Patient and Doctor Perceptions of Hypertension and its Treatment: A Qualitative Study in Urban Hospitals of Pakistan

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Submitted to the University of Hertfordshire in partial fulfilment of the requirements of the degree of Doctor of Philosophy

October 2019

Abstract

Hypertension (HTN) is a chronic disease that has become a growing public health problem in countries around the world, including Pakistan. Successful HTN control is an essential cornerstone in the prevention of morbidity and mortality associated with uncontrolled HTN. However, patients' beliefs about their disease, treatment and control are related to the outcome of successful HTN control and management. Likewise, doctors' understanding of HTN and its treatment is equally important and can affect their practice and HTN management. There is little qualitative research considering patients' and doctors' understanding of HTN, its treatment and how it influences HTN management in Pakistan. Therefore, the current study aimed to elicit patients' and doctors' perceptions, attitudes and beliefs about HTN and its treatment in urban areas of Pakistan.

A qualitative study that drew on grounded theory principles was undertaken in two public hospitals of Pakistan. Thirty in-depth semi-structured interviews with hypertensive patients and thirty interviews with doctors were conducted in two hospitals. Interviews were translated and transcribed from Urdu into English and NVivo was used to organise the data in a systematic way. Data were analysed using a constant comparative approach based on the principles of grounded theory.

The study revealed that patients' (n=30) beliefs were complex, deep-rooted and influenced their attitude towards HTN treatment. Patients' beliefs were informed by understanding gleaned from the socio-cultural environment (local norms, social relations, religion), individual factors (e.g. income, co-morbidities) and interactions with doctors. In contrast, doctors' (n=30) own understandings on what constitutes successful HTN management often contradicted patients' beliefs. Doctors' reported that time restraints and work burden affected their approach to treatment and the provision of information to patients.

Findings also revealed an overlap between patients' and doctors' beliefs, however, in relation to adopting lifestyle changes for management of HTN. In general, though doctors paid less consideration to patients' beliefs in routine clinical practice and evaluated patients through the filter of their own beliefs. The findings suggest that doctors could provide a better service care by aligning with their patients on a common understanding about HTN management and providing culturally appropriate information. Doctors should be aware of the understanding hypertensive patients attach to HTN and avoid providing treatment based on their own beliefs. Doctors must engage with patients' beliefs and identify their particular healthcare needs in order to achieve control of HTN in Pakistan.

Keywords: Hypertension, high blood pressure, lifestyle recommendations, understanding, patient, doctor, Pakistan, qualitative research.

Declaration

I Qurrat ul Ain, declare that this dissertation is entirely my own work and has not been submitted for any other degree or professional qualification.

Signed:  **Date:** October 2019

Qurrat Ul Ain

Acknowledgments

First and foremost, I am thankful to Almighty Allah; due to His blessings I could finish my research work and thesis. I would like to thank the following people for the help and support they provided me during the course of this journey. I am grateful to my parents for their endless support and encouragement. Words fail to describe my feelings of respect for my supervisors Professor Wendy Wills and Doctor Angela Dickinson for providing guidance and mentoring me throughout this study.

I also owe a special thanks to Waqar for keeping things light-hearted for me during the periods of stress. Kudos to my colleagues Dr Iram Rasheed, Dr Saira Bilal, Dr Sumera Shahzad, Dr Asghar, Dr Abdul Rasheed, Shahab, Zulqarnain and Adnan my brothers for their assistance and for making things possible for me. I would also like to thank the management of two hospitals for allowing me to recruit study participants and the participants themselves who generously gave their time and took part in the study.

Finally, I would like to dedicate my work to my gorgeous grandmother Fahmeeda Begham, who died due to hypertension related complications and is sadly no longer with us.

List of Abbreviations

CVD	Cardiovascular Disease
BHUs	Basic Health Units
HTN	Hypertension
LHWs	Lady Health Workers
OPD	Out Patient Department
PMDC	Pakistan Medical and Dental Council
THUs	Tertiary Health Units
UK	United Kingdom
WHO	World Health Organization

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Chapter 1: Introduction

This dissertation focuses on patient and doctor understandings of hypertension (HTN) and its management in Pakistan. This chapter introduces HTN and its treatment and then presents details on the Pakistani context before discussing lifestyle recommendations that are important for HTN management. The chapter will also describe the prevalence of HTN in Asia and Pakistan and present the rationale, aim and objectives of the study.

Hypertension (HTN) - or high blood pressure is a chronic medical condition characterised by an elevated blood pressure in the arteries. Blood pressure is the force of blood that is pushed against the wall of arteries as it flows through them. The more pressure the blood exerts on the artery walls the higher blood pressure becomes. Blood pressure is expressed by a maximum and minimum arterial pressure which is termed as systolic and diastolic pressure. HTN is defined as systolic blood pressure ≥ 140 mmHg, diastolic blood pressure ≥ 90 mmHg and is diagnosed if the blood pressure is at or above 140/90 mmHg at three consecutive readings (James et al., 2014). These guidelines regarding HTN diagnosis are proposed by the British Hypertension Society, the National Institute for Health and Clinical Excellence (NICE), the International Society of Hypertension and the Sixth Report of Joint National Committee (6-JNC) (Kjeldsen et al., 2014).

HTN is divided into two types:

- Primary or essential
- Secondary

HTN associated with another medical condition such as heart failure, renal disease or organ failure is termed as secondary HTN. Effective treatment of secondary HTN often involves control of both the underlying condition and high blood pressure, which reduces the risk of serious complications such as kidney failure and stroke (Barrett et al., 2009; Cappuccio & Miller, 2016). A number of factors such as obesity, high alcohol intake, unhealthy diet, high salt consumption, smoking and a sedentary lifestyle are responsible for essential or primary HTN[1] (WHO, 2002; Kearney et al., 2005; Dhungana et al., 2016). It is reported that essential HTN accounts for 95% of all cases of the condition (Staessen et al., 2003; Forouzanfar et al., 2017) and this is what I will concentrate on in this study.

[1] Primary or essential HTN (in contrast to secondary hypertension caused by another disease entity) was defined in the Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of Hypertension (JNC-7) as a systolic (top) measurement greater than 139 and a diastolic (bottom) measurement greater than 89 (Chobanian, 2003).

1.1 HTN and Cardiovascular Disease

Hypertension is a strong and independent risk factor for cardiovascular disease (CVD) (Franklin & Wong, 2013; Stewart et al., 2017; Kjeldsen, 2018). Evidence shows that HTN is a silent killer that gradually damages the blood vessels, heart, brain and kidneys if it remains undetected and untreated (Moore, 2005; Mensah, 2016). Prolonged high blood pressure can cause long-term morbidity due to CVD and coronary heart disease (Miura et al., 2001; Lawes et al., 2008; Stevens et al., 2016).

HTN is identified as the third risk factor for disability-adjusted life years and the leading cause of death worldwide (Chockalingam et al., 2006; WHO, 2011; Bromfield & Muntner, 2013). According to the World Health Organization (WHO), due to increases in the global population, the number of people with uncontrolled HTN rose from 600 million in 1980 to nearly 1 billion in 2008 (WHO, 2013). Likewise, Cappuccio and Miller (2016) highlighted that due to an increased prevalence of HTN, CVD accounts for approximately 17 million deaths a year globally and 80% of these deaths occur in low and middle-income countries.

Studies have shown that a reduction in blood pressure lowers the risk of CVD and other vascular complications such as myocardial infarction, heart failure and kidney disease (Ibrahim & Damasceno, 2012; Kintscher, 2013; Forouzanfar et al., 2017; Karmali et al., 2018). Burrows and Muller (2007) have indicated that by controlling high blood pressure, the risk of stroke can be reduced by 35-40%, the risk of myocardial infarction (heart attack) by 20-25% and the risk of heart failure reduced by 50%. Therefore, prompt detection and control of high blood pressure is essential to reduce HTN-related risks for CVD and renal morbidity and mortality.

1.2 Treatment of HTN

Antihypertensive drugs and lifestyle recommendations are indicated as treatments for all patients diagnosed with HTN (James et al., 2014). Antihypertensive medication was first used in the 1960s. This was further encouraged and supported with HTN-related advancements in the medical industry and as a result of these, the availability of cost-effective antihypertensive drugs (Saklayen & Deshpande, 2016). The commonly used antihypertensive drugs prescribed today are effective but also may have adverse side effects such as irregular heartbeat, headache, muscular weakness and sleep disturbance.

The Joint National Committee on HTN for detection, control and treatment of HTN has also highlighted that patient non-adherence to hypertensive drug therapy is a major problem in HTN control (Chobanian et al., 2003; Nguyen et al., 2010). It is therefore important to understand that compliance to treatment not only involves taking the prescribed drugs but also adherence to the recommended lifestyle changes which are an essential part of HTN treatment. It is useful to present details on Pakistan to assist the reader in understanding the social, cultural and religious context of the country before discussion of HTN and lifestyle factors that influence the condition.

1.3 Pakistani Context

Pakistan is the second largest South Asian country with a population of 156 million and is the sixth most densely populated country in the world (Anwar et al., 2012; World Development Indicators, 2013; Cassidy, 2018). The country is surrounded by Iran and Afghanistan to the west, China to the north, India to the east and the Arabian Sea to the south (Fig 1.1).

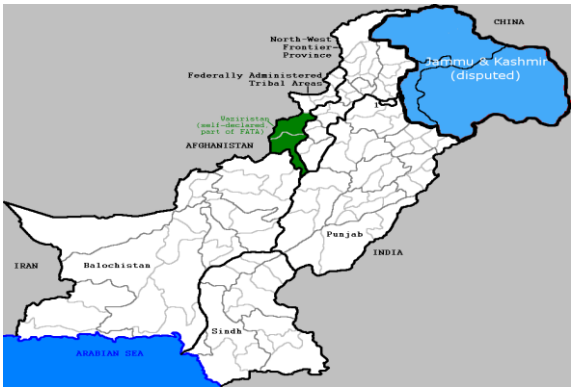

Fig 1.1 Map of Pakistan showing boundaries and subdivisions (Wikimedia Commons, 2018)

Pakistan is divided into four provinces, namely: Punjab, Sind, North-West Frontier Province (NWFP) and Baluchistan. In addition, a large area is federally administered, comprised of the tribal areas, Northern Areas, Islamabad Capital Territory and the state of Azad Jammu and Kashmir. At the time of independence, Pakistan and India planned to make Kashmir a component of their respective unions and the former princely state became a disputed territory (Sattar, 2003; Bose & Jalal, 2004). Consequently, Pakistan's relationship with the neighbouring country India has been beset by hostility and suspicion (Misra, 2010; Kelman et al., 2018). The national language of Pakistan is Urdu, however, many public officials also speak English (Khalique, 2007; Bughio, 2014). English is referred to as the informal official language of Pakistan. While Urdu is common throughout the country, several other languages such as Punjabi, Sindhi, Pushto, Balochi, Pothwari and Saraiki are also spoken in particular areas (Malik, 2002; Khalique, 2007; Liljegren & Akhunzada, 2017). The Islamic republic of Pakistan has a culture that encompasses religion, traditions and norms significant for the people who live there; Pakistani culture and its social values revolve around the values of Islam (Haleem, 2013; Cassidy, 2018).

Pakistan is a Muslim country and Islam governs the personal and social lives of 97% of the Pakistani population (Haleem, 2013; Zaman et al., 2018). Pakistani Muslims along with other Muslim populations believe that Allah is the creator of everything in the universe and has control over life and death. This concurs with the Islamic view that health can be defined as a state of physical, psychological, social and spiritual well-being and is perceived as one of the greatest blessings God has bestowed on humankind (Rassool, 2015). In the Pakistani context, where religious culture is dominant in society, a tendency towards spirituality is seen as having an impact on health.

Despite the modernisation of Pakistani society, social norms revolve around the teachings of Islam and are highly influential in people's lives (Burki & Ziring, 2017). However, certain norms

are interwoven into the culture and people find it difficult to distinguish between the two. For example, the traditional joint or extended family system is the norm in Pakistan where people share a common residence and system of mutual obligations (Itrat et al., 2007). Parents are the most respected family members and serving them is considered a religious and social obligation for the younger generation, particularly for sons and daughters (Critelli, 2012; Zaman et al., 2018).

Pakistani families are led by a male who makes decisions for the entire family. Women have clearly defined, largely inflexible roles and constitute only one fourth of the country's labour force (Sarwar & Abbasi, 2013). The majority of women are economically dependent on men and this dependency gives a greater level of control to men over decision-making (Fikree & Pasha, 2004; Ali et al., 2011). In Pakistani society, women are generally considered to take responsibility for the household, childcare and are primary carers for elderly family members (Rabbani et al., 2008; Zarar et al., 2017; Bukhari et al., 2018). A low priority is given to women in terms of their basic education and health status in rural areas of Pakistan (NIPS, 2008).

Overall, half of the Pakistani population (66%) live in rural areas of the country and poverty coupled with illiteracy, unpaid jobs and unequal human rights have had a deep impact on health indicators (WHO, 2007). Every sector of Pakistani society is being affected by poverty, overpopulation, corruption, nepotism, income inequality, political instability and energy crisis (Islam, 2004; Niaz, 2010; Anwar et al., 2012). Such a complex and pervasive picture of issues has not only impacted society but also increased the burden of various health conditions such as malnutrition in children, high maternal mortality, high neonatal mortality and increased prevalence of chronic diseases (Shaikh & Hatcher, 2005; Roshan et al., 2018).

1.3.1 An overview of the situation regarding HTN in Pakistan

Pakistan, like many other developing countries is passing through a demographic transition. The total population of Pakistan is over 156 million and displays one of the worst health profiles in South Asia, due to a high population growth rate as a result of sustained fertility, declining mortality and the dual burden of communicable and non-communicable diseases (Hussain et al, 2009; Wasay & Jabbar, 2009; Anwar et al., 2012). However, according to the National Health Survey which was conducted through a collaboration of the Pakistan Medical Council and the Pakistan Federal Bureau of Statistics it was estimated that 18% of adults and 33% of the population above 45 years old had HTN (NHSP, 1998). It has been reported that HTN prevalence is 22% in the urban Pakistani population and higher than in the rural population possibly due to sedentary lifestyles (NHSP, 1998; Aziz et al., 2005).

A sedentary lifestyle may be more likely to develop in urban areas due to an extensive use of automobiles, greater use of computer screens and time spent watching television and a higher consumption of junk food (Din, 2014). Moreover, urbanisation in Pakistan is occurring at a rapid rate, which is accompanied by better job availabilities and an improved economy. Aziz et al. (2005) have also highlighted that factors such as obesity, smoking and sedentary lifestyles are the main contributors to the increasing prevalence of HTN in Pakistan. By contrast, another cross-sectional study has shown that inadequate knowledge about the disease is a factor for uncontrolled HTN in Pakistan (Almas et al., 2012). However, this study

has not indicated whether inadequate knowledge about the disease or about treatment adherence leads to poor control of HTN. Patient perceptions regarding management of HTN including preventative factors affecting the control of the disease such as diet, exercise and smoking have not been studied in depth amongst the Pakistani hypertensive population. According to Saleem et al. (2011) there is inadequate data available on HTN and therefore the knowledge amongst patients in Pakistan about the disease and its associated risk factors is limited.

A particular challenge in disease management is related to the delivery of healthcare services in Pakistan (Saleem et al., 2010; Arshad et al., 2016). The Pakistani public healthcare system is beset with numerous issues such as structural fragmentation, scarcity of resources, inefficacy and lack of functional capacity (Shaikh & Hatcher, 2005; Shaikh et al., 2010). Therefore, it is imperative to understand how the healthcare system is structured in Pakistan.

1.3.2 Healthcare system in Pakistan

The healthcare system in Pakistan comprises of the public and private sector (Ghaffar et al., 2000). The public healthcare system comprises of primary, secondary and tertiary levels and every patient is entitled to free healthcare services. The primary level is for the rural population and consists of Basic and Rural Health Units (BHUs and RHUs). The secondary level of healthcare consists of Tehsil[2] and District Headquarter Hospitals (THQH, DHQH) and provides diagnostic and preventative care to the urban population. The tertiary level of care consists of super specialist hospitals associated with medical colleges and provides care to the urban population.

The nationwide network of health services consists of 4,616 BHUs, 482 RHUs and 796 public hospitals (Shaikh & Hatcher, 2005; Arshad et al., 2016). However, the utilisation of BHUs is generally low due to lack of facilities and staff absenteeism (Usman et al., 2015; Shah et al., 2016). Other than BHUs, some basic health services are also delivered by Lady Health Workers (LHWs) including child and maternal health-related messages, some medicines such as oral rehydration salt, and contraceptives. LHWs are attached to the local health facilities (BHUs or RHUs) from which they receive training and serve the female population (Ejaz et al., 2011; Wajid et al., 2013). However, due to the absence of supervision and training, LHWs often fail to guide patients appropriately (Afsar et al., 2003; Arshad et al., 2016).

There is no proper follow-up system available for patients and a vast number of individuals directly approach the urban hospitals for treatment (Khowaja et al., 2009). As a result, this increases the workload for the healthcare facility teams in urban hospitals. The private healthcare is a fee-for-service system and therefore not within the reach of every person. The private health sector serves 70% of the population through a diverse group of healthcare team members to provide health services (Shaikh & Hatcher, 2007; Anwar et al, 2012). The private health sector has demonstrated a great deal of responsiveness in terms of flexible access, shorter waiting times and understanding patients' healthcare needs (Irfan & Ijaz,

[2] Tehsil is the sub-division of a district.

2011; Kumar & Bano, 2017). Yet, the sector is working independently and due to the absence of any regulatory mechanism, their quality of service is often variable (Shaikh & Hatcher, 2005).

The private sector comprises of regulated hospitals and unregulated hospitals, unregistered medical doctors and informal healthcare providers such as Hakeem[3], Homeopaths, spiritual/faith healers, Traditional Birth Attendants (TBAs), herbalists and quacks[4] (Ejaz et al., 2011; Arshad et al., 2016; Kumar & Bano, 2017). Most of these informal healthcare providers are practicing without any formal qualification, training and certification in Pakistan (Shaikh & Hatcher, 2005). Many efforts have been made by the Ministry of Health to eradicate uncertified informal healthcare providers and quacks, however, they are still on the rise (Farmer, 2019).

The healthcare system in Pakistan lacks a Health Management Information System (HMIS) in the public health sector and has no well-defined policy and plans for technology implementation and infrastructure development (Punjani et al., 2014; Kurji et al., 2016). The country failed to achieve the goals of 'Health for All' established in the Alma Ata Declaration and was unsuccessful in attaining Millennium Developmental Goals (MDGs) 2015 (Ali & Horikoshi 2000; Kurji et al., 2016; Rasanathan et al., 2017). The Ministry of Health failed to carefully allocate the available resources amongst the rural and urban populations due to frequently changing authorities and deeply embedded corruption (Gohar Wajid & Al Massoud, 2002; Khan & Van den Heuvel, 2007). Management responsibilities for healthcare are divided between the federal, provincial and district governments, however, political instability and limited administrative authorities have weakened the accountability of performance and delivery of service (Ali & Horikoshi, 2000; Arshad et al., 2016). Previously, provincial governments were responsible for health financing but now as a result of political and administrative decentralisation district governments are empowered as central financial intermediaries.

A further challenge faced by the healthcare system in Pakistan is in the arena of human resources. It is estimated that annually 1,000 -1,500 doctors leave the country and only 10-15% return after spending time abroad (Tahir et al., 2011; Higher Education Commission Pakistan, 2019). Additionally, medical institutes in Pakistan are not producing sufficient numbers of doctors to implement the standardised WHO criteria of the doctor-patient ratio (1:300) in the country (Aly & Taj, 2008; Tahir et al., 2011). There are inadequate opportunities for doctors in the fields of research, public health and professional development in Pakistan and this sometimes encourages them to migrate to foreign countries (Shaikh et al., 2010). Likewise, dentists, nurses and pharmacists are also in insufficient numbers as compared to the population rate and the existing professionals are often underpaid (Astor et al., 2005; Talati & Pappas, 2006; Kurji et al., 2016).

[3] A person who practices traditional medicine

[4] A person claimed to be skilled in medicine but who is not trained

The government acknowledges in its National Health Policy (2001) that good governance is the key to attaining the quality of care, however, the government fails to provide opportunities for good governance in Pakistan (Khan & Van den Heuvel, 2007; Kumar & Bano, 2017). Although the Ministry of Health has strategised by appointing more doctors, support staff and increased the medical budgets of the government hospitals, little implementation of this has been seen to date (Bashrat & Shaikh, 2011; Kurji et al., 2016; Khalid & Abbasi, 2018). The government of Pakistan provides free healthcare to the population although no attention has been given to monitoring the quality of healthcare services according to international standards, or to providing patients with a greater awareness of how to control the burden of HTN. The next section will focus on another aspect of HTN treatment, that of lifestyle recommendations.

1.4 HTN and Lifestyle Recommendations

Lifestyle recommendations, modifiable risk factors or lifestyle changes, previously termed as non-pharmacological therapy, play a vital role in better health outcomes in hypertensive and non-hypertensive individuals (Appel, 2003; Baena et al., 2014; Vamvakis et al., 2017). In hypertensive patients, lifestyle changes can serve as an initial treatment before the start of drug therapy and as an adjunct to drug therapy in persons already on medication (Dickinson et al., 2006; Gupta & Guptha, 2010). Research has shown that lifestyle change is a cornerstone of HTN management once HTN is first diagnosed, with or without starting antihypertensive medication (Elhani et al., 2009; Mahmoud, 2012).

Moreover, lifestyle changes have the potential to prevent the onset and lower the risk of HTN-related cardiac complications (Appel, 2003; Poirier et al., 2006; WHO, 2013). Therefore, it is imperative to understand that non-adherence with lifestyle recommendations can nullify the effects of the optimum treatment plan.

1.4.1 Exercise

Regular exercise has been shown to be beneficial for both prevention and treatment of HTN (Blair et al., 2012; Diaz & Shimbo, 2013; Wasfy & Baggish, 2016; Williams et al., 2018; Rêgo et al., 2019). Additionally, it has been reported that exercise reduces the risk of cardiovascular complications and coronary artery disease amongst hypertensive patients (Lee et al., 1997; Williams, 2001). With specific regard to HTN exercise has been advocated to be beneficial by a number of organisations including the American College of Sports Medicine, the American Heart Association, the National Institutes of Health, the Centres for Disease Control and Prevention and the Surgeon General of the United States (Wallace, 2003).

Evidence supports that exercising as little as (15 minutes) one day per week is effective for lowering high blood pressure amongst patients (Brown et al., 2013). Hayashi et al. (1999) in a prospective cohort study found that for every 26.3 Japanese men who walk more than 20 minutes to work, one case of HTN will be prevented. Similarly, meta-analysis of three

randomised controlled trial studies have concluded that 30 minutes or less of aerobic exercise per day lowered blood pressure by 5-6mmHg amongst hypertensive patients (Pescatello et al., 2004; Cornelissen & Fagard, 2005; Cornelissen & Smart, 2013). Shorter exercise bouts throughout the day (i.e. 10 minutes to total 30 minutes or more) have appeared to be the beneficial option amongst hypertensive patients who have a busy routine (Angadi et al., 2010; Powell et al., 2011; Faselis et al., 2012).

However, exercise carries some risks such as musculoskeletal injury (Hootman et al., 2002) that increases with type, duration and volume of exercise (Prentice & Voight, 2001; MacAuley & Best, 2002). The general principle that the volume of exercise should be increased gradually over time is regarded as critical for reducing injury risk amongst patients (Thompson et al., 2003; Melzer et al., 2004; Carlin et al., 2016). Walking is suggested as the standard example of low-risk activity in the literature (Macera et al., 2003; Warburton et al., 2006; Thompson et al., 2003; Lee & Buchner, 2008; Wolszakiewicz et al., 2015). Nevertheless, from the above-mentioned studies, it is reasonable to suggest that the risk involved in exercise is outweighed by its overall benefits in controlling HTN. However, multiple aspects such as duration, intensity and frequency are important attributes to consider in patients when recommending exercise (Hootman et al., 2002; Wasay & Baggish, 2016).

