholesterol, and poor diet create risk for developing hypertension (25). Therefore, in this part of the paper, other risk factors of blood pressure were experienced by participants. Having knowledge about the disease, is an important factor in the adoption and health related behaviors (26). In our study, some participants knew the lack of awareness of healthy lifestyles as their own

risk factors of hypertension. The results of a qualitative study in Nepal revealed that the cause of neglect and lack of respect for lifestyle by the participants is limited knowledge and unawareness of its potential effects on blood pressure (27). In another qualitative study, it has been shown that, due to a lack of awareness of hypertension, its risk factors and healthy lifestyle play important roles in developing hypertension in participants (19). Accordingly, people who are already aware of the possible consequences of high blood pressure comply more seriously with preventive behaviors (27). The remarkable thing in our study is that most participants who believed that are aware obtained more information than their elders and families; their awareness from information sources was not scientifically valid. They just used their elder's lifestyle as a pattern believing it was a model to follow. This finding may be due to the cultural and religious context of the culture of the participants in our study. The researches have shown that lifestyle is a combination of works and habits that affect people's behavior in the field of cultural, socio-economic, and social relations between individuals (9, 16). Khatib et al. showed, in systematic reviews of several qualitative researches that among the reasons for developing participants' blood pressure, is their beliefs about lifestyle modification. Some of them modeled their lifestyle on tribal elders and implemented their recommendations, despite them being unscientific and did not believe in doctors and medical recommendations. Others had a forced perspective and believed that everything is implemented by Allah and that hypertension is inevitable; hence improvement of lifestyle had no effect on preventing blood pressure (19). Most participants in our study believed that a major cause of their disease and high blood pressure was being away from God and leaving the religious practices (such as prayer, the Quran, and remembrance of God). Studies have shown that people who are engaged in religious and spiritual activities have lower levels of cortisol (a stress biomarker), which reduces the probability of having high blood pressure (28, 29). Yon concluded that researchers and health care providers should consider the role of spirituality as an important and influential factor in health and health-related behaviors, particularly in susceptible individuals with hypertension (30). In the above studies (28-29) the role of spirituality in reducing or controlling blood pressure has been noted but, in none of these studies is leaving spirituality mentioned as a factor in the development of high blood pressure; while in our study participants saw this as an important factor in getting high blood pressure, which can be considered a unique finding.

All participants in our study believe that families through one or more of the factors such as poor nutrition styles, family complications, and inheritance have contributed to the development of hypertension. The underlying structure of families is significantly associated with health-related behaviors of individuals (31). Research results have shown that, in chronic diseases such as hypertension, families play important roles (19, 25, 31). Participants in the qualitative study conducted by Barreto et al. mentioned the role of families in development of hypertension as a complication in the familial relationships and lack of awareness about the prevention of disease among the members of the family (31). Khatib et al. showed in systematic reviews of several qualitative researches that lack of family support (especially psychological) and their improper lifestyle are the reasons for participants being hypertensive (19). It is obvious that participants in our study had experienced a lot of tension and conflicts with their families following the indiscriminate use of the Internet and cyberspace and knew it as one of the most important risk factors and their own lack of blood pressure control. Studies have shown that the indiscriminate use of internet and virtual spaces create a virtual identity in person and reduce interaction with family members which leads to family conflict (32). In Iran, the prevalence of Internet addiction is high and rising problems leads to complaints of physical, occupational problems, obsessive-compulsive disorder, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, and psychosis, which could cause development of chronic cardiovascular disease (33). In several quantitative studies (19, 25, 31), participants failed to mention Internet addiction as a factor in the development of their blood pressure; in contrast, in our study, participants saw it as an effective factor in developing high blood pressure. This finding could be due to differences in texture or in-depth interviews about Iranian culture with other countries in our study compared with other studies. The risk of high blood pressure in people with a family history of hypertension is two times more likely than in others (34). In our study, participants considered a genetic cause of the hypertension. Similarly, participants in the qualitative study, participants understood heredity as a factor that must be considered for having high blood pressure (19, 27, 31), which is consistent with results of our study. The difference is that, in our study, participants blamed their families in the transmission of hereditary blood pressure and claimed that negligence of their families caused them to prevent transmission of their high blood pressure; however, in the above studies (19, 27, 31), participants did not blame their families. This finding in our study could be the lack of knowledge and ways of developing the disease and transmission of blood pressure in which basic planning must be done in order to improve awareness. In our study, participants believed that job stress and economic hardship played a role in the development of hypertension. Participants with a higher education or management responsibility in their jobs also had experienced the most job stress as a contributing factor in the development of high blood pressure. Studies have shown that economic status and occupation are closely associated

with hypertensive, so that, as the economy status weakens, or a higher level of job stress is experienced, then the development of high blood pressure is more probable (25).

A study in Ira revealed that one is likely to develop high blood pressure when engaged in managerial jobs because of high job stress and reduced physical mobility (2). Khatib et al. showed in systematic reviews of several qualitative researches that participants believed that social and economic pressures, workload, and conflicting roles in managerial positions were related to the development of their blood pressure (19). Participants in the study believed that urbanization (especially for people who are accustomed to living in small towns) has played an important role in the development of hypertension. The World Health Organization reported that the risk of high blood pressure in African countries in urban areas is more than the rural areas (17). Some participants in the study of Shakya-Vaidya et al. believed that factors such as air pollution, chemical fertilizers, and lack of health monitoring had a negative effect on their health in the food market and is involved in the development of hypertension (27). Khatib et al. showed, in systematic reviews of several qualitative researches that work stress and severe anxiety, high volume work, living in crowded and unsafe neighborhoods, urban pollution, and traffic susceptibility play roles in creating high blood pressure (19). Considering the increasing rate of urbanization in Iran society and the willingness of Iranian young people toward living in the cities, paying attention to authorities and basic planning in this field is important for the prevention of high blood pressure. Three of the participants in our study experience the presence in the battlefield and were exposed to chemical weapons during the war and believed it became a factor in the development of their high blood pressure. Contacting with chemical weapons as an extreme traumatic event can lead to psychological problems, loss of security, and chronic physical disabilities (35). Studies have shown that exposure to chemicals used in war has severe effects on people's cardiovascular system and hematopoietic system of the body (36, 37). The articles did not mention the chemical agents as risk factors for hypertension disease, and there are few studies conducted in this area. Hence this finding is unique in our study and can be a guide for further research in this field. One limitation of this study was that some participants who were at higher age and many years had passed from the risk of high blood pressure had difficulty remembering and sharing experiences, thus helping experiences of families to overcome this limitation in this regard as well as the second-session interview being conducted for three of the participants. Another limitation of this study was the lack of similar studies in Iran to compare the data. It is suggested that more qualitative research be conducted in other cultures on blood pressure with regard to cultural differences in more dimensions of the factors associated with this disease, along with construction-related tools and conducting few studies in this area.

## **5. Conclusions**

Based on the findings, patients before becoming hypertensive were typically influenced by the cultural and their beliefs context and had experienced many personal, familial and social risk factors that are directly associated with the risk of hypertension. Recognition of these factors from the perspective and experiences of patients can lead to production of knowledge in this field and can help healthcare professionals in setting up suitable health-improvement programs, and also effective interventions in control and treatment of hypertension. Therefore, in these patients, overall planning and appropriate cultural, social, and beliefs context is necessary in regards to the prevention and correction of these factors. It is recommended that further researches be done concerning hypertensive patients in other cultures in order to determine more dimensions of these patients with regard to cultural differences.

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## **Conflict of Interest:**

There is no conflict of interest to be declared.

## **Authors' contributions:**

Afzal Shamsi and Nahid Dehghan Nayeri conceived the study and developed the study design. Fieldwork and data collection were conducted by Maryam Esmaili and Afzal Shamsi. Principal data analysis was performed by Nahid Dehghan Nayeri and Afzal Shamsi. All authors contributed to interpretation of results and manuscript preparation.