1.4.2 Diet

An unhealthy diet is one of the important modifiable risk factors in the development of HTN (Appel et al., 2006; WHO, 2013; Pilakkadavat & Shaffi, 2016). A healthy diet implies consumption of fruits, vegetables, whole grains, low-fat dairy products, fish and olive oil or vegetable oils for cooking and a reduced intake of red meat, saturated fats, hydrogenated fat and salt (Clark et al., 2011; Olinto et al., 2012). An increasing body of research has examined the relationship between dietary patterns and the risk of developing HTN using dietary pattern analysis (Nowson et al., 2004; Shin et al., 2013; Safdar et al., 2015; Zheng et al., 2016). High intakes of fruits, vegetables, cereals, fish, nuts, low-fat dairy products and poultry in addition to relatively low intakes of fat and sugars appeared to be effective in lowering blood pressures and controlling HTN (Lee at al., 2010; Shin et al., 2013; Chiu et al., 2016).

Since HTN is a cardiovascular disease risk factor, several prospective cohort studies in a range of populations have shown associations between unhealthy dietary patterns and CVD (Landray et al., 2002; Shimazu et al., 2007; Shin et al., 2013). It has been suggested that a diet rich in saturated fats is considered an important risk factor for developing HTN and CVD (Azadbakht et al., 2007; Nettleton et al., 2017). Straznicky et al. (1993) for example, reported increased blood pressure and heart rate in healthy participants after consuming a high-fat diet compared with a low-fat diet in a two weeks crossover study. In a seminal study, Jakulj et al. (2007) found that systolic and diastolic blood pressure was high in participants following the consumption of a high-fat meal relative to a low-fat meal. Some researchers have particularly focused on the effect of the intake of individual foods and nutrients in developing HTN (Appel 2003; Appel et al., 2005; Shimazu et al., 2007; Zheng et al., 2016).

However, due to the complex nature of the relationship between diet and pathology with specific regard to HTN it is not possible to ascribe this to a single food or nutrient but rather to a mix of multiple foods and nutrients (Wang et al., 2010). Furthermore, studies (Wang et al., 2008; Sacks & Campos, 2010) evaluating the risk posed by a single nutrient for HTN do not allow one to consider the effect of the diet as a whole due to the collinearity of nutrients within foods. Therefore, this creates difficulty in detecting smaller effects of individual foods and nutrients on disease outcome. For example, in the European Prospective Investigation into Cancer and Nutrition (EPIC)-Potsdam Study of 8,552 hypertensive women, no significant difference was found between fat versus sugary dietary patterns and HTN (Schulze et al., 2003). It might be possible that certain factors such as regular exercise had reduced the effects of high fat and sugar intake amongst patients, however, the study failed to provide further information.

1.4.3 High salt consumption

The amount of dietary salt consumed is an important determinant of blood pressure levels and constitutes a risk factor for HTN (Conlin, 2007; He & MacGregor, 2009; Rasheed et al., 2014). A daily intake of less than 2 grams of sodium per person is recommended by the World Health Organization (WHO) to reduce the risk of developing HTN (WHO, 2007). Numerous experimental and observational studies have confirmed the association of high salt consumption with HTN (Michael, 2002; Gu et al., 2008; Alderman & Cohen, 2012; Yuan et al., 2016; Chrysant, 2016).

A subsequent study by The Trials of Hypertension Prevention Collaborative Research Group has identified that reduced sodium intake lowers blood pressure in addition to the possible reduction of long-term cardiovascular events (Cook et al., 2007). Similarly, some clinical trials and population-based studies have shown that reducing salt intake at the population-level is associated with a reduction in rates of HTN and that such strategies are cost effective in managing HTN (Asaria et al., 2007; Strazzullo et al., 2009; Miura et al., 2001; He & MacGregor, 2013). Given the adverse impact of excessive salt consumption on health and particularly on blood pressure levels and CVD, WHO has urged nations to take action to reduce population-wide wide dietary salt intake to decrease the number of deaths from HTN and CVD (He & MacGregor, 2009; Ha, 2014).

1.4.4 Smoking

Smoking is considered one of the important causes of HTN and developing CVD amongst patients (NICE, 2011; Gao et al., 2017; WHO, 2019). Tobacco contains nicotine, a powerful addictive drug and tar-a carcinogenic agent, whilst carbon monoxide decreases oxygen supply to the body, all of which, increases heart rate and blood pressure (Le Moal & Koob, 2007; Farsalinos et al., 2016). Nicotine acts as an addictive substance and can produce toxic effects on the cardiovascular system (Carpenter et al., 2007; Mishra et al., 2015). Evidence supports that cigarette smoking causes various adverse cardiovascular events and increases the risk of

coronary artery disease (Ohira & Iso, 2013; Kim et al., 2016; Omboni et al., 2016). A randomised controlled trial in urban areas of Pakistan found that the prevalence of multiple CVD risk factors are present amongst smoker hypertensive patients and they were at high risk of developing CVD mortality (Qamar et al., 2008). Similar results have been shown in a systematic review in Iran that found smoking as the most common risk factor for developing CVD amongst patients (Mohseni et al., 2017).

It has been reported that hypertensive patients who smoke develop a severe form of high blood pressure called malignant HTN which causes organ damage (Mensah et al., 2003; Addo et al., 2009; Virdis et al., 2010). A 14-year longitudinal cohort study in Japanese males has revealed that smoking is independently related to the onset of HTN (Suwazono et al., 2008). On the other hand, a cross-sectional study conducted in Iran evaluated that a high prevalence of HTN was associated with increased consumption of cigarettes and that this in turn decreased the effectiveness of HTN medication (Abtahi et al., 2011). Similar results have been found in a prospective study that identified that cigarette smoking reduces the effects of antihypertensive drugs in hypertensive patients due to the presence of nicotine metabolites in the blood of smokers (Matsui et al., 2005). Furthermore, in some cross-sectional studies, the amount of cigarette smoking is correlated to the stage and frequency of the increase in blood pressure (Okubo et al., 2002; Okubo et al., 2004; Thuy et al., 2010; Li et al., 2017; Wu et al., 2018).

Smoking cessation improves overall health and reduces the risk of heart disease and stroke, however, the risk for CVD remains elevated for approximately a decade after discontinuation (Burns, 2003; Buttar et al., 2005). For example, Wiggers et al. (2003) highlighted that after one year of smoking cessation, the risk of CVD may be reduced by greater than 50% and within several years of discontinuation the risk returns to that of life-long abstainers. However, sustained health benefits and a decrease in blood pressure can be achieved by quitting smoking as the results of above-mentioned studies suggest. Thus, like other lifestyle changes, it is critical that people with raised blood pressure are advised to stop smoking for good health outcomes and controlled blood pressure.

1.4.5 High alcohol intake

There is a general consensus on the detrimental effects of heavy alcohol consumption on blood pressure (Fuchs et al., 2001; Panagiotakos et al., 2007; Jaubert et al., 2014). There have been some systematic reviews and meta-analyses of studies that show the association between consumption of alcohol and aggregated cardiovascular disease (Chen et al., 2008; Brien et al., 2011; Fernández-Solà, 2015). A positive association between alcohol consumption and increased blood pressure has been described in a number of population studies (Fuchs et al., 2001; Nakanishi et al., 2001; Skliros et al., 2012; Cho et al., 2015; Kwon et al., 2016).

According to the quantity of alcohol intake, the alcohol consumption can be classified into light to moderate (≤2 drinks/day, 30ml ethanol) and excessive (≤3 drinks/day, 45ml ethanol) alcohol consumption (Abel et al., 1998; Brenner et al., 2017). Similarly, four cross-sectional

and prospective studies have revealed the deleterious effect of higher alcohol consumption on HTN prevalence (Nakanishi et al., 2001; Ohmori et al., 2002; Klatsky, 2004; Saremi et al., 2004). A meta-analysis of 15 randomised controlled trials in which the only intervention was alcohol reduction between the active and control groups stated that a reduction in alcohol consumption lowered systolic and diastolic blood pressure (Xin et al., 2001).

Although heavy alcohol consumption has been clearly associated with increased blood pressure, the effects of light-to-moderate alcohol consumption on blood pressure are still controversial with conflicting results obtained in different populations (Wakabayashi, 2008; Cho et al., 2015). Some authors have speculated that ingestion of smaller quantities of alcohol may reduce blood pressure (Okubo et al., 2001; Sesso et al., 2008; Bello et al., 2010). In contrast, a study that examined the risk of cardiovascular sequelae separately in heavy drinkers, light drinkers and abstainers found that negative outcomes were progressively higher for increasing blood pressure across all alcohol consumption categories (Klatsky et al., 2006). This indicates that the negative effects of alcohol truly matter for hypertensive patients and therefore a patient with HTN who is a light, moderate or heavy drinker should be strongly motivated to reduce his or her alcohol intake in order to control HTN. The results of the above-mentioned studies clearly show that lifestyle interventions help to control HTN, and, if adopted can reduce the need for drug therapy and favourably decrease the risk of developing cardiovascular risk.

Particular attention has been paid to lifestyle recommendations and treatment compliance in developed countries (Middleton et al., 2013; Modesti et al., 2015; Zhou et al., 2017). However, almost three-quarters of people with HTN (639 million people) live in developing countries (Chockalingam et al., 2006; Zhao et al., 2012). Kearney et al. (2005) reported that the prevalence of HTN is increasing in developing countries and is predicted to grow by more than 500 million in 2025. According to Ibrahim and Damasceno (2012), developing countries in South Asia are experiencing an 'epidemiologic transition' in which the causes of death are shifting from primarily infectious diseases to non-communicable diseases. The concomitant decline of infectious diseases has enhanced the proportional disease burden due to increase in diseases such as HTN and subsequent CVD.

1.5 Rationale for the Study

HTN is a global public health problem and is identified as the third most common risk factor for disability-adjusted life years (WHO, 2002; Chockalingam et al., 2006; Kearney et al., 2005; Murray et al., 2007; Forouzanfar et al., 2017). HTN causes 7.5 million deaths and accounts for 57 million Disability Adjusted Life Years (DALYs) worldwide (Danaei et al., 2011; Mohan et al., 2013; WHO, 2014). The high prevalence of HTN and inadequate blood pressure control has challenged public health around the world. The prevalence of HTN is very high in the South East Asian Region and one out of three adults is affected by it (Neupane et al., 2014; Castillo, 2016; Beaney et al., 2018).

As highlighted earlier (section 1.3.1), Pakistan is facing a double burden of disease and as a result of this, the burden of non-communicable chronic diseases such as HTN, heart disease and diabetes are rising sharply. It has been reported that chronic diseases are projected to account for 42% of all deaths in Pakistan and one in four adults over the age of 18 years is hypertensive (Jafar et al., 2013; Vos et al., 2016; WHO, 2019). The National Health Survey of Pakistan (NHSP) reported that only 50% of the individuals with HTN in Pakistan are diagnosed with the condition and only half of those diagnosed are ever treated (Saleem et al., 2010; Chow et al., 2013; Shafi & Shafi, 2017; Mehmood et al., 2018).

The duration of chronic diseases such as HTN can have a major influence on the individual experience of disease management as well as on individual functional capacity[5] (Bhatti et al., 2011; Megari, 2013; Sharman et al., 2015; McPhail, 2016). The central characteristics of most chronic conditions are that these are often permanent, progressive and can be debilitating. However, chronic conditions such as HTN can be stabilised with an effective management regime (Kim et al., 2015; Williams et al., 2018). HTN is one of the most preventable causes of premature morbidity and mortality (Kearney et al., 2005; Pereira et al., 2009; Mills et al., 2016) and its prevention is the common intervention (WHO, 2002; Vamvakis et al., 2017). Moreover, morbidity, early deaths, medical care expenditures due to high blood pressure all take their toll on families, communities and the national budget.

The loss of income due to living with a life-long chronic disease such as HTN-related morbidity can be devastating not only for families but also leads to health inequalities due to poverty (Singer & Clair, 2003; Vellakkal et al., 2015; Mendenhall et al., 2017). Thus, there is a significant economic cost attached to lack of early detection, inadequate treatment and poor control of blood pressure. Early detection, improving treatment adherence and management of HTN could decrease the premature mortality (due to complications) leading to improved health, well-being and economic improvement (James et al., 2014; Kuate Defo et al., 2017). One major reason for the high rate of uncontrolled HTN is linked to patients' suboptimal treatment adherence in Pakistan (Saleem et al., 2011; Almas et al., 2012; Shafi & Shafi, 2017).

Another possible unexplored reason for the lack of effectiveness of HTN control in Pakistan may be lack of doctors' understanding of patient beliefs about HTN. Doctors play an important role in helping patients to manage their HTN (Schroeder et al., 2004; Chung et al., 2008; Hill et al., 2010; Kronish et al., 2012; Rahman et al., 2015). For instance, they can improve adherence to antihypertensive medications by prescribing a simple medication regime and can positively impact patients' management through understanding their patients' beliefs. However, doctors might assess a patient informed by their beliefs, knowledge, previous experience and disease signs without taking accounts of patients' personal or social values and experiences (Prior, 2003; Bramley & Matiti, 2014; Kennedy et al., 2017). Evidence supports that the perspectives of patients are often very different from those of doctors and are highly influenced by contextual factors (Epstein & Street, 2011; Marshall et al., 2012;

[5] An individual capacity to function effectively.

Rahman et al., 2015; Telfer, 2018; Lang et al., 2018). If these differences remain unacknowledged it can cause misunderstandings, bias decision-making and get in the way of the specific health needs of patients.

In Pakistan, there is a paucity of qualitative data focusing on patients' and doctors' understanding of HTN and its treatment. Qualitative studies that explore the detailed perceptions of patients regarding all aspects of HTN by taking account of socio-cultural context are limited. Likewise, doctors' understanding of HTN as a condition and issues influencing its treatment have been inadequately reported. Moreover, the existing research does not go far enough to explain how patients' and doctors' viewpoints may lead to unrealistic expectations with regard to disease management. The gap between doctors' and patients' common understanding of HTN may be especially large in public urban hospitals where the workload for doctors is quite high. Hence to fill this gap and to elicit patients' and doctors' perspectives about all aspects of HTN management and to address what may contribute to a greater understanding of patients' beliefs, an in-depth qualitative study is required.

Research and evidence-informed policymaking is scant in Pakistan (Tarin et al., 2009; Jooma & Sabatinelli, 2014; Zaidi et al., 2019). The findings of the current study will therefore contribute to the existing evidence on the understandings of two main stakeholders (patients and their doctors) about HTN management in Pakistan. Not only will this improve understanding of HTN beliefs and attitudes in Pakistan, but it will better inform policymakers and inform future culturally sensitive awareness campaigns. The findings will highlight the similarities and differences in patients' views, compared with those of doctors and identify any misperceptions that could be addressed when designing interventions for HTN control in Pakistan.

1.6 Research Question, Aim and Objectives of the Study

Research Question

What are patients' and doctors' perceptions, attitudes and beliefs regarding HTN and its treatment in urban areas of Pakistan?

Aim

This study aims to explore the perceptions, attitudes and beliefs of patients and their doctors regarding HTN and its treatment in urban areas of Pakistan.

Objectives

- To examine what is already known about patients' and doctors' understandings of HTN and its treatment in urban areas of Pakistan.
- To elicit hypertensive patients' perceptions, attitudes and beliefs regarding HTN and its medical and lifestyle management in urban areas of Pakistan.

- To elicit doctors' perceptions, attitudes and beliefs regarding HTN and its medical and lifestyle management in urban areas of Pakistan.

1.7 Structure of the Dissertation

This dissertation is divided into six chapters. Chapter two presents a systematic review and critically appraises the existing literature from Pakistan to address the first study objective. The chapter then discusses the broader literature around health beliefs followed by patients' and doctors' beliefs about HTN and its management, which informs the study's conceptual framework.

Chapter three outlines the methodological approaches used in the study and justifies the rationale for their use. The data collection tools, recruitment of study participants and how data were collected are explained. Translation, transcription and steps of data analysis used for the study are discussed in detail. Finally, the chapter presents a reflection on the research journey of the author.

The first of two findings chapters (chapter four), then presents the study findings related to patients' perceptions of HTN and their attitudes and approach towards HTN treatment. Chapter five presents study findings regarding doctors' perceptions about HTN, its treatment and the contextual factors considered to influence the adoption of lifestyle changes by patients.

Chapter six provides a discussion of the key findings that arose from the study in relation to other available evidence and in line with the study's conceptual framework that focuses on health beliefs. The chapter also describes possible implications for practice and policy arising from the study and offers suggestions for future research and a reflection on the strengths and limitations of the study. The dissertation concludes by summarising the study's contribution to knowledge regarding HTN and its management in Pakistan.

Chapter 2: Literature Review

This chapter is divided into two main parts. To address the first study objective, the systematic review examines the existing body of knowledge on HTN understanding amongst patients and doctors in Pakistan. The first section (2.1) begins by providing the rationale for carrying out a systematic review and the second section (2.2) describes the review protocol, tools and inclusion criteria used to identify relevant studies. Section 2.3 will provide a critique of the studies from Pakistan identified in this review. The next two sections (2.4) and (2.5) will present the themes that emerged from the review related to patients' and doctors' understanding about HTN and the gaps identified in the literature are discussed in section 2.6. The second part of the chapter (2.7) sets out a review of the literature covering a broader range of areas that provided a conceptual framework for this study.

2.1 Rationale for Systematic Review

A systematic literature review is a means of identifying, evaluating and interpreting all available research relevant to a research question, topic area or phenomenon of interest (Petticrew & Roberts, 2008; Boland et al., 2013). The systematic review includes a critical synthesis of research evidence that involves analysis of all available and relevant evidence in a systematic, objective and robust manner (Bruce & Mollison, 2004; Smith & Noble, 2016). Therefore, in the hierarchy of evidence-based medicine, systematic reviews are considered the best method for identifying existing evidence (Aslam & Emmanuel, 2010).

The common reasons for undertaking a systematic review are:

- To summarise the existing evidence based on the review question.
- To identify any gaps in current research and suggest areas for further investigation.
- To provide a background to appropriately position new research activities (Gopalakrishnan & Ganeshkumar, 2013).

One of the study objectives was to examine what is already known about the understanding of patients and doctors regarding HTN and its treatment in Pakistan. Therefore, the purpose of this review is to identify the primary studies relevant to the review question, critically appraise and assess methodological limitations of the available studies, highlight the emerging themes and identify the gaps in literature to guide the inquiry. In systematic review, reviewers follow a strict protocol to ensure that the review process undertaken is transparent with minimum bias or errors (Holly et al., 2012; Charrois, 2015). Reviewers start by defining a review protocol that specifies the research question being addressed and inclusion/exclusion criteria to assess each potential primary study. Therefore, the following section will present the review protocol used in this study.

2.2 The Review Protocol

The first step during this review was to formulate a clear question: what is known about patients' and doctors' understanding of HTN and its treatment in Pakistan?

Following formulation of the research question, a search strategy was planned. Inclusion and exclusion criteria were set, terms and key words were developed, and relevant databases identified.

2.2.1 Inclusion and exclusion criteria

Inclusion criteria for the review were as follows:

- Studies must contain data on hypertension and its treatment in a Pakistani population
- Studies must be conducted in Pakistan
- Studies must be primary research studies
- Studies must be published from 1990 to 2019

The exclusion criteria were applied as follows: 'not about HTN', 'not in Pakistan', 'not a primary study'. Pakistani journals are written in English and therefore searches were not conducted in other languages.

2.2.2 Search strategy

The databases searched were Global Health, Medline and Scopus. Global Health is a specialized public health database that contains details of international health research and literature mainly from developing countries that is not covered by other databases. Medline provides biomedical literature from a range of sources, covers 4,800 journals and contains information of relevance to healthcare providers and researchers. Scopus is a bibliographic database which includes citations and abstracts for academic journal articles within the field of the social sciences.

In addition, the following extensive lateral search techniques were also used:

- Scanning reference lists of relevant articles
- Searching of grey literature (for example, WHO, Health Department of Pakistan, National Institute of Health Pakistan, Pakistan Hypertension League, Health Services Academy, Pakistan)

The following terms and key words were searched using Boolean operators: (Hypertension* OR High blood pressure) AND (Understanding* OR Perception* OR Belief* View* OR Interpretation*) AND (Patient*) AND (Doctor* OR Medical Practitioner) AND (Treatment* OR Therapy* OR *Management) AND (Pakistan* OR South Asia*).

Literature was searched from 1990 onwards as the National Health Survey of Pakistan (NHSP) conducted during 1990-94 reported high rates of HTN prevalence in Pakistan. Prior to this there was no national data on the prevalence of HTN in Pakistan (Shafi & Shafi, 2017). The titles and abstracts of the papers identified were screened against the inclusion and exclusion criteria. Full papers of potentially relevant articles were then obtained and further screening excluded papers that did not fit. A complete search strategy for the literature review with a PRISMA style flow diagram has been included to present how the selected studies were screened and identified (see Appendix 1). A table of included studies detailing the authors, aim, method, sample, location and key findings is listed in Table 2.1 (see Appendix 2).

A data extraction tool was developed based on the Centre for Review and Dissemination (2008) guidelines and used to retrieve necessary information about study characteristics and findings. The data extraction headings were as follows: author(s), year of publication, journal, article title, study aim and objectives, research question, study design, sampling method, sample information, sample size, data collection method, data analysis, key results, study limitations and conclusions.

Following data extraction, the methodological quality and rigour of the included studies was assessed by using The Critical Appraisal Skills Programme (CASP) quality assessment tool for qualitative studies and the National Heart, Lung and Blood Institute (NHLBI) quality assessment tool for cross-sectional studies (NHLBI, 2017; CASP, 2018). These tools are widely used for assessment of the methodological quality of qualitative and cross-sectional studies in systematic reviews (Wardle & Roseen, 2014; Koppen et al., 2016; Smith & Noble, 2016; Rosário et al., 2018). An appraisal checklist by using CASP and NHLBI quality assessment tools to appraise the selected studies has been attached (see Appendix 3i and 3ii).

2.3 Results from the Review

A total of 21 studies (Appendix 1) that met the inclusion criteria are included in the review (Jafar et al., 2005; Almas et al., 2006; Ashfaq et al., 2007; Hashmi et al., 2007; Ahmed et al., 2008; Ladha et al., 2009; Rehman et al. 2011; Saleem et al., 2011; Almas et al., 2012; Saleem et al., 2012; Aslam et al., 2013; Khan et al., 2014; Bilal et al., 2015; Hussain et al., 2015; Khan et al., 2015; Gowani et al., 2016; Qamar et al., 2016; Malik et al., 2016; Ishtiaq et al., 2017; Murad et al., 2017; Legido-Quigley et al., 2019).

2.3.1 Analysis of included studies

The review identified four qualitative studies that were related to patients' views of HTN treatment and management in Pakistan (Saleem et al., 2011; Saleem et al., 2012; Gowani et al., 2016; Legido-Quigley et al., 2019). Of these four studies, two were carried out in Quetta (Saleem et al., 2011; Saleem et al., 2012) capital and the largest city of Baluchistan, and two conducted in two cities of the Pakistani province Sindh (Gowani et al., 2016; Legido-Quigley et al., 2019). All four studies were published between 2011 and 2019 in peer-reviewed journals and used semi-structured interviews or focus group discussions.

For the four qualitative studies, the quality score ranged from 5-7. The quality score for the Legido-Quigley et al. (2019) study was seven and the highest amongst all the studies due to reliability and the use of appropriate qualitative methodology. Legido-Quigley et al. (2019) captured the views of hypertensive patients (n=60) living in rural areas of three South Asian countries (Bangladesh, Pakistan, Sri-Lanka). However, a limitation of the Legido-Quigley et al. (2019) study was a failure to provide justification of inclusion criteria used for the study participants and not reporting information about the exclusion criteria. Likewise, Gowani et al. (2016) did not report justification for the inclusion criteria used and failed to describe the exclusion criteria for the study sample. In two qualitative studies (Saleem et al., 2011; Saleem et al., 2012) researchers did not describe their qualitative data analysis methods and therefore it is difficult to verify how robust the analysis of the data was. In general, the four

qualitative studies (Saleem et al., 2011; Saleem et al., 2012; Gowani et al., 2016; Legido-Quigley et al., 2019) clearly reported their study aims and gave adequate descriptions of data collection methods, however, except for the Legido-Quigley et al. (2019) study there was no evidence of using a conceptual framework, justification of research design, triangulation and consideration of potential bias.