## References:

- 1) Savadpour MT, Sharifirad Gh, Mohebi M, Kamran A, Dargahi A. Prevalence of Hypertension and Cardiovascular Risk Factors among Adults in Urban Populations-Iran. *Arch Hyg Sci.* 2014; 3(2): 44-49. doi: 10.1097/HJH.0b013e3283613053. PMID: PMC3766446
- 2) Malekzadeh MM, Etemadi A, Kamangar F, Khademi H, Golozar A, Islami F. Prevalence, awareness and risk factors of hypertension in a large cohort of Iranian adult population. *J Hypertens.* 2013; 31(7): 1364-1371. doi: 10.1097/HJH.0b013e3283613053. PMID: PMC3766446
- 3) Ebrahimi M, Kazemi-Bajestani SMR, Ghayour-Mobarhan M, Ferns GAA. Coronary Artery Disease and Its Risk Factors Status in Iran: A Review. *Iranian Red Crescent Medical Journal.* 2011; 13(9): 610-623. doi: 10.5812/kowsar.20741804.2286. PMID: PMC377935.
- 4) Haghdoost AA, Sadeghirad B, Rezazadehkermani M. Epidemiology and heterogeneity of hypertension in Iran: a systematic review. *Arch Iran Med.* 2008; 11(4): 444-52. doi: 08114/AIM.0017. PMID: 18588378.
- 5) Farzadfar F, Danaei G, Namdaritabar H, Rajaratnam JK, Marcus JR, Khosravi A, et al. National and subnational mortality effects of metabolic risk factors and smoking in Iran: a comparative risk assessment. *Popul Health Metr.* 2011; 9(1): 55. doi: 10.1186/1478-7954-9-55. PMID: 21989074, PMID: PMC3229448.
- 6) Amraoui F, Bos S, Vogt L, Born BJ. Long-term renal outcome in patients with malignant hypertension: a retrospective cohort study. *BMC Nephrol.* 2012; 13(1): 71. doi: 10.1186/1471-2369-13-71. PMID: 22846257, PMID: PMC3470982.
- 7) Gusmão JL, Pierin AM. Bulpitt and Fletcher's Specific Questionnaire for Quality of Life Assessment of hypertensive patients. *Rev Esc Enferm USP.* 2009; 43(SPE):1034-1043. doi: 10.1590/S0080-62342009000500007.
- 8) Chandwani H, Pandor J, Jivarajani P, Jivarajani H. Prevalence and correlates of hypertension among adults in the urban area of Jamnagar, Gujarat, India. *Electronic Physician.* 2010; 2: 52-59.
- 9) Marshall IJ, Wolfe CD, McKeivitt C. Lay perspectives on hypertension and drug adherence: systematic review of qualitative research. *BMJ.* 2012; 345: e3953. doi: 10.1136/bmj.e3953, PMID: PMC3392078.
- 10) Zygmontowicz M, Owczarek A, Elibol A, Chudek J. Comorbidities and the quality of life in hypertensive patients. *Pol Arch Med Wewn.* 2012; 122(7-8): 333-40. PMID: 22814517.
- 11) Neupane D, Panthi B, McLachlan CS, Mishra SR, Kohrt BA, Kallestrup P. Prevalence of Undiagnosed Depression among Persons with Hypertension and Associated Risk Factors: A Cross-Sectional Study in Urban Nepal. *PLoS One.* 2015; 10(2): e0117329. doi:10.1371/journal.pone.0117329. PMID: 25671522, PMID: PMC4324992.
- 12) Lee M. Neighborhood residential segregation and mental health: a multilevel analysis on Hispanic Americans in Chicago. *Soc Sci Med.* 2009; 68(11):1975-84. doi:10.1016/j.socscimed.2009.02.040. PMID: 19359082.
- 13) Sajjadi F, Maghroun M, Sarhangpor MR, Nouri F, Shriatifar M, Mohammadifard N. Assessment of salt and sodium in processed foods, Iran 2011-2013. *Hakim Health Sys Res.* 2015; 18(3): 201-208.
- 14) Badakhsh MH, Malek M, Aghili R, Ebrahim Valojerdi A, Khamseh ME. Prehypertension; patient awareness and associated cardiovascular risk factors in an urban population in Iran. *Med J Islam Repub Iran.* 2015; 11(29): 290. PMID: 26913253, PMID: PMC4764263.
- 15) Iyalomhe GB, Iyalomhe SI. Hypertension-related knowledge, attitudes and life-style practices among hypertensive patients in a sub-urban Nigerian community. *Journal of Public Health and Epidemiology* 2010; 2(4): 71-7.
- 16) Viruell-Fuentes EA, Ponce NA, Alegri'a M. Neighborhood Context and Hypertension Outcomes among Latinos in Chicago. *J Immigr Minor Health.* 2012; 14(6): 959-67. doi: 10.1007/s10903-012-9608-4. PMID: 22527740.
- 17) WHO Global InfoBase team. The Surf Report 2. Surveillance of chronic disease risk factors: Country-level data and comparable estimates. Geneva: World Health Organization. 2005.
- 18) Yarahmadi SH, Etemad K, Hazaveh AM, Azhang N. Urbanization and Non-Communicable Risk Factors in the Capital City of 6 Big Provinces of Iran. *Iran J Public Health.* 2013; 42(Suppl1): 113-8. PMID: 23865027, PMID: PMC3712588.
- 19) Khatib R, Schwalm JD, Yusuf S, Haynes RB, McKee M, Khan M, et al. Patient and Healthcare Provider Barriers to Hypertension Awareness, Treatment and Follow Up: A Systematic Review and Meta-Analysis of Qualitative and Quantitative Studies. *PLoS One.* 2014; 9(1): e84238. doi:10.1371/journal.pone.0084238. PMID: 24454721, PMID: PMC3893097.



- 20) Tu W, Pratt J H. A consideration of genetic mechanisms behind the development of hypertension in blacks. *Curr Hypertens Rep.* 2013; 15(2): 108-13. doi: 10.1007/s11906-013-0332-9. PMID: 23397215, PMCID: PMC3594543.
- 21) Abbasi M, Mohammadi N, Nikbakht-Nasrabadi A, Sadegi T. Experiences of Living with Coronary Artery Bypass Graft: a Qualitative Study. *Hayat.* 2014; 19(4): 38-47.
- 22) Polit DF, Beck CT. *Nursing Research: principle and methods.* 7th ed. LippincottWilliams and Wilkins. Philadelphia: PA.USA; 2003.
- 23) Graneheim UH, Lundma B. Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. *Nurse Educ Today.* 2004; 24(2): 105-12. doi: 10.1016/j.nedt.2003.10.001. PMID: 14769454.
- 24) Streubert HJ, Carpenter DR. *Qualitative research in nursing: Advancing the humanistic imperative Historical Research Method.* 5th ed. Wolters Kluver/Lippincott, Williams and Wilkins: Philadelphia; USA. 2011.
- 25) Mizumoto K. Hypertension and Risk factors related to lifestyle among women aged 40 years over in Phuthamonthon district nakhon pathom province. [dissertation]. Master of Primary Health Care Management. Faculty of Nutrition Nagoya City College Nagoya; Japan. 2004.
- 26) Kumar C, Sagar V, Kumar M, Kiran KA. Awareness about hypertension and its modifiable risk factors among adult population in a rural area of Ranchi district of Jharkhand, India. *Int J Community Med Public Health.* 2016; 3(5): 1069-1073. doi: 10.18203/2394-6040.ijcmph20161359.
- 27) Shakya-Vaidya S, Povlsen L, Shrestha B, Grjibovski AM, Krettek A. Understanding and living with glaucoma and non-communicable diseases like hypertension and diabetes in the Jhaukhel-Duwakot Health Demographic Surveillance Site: a qualitative study from Nepal. *Glob Health Action.* 2014; 7(1): 25358. doi: 10.3402/gha.v7.25358. PMID: 25361727, PMCID: PMC4212074.
- 28) Kretchy I, Owusu-Daaku F, Danquah S. Spiritual and religious beliefs: do they matter in the medication adherence behaviour of hypertensive patients? *Biopsychosocial Medicine.* 2013; 7(1): 15. doi: 10.1186/1751-0759-7-15. PMCID: PMC3854617.
- 29) Wyatt SB, Akylbekova EL, Wofford MR, Coady SA, Walker ER, Andrew ME, et al. Prevalence, awareness, treatment, and control of hypertension in the Jackson Heart Study. *Hypertension.* 2008; 51(3): 650-6. doi: 10.1161/HYPERTENSIONAHA.107.100081. PMID: 18268140.
- 30) Yon AS. *The Influence of Spirituality on Medication Adherence and Blood Pressure among Older Adults with Hypertension.* [dissertation]. Eshelman School of Pharmacy. 2012.
- 31) Barreto MS, Marcon SS. Patient Perspectives on Family Participation in Treatment of Hypertension. *Text Context Nursing, Florianopolis,* 2014; 23(1): 38-46. Doi: 10.1590/S0104-07072014000100005
- 32) Navabakhsh M, Seyyedi F. Media Family and Virtual identity of youth: With emphasis on contemporary Iran. *European Scientific Journal.* 2011; 18: 18-26.
- 33) Alavi SS, Alaghemandan H, Maracy MR, Jannatifard F, Eslami M, et al. Impact of addiction to internet on a number of psychiatric symptoms in students of Isfahan universities, Iran, 2010. *Int J Prev Med.* 2012; 3(2): 122-7. PMID: 22347609, PMCID: PMC3278877.
- 34) Loh KW, Rani F, Chan TC, Loh HY, Ng CW, Moy FM. The Association between Risk Factors and Hypertension in Perak, Malaysia. *Med J Malaysia.* 2013; 68(4): 291-6. PMID: 24145254.
- 35) Babapour J, Nazari MA, Rashidzadeh L. The Effect of Cognitive- Behavior Therapy on Marital Satisfaction and Intimacy of Chemical Patient Couples. *JMPR.* 2012; 6(24): 8-25.
- 36) Ghasemi Boroumand Gh, Amiri Z. Delayed Ocular Complications of Mustard Gas on 500 Veterans. *Rehabilitation journal.* 2008; 8(4): 678-74.
- 37) Salari Seddigh S, Yousefimanesh H, Sarabadani J. Prevalence of chronic complications of sulfur mustard on the oral soft tissues Zahedan veterans. *Iran South Med J.* 2014; 17(4): 658-665.