Seventeen studies were cross-sectional surveys (Jafar et al., 2005; Almas et al., 2006; Ashfaq et al., 2007; Ahmed et al., 2008; Ladha et al., 2009; Rehman et al., 2011; Almas et al., 2012; Aslam et al., 2013; Khan et al., 2014; Bilal et al., 2015; Hussain et al., 2015; Khan et al., 2015; Qamar et al., 2016; Malik et al., 2016; Hashmi et al., 2017; Ishtiaq et al., 2017; Murad et al., 2017) in which 13 studies identified hypertensive patients' understanding of HTN treatment and adherence (Almas et al., 2006; Ashfaq et al., 2007; Ahmed et al., 2008; Ladha et al., 2009; Almas et al., 2012; Aslam et al., 2013; Khan et al., 2014; Bilal et al., 2015; Khan et al., 2015; Qamar et al., 2016; Hashmi et al., 2017; Ishtiaq et al., 2017; Murad et al., 2017) and four provided details about doctors' attitudes regarding adherence to HTN treatment guidelines (Jafar et al., 2005; Rehman et al., 2011; Hussain et al., 2015; Malik et al., 2016). The overall quality of patient focused cross-sectional studies was 'poor' using the NHLBI quality assessment tool whilst two studies (Hussain et al., 2011; Malik et al., 2016) based on doctors' awareness of HTN treatment guidelines were rated 'fair' and 'good', respectively.

Out of 17 cross-sectional studies, 12 were conducted in one city (Karachi), while five studies took place in other Pakistani cities: Abbottabad (Ahmed et al., 2008), Peshawar (Khan et al., 2015), Rawalpindi and Islamabad (Malik et al., 2016; Ishtiaq et al., 2017) and one in multiple locations in rural Punjab and Sindh (Jafar et al., 2005). All the studies had an observational, cross-sectional study design, used questionnaires as their measuring tool and were published between 2005-2017. 10 studies (Jafar et al., 2005; Ashfaq et al., 2007; Hashmi et al., 2007; Rehman et al., 2011; Almas et al., 2012; Khan et al., 2014; Hussain et al., 2015; Khan et al., 2015; Bilal et al., 2015; Malik et al., 2016) piloted their data collection tool and tested it for validity.

The survey duration was specified by 13 papers and varied considerably. Survey durations were one month (Murad et al., 2017), six weeks (Ladha et al., 2009), three months (Rehman et al., 2011; Khan et al., 2014; Hussain et al., 2015; Malik et al., 2016), six months (Ahmed et al., 2008; Ishtiaq et al., 2017), eight months (Bilal et al., 2015), nine months, (Hashmi et al., 2007), one year (Almas et al., 2006; Almas et al., 2012) and 18 months (Aslam et al., 2013). Four studies (Jafar et al., 2005; Ashfaq et al., 2007; Khan et al., 2015; Qamar et al., 2016) failed to indicate their study period. Study sample size ranged from 16-447 for patients and 100-1,000 for doctors. Two studies (Aslam et al., 2013; Hussain et al., 2015) failed to provide details regarding the sampling criteria used.

The age of the patient participants was recorded in only nine of the studies focusing on patients (Almas et al., 2006; Ashfaq et al., 2007; Hashmi et al., 2007; Ahmed et al., 2008; Ladha et al., 2009; Almas et al., 2012; Khan et al., 2014; Ishtiaq et al., 2017; Murad et al., 2017). In the majority of these studies, the age range of patients was between 20 and 60 years, whereas in only one study (Ladha et al., 2009) the recruited patients were older, aged 65 years and above. The gender ratio of the participants was not mentioned in three studies (Rehman et

al., 2011; Aslam et al., 2013; Hussain et al., 2015). Out of the other 14 studies, eight studies (Jafar et al., 2005; Almas et al., 2006; Ladha et al., 2009; Almas et al., 2012; Khan et al., 2014; Khan et al., 2015; Malik et al., 2016; Murad et al., 2017) had a male ratio comparatively high to female participants. In five studies, the female ratio was higher as compared to male participants (Ashfaq et al., 2007; Hashmi et al., 2007; Ahmed et al., 2008; Bilal et al., 2015; Ishtiaq et al., 2017) and in one study the gender ratio was equal (Qamar et al., 2016). Five studies did not report whether or how informed consent was sought (Ashfaq et al., 2007; Aslam et al., 2013; Hussain et al., 2015; Khan et al., 2015; Qamar et al., 2016) and three studies (Ashfaq et al., 2007; Bilal et al., 2015; Khan et al., 2015) did not provide information regarding permission from the respective hospitals to conduct the study.

From analysis of the selected studies and assessment of their quality it is evident that this review identified studies with methodological limitations as well as imprecision in the reporting of results. Details regarding eligibility criteria, informed consent, ethics approval and data analysis procedures were inconsistent. Only four studies collected data qualitatively and two qualitative studies failed to mention their analytical procedures which increases doubts about the interpretation of the results. None of the reviewed qualitative studies addressed doctors' views of HTN and its treatment. Another surprising observation was that most of the findings are from studies conducted in one city (Karachi) and provinces other than Punjab. This represents a potentially significant threat to external validity as Punjab is the most populated province of Pakistan.

The next two sections will present the findings in relation to the review question. Section 2.4 explores the body of literature related to the understanding of patients regarding HTN and its treatment as identified in the reviewed studies. Section 2.5 will look at doctors' understanding of HTN treatment in Pakistan.

2.4 Patients' Understanding of HTN and its Treatment

The following section presents findings from the review about patients' understanding of HTN, symptoms and treatment in Pakistan.

2.4.1 Understanding of HTN

Only five out of 21 studies collected information on patients' understanding of HTN (Saleem et al., 2012; Khan et al., 2015; Qamar et al., 2016; Ashfaq et al., 2017; Legido-Quigley et al., 2019). The parameters highlighted in four studies which related to HTN understanding amongst patients included blood pressure monitoring and the appearance of symptoms. For example, Saleem et al. (2012) in a qualitative study interviewed 16 patients (male 12; female 4) and showed that understanding of HTN and its treatment was particularly dependent on blood pressure monitoring and clinical symptoms amongst patients.

By using semi-structured interviews in a qualitative study carried out in three Asian countries (Pakistan, Sri-Lanka, Bangladesh), Legido-Quigley et al. (2019) found that the appearance of physical symptoms made participants aware of the disease. Symptoms such as a headache, a general feeling of weakness, shortness of breath, dizziness and palpitations were identified amongst hypertensive patients. Participants indicated that these symptoms were mild to

moderate in intensity and therefore they only sought care in the health facility when they experienced such symptoms. This finding is consistent with a survey conducted in the same city (Karachi) involving 200 hypertensive patients (male 100; female 100), which identified that physical symptoms such as a headache, blurred vision and chest pain were considered common indicators of high blood pressure amongst patients (Qamar et al., 2016).

A contrasting description can be found in a cross-sectional survey study (n=298) that was conducted to identify primary causes of HTN amongst hypertensive patients (male 172; female 126) in Peshawar (Khan et al., 2015). Researchers in this survey reported that 90% of the patients stated HTN is a serious disease and that most patients were conscious of the asymptomatic nature of HTN, conversely, 25% of the sampled participants did not consider HTN a dangerous disease. The common reason for considering HTN less serious amongst these patients was the belief that HTN is not a major cause of mortality. Ashfaq et al. (2007) however, noted that 80% of patients attending tertiary care hospitals believed that HTN could lead to CVD, whereas 58% attending primary healthcare centres considered HTN a risk factor to heart disease. This cross-sectional survey (n=202) was conducted to compare the awareness of HTN amongst patients attending primary healthcare centres and the outpatient department (OPD) of a tertiary care hospital in Karachi. Researchers in this survey further noted that 47% of patients in tertiary healthcare and 79% in primary healthcare did not know about the readings at which blood pressure was considered high. Across five studies (Saleem et al., 2012; Khan et al., 2015; Qamar et al., 2016; Ashfaq et al., 2017; Legido-Quigley et al., 2019) that explored patients' understandings of HTN, none of the studies included questions to explore how patients define HTN or what meanings they associate with increased blood pressure.

The review identified only two studies conducted in tertiary care hospitals (in Karachi) that were able to provide data regarding patients' understanding of HTN diagnosis (Hashmi et al., 2007; Gowani et al., 2016). Hashmi et al. (2007) in a descriptive cross-sectional survey recruited 438 hypertensive patients at two tertiary care hospitals to identify patients' experiences of HTN and factors associated with treatment adherence. Researchers in this survey reported that patients (70.8%) discovered they had HTN accidentally during a medical check-up for symptoms related to HTN and its complications (Hashmi et al., 2007). In contrast, Gowani et al. (2016) in a qualitative study that involved four focus group discussions with 30 participants at one tertiary care hospital found that patients' diagnosis of a disease was often a result of an acute medical event (such as myocardial Infarction or stroke). In focus group discussions with 20 patients, researchers in this study found that patients identified HTN when symptoms appeared or when they sought help for some other medical condition.

In the included studies on patients' perspectives on HTN, some pointed to primary causes and exacerbating factors for HTN. Studies related to this aspect are presented below.

2.4.2 Causes of HTN

Four studies included in the review that looked at hypertensive patients' awareness have reported a few factors linked to disease causes amongst participants (Aslam et al., 2013; Khan et al., 2015; Gowani et al., 2016; Legido-Quigley et al., 2019). Two studies highlighted that

patients were believed to be susceptible to HTN due to genetic background and reported positive family history as a cause for their disease (Khan et al., 2015; Gowani et al., 2016). Participants who have had any other family member suffering from the disease had insight that they were more likely to encounter HTN. Gowani et al. (2016) by using a semi-structured topic guide with 30 participants in four focus group discussions highlighted that living an unhealthy lifestyle was also recognised as a cause of HTN amongst patients.

In contrast to Gowani et al., (2016) two studies mentioned how patients attributed personal stress and anxiety as a significant cause of their elevated blood pressure (Khan et al., 2015; Legido-Quigley et al., 2019). Khan et al. (2015) exclusively focused on identifying factors that led to HTN at the individual level. These included depression and anxiety (95%), lack of exercise (71%), cigarette smoking (63%) and heavy alcohol intake (59%) and were seen as contributing to increased blood pressure. Participants in this cross-sectional study strongly associated stress and anxiety with HTN, both as an exacerbating factor and a consequence. However, Khan et al. (2015) failed to provide sufficient detail on the factors responsible for patients' stress and anxiety. They did not comment on whether stress was due to the patients' inability to perform daily activities as a result of the severity of their HTN symptoms or caused by financial problems.

Aslam et al. (2013) conducted a cross-sectional study (n=176) over the duration of 18 months to find out the prevalence of HTN and stress in four socioeconomic classes (lower class, lower middle class, upper middle class, and higher class). The researchers found that levels of stress increased consistently with deteriorating socioeconomic status and stress was observed to be the highest in people living below the poverty line. Out of 54 participants of a higher class, nine (16%) had high, 40 (74.1%) had moderate and five (9.3%) had a low risk of developing stress ($p < 0.010$) and on examination 15 (27.8%) people were identified to be hypertensive ($p < 0.642$). Of the group living below the poverty line, out of 44 participants 16 (36.4%) had high, 26 (59.1 %) had moderate and two (4.5%) had a low risk of developing stress ($p < 0.010$) and eight (18.2%) individuals were found to be hypertensive ($p < 0.642$). Aslam et al. (2013) noted a major difference between two social class (higher upper and lower class) groups and reported that the higher upper class had the least likelihood of developing stress (16.7%) whereas patients living below the poverty line had the highest prevalence of stress (36.4%) due to financial instability.

In summary, authors of four studies (Aslam et al., 2013; Khan et al., 2015; Gowani et al., 2016; Legido-Quigley et al., 2019) have attempted to identify some of the causes of HTN, however, except for Khan et al. (2015) all three were conducted in one Pakistani province (Sindh). The next theme common in many studies was patients' knowledge and attitude towards drug treatment, which is presented below.

2.4.3 Drug non-adherence

Nine studies gathered information on low awareness of HTN treatment and reported that drug adherence is poor amongst hypertensive patients in Pakistan (Almas et al., 2006; Hashmi et al., 2007; Ahmed et al., 2008; Saleem et al., 2010; Almas et al., 2012; Saleem et al., 2012; Bilal et al., 2015; Gowani et al., 2016; Legido-Quigley et al., 2019). Knowledge (Hashmi et al.,

2007; Ahmed et al., 2008; Almas et al., 2012; Gowani et al., 2016) and attitudes (Almas et al., 2006; Hashmi et al., 2007; Ladha et al., 2009; Saleem et al., 2011; Saleem et al., 2012; Bilal et al., 2015; Gowani et al., 2016; Legido-Quigley et al., 2019) were the reasons identified in these studies which influenced the adherence behaviour of participants.

Inadequate patient knowledge and awareness about blood pressure control were identified as contributing factors for non-adherence to antihypertensive drugs and consequently high rates of uncontrolled HTN in Pakistan by four studies (Hashmi et al., 2007; Ahmed et al., 2008; Almas et al., 2012; Gowani et al., 2016). Hashmi et al. (2007) investigated the factors associated with drug adherence in hypertensive patients (male 199; female 239) by using the Morisky Medication Adherence Scale (MMAS) with score ranges from 0 (non-adherent) to 4 (adherent). The MMAS score was significantly higher ($P < 0.001$) in the adherent group (2.7 ± 1.2) as compared to the non-adherent group (1.7 ± 61). One of the key findings of Hashmi et al. (2007) was that the overall level of awareness about HTN and its treatment was very low in the non-adherent group. Ahmed et al. (2008) in a cross-sectional study with 89 hypertensive patients noted that 51.7% of patients were not compliant with antihypertensive drugs, however, they did not provide any information about the factors responsible for patients' non-adherence to drug treatment, limiting the usefulness of the findings.

In a cross-sectional study conducted at three tertiary care hospitals with 447 participants, Almas et al. (2012) compared knowledge in patients with controlled (n=323) and patients with uncontrolled (n=124) HTN. In the Almas et al. (2012) study a knowledge score was based on 15 questions developed by brainstorming with experts managing HTN and marked on a scale of 1 to 5. Researchers noted that there was a statistically significant difference in knowledge regarding the meaning of HTN, systolic and diastolic blood pressure readings, adherence to antihypertensive drugs and about lifestyle changes to improve blood pressure between the two groups. Almas et al. (2012) highlighted that knowledge scores in patients with uncontrolled HTN were significantly lower and the formal education level did not relate to knowledge of the disease in these patients. In contrast to Almas et al. (2012) a qualitative study that was designed to explore how health perceptions correlate with behaviour revealed that knowledge deficits regarding the illness, its parameters and management were related to education level amongst patients (Gowani et al., 2016). The researchers reported that most of the educated participants better understood their disease and treatment as compared to their uneducated or less educated counterparts. It is therefore difficult to conclude from the evidence how important formal education level is with regard to understanding of the disease.

Attitudes towards taking medication

Eight studies noted that patients correlate the necessity of taking medication with the appearance of symptoms and therefore felt less confident in managing their condition (Almas et al., 2006; Hashmi et al., 2007; Ladha et al., 2009; Saleem et al., 2011; Saleem et al., 2012; Bilal et al., 2015; Gowani et al., 2016; Legido-Quigley et al., 2019). Participants in a cross-sectional survey (n=200) reported intentional non-adherence and missed taking antihypertensive drugs from time to time due to forgetfulness and side effects (Almas et al., 2006). This survey identified that 11.6% of patients were not taking the medicine due to side

effects and 10.4% missed a dose due to forgetfulness. Likewise, Hashmi et al. (2007) revealed that once patients achieved control of their blood pressure and their symptoms disappeared, they decided to discontinue their medication. The researchers identified that patients on monotherapy were less drug adherent as compared to patients who were on three or more drugs.

In two later studies, researchers used a qualitative approach and took issue with the contention that hypertensive patients experience antihypertensive drug-related side effects and as a result become non-adherent (Saleem et al., 2011; Saleem et al., 2012). They further indicated that most hypertensive patients do not like taking medication, believing it to be unnatural and harmful. Saleem et al. (2011) in focus group discussions with 19 patients identified that patients believed traditional remedies were safer and less synthetic, with fewer side effects than antihypertensive medication. Likewise, by conducting semi-structured interviews with 16 hypertensive patients Saleem et al. (2012) noted that due to the fear of medications being harmful patients reported often skipping a dose deliberately, in order to avoid frequent exposure to their side effects. Apart from medication side effects, financial constraints, a lack of availability of low-cost medications and scant information received from doctors were all identified as important factors that influenced hypertensive patients' attitudes to drug compliance, as identified in six studies (Ladha et al., 2009; Saleem et al., 2011; Saleem et al., 2012; Bilal et al., 2015; Gowani et al., 2016; Legido-Quigley et al., 2019).

2.4.4 Using alternative treatments

Despite taking antihypertensive drug treatment some patients tried to treat the condition themselves, independently of the recommended treatment from their doctor. This was illustrated in four qualitative studies (Saleem et al., 2011; Saleem et al., 2012; Gowani et al., 2016; Legido-Quigley et al., 2019). Saleem et al. (2011) noted that most patients indicated that they were engaged with alternative treatments and highlighted other hypertensive patients, peers and family members as their sources of information. Eating garlic, drinking green tea, brisk walking, eating fruits and drinking liquids were mentioned as remedies adopted by patients. In later interviews with 16 participants, Saleem et al. (2012) found that complementary alternative medicine (CAM), traditional remedies and spiritual healing treatments were used by hypertensive patients. Furthermore, their findings highlighted that religious belief had a strong impact on hypertensive patients' practices in relation to treatment as many patients in the Saleem et al. (2012) study reported that they believed that amulets, sacred water and religious treatment could cure disease.

Legido-Quigley et al., (2019) conducted 20 semi-structured interviews with Pakistani hypertensive patients and looked at how patients reported using alternative therapies such as herbal and informal treatments and faith healing. Faith-based treatments were described as an adjunct to formal healthcare services and not seen as a replacement. In contrast to Legido-Quigley et al. (2019), Gowani et al. (2016) highlighted patients' fatalistic beliefs and mentioned that disease occurrence was associated with events outside the control of an individual. In this qualitative study, researchers explored participants' perceptions of illness and evaluated fatalistic beliefs as a barrier to drug treatment. They found that most of the hypertensive patients believed that contracting a disease was their fate, that it was meant to

happen, unpreventable and unpredictable. The researchers reported that even after identification of the risk factors patients still believed that nothing could prevent the occurrence of a stroke or heart attack.

In summary, four qualitative studies (Saleem et al., 2011; Saleem et al., 2012; Gowani et al., 2016; Legido-Quigley et al. 2019) included in this review highlight that patients' specific practices and personal beliefs can serve as barriers to accessing appropriate treatment, particularly when it came to understanding disease within the context of their religion combined with views on fate and that this could delay the use of available health services. Educational interventions often assume poor treatment adherence is as a result of patients lacking knowledge or not remembering to take their medication, however the findings discussed above suggest that there may be other reasons for non-adherence to treatment. The participants in these studies held more complex alternate explanations for their disease and many intentionally chose to avoid medical treatment.

2.4.5 Awareness about lifestyle changes

Seven studies were identified that looked at the hypertensive patients' awareness about lifestyle changes (Ahmed et al., 2008; Khan et al., 2014; Khan et al., 2015; Gowani et al., 2016; Qamar et al., 2016; Ishtiaq et al., 2017; Murad et al., 2017). Common themes emerging from these studies were lack of knowledge, low adherence to lifestyle changes and the influence of contextual factors.

A cross-sectional study that included 219 hypertensive patients (male 89; female 130) from two cities (Rawalpindi and Islamabad) using a structured questionnaire estimated the prevalence of HTN amongst the populations studied and explored the risk factors associated with disease (Ishtiaq et al., 2017). The researchers found a high HTN prevalence rate (29.22%) in both cities and reported that due to illiteracy patients were unaware about adopting lifestyle changes such as increasing physical activity, eating a healthy diet, less salt consumption and smoking cessation. Ishtiaq et al. (2017) stated that only 18 patients were involved in physical activity while 40 mentioned living a sedentary lifestyle. However, the researchers failed to provide details of how illiterate participants completed the questionnaire and did not provide any explanation as to why alcohol intake was not included in the list of risk factors for HTN. Ahmed et al. (2008) in a cross-sectional study found that out of 89 hypertensive patients, 55.1% were restricting salt intake, whereas 44.9% were not and 23.6% were engaging in frequent exercise whereas 76.4% were not engaged in any type of exercise. Researchers also compared risk factors amongst patients who had controlled and uncontrolled HTN and reported that HTN control was significantly associated with these changes (P=0.001), however, they did not comment on awareness levels amongst patients with controlled and uncontrolled HTN.

Khan et al. (2015), however, highlighted that most of the hypertensive patients in their study were not aware that a sedentary lifestyle contributes to HTN and that adopting healthy lifestyle changes can assist in controlling HTN. The study illustrated that participants had a lack of understanding regarding regular exercise, less salt consumption, a low-fat diet,

smoking cessation and alcohol consumption in relation to HTN treatment. The researchers further noted that 23% of patients were unaware that smoking and heavy alcohol intake contributed to HTN and due to this lack of awareness they continued their smoking and drinking practices. This observation regarding smoking amongst hypertensive patients is consistent with the findings of another cross-sectional study conducted at primary healthcare and tertiary care hospitals in Karachi (Ashfaq et al., 2007). The study identified that generally patients were unaware of the relationship between smoking and HTN and only half of the patients were aware that exercise can assist in controlling high blood pressure. Compared to other lifestyle changes, Ashfaq et al. (2007) focused only on collecting data regarding smoking and exercise amongst patients without providing any information as to why other lifestyle recommendations were excluded.

In contrast to the three studies under review (Ashfaq et al., 2007; Khan et al., 2015; Ishtiaq et al., 2017) one cross-sectional study (n=50) conducted in Karachi reported contradictory results and reported that 84% of hypertensive patients understood and had awareness that lifestyle changes were helpful and the optimum way to maintain stable blood pressure (Murad et al., 2017). The researchers found that 82% of participants with HTN did not smoke cigarettes, 26% of respondents reported a low salt diet, 24% of respondents reported eating a vegetarian diet, 73% of respondents performed regular exercise and 96% of participants avoided drinking alcohol.

Some contextual factors that influenced patients' behaviour regarding adopting a healthy lifestyle were social and individual in nature (Aslam et al., 2013; Saleem et al., 2012; Khan et al., 2014; Qamar et al., 2016; Gowani et al., 2016). Khan et al. (2014) in a descriptive cross-sectional survey study considered how peer pressure negatively affected the adherence of patients to dietary regimes to control HTN. The researchers found that in the presence of family, friends and at social gatherings dietary restrictions left patients feeling under pressure and eventually they became non-adherent to the diet recommended by doctors. The study suggested that if patients were told about the severity of HTN and the benefits of eating a healthy diet, compliance with dietary changes could increase irrespective of influence from peers. However, this hypothesis and recommendation was not tested in the study.

Individual factors that influenced the decisions of patients to adhere to a particular lifestyle were identified in three studies (Aslam et al., 2013; Gowani et al., 2016; Ishtiaq et al., 2017). Aslam et al. (2013) in a cross-sectional study (n=176) identified how hypertensive patients correlated less adherence to a healthy diet with factors such as monthly income and the cost of fresh fruit and vegetables (Aslam et al., 2013). Ishtiaq et al. (2017), however, reported that lack of motivation was a common factor amongst patients that led to non-adherence to physical activity (Ishtiaq et al., 2017). Adopting an active lifestyle required patients to make certain modifications in their lives which they could not do due to a lack of motivation. Likewise, Gowani et al. (2016) by using a semi-structured interview guide with 20 patients in four focus groups found that regular exercise was not part of all patients' lifestyles as they were unable to incorporate it into their daily lives due to laziness, lack of time, ignorance and the presence of another chronic disease such as arthritis or vertigo.

From this body of literature, a picture emerges of the understanding of patients about HTN and some explanations for non-adherence to drug treatment and lifestyle changes. Data on hypertensive patients' understanding of smoking and alcohol consumption were not available in 20 selected studies and therefore three studies (Ashfaq et al., 2007; Khan et al., 2015; Murad et al., 2017) could have been more useful if the researchers had provided a more comprehensive picture about patients' understanding regarding smoking and alcohol consumption in HTN management. The following section will explore the literature concerning the views of doctors with regard to HTN treatment in Pakistan.

2.5 The Approach of Doctors to HTN Treatment

Current understanding of HTN and its treatment in Pakistan comes primarily from studies on the views of patients. Only four of the reviewed studies collected information regarding the prescribing practices of doctors and their approach towards HTN treatment guidelines in Pakistan (Jafar et al., 2005; Rehman et al., 2011; Hussain et al., 2015; Malik et al., 2016). Therefore, the findings presented below are from quantitative studies.

Despite the availability of treatment guidelines, the literature suggested the existence of a gap between the recommended guidelines and actual clinical practice in the treatment of HTN as identified in four cross-sectional studies (Jafar et al., 2005; Rehman et al., 2011; Hussain et al., 2015; Malik et al., 2016). These studies reported that poor blood pressure control amongst patients was related to doctors not adhering to HTN treatment guidelines. The limited adherence of doctors to treatment guidelines represents a barrier to their successful implementation, however, only two studies provided a potential explanation for low adherence to HTN treatment guidelines (Hussain et al., 2015; Malik et al., 2016). The reported reasons were: a lack of knowledge about HTN guidelines and misconceptions about the cost-effectiveness of antihypertensive agents.

Jafar et al. (2005) in a survey of 1,000 randomly selected male doctors from four Pakistani cities tested their knowledge with a questionnaire to determine whether their approach to HTN treatment is in accordance with international guidelines. The study questionnaire was developed by the researchers and focused on five themes: type of practice, detection of high blood pressure, evaluation of patients with high blood pressure, treatment of HTN and sources of information about antihypertensive medication. Jafar et al. (2005) found that most of the doctors were using incorrect blood pressure measurements in the diagnosis of HTN in patients of 60 years or above, whilst appropriate HTN treatment in older people was initiated by less than 40% of the doctors. The researchers identified that the therapy of choice for lowering blood pressure was reported to be a sedative drug by 23.8% of doctors whereas 21.1% prescribed a combination of an antihypertensive drug and a sedative as an initial therapy. Moreover, 63% of doctors in the Jafar et al. (2005) study relied on representatives from pharmaceutical companies to update them on information regarding antihypertensive drugs and only 31.1% reported reading medical journals for this purpose.

A later descriptive cross-sectional study (n=475) conducted at six hospitals in Karachi highlighted deficiencies in the knowledge of junior doctors regarding the choice of

antihypertensive drugs in accordance with the recommended HTN guidelines (Rehman et al. 2011). The researchers created a structured questionnaire consisting of 11 multiple choice questions (MCQs) encompassing aspects of HTN such as the definition, diagnostic modalities, treatment, possible laboratory work to rule out underlying end organ damage and risk factors for the development of HTN. The results obtained by Rehman et al. (2011) showed that only 42.9% of doctors knew how to define HTN in the presence of co-morbidities and ACE inhibitors[6] were the most common choice (45%) for the first line of treatment in uncomplicated HTN, followed by thiazide[7] diuretics. Overall Rehman et al. (2011) identified an inadequate knowledge score regarding HTN treatment guidelines amongst junior doctors.

The results of two cross-sectional studies reported poor prescribing practices regarding antihypertensive drugs amongst doctors (Hussain et al., 2015; Malik et al., 2016). Hussain et al. (2015) by using a randomized stratified survey with doctors (n=100) and one within the general population (n=400) illustrated that HTN guidelines were not followed amongst doctors when choosing pharmacologic agents. The researchers reported that the majority of doctors prescribed beta-blockers[8] (33%) followed by ACE inhibitors (18%) and calcium-channel blockers[9](13%) to patients. The comparison of the annual cost of these drugs amongst participants was also recorded. From the results, Hussain et al. (2015) also noted that doctors had misconceptions about the cost-effectiveness of antihypertensive drugs and therefore therapeutic guidelines were not followed when choosing pharmacologic agents. Data obtained by Hussain et al. (2015) indicated that advice regarding non-pharmacologic recommendations was given to patients as per the guidelines. However, inconsistencies in presenting the results, failure to use inclusion and exclusion criteria for the study participants and an inability to accurately define study participants presents a significant risk to the reliability of data. A further limitation was not exploring the views of doctors regarding compliance with international therapeutic guidelines.

A descriptive cross-sectional study (n=385) conducted in public and private hospitals with doctors in two cities (Islamabad and Rawalpindi) reported a lack of awareness amongst doctors of HTN treatment (Malik et al., 2016). Participants included clinicians, specialists, physicians and doctors from academia working in public (53.7%) and private (46.3%) healthcare facilities. The study found that generally knowledge amongst doctors regarding HTN treatment was inadequate and there were issues related to the availability of and accessibility to HTN guidelines. Issues highlighted by the participants included: patient-related factors (87.5%), the absence of standard treatment guidelines in the healthcare facilities (69.1%), lack of awareness amongst doctors regarding the guidelines (85.4%), experience of doctors (82.3%) and lack of enforcement of guidelines (81.1%). Malik et al. (2016), however,

[6] ACE inhibitors are one of four drug classes recommended for initial therapy for adults with elevated blood pressure (Herman & Bashir, 2019).
[7] Thiazide diuretics drugs are commonly recommended as the first line of treatment for HTN and significantly reduce the rate of stroke and heart attacks (Grossman et al., 2011).
[8] Beta-blockers are a class of medication that work mainly by decreasing the activity of the heart by blocking the action of hormones such as adrenaline (Kaplan, 2008).
[9] Calcium-channel blockers are medications that are often used to treat HTN by slowing the movement of calcium into the cells of the heart and blood vessels (Ozawa et al., 2006).

identified greater knowledge scores amongst doctors who were working as specialists and had clinical experience of more than 10 years.

In summary, four studies have identified ambiguities in the prescribing practices of doctors and their inadequate reported knowledge of HTN treatment in Pakistan. Overall, only two studies (Hussain et al., 2011; Malik et al., 2016) gained 'fair' and 'good' quality on the NHLB assessment tool and clearly stated their research objectives and defined the populations being studied. However, a common weakness amongst the four studies under review was the failure of the researchers to define explicit criteria for adherence to HTN guidelines. Additionally, the four studies did not conduct a review of the medical records of patients to explore whether divergence from guidelines was justifiable. The studies relied on survey data only for measuring adherence to guidelines.

2.6 Summary and Identification of Gaps

To the best of the author's knowledge, this is the first systematic review of the literature about patients and doctors understanding of HTN and its treatment in Pakistan and it helps to highlight the issues that require further research. The aim of this review was to identify what is already known about patients' and doctors' understandings of HTN and its treatment in Pakistan. A total of 21 studies were included in the review in which 17 reported data on patients' understanding of HTN treatment and four studies looked at doctors' awareness of HTN treatment guidelines in Pakistan.

Four studies (Saleem et al., 2011; Saleem et al., 2012; Gowani et al., 2016; Legido-Quigley et al., 2019) were qualitative and focused on patient HTN awareness; they reported some of the contextual factors that are linked to treatment non-adherence amongst patients. Two studies (Saleem et al., 2011; Saleem et al., 2012) did not describe their data analysis procedures and scored lowest on the CASP assessment criteria. Moreover, all four qualitative studies were limited to Sindh and Baluchistan provinces and did not recruit participants from Punjab, which is the most densely populated province in the country, hence, it is difficult to determine if the findings would resonate with the experiences of patients in Punjab province.

Thirteen cross-sectional quantitative studies provided data on patients' knowledge of drug treatment, lifestyle changes and reported low HTN awareness amongst patients. It is surprising to note that most of the studies do not address important issues that influence HTN management which includes lifestyle changes related to socio-cultural context. The review identified four cross-sectional studies that focused on doctors (Jafar et al., 2005; Rehman et al., 2011; Hussain et al., 2015; Malik et al., 2016). The evidence suggested a lack of adherence by doctors to the recommended HTN treatment guidelines and variation in prescribing practices. Awareness regarding HTN treatment guidelines varied between senior and junior doctors, as highlighted by Malik et al. (2016) and this may be an influence on HTN management.

The studies reviewed highlighted a lack of overall HTN awareness as the foremost reason for poor HTN control in patients although inappropriate and inconsistent treatment practices

amongst doctors was also seen to have an impact. However, the quality assessment of the studies reviewed demonstrates the need for further good quality research with robust methodologies. Furthermore, the review was unable to identify any qualitative studies focusing on doctors' beliefs about HTN management and this highlights an important gap in the literature. The following summarises the gaps in the existing knowledge about doctors' and patients' understanding of HTN management in Pakistan:

- Qualitative studies that explore patients' understanding regarding all aspects of HTN (lay definitions, causes, symptoms) in terms of treatment (antihypertensive drugs and lifestyle recommendations) and the ways patients manage the disease is limited overall and not available in Punjab province. Detailed evidence taking account of the socio-cultural context is missing from the available literature.

- The review was unable to identify any studies on doctors' understanding of HTN.

- As no qualitative study explored doctors' viewpoints on HTN, it is difficult to ascertain whether the finding from surveys in Pakistan about doctors' non-adherence to HTN treatment guidelines was due to a lack of knowledge or because of other issues.

In conclusion, the review highlights that a study of patients' and doctors' understanding regarding HTN treatment and management is required, focusing particularly on the Pakistani context. In addition to the available evidence from Pakistan about HTN, the following part of this chapter considers the main concepts that will inform the context of the present study.

2.7 Search Strategy for the Broader Literature Review

The review focused on studies reporting beliefs and practices about chronic disease management in Pakistan but also included studies from some Asian and Muslim-majority countries because these countries share a similar socio-cultural context to Pakistan. The initial literature search identified a very limited number of studies about doctors' beliefs from studies undertaken in Asia, therefore to overcome this limitation studies are also included from European countries. European culture is different to that of Asian, however, due to insufficient evidence from that region it was essential to broaden the search to ensure there is sufficient literature to inform the study. The databases searched were Scopus, Medline (PubMed) and Global Health. In addition to these databases, extensive lateral search techniques were also used such as scanning the reference list of the relevant articles and searching the grey literature. Substantive relevant seminal literature on health beliefs to understand the concept and inform this study was also considered.

Table 2.2 summarises the search terms and keywords combined into four groups and used to identify relevant studies.

Table 2.2 Keywords and terms used in the literature search

Condition	Informer	Views	Context/Research Environment

Hypertension High blood pressure Chronic disease	Patient Doctor General Practitioner	Beliefs Lay beliefs Perceptions Perspectives Treatment/Therapy Antihypertensive drugs Lifestyle changes Adherence Culture Social norms Religion	Asia Muslim population Europe

2.8 Health Beliefs

From the late 1970s there has been considerable growth in research concerned with eliciting the subjective reality of illness in terms of lay explanations (Currer & Stacey, 1986; Lawton, 2003; Conrad, 2005). How patients make sense of an illness has been a major focus of investigation in health and the social sciences. Beliefs are informed by perceptions and can be judgements, predictions, ideas, interpretations and conclusions (Chaffee & Roser, 1986, Breen et al., 2000; Aylward, 2006; Halligan, 2006). Illness perception comprises a number of interrelated beliefs about illness and what it means for the patient's life (Petrie & Weinman, 2012). As highlighted by Petrie and Weinman (2012) the major components of these beliefs include how the illness was caused, how long it will last, what the consequences of the illness are for the patient's life, the symptoms that are part of the illness and how the condition is controlled or cured.

According to Green et al. (2003, p.106) lay health beliefs can be defined as practices that are socially embedded and 'shaped by people's situations in the social structure, their cultural, personal biography and social identity'. Lay beliefs help predict the subjective experience of illness, management, recovery (Diefenbach & Leventhal, 1996; Damasio, 2000) and treatment compliance (Weinman & Petrie, 1997; Hassin et al., 2005). These are individuals' ways of understanding their bodies and explaining what is going on within them. Lay beliefs describe the definitions, meanings and experience of health and illness and often include particular ideas about the way the body functions (Bolam et al., 2003; Aylward, 2006).

Hence, attitude (mental dispositions to act), behaviour (established ways of responding to people and situations) including spoken articulation and the ability to cope can be attributed to implicit or explicitly held beliefs (Prior, 2003; Halligan, 2007). In this respect, the study of lay beliefs may contribute to elevating the status of the patient in the context of healthcare (Herzlich & Pierret, 1987, p.13).

Ascertaining people's illness beliefs can help to explain the ways in which they live with the complexities of chronic disease, behave towards their health, treatment plans and health services (Nettleton, 2006). It may show a search for meaning that goes beyond the straightforward empirical, personal experiences of people about health issues and crises. Hence, lay explanatory models (Blaxter, 1997), illness narratives (Kleinman, 1988) and insiders' perspectives (Gerhardt, 1990) amongst other related terms have been suggested as ways to conceptualise the lived experience of illness through the patients' lens. The concept of 'lay expertise' has gained credibility as a way of describing the process by which the patient

gains intellectual, psychological and physical mastery over their illness, thereby enabling themselves to better cope with it (Morgan & Watkins, 1988; Williams, 2014). This is best explored in relation to the management of chronic illness where the patient uses his or her position as sufferer as a basis for becoming an expert in knowledge (including medical) surrounding their condition but also utilizing the experience of suffering as a way of negotiating or critiquing that knowledge (Shaw, 2002).

According to Prior (2003) the notion of lay expertise is used to refer to two distinct types of knowledge. One is the experiential knowledge developed by the patient as a by-product of coping with daily practicalities of the disease as well as making sense of how the body reacts to medication (Storni, 2015). The other is the expert knowledge as appropriated by non-experts that is used to contribute to (Rabeharisoa & Callon, 2002) but also challenge (Barbot, 2006) and dispute the biomedical perspective (Storni, 2015). Lay perspectives are now seen as forms of knowledge which are of 'equal worth' to expert knowledge (Grundmann, 2017). Where this expertise challenges the doctor's knowledge and practice, conflicts can arise (Popay et al., 1998). For instance, Kerr et al. (2007) explained that lay and professional participants in the healthcare system have the knowledge and in applying it they demonstrate expertise.

To deal with the intricacies and difficulties of everyday chronic disease management patients develop different ways of knowing and dealing with the disease and this should be taken into account when reorganising care delivery (Wagner & Groves, 2002; Henwood et al., 2003; Williams, 2014). Education campaigns which aim to encourage people to take responsibility for their health could prove ineffective if people hold fatalistic views about the causes of disease (Nettleton, 2006). It is important to consider that a person may present to a doctor with a variety of explanations based on the experience of their illness (Harmon et al., 2006; Greenhalgh, 2009). This is especially true during periods when people are trying to make sense of the problem and in doing so may move between a varied and complex set of beliefs. These beliefs can be considered as their 'maps of realities', which either become firmer and stronger or dismissed and replaced (Connors & Halligan, 2015). Undoubtedly, these beliefs vary with gender, social class, ethnicity and from individual to individual (Nettleton, 2006; Conner & Norman, 2008) and are not necessarily consistent with their own explanations of health and illness depending on circumstances. In contrast to the clinical knowledge of disease, understanding the meaning of illness and health for individuals who have experienced this in terms of consequences and symptoms in everyday life provides subjective and highly relevant evidence (Baker, 1987; Boruchovitch & Mednick, 2002).

People's health beliefs are shaped by the interplay of various influences (Currer & Stacey, 1986; Kressin et al., 2007; Sathyanarayana Rao et al., 2009; Marshall et al., 2012). The sources of beliefs include socio-cultural (e.g. religion, norms), socio-economic influences (e.g. income, education, occupation), past experiences, knowledge and individual factors such as duration of disease and co-morbidities. These influences are sometimes reported as barriers in the management of chronic disease as these can limit undertaking of a required behaviour by patients to achieve the recommended treatment (medication and/or lifestyle change) adherence or follow up care (Siegel, 2005; Khatib et al., 2014; Devkota et al., 2016).

2.8.1 The impact of socio-cultural context on beliefs and behaviour

Illness is not merely a pathological condition for patients. It is expressed through the social and cultural context in which they live and experience life (Conrad, 2005). Culture refers to shared values, norms and codes that collectively shape the beliefs, attitudes and behaviour of individuals through their interaction in and with their environments (Iwelunmor et al., 2014). Culture is shared by at least two or more people and naturally societies consist of greater numbers of individuals. If a solitary individual thinks and behaves in a unique way that thought or action is idiosyncratic, not cultural (Cohen et al., 2005).

For an idea or behaviour to be considered cultural it must be shared by some type of social group or society (Thonemann, 2013). Individual beliefs about health and illness are representations of the culture and society in which people live (Conner & Norman, 2008; Blaxter, 2010). For instance, in South Asian culture, demands for personal space can be viewed as a rejection of togetherness and the strength of this shared belief is such that people will often sacrifice their own health and individuality in order to conform (Malik, 2003). Hence the experience of illness is mediated by lay beliefs that have a key impact on human behaviour and it is important to take account of these in order to understand the effectiveness of health interventions aimed at changing behaviours (Williams & Popay, 1994; Kelly & Barker, 2016). People's beliefs are often shaped by culture that are in accordance with religion, local norms and traditions, therefore, the following sections will draw on literature from Pakistan and other Muslim and Asian populations discussing the influence of religion and social norms on beliefs and the behaviour of patients.

The role of religion, faith and fatalism

Religion and faith have a significant influence on human health and are important tools people utilise when coping with life's situations, stresses and illness (Koenig et al., 2001; Neal, 2013). Religion may be defined as any system of belief about a deity, often involving rituals, a code of ethics, a philosophy of life and a world view (Etzelmuller & Weissenrieder, 2016). Whilst faith is trust and confidence in a particular system of religious belief, faith has the benefit of empowering the individual through connecting him or her to a community that might, in turn, provide psychological stability (Basu-Zharku, 2011). Religious beliefs can be helpful in disease management and assisting with coping strategies depending on how well they are utilised.

A survey of 604 patients in one of the largest cities in Pakistan showed that 99.7% patients believed that living a life compatible with traditional Islamic teachings led to better health (Ahmed et al., 2007). They believed that undertaking the five daily obligatory prayers also led to a healthier life. Religion according to study participants facilitated health and treatment via three routes: (i) prevented them from drinking alcohol; (ii) prevented them from engaging in gambling and bribery (iii); assisted them in abstaining from fornication. Furthermore, Ahmed et al. (2007) emphasised that in Pakistan patients wanted their doctors to pray for them out loud during clinical visits and 88% believed that having a doctor who was also a faithful practicing Muslim would have a positive impact on the outcomes of their disease.

The results of a questionnaire-based cross-sectional survey in Pakistan undertaken by Qidwai et al. (2009) revealed that the majority of respondents believed that prayer could heal. Three quarters (75.3%) of them believed that prayers can curtail the duration of disease and 160 (40%) participants believed that prayer could prolong life. Methods used for healing by study participants included: reciting verses from the Holy Quran, blowing these verses on water and then drinking the water and wearing an amulet which was thought to speed up the healing process. Some of the findings in the Qidwai et al. (2009) study are consistent with a qualitative study conducted in Iran involving 27 hypertensive patients who reported that prayer helped in healing and believed that religion played a positive role in their disease outcomes (Shamsi et al., 2017). Furthermore, patients correlated listening to the Holy Quran with the healing process and being distant from God was one of the most frequently cited factors by patients for the development of disease.

Six studies conducted in various Muslim countries highlighted specifically the positive role of religion in coping with disease, adopting a healthy lifestyle and adherence to treatment (Al-Kandari, 2003; Alsolami et al., 2012; Hatah et al., 2015; Nayeri et al., 2015; Mizutani et al., 2016; Mostafavi et al., 2016). It was revealed in a questionnaire survey involving 223 patients that blood pressure control was improved in Kuwaiti patients who were spiritual and involved in religious activities (Al-Kandari, 2003). 300 participants in the Hatah et al. (2015) cross-sectional study indicated that religion helped people accept the disease, reduced stress and that God helped with disease management and provided peace (Hatah et al., 2015). Likewise, religion was viewed as an important source of managing stress and enhancing compliance to lifestyle changes amongst hypertensive patients in Iran (Nayeri et al., 2015). Participants mentioned that their body was on loan from God and they should pay careful attention to what they eat and how they take care of this loan. In addition, being connected to positive religious values to do with avoiding overeating and oversleeping had encouraged some participants to change their lifestyles based on these beliefs.

Mostafavi et al. (2016) took issue with the contention that hypertensive patients viewed disease treatment as a necessity instructed by God and therefore adopted careful behaviours regarding drug adherence. The studies presented here suggest how religion is perceived as a facilitator to healthcare and positive religious beliefs motivated individuals to engage in healthy activities and comply with their treatment plans. In the available literature religion is sometimes reported as a barrier to changing attitudes towards health and treatment adherence when patients display negative religious beliefs regarding fatalism. Fatalism is defined as a sense of lack of control and powerlessness over health and illness (Perfetti, 2017). A person with fatalistic beliefs and a poor level of literacy can misunderstand religious concepts and recognise health as being beyond one's control and dependent on chance, luck, fate or a powerful external agency (Boyer, 1994; Perfetti, 2017). If patients assume that they do not have power and control over their lives and disease, the challenge for doctors is to then convince patients regarding treatment and adherence.

Some of the studies identified were evident expressions that disease occurrence was associated with events outside the control of an individual. For example, an ethnographic study conducted by Shaikh et al. (2008) in the Northern areas of Pakistan found that illness

was often believed to be related to the 'evil eye' and possession by spirits amongst Muslim patients and they approached spiritual healers for treatment as opposed to consulting doctors. Likewise, Anwar et al. (2012) mentioned that the notion of the 'evil eye' was frequently believed to be the cause of disease amongst patients and they reported treating this by reading books of a holy nature. Some beliefs contribute to the practices of patients with regard to taking medications and adopting treatment options.

Bukhari et al. (2002) identified superstitions associated with health beliefs amongst different ethnic groups residing in Pakistan. The study found that many illiterate individuals correlated superstitions with their religion and indicated that these beliefs had passed to them from elders. However, the study failed to identify the types of superstitions derived from religion and how these influenced disease management amongst participants. In contrast, a study conducted in Iraq found the use of the traditional therapy 'Al-Hijama' (cupping) which is popular in Islamic society was linked to HTN disease treatment amongst patients (Ibrahim et al., 2016). Participants reported that it was urged by the religious precepts to cure disease using different elements and therefore they found this treatment more effective than medical treatment.

This is also the case for Iranian participants in a study conducted by Najimi et al. (2016) who stated that participants thought that their HTN symptoms were due to fate and believed illness was predetermined by God and therefore they were not required to intervene with treatment. Perceiving disease to be in God's hands demonstrated another aspect of fatalistic beliefs that endangered a sense of responsibility towards one's own health.

The role of social norms

Social norms are the customary rules that govern behaviour in groups and societies (Paluck & Ball, 2010). Social norms provide direction and motivation, organise social interactions and make people's responses predictable and meaningful (Forsth, 2012). In other words, social norms are the customary rules governing how to behave in certain ways within a society. Social norms influence health-related attitudes and are reported to have powerful control over human behaviour (Hechter & Opp, 2001).

Social norms are not formed in a vacuum, rather, they are shaped by larger environmental forces including culture and religion and raise certain challenges for healthcare and behaviour change (Rajiv & Kevin, 2005). Prevention strategies such as pharmaceutical interventions and lifestyle changes might fail to achieve therapy goals if social norms are not considered or appropriate adaptations made. For example, smoking is a socially acceptable norm for men in Asian countries and in particular in the Bangladeshi community it represents a strong sense of social bonding and a normal part of being male (Bush et al., 2003).

Social norms differ in practice from one country to another depending on the cultural contexts (Hechter & Opp, 2001; Forsth, 2012). Despite the modernisation of Pakistani society social norms revolve around the teachings of Islam and are highly influential in people's lives (Burki & Ziring, 2017). However, certain norms are interwoven into the culture and people find it difficult to distinguish between the two, for example, the traditional joint or extended family system in Pakistan. Fewer studies in Pakistan have suggested how social relationships and the

family system can influence and hinder adopting healthy attitudes (Khuwaja & Kadir, 2010; Qureshi et al., 2016; Mahmood et al., 2017).

A qualitative study conducted on pregnant women in Pakistan that also included some hypertensive patients identified that extended families were perceived as having a potentially negative impact on women's lives and health (Qureshi et al., 2016). Women reported being confined to their homes to do housework for family members, given low status in the family and were excluded from decision-making regarding their health, for example regarding visiting doctors. Likewise, a survey study by Mahmood et al. (2017) involving 411 hypertensive patients suffering with depression evaluated that women living in extended families in Pakistan experience greater stress and depression due to their low social status and the burden of responsibilities and relationships. Khuwaja and Kadir (2010) in a community-based survey amongst 534 participants with non-communicable chronic diseases also identified social norms that were specific to female patients in Pakistan. They indicated that women had reported being restricted in walking outside unaccompanied by a male family member and their extended family limited the time available for them to engage in exercise. Participants in the study suggested that they would be better able to engage in physical activity if there were exercise facilities designated for women only.

Studies conducted on participants in Asia have reported that social influence was reported to be both a barrier and facilitator for HTN control (Kusuma, 2009; Shima et al., 2014; Elbur, 2015; Rahman et al., 2015; Nayeri et al., 2015; Shamsi et al., 2017). Two qualitative studies in Malaysia and Iran pointed out that a lack of social support from family members affected medication adherence and changes to lifestyle amongst patients (Shima et al., 2014; Nayeri et al., 2015). Researchers using a range of methods found that having to cook for oneself differently from the rest of the family was perceived to go against social norms in India, Malaysia and Saudi Arabia (Kusuma, 2009; Mahmoud et al., 2012; Shima et al., 2014; Elbur, 2015). Norms specific to family obligations were also reported as a barrier to adopting healthy attitudes and participants found it hard to prioritise clinic visits, diet and exercise over the needs of family members (Shima et al., 2014; Risso-Gill et al., 2015).

A study done by Shuval et al. (2008) in Israel examined certain norms that were Muslim women specific. Researchers found that women were not allowed to walk outside without being accompanied by a male family member and were subject to verbal abuse from the community when they attempted to engage in outdoor exercise. In two qualitative studies undertaken in a range of Asian populations the majority of participants viewed the experience of being supported by their families as a common norm (Rahman et al., 2015; Shamsi et al., 2017). This support was in the form of cooking food according to their health needs, providing information about the disease, accompanying the patient to the hospital and reminding them to take their medication. Together the results provided important insights into the influence of social norms on people's health beliefs and behaviour. The following section now discusses lay understandings of patients regarding HTN in various Muslim and Asian countries in order to highlight different aspects of living with disease.

2.9 Living with HTN

Some of the studies that included details about living with HTN have particularly addressed that accepting the disease diagnosis was difficult amongst patients (Rahman et al., 2015; Nayeri et al., 2015; Shamsi et al., 2017). This was due to the absence of HTN symptoms upon diagnosis and many patients could not remember when they had started feeling HTN symptoms. For example, data from a large-scale international study in seven Asian countries revealed that upon diagnosis of HTN patients reported feeling confused, worried and anxious (Rahman et al., 2015). The study identified that patients experienced difficulties in initially accepting their HTN diagnosis due to an absence of clinical symptoms. These results appear consistent with prior research reporting that 59.9% of the patients with HTN were unaware of their HTN due to the asymptomatic nature of the disease (Porapakkham et al., 2008). Likewise, some participants in the Kusuma (2009) study expressed that it was difficult for an individual to know his or her HTN status, unless checked by a doctor, due to the absence of symptoms. A study by Shamsi et al. (2017) concluded that understanding HTN and its diagnosis was dependent on clinical symptoms and severity amongst patients. A contrasting description can be found in three qualitative studies conducted in various countries suggest that the appearance of physical symptoms made participants aware of their disease and diagnosis (Shima et al., 2014; Udompittayason et al., 2015; Najimi et al., 2016). Symptoms such as headaches, dizziness, a general feeling of weakness and fatigue were commonly reported in these studies amongst hypertensive patients. Indeed, symptoms are the most common reasons for initiating medical treatment and feeling healthy is often equated with being symptom-free (Nayeri et al., 2015).

Likewise, a study carried out on the perceptions of patients in Malaysia proposed that patients generally experienced HTN symptoms and as a result sought medical attention for their diagnosis (Shima et al., 2014). There was a range of perceptions from patients about the nature of HTN and choices they made in the literature. Studies undertaken in Taiwan and Iran highlighted that HTN was seen as a temporary condition amongst patients that would not require long-term treatment (Hsiao et al., 2012; Shamsi et al., 2017). Likewise, HTN was not viewed as a pathological condition by some of the participants in an interpretive ethnographic study in Thailand (Udompittayason et al., 2015). Whilst two studies highlighted that patients considered HTN as a serious disease that could cause complications such as stroke and heart disease and understanding the risks associated with the disease was an important factor influencing their attitudes towards treatment (Aslami & Jobby, 2015; Rahmawati & Bajorek, 2016).

Studies on the perceptions of hypertensive patients in the literature have reported a number of reasons linked to HTN causes amongst participants. For instance, Najimi et al. (2016) highlighted that patients believed themselves to be susceptible to HTN due to their genetic background and reported family history and psychological factors as reasons for their disease. Similarly, patients in two qualitative studies conducted in Iran considered that their HTN was inherent and could not be treated (Nayeri et al., 2015; Shamsi et al., 2017). In contrast, many patients in another study linked HTN to body temperature and ‘bad blood’ in their veins which resulted in their illness (Udompittayason et al., 2015). However, in the findings of some

studies researchers identified that living an unhealthy lifestyle was recognised as a cause amongst hypertensive patients in Iraq, Thailand and Indonesia (Udompittayason et al., 2015; Ibrahim et al., 2016; Rahmawati & Bajorek, 2016).

A recurrent theme in a number of studies was how patients attributed personal stress as a significant cause of their elevated blood pressure and as a result they viewed stress reduction as an effective way to control HTN (Kamran et al., 2014; Shima et al., 2014; Rahman et al., 2015; Nayeri et al., 2015; Ibrahim et al., 2016; Shamsi et al., 2017). It was reported in these studies that hypertensives tended to attribute high blood pressure to life stresses caused by interpersonal issues, unemployment and financial problems. Some researchers have also reported techniques that patients used to reduce or avoid stress to control their HTN such as trying to avoid arguments, sleeping and relaxing (Serour et al., 2007; Nayeri et al., 2015; Mostafavi et al., 2016).

In an ethnographic study conducted using in-depth interviews a significant stressful event in the past was thought to be responsible for the later development of HTN by a few participants (Udompittayason et al., 2015). From a medical perspective, stress plays a small part in HTN (Beevers et al., 2015) whereas a recurring theme in the studies presented here is that stress was by far the most important cause of HTN according to the perceptions of patients. This section has reviewed the literature focused on the lay understanding of patients about HTN, its symptoms and causes; studies addressing understanding about drug treatment are presented below.

2.9.1 HTN drug adherence

Adherence is defined by the WHO as the extent to which a person's behaviour such as taking medication, following a diet, and/or implementing lifestyle changes, corresponds with the recommendations made by healthcare providers or doctors (WHO, 2014). However, there are various issues in the lives of patients suffering with a chronic illness and therefore the recommended treatment plans are often beset by challenges.

It has been reported in some studies that patients with a good knowledge of their disease were more motivated to practice home blood pressure monitoring, had improved medication adherence and blood pressure control (Heymann et al., 2011; Kamran et al., 2014; Elbur, 2015). In contrast, a few researchers have been able to conclude that antihypertensive drug adherence was significantly associated with gender and was generally greater in men as compared to women (Khalil & Elzubier, 1997). One study found in the literature suggested that self-monitoring of blood pressure improved the adherence of hypertensive patients to drugs (Nayeri et al., 2015). The interpretation of these results may be that females are more likely to devote their time to their families instead of taking care of themselves. However, the study did not take account of or question why drug adherence was better in male patients. Critics have argued that economic reasons such as the high cost of the blood pressure monitoring device and an absence of skills to monitor and understand blood pressure readings act in conjunction with the barriers for patients to self-monitoring and drug adherence (Tan et al., 2005; Rahman et al., 2015). The findings of a few studies have suggested that medication adherence was found to be an independent predictor of blood

pressure control amongst patients (Behnood-Rod et al., 2016; Khayyat et al., 2017). However, a number of studies in Asian countries have reported that adherence to drug treatment is poor amongst hypertensive patients (Mahmoud et al., 2012; Ramli et al., 2012; Shima et al., 2014; Nayeri et al., 2015; Behnood-Rod et al., 2016; Mostafavi et al., 2016; Khayyat et al., 2017).

A few researchers have argued that patients correlate the necessity of taking drugs with the appearance of symptoms and are not aware that HTN might be asymptomatic (Rahmawati & Bajorek, 2016; Shamsi et al., 2017). They further claimed that the presence and severity of symptoms were associated with the beliefs of patients about the need for medication and their decision to take it. Another study associated patient non-adherence with therapy requiring more than one pill per day compared to patients prescribed only one pill per day (Bhandari et al., 2015). Antihypertensive drug non-adherence was also higher amongst patients taking a greater number of pills in India (Srikanth & Kulkarni, 2015) and Malaysia (Ramli et al., 2012). On the other hand, a couple of studies found that when patients had to take multiple medications, they were less likely to fail to remember to take them, compared to when only having one pill to take (Hassan et al., 2006; Srivastava et al., 2015).

In contrast, some researchers took issue with the contention that hypertensive patients experience antihypertensive drug-related side effects such as dizziness, problems falling asleep, a dry mouth and therefore decide not to take their medication (Khalil & Elzubier, 1997; Shima et al., 2014; Nayeri et al., 2016; Khayyat et al., 2017). Qualitative studies undertaken in Iran and Malaysia have further elucidated that most hypertensive patients do not like taking drugs, finding these unnatural and harmful (Shima et al., 2014; Mostafavi et al., 2016). This aligns with findings from other studies which revealed why hypertensive patients avoid taking medication and demonstrate poor adherence (Aslami & Jobby, 2015; Ibrahim et al., 2016).

Common reasons to drug non-adherence that have been identified in the literature are forgetfulness (Khalil & Elzubier, 1997; Jimmy & Jose, 2011; Shima et al., 2014; Nayeri et al., 2015), fears about use of drugs due to dependence (Al Ghobain et al., 2016; Devkota et al., 2016; Najimi et al., 2016; Rahmawati & Bajorek, 2016), duration of therapy (Kamran et al., 2014; Devkota et al., 2016) and misconceptions about the dose of drugs (Panpakdee et al., 2003; Udompittayason et al., 2015). Financial difficulties were the most strongly emphasised barriers identified amongst hypertensive patients for drug non-adherence (Aslami & Jobby, 2015; Ibrahim et al., 2016; Khayyat et al., 2017). These studies found that medications were expensive and therefore some hypertensive patients could only buy the quantity of drugs they could afford, rather than relating to their clinical need.

Despite using antihypertensive drugs some patients try to manage their condition by themselves, independently of recommended treatment from their doctor. For example, qualitative studies conducted in Indonesia, Iraq, Iran, Nepal and Malaysia on disease management by hypertensive patients identified that strategies such as using home remedies were often used by patients to manage HTN alongside antihypertensive drugs (Ramli et al., 2012; Ibrahim et al., 2016; Devkota et al., 2016; Rahmawati & Bajorek, 2016; Nayyeri et al., 2017). The use of herbs, garlic and lemon in tea were the most commonly home or lay remedies mentioned by hypertensive patients in a number of populations (Panpakdee et al.,

2003; Zinat Motlagh et al., 2016; Ibrahim et al., 2016; Shamsi et al., 2017). Patients in these studies said they thought using herbal treatments was safer than using conventional medicine as a cure for their disease.

2.9.2 Difficulties in adopting lifestyle changes

It has been reported that doctors advising patients that they must make changes to their lifestyles and will have to take medication for the rest of their lives appeared contradictory and confusing to many hypertensive patients (Rahman et al., 2015). Patients reported that if changes in lifestyle can decrease blood pressure why was there an assumption that it will be necessary to take medication? This may lead to ambiguity amongst patients' beliefs about the nature of the disease and create difficulties for their decision making. Likewise, a qualitative study conducted in Indonesia showed that patients prefer lifestyle changes over medication and suggested that such changes were sufficient to treat HTN (Rahmawati & Bajorek, 2016). This is the only study that identified a preference in patients to adopt lifestyle changes over medication. Although patients chose lifestyle changes due to fears of medication addiction, the study did not adequately explore the awareness of patients with regard to the benefits of lifestyle changes and its application in HTN management and control.

Some researchers revealed opposite findings and reported unsatisfactory levels of knowledge amongst patients regarding lifestyle recommendations (Heymann et al., 2011; Kamran et al., 2014). A cross-sectional survey (n=50) in India found that 42% of patients did not perform any exercise, the majority were using excessive salt in their daily diet and 12% were consuming fats on a daily basis due to lack of knowledge (Kaur et al., 2007). Similarly, a cross-sectional study conducted in Egypt indicated that knowledge about all lifestyle recommendations amongst hypertensive patients was inadequate (El-Hay & El Mezayen, 2015).

Some researchers have argued that a lack of motivation amongst patients was the most common cause of poor adherence to lifestyle changes (Mahmoud et al., 2012) although adopting an active lifestyle required patients to make certain modifications in their lives which they could not do due to various factors or barriers. Barriers to not practicing a healthy lifestyle commonly reported in the literature were personal, social and environmental. Some identified factors in the literature that lead to non-adherence to exercise in hypertensive patients are weather, disability, injury, time constraints/busy routine and a lack of social support (Serour et al., 2007; Shima et al., 2014; Rahman et al., 2015; Khayyat et al., 2017).

Likewise, issues contributing to non-adherence to dietary changes in hypertensive patients in a number of populations are the attraction to eating out, dietary habits and a taste for salt and traditional foods (Shima et al., 2014; Aslami & Jobby, 2015; Nayeri et al., 2015; Zinat Motlagh et al., 2016). In Saudi Arabia difficulties in preparing a specific diet with less salt and oil was the most frequent cause for poor adherence to dietary regimes due to the tradition of families and friends eating together (Mahmoud et al., 2012). Some hypertensive patients correlated less adherence to a healthy diet with monthly income and the cost of fresh fruit and vegetables; the influence of social gatherings was also indicated in four qualitative studies (Serour et al., 2007; Elbur, 2015; Mahdavi et al., 2017).

A few studies in the review identified factors that have been attributed to the high incidence of smoking amongst hypertensive patients, such as an addiction to nicotine and the social requirements to relieve anxiety and frustration (Nizami et al., 2011; Kamran et al., 2014). Compared to smoking, alcohol consumption remains low where the majority of the population is Muslim (Nayeri et al., 2015). Alcohol is restricted for Muslims on religious grounds and in Muslim countries there are strict laws against the consumption of alcohol. Another reason may be the stigma surrounding its consumption and Muslims countries do not allow people to drink publicly or in front of their families.

Some researchers (Shima et al., 2014; Elbur, 2015; Rahman et al., 2015; Mostafavi et al., 2016) have highlighted that doctors also contribute to the non-adherence of patients to treatment plans and found this to be a significant factor. Doctors counselling on an active lifestyle have an independent effect on hypertensive patients' reported adherence with the recommended lifestyle advice (Heymann et al., 2011; Devkota et al., 2016). These researchers made an attempt to explore how doctors often fail to recognise drug non-adherence in their patients, do not explain the adverse effects of a drug effectively, over prescribe and inadequately consider the burden of cost to the patient which can then lead to medication non-adherence.

For instance, a majority of hypertensive patients reported difficulty in recalling complex nutritional advice received from doctors during time constrained consultations (Nayeri et al., 2015). In contrast, many patients in various Asian countries indicated that they did not receive any proper advice on drug use and lifestyle changes from doctors (Alsolami et al., 2012; Shima et al., 2014; Devkota et al., 2016). Some hypertensive patients reported that encounters with the doctor created nervousness and as a result that they did not ask all that they wanted to know (Rahman et al., 2015; Rahmawati & Bajorek, 2016). From this body of literature, a picture emerges of the lay understanding of patients about HTN and the causes of non-adherence to drug treatment and lifestyle changes. The following section will explore the literature concerning the understandings of doctors in general and with regard to HTN management.

2.10 Doctors' Understanding about Illness

The medical definition of illness is largely based on objective and demonstrable physical changes in the body such as signs of disease and symptoms (Helman, 2007). This medical explanation does not include the social, cultural and psychological dimensions of ill health and the context in which it appears that determines the meaning of the disease for patients (Nettleton, 2006). Without an understanding of patients' explanations of illness and their personal beliefs, doctors may make recommendations that are inconsistent with the beliefs of their patients and the realities in their lives (Agyemang & de-Graft-Aikins, 2014). It has been indicated that the awareness of doctors of cultural patterns in areas of practice help them deal with the needs of the patient effectively and compassionately (Seibert et al., 2002; Hausman & Mader, 2004). However, differences in cultural patterns within the same geographical location make the knowledge of doctors about areas of practice particularly important (Shortell & Singer, 2008; Marshall et al., 2012).

Helman (2007) points out that the medical model should not be seen as homogenous and consistent; clinical practice may be influenced by the doctor's personality, training, speciality and experience, as well as the socio-cultural context. Evidence supports that time pressure, the need to make quick judgements, cognitive load, task complexity and busyness all impact on the level and standard of treatment provision (Bodehausen & Lichtenstein, 1987, Gilbert & Hixon, 1991). Doctors may be especially vulnerable to rely solely on their existing ideas and understanding due to time pressure, brief consultations and the need to manage very complex cognitive tasks which are the demanding characteristics of their work (Burgess et al., 2004; Piko, 2006; Watt et al., 2008; Olson et al., 2009). As a result, they may fail to take into consideration patients' beliefs and be swayed by their personal beliefs regarding treatment and management of the disease (FitzGerald & Hurst, 2017). Hence doctors' understanding regarding patient's disease may become stereotypical if they fail to separate themselves from their own beliefs.

Doctors may not always see how their understanding is in itself context specific rather than universal and natural (Helman, 2007). For example, in some cultures joint pains are regarded as part of the ageing process and therefore not a matter of medical concern for patients and doctors (Gignac et al., 2006). Clearly, lay definitions and the common ideas surrounding illness shape doctors' understandings as well. Studies conducted in various countries indicated that beliefs and attitudes within a particular socio-cultural context are broadly similar irrespective of occupation and role (Chulze, 2007; Auber & Rossler, 2007). For instance, a study conducted in Pakistan found that doctors also had beliefs about religious and supernatural forces such as the 'evil eye' and disease being God's punishment, in common with the beliefs of patients (Haddad et al., 2016).

Ascertaining doctors' understanding regarding HTN is also essential, given that the aetiology of HTN is complex (Marx, 1976) and the nature of the interaction between relevant risk factors is poorly understood (Marshall et al., 2012; Aston & Kaul, 2018). This lack of clarity in the literature suggests that doctors' perspectives will play a prominent role in their approach towards treatment. Doctors' understanding about HTN and its treatment has not been widely examined in contrast to those of patients. Certainly, as potential consumers of health services, the general public's beliefs and attitudes are worthy of investigation due to their possible influence on behaviours for seeking help and adherence to the advice given by doctors (Feldman, 1988; Eagly & Chaiken, 1993; McShane & Mitchell, 2013; Al-Noumani et al., 2019). However, it is equally important to identify doctors' understanding regarding aetiology, causes, symptoms, prognosis and goals of treatment and to compare that with patients to identify differences that can be addressed in order to improve disease management (Carr & Donovan, 1998; Prior, 2003; Rahman et al., 2015).

2.10.1 HTN treatment guidelines

To improve the control of HTN, treatment guidelines have been developed and disseminated worldwide; the guidelines contain recommendations regarding screening, diagnosis and treatment of HTN. Treatment guidelines aim to assist doctors in determining the appropriate management of HTN in order to increase the percentage of patients with controlled blood pressure (McManus et al., 2012, Kjeldsen et al., 2014; Burnier, 2018). However, the likelihood of doctors to follow guidelines may depend on their views of them which is influenced by their knowledge, past clinical experience and the characteristics of the guidelines themselves (Carey et al., 2009; Appleby et al., 2015; Farshidi et al., 2018).

Knowledge about treatment guidelines

One essential factor for success is the knowledge of doctors about treatment and using the recommended guidelines (Javadi et al., 2005; Lemos, 2007). Studies carried out in a range of populations have indicated that poor blood pressure control amongst patients was related to doctors not adhering to HTN treatment guidelines (Midlöv et al., 2008; Rahman et al., 2015; Devkota et al., 2016; Teoh et al., 2017; Farshidi et al., 2018). Some researchers reported a potential explanation for low adherence by doctors to the recommended HTN treatment guidelines as a lack of knowledge about HTN guidelines, disagreement with the guidelines, uncertainty about the stage of HTN and a belief that the guidelines are not easily applicable to daily practice (Midlöv et al., 2008; Banegas et al., 2011; Lee et al., 2015; Rahman et al., 2015; Barbouni et al., 2017).

An observational cross-sectional study undertaken in five regions of Kuwait has identified barriers to knowledge and indicated that only 49.1% of the primary healthcare physicians were familiar with WHO/ISH HTN guidelines and only 23.7% always follow the guidelines (Al-Ali et al., 2013). In contrast, the results of a study by Windak et al. (2009) in Poland suggested that lack of knowledge regarding HTN management was not a factor but there were reports of unfamiliarity in how best to manage certain subgroups. As in the Windak et al. (2009) study, doctors did not provide complete lifestyle recommendations particularly for patients with cardiovascular risk. It was also observed that the depth of lifestyle information increased when a patient presented with HTN in emergency care and additional risk factors and diseases were also present. These results appear consistent with later studies conducted in other Asian and European countries (Nayeri et al., 2015; Barbouni et al., 2017; Teoh et al., 2017; Setia et al., 2017).

2.10.2 Assumptions about patients

By virtue of the technical knowledge and skills of doctors they are perceived to have an authoritative role during the doctor-patient encounter and often make value judgements about patients that influence disease outcome (Nettleton, 2006). Bury (1997) further elaborates on this potential for conflict and suggested that its source lies in basic assumptions held by doctors and guesses they make about how patients should behave. Doctors generally

believe that patient non-adherence to prescribed drug treatment is a significant barrier to disease control. However, the literature does not support this contention and it has been argued that patient non-adherence to treatment is also doctor related (Martin et al., 2005; Kleinsinger, 2010; Rahman et al., 2015).

Aira et al. (2003) has found that some doctors were less likely to ask about smoking and drinking in patients due to the assumption that such issues relate to their private lives. Similarly, a survey study has indicated that doctors were less likely to recommend lifestyle changes in elderly hypertensive patients due to the assumption that older patients are less likely to adopt the changes in their lifestyle as compared to younger patients (Johansson et al., 2005). Brobeck (2014) has highlighted that lifestyle recommendations were discussed more often with men as compared to women due to doctors' assumptions that women do not adhere to healthy lifestyles.

Doctors are believed to be the main source of health information (Clarke et al., 2013) and not only are ideally positioned to provide this information but are also viewed by patients as a reliable source of disease-related information and treatment (Martin et al., 2005). However, the evidence suggested that doctors had different expectations and wanted patients to take charge in order to improve their blood pressure and lifestyles (Jallinoja et al., 2007; Banegas et al., 2011; Barbouni et al., 2017). Banegas et al. (2011) have noted that doctors did not change antihypertensive treatment in many uncontrolled hypertensive patients in Spain because they assumed it to be unnecessary.

Many doctors in the study assumed that small elevations in blood pressure levels were not important and posed little risk to patient health. This has also been explored further in a study carried out in urban areas of India which indicated that most doctors believed that dietary changes were difficult to adopt by the patients due to assumptions about the behaviour of patients and affordability issues associated with healthy eating (George et al., 2016). Likewise, a survey in Finland about the views of doctors in delivering lifestyle advice revealed that doctors perceived the patients to be responsible for their own lifestyle management and the role of the doctor being limited in terms of making change happen (Jallinoja et al., 2007). A majority of doctors in the study agreed that a barrier to the treatment of lifestyle-related conditions was the unwillingness of patients to change their habits. These studies were conducted in three different countries and documented that doctors believe they can make judgements and decisions about the information appropriate for their patients.

A cross-sectional study conducted in France evaluated that doctors with an optimistic approach towards HTN appeared more empathetic and supportive towards patients and were successful at controlling blood pressure (Consoli et al., 2010). However, a handful of studies in the review suggested that doctors being judgemental led to differentials in decisions about HTN treatment and conflict when encountering patients (Jallinoja et al., 2007; Shawahna et

al., 2012; George et al., 2016). For instance, literacy, educational background, dress and appearance were important indicators at the time of clinical decision-making amongst doctors originating from urban areas in Pakistan (Shawahna et al., 2012). The study also suggested that the personal characteristics of doctors and beliefs about patients influenced their behaviour and the quality of service provided. Likewise, it has been reported in another study that some doctors may deliver less information to patients who have lower socio-economic status because they assume them to be less educated, not intelligent and less rational (Moret et al., 2017).

Hence doctors' own beliefs not only shape their attitudes but also the clinical interaction, information provision and interaction with patients. Research shows that patient satisfaction, commitment to treatment and perceived outcomes of care are greater when the doctor and patient achieve a shared understanding of disease (Thompson, 2007; Graham & Brookey, 2008; Vahdat et al., 2014; Kennedy et al., 2017). However, it is also clear from the review of the above literature that doctors' beliefs are influenced by complex and multifaceted influences such as their knowledge, socio-cultural context and personal experiences.

2.11 Conceptual Framework

Review of the literature clearly shows that beliefs are important determinants of actions, choices and decisions that people make. What people believe about the nature of an illness and its symptoms affects how they deal with it. Hence, beliefs provide an explanatory framework and help people to make sense of their 'lifeworld' and describe the definitions and explanations of health made in a particular context (Blaxter, 1990; Williams & Popay, 1994; Popay et al., 1998; Conner & Norman, 2008; Kennedy et al., 2017). Therefore, the concept of health beliefs served as a conceptual framework for the current study as beliefs seek to account for attitude and experiences.

The conceptual framework will guide the study in four important ways. Firstly, it will inform the collection of qualitative data including accounts of social, cultural and ritual symbolism (Bhui & Bhugra, 2002). This was considered important in the context of patients and doctors in Pakistan as the literature review indicates that beliefs are influenced by the specific socio-cultural context of living and working in Pakistan. Secondly, as evidence supports that causes, symptoms and treatment often do not carry the same meanings when they are framed differently or viewed from different experiences (Hannay, 1979; Kleinman, 1988; Conard & Barker, 2010; Rosendal et al., 2013); it is likely that patients and doctors have their own personal understandings regarding HTN management. Patients' interpretation of HTN, causes and treatment can vary too and may appear inconsistent to doctors.

Thirdly, within the belief framework, the position of all parties is given equal importance; in other words, a patient's experience of illness will be treated as being as important as the doctors. Fourthly, the framework was chosen because it goes hand-in-hand with calls to

improve the quality of clinical care for patients with chronic illness (WHO, 2016). In the therapeutic encounter the doctor's role is important, and he or she should ascertain the patient's beliefs (Main et al., 2010; Nimmon & Stenfors-Hayes, 2016) so that the conversation is geared towards the maximum production of new knowledge and learning. If a doctor is unable to understand and address the patient's beliefs, the person's worldview will remain intact and meaningful learning will not occur. However, doctors' own understanding about disease management is equally important and will determine the type and extent of recommendations they might make to patients.

Studies conducted in countries other than Pakistan have found that variations between the beliefs of patients and doctors regarding disease management are often associated with poor HTN control (Gascón et al., 2004; Marshall et al., 2012; Rahman et al., 2015). Information about the shared understanding of patients and doctors about HTN management in Pakistan is lacking from the evidence base and therefore represents a major gap in the literature. As the systematic review identified there is clearly a dearth of methodologically rigorous studies looking at patients' and doctors' beliefs surrounding HTN, its treatment, particularly in Punjab (the most populated province) and existing research does not go far enough to consider how patients' and doctors' understanding may influence HTN management.

2.12 Summary

This chapter has presented and reviewed literature relevant to the current study. The beliefs of patients and doctors about HTN in Pakistan have been explored by searching the relevant databases to address the first research question. This is followed by looking at broader literature to examine how culture, religion and social values may influence people's health beliefs within certain contexts. The chapter has presented a range of issues that influence both the beliefs of patients and doctors and their experiences with regard to HTN management.

Studies highlighting patients' and doctors' understanding of HTN, drug treatment and lifestyle changes which include exercise, dietary changes, smoking cessation and low alcohol consumption in relation to HTN have been explored. Finally, the chapter discusses that patients' and doctors' understanding of HTN management can be understood within the framework of health beliefs that centres on explanations and understanding acquired through actions and experience. A lack of qualitative research about the views of patients and doctors surrounding HTN management warrants further exploratory research in this area within the Pakistani context. Therefore, the next chapter will discuss the research methodology and design of the current study.

Chapter 3: Methodology

The intention of this study is to generate rich data from patients and doctors to give insights into how beliefs informed their understanding of HTN and its management. In order to gather insights, qualitative research was considered appropriate to achieve the aims of the study.

This chapter describes the theoretical viewpoint of social constructivism and the rationale for selecting this to inform the methodology of this study. It is followed by a discussion of the methodology used and the methods employed in data collection. The chapter will outline the process of data analysis, ethical issues and measures used to establish rigour for the study. Finally, the chapter will present the researcher's reflections on the research process and the dilemmas encountered during the data collection.

3.1 The Nature of Qualitative Research

Qualitative research is a systematic approach that covers different forms of enquiry and helps to reveal a social phenomenon (Merriam, 1998; Grove et al., 2014). It helps researchers to provide an interpretation of the social world of research participants by focusing on their experiences, perspectives and histories (Ritchie & Lewis, 2003). According to Silverman (2010) qualitative research is generally conducted in the natural setting of the subject in order to gain an 'emic' perspective.

Some of the key defining qualities of qualitative research highlighted by Denzin and Lincoln (1994) are that qualitative research is a naturalistic, interpretative approach concerned with understanding the meanings which people attach to phenomena (actions, decisions, beliefs, values) within their social worlds.

''The way in which people being studied understand and interpret their social reality is one of the central motifs of qualitative research" (Bryman, 2012 p.8).

The essential characteristics of qualitative research include: a belief in social realities, focus on the emic perspective, meanings and interpretations (Denzin & Lincoln, 2005).

3.2 Methodological Paradigm for This Study

A paradigm is a set of common beliefs and agreements shared amongst scientists and researchers about how problems should be understood and addressed (Kuhn, 1962, Creswell, 2013). A clear consideration of the research paradigms is critical to ensure that the research

design is positioned in terms of ontology[10], epistemology[11], positivism[12], post-positivism[13] or social constructivism.

Social constructivism is an approach that focuses on how individuals come to construct and apply knowledge in socially mediated contexts (Thomas et al., 2014). Honebein (1996) describes the constructivism philosophical paradigm as an approach that asserts that people construct their own understanding and knowledge of the world through experiencing things and reflecting on those experiences. The fundamental principle of this theory is that knowledge is a human construction and that the learner is an active participant in the learning process (Gergen, 2015). Constructivism resonates well with health beliefs framework as it enables eliciting rich information related to people perceptions of issues (Arksey & Knight, 1999). As highlighted by Creswell (2007), constructivism asserts that people's beliefs about illness are subjective, multiple and influenced by their social, cultural and historical context.

Constructivism is founded on three assumptions about learning (Savery & Duffy, 1995; Gredler, 1997; Thomas et al., 2014). Firstly, learning is a result of the individual's interaction with the environment. Thus, according to this principle knowledge is constructed as the learner makes sense of their experiences in the world. Secondly, cognitive dissonance, or the uncomfortable tension that arises from holding two conflicting thoughts at the same time, is the motivation for learning. Thirdly, the social environment plays a critical role in the development of knowledge. Thus, researchers adhering to this paradigm try to understand the world they live in, interpret the meanings of others and make sense of their day-to-day life and interactions.

According to Denzin and Lincoln, (1994) the ontological and epistemological views considered by researchers contributed to the existence of several approaches. The way in which researchers plan their research questions is likely to be partly determined by their existing ontological assumptions (Bryman, 2012). That is, the researcher's perspective on the form and nature of reality and, therefore, what there is that can be known about it (Denzin & Lincoln, 1998). The formulation and approach I have adopted in developing and addressing my research questions reflects my own ontological stance, which has been influenced by my professional background.

As a Pakistani qualified medic, I have experience of working with doctors and hypertensive patients in a hospital setting, as a former house officer. It was during the face-to-face encounter that patients usually talked to me about different aspects of their lives and circumstances that they believed were key influencing factors in the management of their HTN. From this insider experience, I am interested in revealing the individual's understanding

[10] The term ontology refers to a branch of philosophy concerned with articulating the nature and structure of the world (Wand & Weber, 1993). It specifies the form and nature of reality and what can be known about it.

[11] Epistemology refers to the nature of the relationship between the researcher (the knower) and it denotes "the nature of human knowledge and understanding that can possibly be acquired through different types of inquiry and alternative methods of investigation." (Hofer & Pintrich, 1997)

[12] The positivists believe that the world is external (Carson et al., 2002) and that there is a single objective reality to any research phenomenon or situation (Hudson & Ozanne, 1988).

[13] Post-positivism has an ontological basis where reality is assumed to exist but is imperfectly understood because of the complexity of human nature (Creswell, 2007).

of the phenomenon as contextualised in a social setting. In this study, my lens will be social constructivism which seeks to explore how meanings are created from the standpoint of the study participants.

3.2.1 Constructivism or constructionism?

The terms social constructivism and constructionism tend to be used interchangeably and are considered under the generic term 'constructivism', particularly by Charmaz (2003). However, the social context is at the centre of 'meaning making' in social constructionism and attention is placed on the 'knowing' that is created through shared production (Crotty, 1998). In contrast, within a social constructivist paradigm, the individual is at the centre of the meaning making in the experience. Therefore, the focus of constructivism is on the individual's learning that takes place due to their interactions within a particular social context (Avis, 2005). Constructivism is a research paradigm that rejects the existence of an objective reality, "asserting instead that realities are social constructions of the mind, and that there exist as many such constructions as there are individuals" (Guba & Lincoln, 1989 p.43). Moreover, constructivism emphasises the importance of culture and context in an individual's understanding and as a result, construction of knowledge is based on this understanding (Kim, 2001).

In other words, constructivists believe that social reality is constructed by individuals as they assign meaning to the world around them (Brekenridge et al., 2012). This concurs with the argument that health means different things to different people in health or other settings (Seedhouse, 2004). Within this perspective, the patient's reality about health and disease can be different to that of the doctor's reality and expertise. This is due to the fact that different people build the same phenomenon in different ways (Strauss & Corbin, 1990). Thus, there are multiple ways to understand the world, each regarded as 'true' by the individuals who describe them. For this, constructivist researchers try to understand the meaning of the interpretations of the study participants and insist that truth is relative and dependent on one's viewpoint (Brekenridge et al., 2012).

3.3 Choosing the Research Methodology

The methodology is a strategy, plan of action, process or design, lying behind the choice and use of a toolkit of research methods (Crotty, 1998). Many different methodologies may have the same underlying theoretical perspective and each methodology may be implemented using different combinations of research methods. Approaches to qualitative research, such as ethnography, narrative research, phenomenology and case study were considered for the current research, however, none provides a means to explore the perspectives of patients and doctors about HTN and its management specific to the aims of the study.

Grounded theory approaches are concerned with human perceptions and how people manage problematic situations in their daily lives through a process of data collection that is often described as inductive in nature (Morse, 2001). Grounded theory research is a naturalistic enquiry and commonly used by constructivist researchers (Guba & Lincoln, 1989).

Glaser and Strauss who originated the process of grounded theory argue that a grounded theory study involves the generation or the discovery of a theory, which is 'grounded' in the data collected from participants (Glaser & Strauss, 1967). However, since this work researchers have used grounded theory without it being a 'true' or grounded theory study and used this approach as a set of methods (Morse et al., 2009; Charmaz, 2006). A critical discussion on the grounded theory approach is described later in this chapter (sections 3.3.2).

According to Guba and Lincoln (1994) grounded theory provides rigorous insights into the areas that are unknown or hidden to the researcher. Theory induction is an evolutionary and inductive process that happens as the research proceeds and in this way grounded theorists explore individual accounts and explanations to generate a theory at the end of the research process rather than testing hypotheses from existing theory (Charmaz, 2006). However, researchers can also use grounded theory methods to analyse data and gain insights into a social phenomenon to generate a theory as long as they avoid labelling their studies as grounded theories (Foley & Timonen, 2015). The grounded theory principles used in this study are provided in section 3.3.3.

3.3.1 Debates in development of grounded theory approaches

Since the development of grounded theory (Glaser & Strauss, 1965) the methodology has passed through different stages and diverged into three different schools of thoughts. The first is classic grounded theory, which is associated with Barney Glaser; the second is evolved grounded theory linked with Anselm Strauss, Juliette Corbin and Adele Clarke; and the third is a constructivist grounded theory, which stems from work by Kathy Charmaz.

Charmaz has reshaped grounded theory and methodology considering relativist ontology (many possible realities) and subjectivist epistemology (understanding is constructed by a researcher and research participant) (Charmaz, 2003). Constructivism assumes that there are multiple social realities concurrently rather than one 'real reality'. Charmaz argued that Strauss and Corbin (1990) were being too unrealistic. She states that both approaches to grounded theory assume an objective external reality that exists and can be identified and therefore, takes a positivist and objectivist stance. This is due to the fact that Glaser warns the researchers against exploring the literature before entering the research field. This ignoring of the literature has been highly questioned by critics who propose that the literature and preconceptions instead be 'bracketed' and used for comparison with emerging categories (Hallberg, 2006).

Charmaz states that it is not possible to fully remove oneself from literature or previous experiences to conduct a purely objective analysis of data. She further adds that the prior knowledge of the researcher adds to the data collection and in the interpretation of that data. Charmaz's approach to grounded theory acknowledges the role of the researcher in constructing meaning with the study participants. Hence, Charmaz advocates a constructive approach that assumes multiple social realities.

According to Charmaz (2006) the researcher takes a reflexive stance and studies how, and sometimes why, participants construct meanings and actions in specific situations. She asserts that in qualitative research we have to enter the world we are studying and that we need to

learn from the outside (Charmaz, 2006). She states that this requires the focused attention of the researcher to discover what is important from the viewpoint of participants and what things really mean to them. Therefore, she stresses the importance of acknowledgement by the researcher of their role as well as the role of respondents in constructing the research data and theory. She states that the researcher's analysis tells a story about people, social processes and situations. The researcher constructs a story and it does not simply unfold before the eyes of an objective viewer.

Thus, according to Charmaz, grounded theory approaches should focus on meanings, actions and processes in the studied social context. Additionally, the analysis in grounded theory which relates to time, culture and context reflect both the researcher's and the participant's way of thinking (Mills et al., 2006). The researcher's interpretative understanding, rather than the researcher's explanation of how the participant creates his or her understanding and meaning of reality is the result of the analysis (Charmaz, 2006).

3.3.2 A critical discussion of a grounded theory approach

As highlighted in section 3.3.1, there are three main schools of thought in grounded theory which appear to be partly in contradiction with each other due to variations in epistemological positions. A review of the available literature provides a wealth of examples regarding a chequered history of grounded theory and fundamental differences in the development of the three strands (Glaser & Strauss, 1967; Strauss & Corbin, 1990; Charmaz, 2014). Some critiques on the methodology of grounded theory presented in the literature are discussed below.

A key feature and outcome of grounded theory is to generate or discover a theory from data (Glasser and Strauss, 1967). However, one of the main criticisms of grounded theory is that it does not result in the production or generation of a formal theory but provides a rigorous approach to the generation of concepts (Bryman, 2008). To claim that application of grounded theory always can and must result in a theory is misleading and has been criticized strongly (e.g. Bryant, 2003; Timonen et al., 2018).

Later exponents of the methodology view grounded theory methods 'as a set of principles and practices, not as prescriptions or packages and emphasizes flexible guidelines, not methodological rules, recipes and requirements' (Charmaz, 2006, p.11). Scholars' attempts to modify grounded theory have resulted in competing accounts that make it difficult to determine the precise method of implementing the methodology (Bryman 2008; Lawrence & Tar 2013). However, it has been suggested that the common outcome from a grounded theory can result in a greater conceptual clarity, explanation of a social process, lift the data to the conceptual level or develop a framework to explain a phenomenon (Thornberg, 2012; Wu & Beaunae, 2014; Timonen et al., 2018).

There is an ongoing discussion about what the end product of a grounded theory study should look like (Kelle, 2007; Thornberg, 2012). Becker (1993) argues that many researchers claim to conduct a pure grounded theory study, but they deliver elaborate descriptive studies. However, prominent scholars such as Strauss and Corbin (1990) acknowledge that formal theory building should no longer be the only end goal and they support the wider application

of this methodology for different purposes such as conceptual understanding of a phenomenon. Researchers are, therefore, advised to acknowledge the difference between doing a grounded theory study (i.e. generating a theory) and drawing on grounded theory principles/methods such as coding, constant comparative analysis and memo writing to support the development of themes (Charmaz, 2006; Judilh & Holton, 2007; De Bie & De Poot, 2016).

Another critique associated with grounded theory is the variation in terminologies amongst grounded theory strands (Brymat, 2008). For instance, Glaser and Strauss (1967) refer to a process of substantive coding (also referred as open coding) followed by selective coding and theoretical coding (Holton & Walsh, 2016). Charmaz, in contrast suggests initial (open line) coding first followed by focused and theoretical coding (Charmaz, 2014). Likewise, Strauss and Corbin (1990) introduced new concepts in their approach of grounded theory such as code notes, matrix, traditional matrix, (another type of memo-writing) and dimensions. This inconsistency in various terms between different grounded theory versions does not assist researchers when deciding whether to use grounded theory.

An obvious noted limitation is the time it takes to conduct a grounded theory study (Bartlett & Payne, 1997; Bryman, 2008). Hughes and Jones (2003) take issue with the contention that implementing theoretical sampling in grounded theory lengthens the data collection process. Theoretical sampling is the likely component of grounded theory that is not usually followed due to time constraints. Hence, researchers often decide on the study sample before the empirical work starts (Mirzaei et al., 2012; Naseeba, 2011; Davoudi et al., 2016). Likewise, transcribing recorded data followed by analysis and returning to the relevant literature after data analysis in grounded theory requires time that make this a lengthy process (Bartlett & Payne, 1997; Thomas & James, 2006; Ke & Wenglensky, 2010; Elliot & Higgins, 2012).

3.3.3 The present study

Unlike a traditional grounded theory, this study does not aim to develop a formal theory rather it seeks to glean insights that might explain or illuminate HTN management. The researcher selected a conceptual framework (see chapter two) after reviewing relevant literature to guide the inquiry, which departs from the foundational tenets of the traditional/classic grounded theory whereby theories emerge from the data. Hence, this qualitative study draws on grounded theory principles for guidance rather than adhering to strict rules to develop a new theory from the data (Charmaz, 2006).

The study employed and adapted constructivist grounded theory principles as described by Charmaz (2006), which means that the technique of constant comparison was used in order to ground the findings in the data. In the current study, simultaneous involvement in data collection and analysis, the use of constant comparative analysis technique, initial coding, selective coding, generation of categories and memo writing were used. The grounded theory processes such as theoretical coding, delimiting or sorting were not employed as these are typically used for theory development. As explained earlier (chapter two), there are limited rigorous qualitative studies available regarding hypertensive patients and the beliefs of doctors about HTN in the Pakistani context. Moreover, the available literature does not go far

enough to explain patients' and doctors' beliefs of HTN management. Therefore, using grounded theory techniques to analyse participant data, the present study aims to explore how study participants construct their beliefs on HTN management. In order to achieve this, the researcher needs to acknowledge her role in the construction of meaning, as she listens to and understands the accounts of the informants. Therefore, an ongoing reflective approach through the writing field notes and memo was adopted (Charmaz, 2006).

Reading relevant empirical literature highlighted two particular studies (Naseeba, 2011; Namukwaya et al., 2017) that used ground theory principles, and this informed the use of these principles for the study described here. A qualitative study undertaken in the United Arab Emirates drew on grounded theory methods (e.g. a comprehensive literature review, use of the constant comparative analysis technique, coding and memo writing) relevant to the current study (Naseeba, 2011). Naseeba (2011) used the constructivist grounded theory principles as described by Charmaz (2006) in order to explore patients' and doctors' perceptions of metabolic syndrome by using semi-structured interviews, in addition, to focus group discussions to identify themes. Likewise, Namukwaya et al. (2017) study that explored the understanding of and beliefs of patients with heart failure by using in-depth interviews and this was guided by constructivist grounded theory principles. Researchers employed some grounded theory data analysis principles similar to those selected for the current study (e.g. line-by-line coding, focused coding and constant comparative analysis).

3.4 Data Collection Methods for the Current Study

In this study, the aim was to explore the views of patients and doctors about HTN and its management in Pakistan. Thus, the following section explains the selected qualitative data collection tool and rationale behind the choice in order to answer the research questions.

3.4.1 Semi-structured interviews

Qualitative research makes use of many methods to collect data, however, the interview is the most frequently employed method. The purpose of a qualitative interview is to explore the views, experiences and beliefs of individuals on a specific subject and to gain 'deeper' understanding of a social phenomenon (Edwards & Holland, 2013). Therefore, qualitative interviews help us to share the world of others, to find out how people understand and make sense of the world that sits within a social constructivist paradigm. Edwards and Holland have highlighted the core features of semi-structured qualitative interviews:

> *" A thematic, topic-centred, a biographical or narrative approach where the researcher has topics, themes or issues they wish to cover, but with a fluid and flexible structure."* (Edwards & Holland, 2013. p.3).

A semi-structured interview is used when information of a more detailed and in-depth nature is required. In the course of the semi-structured interview, the interviewer has a certain amount of room to adjust the sequence of the questions to be asked and to add questions based on the context of the responses of the participant. A typical semi-structured interview schedule includes broad open-ended questions, allowing flexibility in the ordering or

rephrasing of questions and the inclusion of additional ones (Bryman, 2012; Fielding & Thomas, 2016). The qualitative interviewer uses open-ended questions and this is an appropriate technique when the depth of meaning is important and research is primarily focused on gaining insight and understanding (Ritchie & Lewis, 2003). Therefore, semi-structured in-depth individual interviews with patients and doctors have been used in this study. The in-depth interviews focused on how individuals understand and manage their condition and factors influencing the implications of lifestyle recommendations in HTN treatment.

3.5 Study Design

The following section describes the pilot study, development of topic guides/questions, selection of hospitals, recruitment of participants, data collection and analysis.

3.5.1 Pilot study

To confirm the feasibility of the current project, a pilot study (ethics protocol cHSK/PGT/UH/02214) was conducted in one district hospital in December 2015-January 2016. The district hospital is located in a city of the Punjab province. Written permission to conduct a pilot study was obtained from the hospital medical superintendent in advance.

The aims of the pilot study were:

- To confirm the feasibility of the main research project.
- To assess whether patients and doctors could be recruited successfully in an Outpatient Department[14] (OPD).
- To assess whether interviews would be an appropriate method to use.
- To identify any ethical challenges the study would raise.

The pilot study helped to refine the study design for the main project in terms of methods. For example, it demonstrated that semi-structured interviews were appropriate methods to explore participants' beliefs regarding HTN and lifestyle recommendations for the main study; and it identified practical potential challenges associated with the recruitment of participants. Twelve interviews (six hypertensive patients, six doctors) were conducted in the pilot phase. Details of changes that were made after the pilot in terms of participant recruitment and topic guides are discussed below.

Recruitment

- The pilot study identified that all hypertensive patients attend medicine OPD for services such as HTN consultation, diagnosis and treatment. Hence patients were recruited in the medicine OPD area for the pilot and main study.

[14] Outpatient Department (OPD) also called outpatient clinic in the hospital that provides diagnostic service and treatment for patients who do not need to stay overnight. It is the section of the hospital where patients are provided with medical consultations.

- It was decided for the pilot study that the researcher would recruit the patients in the OPD waiting area and visit their home later to conduct interviews. The pilot study revealed that patients preferred to give the interviews in a hospital setting and immediately following their recruitment rather than at a later time. Therefore, none of the patients were interviewed at home for the main study.
- For the pilot study, it was anticipated that a quiet area of the hospital lawn would be used to conduct patients' interviews. However, the nursing staff allowed the researcher to use one of their available empty rooms in the pilot phase. Therefore, an empty treatment room was requested from each hospital medical superintendent prior to conducting interviews in the main study.
- Some patients had difficulties in reading the participant information sheet and consent form due to poor vision or literacy issues, therefore, the researcher did not recruit them in the pilot phase. For the main study, it was decided that the researcher would read the patient information sheet and consent form for patients with poor vision and literacy issues. Moreover, based on the pilot findings a thumb impression was used for those who could not provide a signature on the consent form.
- The pilot phase identified that recruitment of doctors was challenging due to their busy schedule and constraints on time. Hence, to establish trust and familiarity was essential to make recruitment efficient. The researcher showed personal interest in doctors' activities and often involved them in informal discussions to establish rapport. This subsequently enabled the researcher to be recognised amongst doctors, which led to more interactions and communication. The same strategy was adopted in the main study.
- The pilot study identified that a snowball sampling technique[15] was appropriate to identify potential doctors. Some doctors nominated others and provided contact details of colleagues who were on holiday. The researcher contacted these doctors by making phone calls to inquire about willingness to participate. This snowball sampling technique was implemented in the main study to recruit doctors.
- Patient recruitment was a time-consuming aspect of the pilot study as the number of patients willing to participate varied each day. For instance, one day two patients were recruited successfully, in the next four days the researcher was unable to recruit any patients due to patient time constraints, lack of interest and unwillingness for an interview to be audio recorded. Therefore, more time (3-4 months) in each hospital was incorporated to recruit participants for the main study.
- The pilot study identified that doctors in the medicine OPD were an important way of inviting hypertensive patients to participate in the study. Hence doctors were provided with patient information leaflets to hand to the patient after a consultation. This strategy was added to the main study for patient recruitment.

[15] Snowballing sampling involves asking your current respondents who have already been interviewed to identify or recommend other people they know who may fit the selection criteria (Crabtree & DiCicco-Bloom, 2006; Groenewald, 2014).

Topic guides

Based on the pilot interviews, some of the terminology in the topic guides was changed, additional prompts were added, and the sequence of questions was further developed. It was recognised in the pilot study that many patients had difficulty in understanding the term 'hypertension', consequently this was changed to high blood pressure throughout the updated topic guide for patients. The tables (4i for patients and 4ii for doctors) in Appendix 4 lists the initially planned interview questions and the changes made after the pilot study. The reasons for the individual changes, additions and deletions of questions are also explained.

If the interviewee had difficulty answering a question or provided only a brief response, the researcher used cues or prompts in the pilot to encourage the interviewee to consider the question further. The open-ended questions allowed for follow up questions and prompts based on the answers given by the participant (Britten, 1995; Covell et al., 2012; Brinkmann, 2013; Singer & Couper, 2017). Consequently, in the main study, the researcher used a sheet with planned prompts relevant to each question (see Appendix 4) to elicit information from the participants.

The pilot interviews identified that it was possible to modify and change the order of any question in response to the interviewee's answers. Hence questions related to difficulties in managing HTN were moved to the end of the interview. It emerged during the pilot study that talking about high blood pressure at the beginning worked better for the interviewees. Conversely, sharing difficulties in HTN control at the start put them under pressure. Overall the pilot study provided a valuable opportunity to examine the feasibility of the main research project, participant recruitment and interview topic guides. Moreover, it helped in identifying practical challenges; lessons learned from the pilot study are further discussed in Appendix 5i and 5ii. The pilot interviews were fully transcribed and then discussed with my supervisors. This initial feedback from the supervisors assisted me in obtaining more information during the interviews and also improve my interviewing skills.

The updated interview guides (see Appendix 6) were further tested with two hypertensive patients and one doctor via Skype in Pakistan, who were approached through personal contacts and the interviews were informal in nature. These updated topic guides were translated into the national language Urdu before conducting any interviews (Appendix 7).

3.5.2 Recruitment of hospitals for the main study

The systematic review (chapter two) identified a paucity of rigorous qualitative research exploring patients' and doctors' understanding of HTN particularly in the Punjab province. Therefore, six urban government-run hospitals (three district and three tertiary) in four big cities of Punjab were selected randomly to be approached by the researcher. After identification of the potential hospitals, the medical superintendent of each hospital was identified to approach regarding access.

After conducting a pilot study in one urban hospital in Pakistan, the researcher was fully aware of the steps required to approach the medical superintendents. For instance, a brief

telephone discussion with The Pakistan Medical and Dental Council (PMDC) for guidance on gaining access to the hospital for the pilot and main study was not repeated. The steps involved in hospitals' recruitment process are set out below (Figure 3.1).

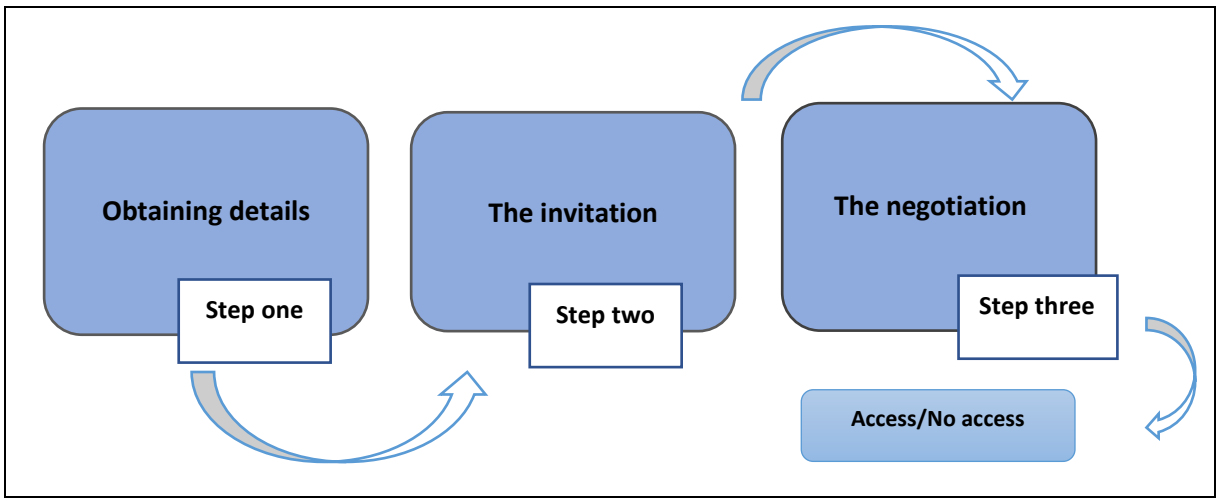

Fig 3.1 Steps involved in hospital recruitment

Step one: Obtaining details

To approach the hospitals directly, contact details of the medical superintendents at potential hospitals were obtained by the researcher using personal contacts in Pakistan. As described in Appendix 4 gaining accurate contact details of the medical superintendents was vital to approach the hospitals directly. For instance, one of the university fellows who was working in one potential hospital as a trainee doctor was approached through a social media website. The obstacles in gaining accurate details and access to the hospitals were shared and she agreed to help as required.

Step two: The invitation

The formal invitation process was initiated as carried out in the pilot study. A letter explaining the study aims and the data collection method to conduct the research study was created. The letter, along with an official student status letter and a signed letter of support from the principal supervisor at the University of Hertfordshire, were emailed to medical superintendents of six hospitals in Pakistan. The photocopies of the researcher's national identity card and the registration certificate to practice medicine in Pakistan was also provided as requested by the hospitals.

Step three: The negotiation

The negotiation process lasted for approximately four months and involved telephone conversations, email exchanges and follow-up reminders. Further details about this challenge are described in section 3.5.2.3. During the follow-up period, the former colleague identified in step one was approached for assistance. She arranged a face-to-face meeting with the medical superintendent of the hospital she was working in and clarified the researcher's intention to carry out a research study. This personal contact who was working as a staff member in the hospital not only built a relationship of trust but also eliminated the fear and

mistrust which was depicted in the beginning by the medical superintendent. As a result, a written permission to conduct the study was granted from this hospital.

Four of the other five potential hospitals were not recruited; one expressed no interest and did not reply to correspondence; three expressed concerns regarding researcher identity due to residing in the UK. In the second hospital to be recruited, the medical superintendent expressed an interest in participating and responded positively. To approve a signed written permission, an additional letter from the principal supervisor was requested with a fresh date on it. A later meeting with the medical superintendent before the start of fieldwork elicited the reason behind the positive response. The medical superintendent had personal experience of completing a research degree outside of Pakistan and could relate to the challenges a native researcher might encounter (section 3.9.1). After four months of follow up with potential hospitals, two were successfully recruited. Paperwork (the study protocol participants' information sheets and consent forms) were shared with the medical superintendents of the recruited hospitals after successfully obtaining ethics approval from the University of Hertfordshire Health and Humans Sciences Ethics Committee.

3.5.2.1 Hospital settings

The two recruited hospitals are situated in Punjab which is the second largest and most populated province of Pakistan. The first hospital is located in one city of South Punjab and is a tertiary care hospital. There are approximately 1600 beds and the hospital employ over 4000 staff. The hospital is a hub of clinical expertise in specialities such as medicine, surgery and gynaecology. There are seventeen OPDs: medicine, chest medicine, surgery, ear, nose and throat, gynaecology, dermatology, neurology, endocrinology, cardiology, physiotherapy, pathology, orthopaedics, paediatrics, psychiatry, ophthalmology, rheumatology and urology.

The inpatient care[16] units are: medicine, cardiology, intensive care unit, diagnostic imaging and ultrasound, general surgery, gastroenterology, paediatrics, maternal and neonatal unit, urology, dermatology, neurology, physiotherapy, rheumatology and renal unit. The hospital accident and emergency department was established in 2005 with a capacity of 100 beds and deals with emergency admissions twenty-four hours a day. The hospital is affiliated with a medical college and provides training to undergraduates and post-graduate students.

The second hospital is a District Headquarter Hospital (DHQ), the largest in the city and located in the north of Punjab. The hospital has approximately 250 beds and a workforce of around 2500 staff. The hospital provides healthcare services such as diagnostic, clinical and surgical to the residents of the city. Seven outpatient departments that are currently operating in the hospital are medicine, surgery, ear nose and throat, gynaecology, paediatrics, radiography and orthopaedics. More than 5000 patients are served on a daily basis across the OPDs by 30 doctors in different departments. The hospital inpatient departments are medicine, surgery, gynaecology, paediatrics and orthopaedics. The Urgent Accident and Emergency Department operate twenty-four hours.

[16] Inpatient care generally refers to any medical service that requires admission into a hospital.

The name of the hospitals, medical superintendents and study participants are not revealed in this study to maintain confidentiality and protect privacy as per the study's ethics approval.

3.5.2.2 The role of medical superintendents

As the chief supervisor of the hospital, the medical superintendent, commonly known as 'MS' in Pakistan has a legal obligation to ensure high-quality patient care and must strive to improve medical services in the hospital (Pakistan Today, 2018; Sajid & Asad, 2018). The medical superintendent assigns duties amongst heads of the departments, senior and junior doctors, nursing, paramedic and administrative staff (Glouberman, 2013). They have administrative powers to supervise all matters relating to hospital management, patient care, discipline in the hospital including punctuality, conduct and performance.

Issuing necessary instructions and approval regarding professional events such as workshops, seminars, refresher courses and activities in the hospital is also included in the duties of a medical superintendent (Bliss, 2000). Likewise, medical superintendents have the right to limit researchers access and may not support the conduct of research in their hospitals (Stanton et al., 1996). In this study, the medical superintendents were the gatekeepers[17] as they had the power to grant or deny permission for access to potential research participants. Positive influence from the gatekeepers can be invaluable to the research process by facilitating the smooth running of research activity to completion (Wassenaar & Singh, 2016; McFadyen & Rankin, 2017).

At times, gatekeeping can be problematic limiting or denying researchers access to study sites. This may be based on gatekeepers' assumptions and preconceptions about the implications of the research (Okumus et al., 2007; Clark, 2011). For instance, feelings of mistrust, scepticism and intimidation may arise due to the identity of the researchers and this compounds fears related to the close scrutiny of records, caregiving or communication by anyone external to the facility (Homan, 2001; Shenton & Hayter, 2004; Easterby-Smith et al., 2008; Hayfield & Huxley, 2015). As a result, the gatekeepers may not believe that the benefits of the study outweigh the risks and can deny access as described above. To abide with the local ethical procedure, it was necessary to gain permission from the hospital medical superintendents prior to commencing this study. Therefore, planning and contingency plans that were put into place regarding hospitals recruitment are discussed below.

[17] A term referring to the individuals who have the power or influence to grant or refuse access to a field or research setting. For example, the top manager or senior executive in an organization, or the person within a group or community who makes the final decision as to whether to allow the researcher access to undertake the research (de Laine, 2000).

3.5.2.3 Challenges and contingency plans for hospital recruitment

The pilot study ensured that many of the challenges were 'known' or anticipated before the main study commenced, which meant fewer unexpected barriers in the field. As a PhD student currently living in the UK, gaining access to hospitals for the recruitment of participants was a complicated and lengthy process, partly due to the fact that some frontline gatekeepers were suspicious of the researcher's intentions, believing her purpose to be a covert method of investigating their hospitals rather than a means of exploring the views of participants. As the researcher is no longer a practising doctor in Pakistan, therefore, she was often viewed as a foreign individual with the intention of being a 'spy in the camp' by some of the frontline gatekeepers.

The following is an extract from a response received from a hospital medical superintendent.

'Qurrat ul Ain. I know, you have made requests to conduct a research study in our hospital. You have sent me a letter, but I'm not satisfied and sure what you want to achieve by interviews. I have concerns that you might be a media person or there is something more going on. For this, you must need to come back to Pakistan and see me face-to-face. Then I can decide'.

It was not easy to travel to Pakistan frequently due to full-time doctoral study commitments in the UK and travel costs. Variation in the geographical locations of the study sites and financial issues are cited as common barriers for researchers to engage in a successful recruitment process and research (Pribulick et al., 2010; Newington & Metcalfe, 2014). Many days were spent making several requests to selected hospitals with follow-up reminders and phone discussions in order to gain access. Similar recruitment challenges have been documented by another native researcher conducting a research study at Pakistani hospitals (Yasir, 2014).

After months of continuous follow-up and with a few responses from the hospitals, it was recognised that the researcher's position as an outsider could obstruct access and threaten the progress of the study. Therefore, as a contingency plan, it was decided to take an authorised absence from the university and fly to Pakistan for face-to-face meetings with the medical superintendents to resolve concerns. However, a few days before leaving for Pakistan, permission from two hospital medical superintendents was granted (section 3.5.2). Information regarding travel dates to Pakistan, booked flight tickets and data collection timeframe was also shared with these medical superintendents in advance.

Building a relationship of trust through regular meetings with the gatekeepers, providing clear and key information about the background and outcomes of the project and acknowledging their contribution are effective strategies for maximising participation (Weierbach et al., 2010; Miller et al., 2013; Daly et al., 2019). Therefore, before travelling to Pakistan, face-to-face meetings with the medical superintendents were organised to build a relationship of trust and familiarity. This gave them a feeling of ownership through involvement in the process from the beginning of the study. This was an essential step to build good rapport to

initiate the recruitment process and is also noted by other researchers (de Laine, 2000; Clark, 2011; McAreavey & Das, 2013).

3.5.3 The recruitment of participants

The following recruitment procedures were adopted to identify and recruit participants for the study.

3.5.3.1 Patients

Hypertensive patients were recruited from the OPD of the two hospitals with the help of inclusion criteria.

Firstly, patients have a recorded diagnosis of essential or primary HTN. Secondly, the patients should have a treatment plan that recommends taking tablets and conducting lifestyle changes. Thirdly, hypertensive patients had to be ≥ 45 years of age, which is consistent with evidence that the incidence of HTN rises as age increases (Carson et al., 2011) and according to the National Health Survey of Pakistan the incidence of HTN in patients increases above the age of 45 years (NHSP, 1998). Additionally, primary HTN is unusual in younger ages and rarely lifestyle related.

The following exclusion criteria was used for hypertensive patients:

- Patients with secondary HTN were excluded due to the fact that the current study focuses on patients with primary HTN.
- Patients with severe complications of HTN (e.g. stroke and heart failure) were not recruited. This is in line with the argument that patients with severe complications rely greatly on pharmacological therapy. Lifestyle changes are sometimes either unmanageable (e.g. exercise) or less effective (e.g. stress management) in such cases.
- Thirdly, people who were unable to give informed consent such as patients with dementia, cognitive impairment and patients with severe and enduring mental illness were excluded.

Four strategies outlined by Hennink et al. (2001) were employed which included using gatekeepers, informal networks, advertisements and snowball sampling. According to Silverman (2010) access to participants can raise many challenges for the researcher and the importance of social networks, gaining access and other difficulties should be borne in mind. Therefore, as discussed previously in section 3.5.2.3 face-to-face meetings were held with hospital medical superintendents prior to approaching the study participants. To increase participation in the study, a poster was designed (Appendix 8i) translated into Urdu (Appendix 8ii) and displayed at the entrances to the hospitals and medicine OPD. Patient information leaflets were distributed to doctors in the medicine OPD to hand over to hypertensive patients and to inform them about the researcher's presence.

3.5.3.2 Doctors

The following inclusion criteria was used for doctors:

- In practice-at the study settings and treating hypertensive patients for HTN.

As identified in the pilot study, (section 3.5.1.1) a snowball sampling strategy was used to identify the doctors for semi-structured interviews (Kirchherr & Charles, 2018). To invite the doctors to take part in the study, the researcher requested that the medical superintendent introduce her to the head of the medical department to ask for their co-operation. The researcher required the contact details of doctors, which were not usually available, and therefore had to depend on help from other doctors. This sampling strategy was practical and convenient in terms of accessing and recruiting doctors. This was due to fact that those who participated were keen and willing to take part and also available at the given time and date.

3.5.4 Data collection

The following sections set out the data collection process and methods used with patients and doctors. In total 30 interviews were conducted with patients and 30 with doctors.

3.5.4.1 Conducting in-depth interviews with patients

Hypertensive patients were recruited from the medicine OPD of two hospitals using the inclusion criteria as described in section 3.5.3.1. The researcher introduced herself as a PhD student as mentioned on the participant information sheet. The researcher informed participants that she was not an employee of the hospital to ensure obtaining non-prejudiced views. The recruitment process regarding patients included identifying potential participants based on the study inclusion criteria. For example, I would sit in the out-patient department early in the morning as patients started to arrive at the hospital. After obtaining the informed written consent, I would look through their medical files to confirm their HTN status using the following:

- Verbal report of a history of taking antihypertensive drugs (only confirmed hypertensive patients can take antihypertensive drugs which is 140/90mmHg).
- Confirming the diagnosis of essential HTN through checking available medical notes and written prescription of antihypertensive drugs following their informed written consent.
- Referral to the researcher by the doctor (after consultation).

If the patient fulfilled the inclusion criteria, then he/she was invited to take part in the study and was provided with the patient information sheet and a consent form (see Appendix 9). The information sheet and consent form were converted into Urdu prior to data collection (see Appendix 10). The researcher read the participant information sheet and consent form for illiterate patients. In Pakistan, it is an acceptable practice for an illiterate person to give a thumb impression instead of signatures on all kinds of documents (Nabi et al., 2010). Therefore, four patients provided a thumb impression on the consent form instead of signatures.

The pilot phase has confirmed that patients preferred to give interviews on the same day in the hospital setting rather than invite the researcher to their home. Therefore, interviews were conducted on the same day for the convenience of the patients and in line with the ethics approval granted for the study by the University of Hertfordshire. Patients were

approached either while they were waiting for their appointment or after they came out of the consulting room. Participation was entirely voluntary, and the researcher respected the decision if a participant did not wish to take part. Permission to record the interview was obtained prior to commencing the interviews and this was also documented on the patient information sheet and consent form.

It was made clear to the patients that they had the right to read the study information sheet and take the time needed to think about whether or not they wanted to participate in the study. Patients were assured that their personal details would remain confidential and they had the right to withdraw at any given time without providing a reason. The name and contact details of the researcher's principal supervisor and the University of Hertfordshire Secretary and Registrar were provided in the participant research information sheet (Appendix 9i) should they need to report a complaint, or an issue related to the interview process.

A total of 15 patients were identified as eligible and invited to take part at hospital one, and 12 of the 15 agreed to participate. Three patients declined to take part due to demonstrating a lack of interest in the study aims and others approached claimed to be 'in a rush' and did not have time to listen to a brief introduction to the study. In the second hospital, 21 patients were invited to take part and 18 agreed. Two further patients withdrew consent at the beginning of the interview as they wanted to get home and one did not show interest in the study. In total 30 face-to-face semi-structured interviews were conducted in two hospitals with hypertensive patients.

In-depth face-to-face interviews were conducted with hypertensive patients in an available empty treatment room at the two hospitals and interviews were audio-recorded. All the patients chose to be interviewed without others present and spoke in the Urdu language, occasionally speaking Punjabi words. The shortest interview with a patient lasted for 36 minutes and the longest lasted for one hour and four minutes. To achieve greater diversity in the sample, various demographic characteristics were considered amongst the patients and asked before the start of each interview. For example, male/female, obese/non-obese, smokers/non-smokers, alcoholic/non-alcoholic, working and non-working hypertensive patients were recruited. Comprehensive details about the demographics of patients are provided in Table 3.1.

Table 3.1 Demographic characteristics of patients (n=30)

Patient No	*Age*	*Gender-Male/Female*	*Education level*	*Employment status-working/not working*	*Duration of HTN*	*Smoker/non-smoker*	*Obese/non-obese*
1	70	Female	Matric	Not working	10 years	Non-smoker	Non-obese
2	55	Male	Primary	Working	1-2 years	Non-smoker	Non-obese
3	60	Male	Masters	Working	20 years	Smoker	Non-obese
4	46	Male	Masters	Working	2-3 years	Non-smoker	Obese
5	50	Male	Primary	Working	1 month	Non-smoker	Obese
6	46	Male	Primary	Working	6-7 years	Smoker	Obese
7	50	Female	Primary	Not Working	3 years	Non-smoker	Non-obese
8	47	Female	Bachelors	Working	8 years	Non-smoker	Obese
9	53	Female	Secondary	Not Working	6 months	Non-smoker	Obese
10	55	Male	Bachelors	Working	4 months	Smoker	Non-obese

11	80	Male	Illiterate	Not Working	2 years	Smoker	Non-obese
12	50	Female	Primary	Not Working	2-3 years	Non-smoker	Non-obese
13	56	Female	Primary	Not Working	10 years	Non-smoker	Non-obese
14	49	Female	Bachelors	Working	6-7 years	Non-smoker	Non-obese
15	52	Male	Matric	Working	3-4 years	Smoker	Obese
16	46	Female	Matric	Not Working	2-3 years	Non-smoker	Non-obese
17	56	Male	Matric	Not Working	2-3 years	Smoker	Non-obese
18	60	Female	Primary	Not Working	10 years	Non-smoker	Non-obese
19	61	Female	Illiterate	Not Working	3 years	Non-smoker	Non-obese
20	45	Female	Bachelors	Working	6-7 years	Non-smoker	Obese
21	46	Male	Secondary	Working	3-4 years	Non-smoker	Obese
22	50	Male	Matric	Working	5 years	Smoker	Non-obese
23	70	Female	Illiterate	Not Working	10 years	Non-smoker	Non-obese
24	60	Male	Primary	Working	3 years	Smoker	Non-obese
25	65	Female	Illiterate	Not Working	10 years	Non-smoker	Non-obese
26	72	Female	Matric	Not Working	7 years	Non-smoker	Non-obese
27	55	Male	Matric	Working	3 years	Smoker	Non-obese
28	70	Female	Primary	Not Working	6 years	Non-smoker	Non-obese
29	48	Female	Primary	Not Working	5 years	Non-smoker	Obese
30	54	Male	Matric	Working	3 years	Smoker	Non-obese

There was only one patient (11) who reported drinking hence a separate column is not required in Table 3.1. At the end of each interview, the patient was thanked before leaving the room and debriefed through an informal chat if necessary. If a patient asked for information regarding their disease condition or treatment, they were directed to see their doctor for advice.

3.5.4.2 Conducting in-depth interviews with doctors

The researcher was introduced to doctors working in the medicine department at each hospital by following instructions from the medical superintendent. The names of doctors expressing an interest in the study were noted down in a diary and followed up the next day to confirm their willingness to take part. Contact details of those who were on leave were provided by the available doctors, so they could also be invited. Senior and junior doctors were provided with a doctor information sheet and a consent form (see Appendix 11). Doctors could read and understand English without any difficulty, consequently, the doctor information sheet and consent form was not converted into Urdu.

In-depth interviews were conducted with 18 doctors at hospital one. 8 doctors were senior and 10 were junior. Junior doctors were house officers and within the first year of their clinical experience. Among the senior doctors, 1 was a consultant physician and 3 were in post-graduate training. 2 of the doctors qualified in China and 2 had work experience in foreign countries. At hospital two, 12 doctors participated in semi-structured interviews out of which 8 were senior and 4 were junior. 4 of the doctors had qualified overseas. In total 30 face-to-

face semi-structured interviews were conducted in two hospitals and information regarding selected doctors is provided in Table 3.2.

Table 3.2 Information about selected doctors (n=30)

Doctor No	*Gender- Male/Female*	*Senior/Junior*	*Time since qualified*	*Time working in the hospital*
1	Female	Junior	7 months	6 months
2	Female	Junior	6 months	5 months
3	Female	Junior	7 months	6 months
4	Male	Senior	8 years	5 years
5	Male	Senior	10 years	5 years
6	Male	Junior	9 months	6 months
7	Female	Senior	7 years	4 years
8	Male	Junior	5 months	4 months
9	Female	Senior	10 years	6 years
10	Male	Junior	2 months	1 ½ months
11	Male	Senior	6 years	3 years
12	Female	Junior	3 months	2 months
13	Female	Senior	7 years	4 years
14	Male	Senior	3 years	1 year
15	Female	Senior	7 years	3 years
16	Male	Junior	7 months	6 months
17	Female	Junior	3 months	2 months
18	Male	Junior	1 month	1 month
19	Female	Junior	6 months	4 months
20	Male	Junior	2 months	2 months
21	Female	Junior	9 months	8 months
22	Female	Junior	5 months	5 months
23	Male	Senior	7 years	7 years
24	Male	Senior	10 years	6 years
25	Male	Senior	6 years	2 years
26	Male	Senior	3 years	1 year
27	Male	Senior	8 years	4 years
28	Female	Senior	3 years	2 years
29	Female	Senior	10 years	7 years
30	Female	Senior	6 years	3 years

Interviews were conducted in an empty consulting room and audio-recorded. All the doctors chose to give interviews in the Urdu language. The shortest interview lasted for 39 minutes and the longest lasted for 1 hour and 41 minutes. All the doctors were aware of my professional background as a medic and this has facilitated me in various ways. They believed it was a professional obligation to take part in the study due to having the same profession as was highlighted by some doctors. However, my status may have hindered their actual responses due to the impression that they were being judged by a fellow doctor.

3.5.4.3 The challenges to data collection

Several key challenges were encountered during data collection and therefore some contingency plans were implemented. For instance, travelling between two countries and collecting data in hospitals located in separate cities was not a straightforward task to accomplish. To deal with this issue, the data collection was divided into two phases. Phase one was conducted in the first hospital (May 2016 - Aug 2016) with concurrent involvement in data collection and analysis. Before beginning the data collection in the second hospital, the researcher travelled to the UK for the doctoral review assessment and soon after completing it returned to Pakistan for phase two (Dec 2016 - March 2017). In both cities,

private accommodation nearby to the hospitals was rented to overcome the travelling, as well as cost and safety issues. Unaccompanied woman living and travelling alone in Pakistan is not typical and can make them susceptible to sexual harassment (Azid, 2010; Ali et al., 2011; LaBore et al., 2019). Consequently, family members of the researcher stayed with her and provided support during fieldwork.

Scheduling face-to-face interviews with participants in the first hospital was slow during the months of Ramadan. The holy month of Ramadan[18] and long hours of fasting affected the decisions of patients as to whether to take part in the study or not. Bearing in mind the potential impact of fasting it was decided that early morning interviews would be preferable to interviews conducted later in the day. Likewise, some doctors preferred to give interviews in the evening after the iftar[19] hence a flexible approach to arrange face-to-face interviews was adopted in the month of Ramadan. Conducting interviews with senior doctors was more challenging due to their work commitments and hectic routine. It was, therefore, required for the researcher to be resilient and patient to gain their participation. On some occasions, the researcher waited for several hours and rescheduled interviews many times at short notice.

Patient recruitment and conducting interviews was also a time-consuming and lengthy process due to inflexible OPD hours. In the majority of Pakistani public hospitals, the OPDs hours are from 9:00 a.m. to 2:00 p.m. on weekdays and Saturdays hence the patient recruitment was carried out only within this timeframe. Sitting in the OPD with patients, confirming their HTN diagnosis by looking at medical notes, identifying eligible patients, reading the participants information sheets and consent form when required and conducting face-to-face interviews were intensive features of data collection. The number of patients recruited per day varied and, in some instances, the researcher was not able to recruit a single patient in four to five consecutive days. In such a scenario, it was essential to remain motivated to achieve patient recruitment for the study. The public holiday period and bad weather also affected the data collection process twice as hospital OPDs do not operate during public holidays and patients tend to avoid going out in bad weather conditions. During these days, the researcher stayed at home and utilized this time in translation and transcription of the participants' interviews.

Qualitative research is not a commonly conducted activity in Pakistan, especially in the public hospitals and this led the researcher to face some unique challenges. A female researcher carrying and signing the consent forms and using an audio recording device attracted the attention of many male patients. Several patients discussed the value of the consent form in detail with researcher. Furthermore, some patients asked personal questions such as researcher family background, why she preferred to study in the United Kingdom and how

[18] Ramadan is the nine month of the Islamic lunar calendar and a month of fasting and praying for Muslims. During this month, Muslims fast lasting 29-30 days and more emphasis is placed on spending time in prayer, helping the poor and reciting the holy book Quran at home or at mosque.

[19] Iftar is the evening meal with which Muslims end their Ramadan fast at sunset.

she managed to pay tuition fees. In dealing with the dynamics of such conversations, the researcher handled these questions diplomatically and tried not to offend the participants.

Gender segregation in public places is not a cultural norm in Pakistan (Shaheed, 2010; Ali et al., 2011; Durrani & Halai, 2018). Males and females without marital status or immediately related through family are not expected to be seen together behind closed doors. Whilst conducting the interview with participants the researcher had to sit in a room with a closed door to ensure the confidentiality of the interviewee. This was also seen as an unusual cultural practice by some hospital staff and raised several questions as to researcher identity as a Muslim female. In such cases, it was essential to explain the ethics behind qualitative interviews and reasons for them being conducted behind closed doors.

3.6 Ethical Considerations

Ethics approval for the study was obtained from the University of Hertfordshire (UH) Health and Human Sciences Ethics Committee with Delegated Authority cHSK/PGR/UH/02406 (see Appendix 12). Permission letters from hospitals in Pakistan are attached after redacting personal details for confidentiality purposes (see Appendix 13).

Ethical principles set out by the UH Ethics Committee were strictly followed, in addition to research ethics and regulations set by PMDC. The four ethical principles of autonomy, non-maleficence, beneficence and justice highlighted by Beauchamp and Childress (2001) were considered throughout the study. Particular consideration has been given to ensure the confidentiality, dignity and anonymity of the participants.

3.6.1 Confidentiality of participants

Participants were informed that it was entirely up to them whether to give answers or not and they may withdraw at any point during the study without giving any reason. All data electronically stored were password protected and under no circumstances will identifiable responses be shared with anyone. All personal data were stored in a locked filing cabinet in the researcher's home and will be destroyed after submission of the dissertation. No personal data were stored on a computer. Digital recordings were erased on completion of the study.

Care was taken while presenting the findings that the excerpts from transcripts used could not be linked to individuals. Furthermore, identities of the patients who took part in the study were not disclosed to their doctors.

3.6.2 Non-maleficence

Vulnerable subjects were not the focus of this study, although the challenge for researchers is that harm can take many forms and is not always easy to predict (Sanjari et al., 2014). Possible harm can be physical, social and emotional. The open-ended qualitative interview, with its possibilities for discussing unexpected topics and therefore emotional dynamics, can be significant for the interview process (Edwards & Holland, 2013).

This study does not address particularly sensitive issues; however, patients did require further reassurance about their condition and when patients expressed a need for further information they were directed to their doctor. During the interview, three patients became emotional and upset by recalling previous stressful life events such as the death of a spouse and domestic violence. I offered to stop the interview at this point, but they insisted the interview be continued. All the participants cited the interview as a positive experience and shared that it gave them an opportunity to think about and discuss their experiences in a way that they would not normally do.

3.6.3 Informed written consent

Consent is an agreement provided by a person to participate in research once they have had explained to them what is involved, and it helps to ensure that the person is not misled (Silverman, 2010). Informed written consent was obtained from all the study participants before the beginning of data collection. An informed decision to participate was facilitated by the provision of a participant information sheet and a verbal explanation about the study.

As Urdu is the national language in Pakistan, I had the participant information sheet and consent form translated into Urdu with all the information required in order for participants to make a decision. The researcher was able to read and explain the participant information sheet and consent form for illiterate patients. In Pakistan, it is an acceptable practice for an illiterate person to provide a thumb impression instead of a signature on all kinds of documents. Therefore, four illiterate patients gave their thumb impression on consent forms instead of signatures.

3.6.4 An additional ethical protocol specific to this study

Researchers do not have an automatic right to intervene in the lives of participants. In this study, the researcher is a qualified medic in Pakistan. In such instances, the researcher is required to acknowledge the obligations to the professional code as a clinician (Holloway & Wheeler, 2002). By the same token a commitment to ensure the integrity of the research is also a priority. In such a scenario the researcher then possesses shared loyalties, and the question arises as to whether the researcher is obliged to pay greater faithfulness to the scientific method and the research or to the concerns of the participants (Jones & Jack, 1999; Israel & Hay, 2006).

Elliot and Wright made the decision to only intervene in patient care in the event of an emergency (Elliot & Wright, 1999). Similarly, Davies et al. (2000) only intervened directly in caregiving when they predicted a situation to be possibly dangerous: for example, when the observed nurse was about to make a drug error. These scenarios demonstrate the need for an ethical protocol for the research. Therefore, prior to the commencement of fieldwork it was decided to generate and adhere to an additional ethical protocol and this was generated for the current study which was also in line with the PMDC ethics. This was also discussed in advance with my supervisors and the hospital medical superintendents. The ethics protocol with the associated actions has been attached (see Appendix 14).

As a qualified Pakistani medic, I was aware of my additional professional code of ethics and moral responsibility. This additional responsibility and to follow the ethics protocol came into practice during the data collection at site two, when I was called by a staff nurse to give a patient cardiopulmonary resuscitation. The patient's life was at risk and I therefore had to acknowledge the obligations to the professional code as a doctor and continued help until the duty doctor arrived.

3.7 Consideration of Data Sources, Governance and Management

The following section identifies the ways that data was recorded, transcribed and managed.

3.7.1 Translation and transcription

All interviews were recorded on a digital recording device. Recorded material was transferred to a USB device which made transcribing on the computer convenient. Both English and Urdu are the official languages of Pakistan; however, Urdu is the native language. Becker and Gee (1957) argue that the researcher should be familiar with the language of the participant in order to ask understandable questions and to interpret the responses correctly. As an insider, my familiarity with medical jargon and fluency in both national and local languages assisted me in reducing language barriers. Moreover, as a bilingual individual, I have been involved in translation at different stages in my life, at school and in university projects, for my family members who cannot speak English and during my professional development. It was essential to translate and transcribe the interviews alongside the data collection phase in order to become familiar and to involve myself in the immersion process. Therefore, I transcribed all the interviews straight into English. Features of interviews such as emphasis, the tone of voice and pauses were also transcribed (Bailey, 2008). Some doctors had qualified overseas and were fluent in English, however, they were given the freedom to choose the language and they preferred Urdu.

At the end of the transcription I double checked all the transcripts against the original audio recordings to ensure local meanings were captured as far as possible. It also enabled the researcher to add comments and compare the recorded material with interview notes in order to remove any ambiguity. Preparing typed transcripts for all translated recordings took a substantial amount of time and effort, particularly as it is sometimes challenging to find the identical term in English. It was occasionally a challenge to convey the meaning of an Urdu phrase or word into English; therefore, such contextual words or phrases have been used in their original form in the transcripts and will be included in the dissertation, where needed or appropriate.

3.7.2 Qualitative data analysis software

There has been some opposition to the use of computer-assisted qualitative data analysis software. Some believe that using software may guide the researcher in different directions

and could distance the researcher from the data (Seidel, 1991; Thornberg & Charmaz, 2014). According to Weitzman (2000) using software does not reduce familiarity but may alter the researcher's closeness to the data and for some this may assist in understanding their data better when it comes to analysis.

Many of the critiques of computer-assisted software are as a result of misunderstanding the software skills (John & Johnson, 2000; Lewins & Silver, 2007; Lu & Shulman, 2008). None of the available programs actually analyse the data but rather help the researcher in managing the analytical process. Without the aid of computer-assisted data analysis software, analysis proceeds by cut and paste style methods, involving photocopying numerous copies of transcripts and as a result, data becomes unmanageable, problematic and time-consuming.

There are several software programs available which assist with qualitative data analysis. In this study, a computer-assisted qualitative data analysis software program called NVivo (QSR Version 11) was used alongside manual coding techniques. This program was chosen due to its availability to the researcher, but also due to its unique and flexible features required for a grounded theory study: for instance, coding collected data, constructing network diagrams out of coding and different visualisations of relationships between the data as well as a coding scheme. Furthermore, the NVivo software proved to be a useful tool for coding, allowed similar themes to be grouped together and redefining of the codes in order to support the analysis process.

3.8 Data Analysis

There is no particular moment when data analysis starts. "Analysis is a matter of giving meaning to first impressions as well as to final complications" (Richards, 2009. p.45).

With grounded theory approaches, data analysis occurs simultaneously with data collection in a "zigzag" fashion (Charmaz, 2006). The researcher's visits to the data collection fields are interrupted by concurrent phases of data analysis. This process of constant comparative data analysis helps identify themes from subsequent interviews and compares them to previous interviews (Creswell, 2013). The advantage of having a concurrent data collection and data analysis enables a clear understanding of the social and cultural factors that impact the phenomenon being investigated. This understanding provides the researcher with a cultural lens with which they can analyse the study participants.

3.8.1 Familiarisation with data and manual coding

Through listening, transcribing, reading and re-reading the data, the collected data became more familiar in order to gain a 'general sense'. I printed off the transcripts in order to highlight and carry out manual coding during the data collection. Initially, coding was done by making notes on the transcripts by using different coloured pens to highlight different themes. This manual coding helped to identify the basic themes and developing categories.

In the beginning of the coding process the use of simple logical flowcharts and diagrams are common amongst grounded theorists to explain the different levels of connections (Strauss & Corbin, 1990). Therefore, mapping diagrams sketched manually or by using Word SmartArt assisted in making connections between various issues and factors (Appendix 15). This helped me to understand how various relationships exist within a concept and how these were related. Furthermore, examining the audio and transcription side by side assisted me in probing and counter-checking the emerging issues with the subsequent participants.

3.8.2 Generating initial codes and child nodes

All recordings were typed into English in MS Word files and then imported into NVivo for coding. According to Miles and Michael (1994, p.56) "Codes are tags or labels for assigning units of meaning to the descriptive or inferential information compiled during a study". Codes usually are attached to 'chunks' of varying size-words, phrases, sentences, or whole paragraphs, connected or unconnected to a specific setting.

The function of codes is to indicate what is talked about in a segment of text. Therefore, the identified text in the transcript is grouped into codes or nodes, and descriptive labels were applied to the data. This resulted in segmenting the texts into units of meaning. Although this generated a large number of codes it ensured that all instances of phenomenon were labelled. After spending a lot of time in creation of the main nodes, data was re-read to identify deeper patterns to identify the property which resulted in child nodes against sub-themes. A child node is a node extending from the main node (Lichtman, 2001). For example, initially the main node of high blood pressure had three child nodes named diagnosis, symptoms and causes. Transcripts were defined separately in NVivo by 'patient nodes' and 'doctor nodes'.

Words and lines were examined carefully, and hence line-by-line analysis was performed to ensure that all data were handled systematically. The nodes were reviewed to identify the areas of overlap or if linked were grouped together. Keywords and phrases were noted on differently coloured post-it notes in a coherent order on a poster sheet. As more coding of transcripts was completed the sheet started to look like a brainstorm map or a tree where branches of thought grew from different categories. This strategy was particularly utilised after the data collection at the first hospital one in order to understand what required more exploration at the second.

3.8.3 Selective/focused coding for theme identification

Selective or focused coding serves to bring the data together in different ways and examines the relationship between coded categories (Strauss & Corbin, 1990). This stage involved collating all the coded data extracts within the category and all the identified categories into one key theme. According to Charmaz (2006) focused coding involves using the codes that are more significant and frequently used to explain larger amounts of data.

This stage involved going back and forth between the codes. Key codes were extracted such as those that were used frequently and were grouped together. For example, 'traditional

food' 'eating practices' and 'peer influence' were grouped to develop the focused code. With the next stage being a comparison of data to the focused codes, which assisted in refining them in order to identify the theme. It was important to see the similarities and differences in the views of participants about a particular concept by using a technique of constant comparative analysis. Therefore, the coded data were merged into one single MS Word document. In this way, one code in two different transcripts (patient, doctor) was compared side by side. Using the technique of constant comparative analysis, I was able to compare codes with codes, categories with categories and categories with concepts (Charmaz, 2014).

Memos help the researcher to write down questions, arguments, thoughts and emerging hypotheses. Glaser mentioned memos as "the core stage in the process of generating theory, the bedrock of theory generation" (Glaser, 1978, p. 83). Therefore, memos have been written throughout the process of coding to keep track of the ideas regarding data. Memos helped me to record my own thoughts and reflecting on the analysis process. A visual representation of data coding steps employed in this study are presented in Appendix 16.

3.8.4 Data saturation

The term theoretical saturation in grounded theory approaches is used when researchers reach a point in the analysis of their data that sampling more participants will not lead to more information related to research questions (Charmaz, 2006). Therefore, researchers check data for similar instances to ensure that no additional data can be found to develop new properties of codes.

During the analysis process, sampling and interviewing continued until no new information was found in the additional interviews. When using a grounded theory approach, there is a set of processes that the researcher needs to adopt and by following these the researcher ensures a robust exploration of the area under consideration. Flick (1998) states that researchers need to pause and reflect on identified categories and then decide which codes need further exploration in the light of the research questions. Ultimately the depth and range of data analysis must be sufficient to enable the researcher to tell a plausible story (Flick, 1998; Charmaz, 2006).

In this study, data were revisited many times to understand the issues and factors in the management of HTN. The themes that emerged during the data collection in Pakistan were regularly discussed with supervisors via Skype meetings in order to explore these themes further with the next participants. For instance, some emerging issues in patient interviews were counter-checked with doctors in their interviews. As the data collection progressed accounts from subsequent participants did not add new information on factors influencing the management of HTN. Therefore, I felt that saturation was achieved with 30 patient interviews and 30 doctor interviews and no further themes emerged. To confirm the saturation status, two further interviews were conducted. However, these additional interviews were not found to produce any new themes. While data collection ceased at this point, analysis continued until the final refinements to the core conceptual categories were made.

The data coding frames used for patients' and doctors' data are presented in Appendix 17i and 17ii. The coding frames helped to organise the findings as presented in the next two chapters. Chapter four will present qualitative findings from the semi-structured interviews conducted with patients and chapter five discusses the themes related to doctors' interviews. A consideration of the similarities and differences between the two sets of data is provided in chapter 6, the discussion chapter.

3.9 Trustworthiness of Qualitative Data

Evaluating the validity and robustness of qualitative data analysis is essential for incorporating the findings into practice and the delivery of care. However, qualitative researchers do not speak about validity in the same way as quantitative researchers. Qualitative research is frequently criticised for lacking the scientific rigour and lack of transparency in its analytical procedures as compared to quantitative research (Rolfe, 2006; Silverman, 2010; Noble & Smith, 2015). For the researcher, demonstrating rigour when undertaking a qualitative research is challenging as the enquiry carries an element of subjectivity and personal bias.

I immersed myself in the data by undertaking translation, transcription and analysis, which allowed me to understand the experiences of participants closely. Moreover, using external checking from a bilingual colleague on transcription and from supervisors on the coding process was another source of establishing the credibility of the qualitative data as suggested by Silverman (1993). I reflected upon and acknowledged my role in the collection of data, conducting interviews and during the analysis process. Being reflective gave me the opportunity to learn the importance of self-critiquing and self-appraisal through every step of the research process. I needed to carefully monitor my position in the research process and the relationship with the study participants. I will now provide further reflections on this process.

3.9.1 A reflective stance

Despite residing and studying in a foreign country for the past five years, I consider myself primarily to be an insider due to having been born and raised in Pakistan and belonging to the same professional group as the doctors involved in this study. The experience of working with doctors and patients in Pakistan has sharpened my awareness of cultural nuances and meant that I had a certain degree of prior knowledge about the study participants, surroundings and the hospital environment. I was confident that my position as an insider would allow me to be more easily accepted. However, this did not always mean that I was considered to be an insider in the eyes of gatekeepers. Experiencing 'strange' and 'familiar' experiences at the same time enabled me to understand that the experiences of a researcher from outside Pakistan can be very different to those of a researcher considered to be an insider.

I spent many days making several requests to different hospitals, with follow-up reminders and in phone discussions in order to gain written permission. At that point, I often felt myself to be as much an outsider as a non-Pakistani national or someone with no prior experience in the field. Eventually I gained permission from two hospitals where I had never worked in the

past. I remained focused that my aim as a qualitative researcher was to understand the 'emic' perspectives of study participants with reference to HTN and its management and in order to achieve this I found myself busy establishing rapport, getting to grips with obtaining consents and organising interviews. However, a number of challenges became evident and brought me to the realisation that an external researcher may face many difficulties due to a number of factors.

Declaring my profession to study participants assisted in establishing a good rapport with them, although this self-presentation was often faced with a degree of criticism on several occasions. While conducting the interviews, I came across some phrases such as 'you know better', 'you already know,' 'you know better than me' which made me uncomfortable and placed me under pressure. This was partly due to the fact that I wanted my participants to see me differently as opposed to my previous role as a medic. At that point, I realised that it was difficult to shift from my role from medic to the researcher. In an attempt to achieve a balance, I would wear a researcher's badge in the field displaying the University's logo and my name. I often found that I remained silent in the common room during discussions confirming the diagnosis and commenting upon drugs, wondering whether anyone had noticed that I was not contributing to the discussion.

Furthermore, some of the doctors revealed more information than they would have perhaps been naturally comfortable with if they had not viewed me as a colleague, I, therefore learnt when to turn off the tape recorder to strictly follow ethical standards. Any break down in the boundaries between researcher and the individual under research may result in ethical issues if participants treat the researcher as a confidante or counsellor, and therefore reveals more than they would naturally feel comfortable with (Watts, 2006; Sanjari et al., 2014). I began to appreciate my position as an insider clearly when an evening hospital medical superintendent involved me in an informal discussion around HTN management. The medical superintendent shared own valuable experience of being a research student in a foreign country and the challenges involved in gaining access. At that point, I realised that access was granted, as the medical superintendent was aware of the obstacles in the recruitment of hospitals and data collection.

Being a Pakistani Muslim female brought up in an Islamic society, I felt a responsibility towards my religious and traditional heritage. I had to act in a way that fulfilled the societal regulations and expectations. Hence, I chose to wear a traditional Pakistani dress (salwar kameez)[20] with a 'dupatta'[21] to cover my head during the fieldwork. This did not pose a dilemma as it was not incongruent with my personal life in Pakistan. Many scholars (Davis, 1992; Entwistle, 2000; Ellingson, 2006; Okely, 2007; Lloyd et al., 2008; Wray & Bartholomew, 2010; Zubair et al., 2012) have pointed to the important link between dress and identity whereby dress serves as a visual metaphor for identity and as an insignia by which we are read and come to read others. The insider role facilitated my recruitment of participants since patients usually have

[20] The salwar kameez is the national dress of Pakistan and it is a cultural practice for women to cover their heads.
[21] Dupatta is a shawl like scarf and worn across both shoulders and around the head. It is used most commonly as part of the women's shalwar kameez dress.

clear boundaries of self-disclosure and it can be difficult for them to reveal their personal stories to an outsider. In a male-dominated Pakistani society, it is a common belief that women who live in the West are usually open-minded and compromise on their moral values. Wearing an Asian dress during fieldwork led to some doctors questioning why I was not wearing a Western/modern dress in the hospital. Furthermore, some male doctors tried to be somewhat informal and offered a lift home. Although I had to behave in a professional way that did not compromise my respect within the environment and my own moral standards. Therefore, the necessary action of involving the hospital medical superintendent was taken when required.

During translation and interpretation, I had to make judgements about the meanings contained within the language and spent a lot of time trying to estimate the degree to which different cultures would identify with those meanings. I am fluent in the language of participants in the study, and therefore had an advantage in terms of research methods over other researchers in cross-cultural research who are not as proficient in the language. Using a researcher's diary to note down field notes and my own thoughts were one of the reflective strategies I adopted during the data collection process. This involved me in asking myself various questions throughout the data analysis, such as what led me to a particular perception and why. Being reflexive (Etherington, 2004) enabled me to learn the importance of self-critique and self-improvement through every step of the research process.

Dilemmas arise in research regardless of the position of the qualitative researcher, but what is vital is to understand how these issues can be managed to be aware of one's own position and any blind spots within the field in order to enhance understanding and trustworthiness of the data.

3.10 Summary

This chapter has presented the methodology employed and explained how the study was conducted. Detailed information was provided about the sampling and recruitment of the participants for the study. The chosen data collection method helped to explore an in-depth understanding of the perceptions and experiences of patients and doctors. This chapter also outlined how the data were collected, managed and the process of constant comparative analysis. Finally, reliability and validity of the qualitative research through the consistency of study procedures was explained.

The following two chapters present the findings from the data analysis regarding the perspectives of patients and doctors about HTN management, respectively. Chapter four presents the patients' understanding of HTN management whilst chapter five presents the themes related to doctors' perspectives of HTN and its treatment.

Chapter 4: Patients' Perceptions of HTN and its Treatment

The analysis revealed four main themes regarding patients' understandings with regard to HTN, treatment, lifestyle recommendations and involvement in alternative strategies. This chapter will describe these themes and associated categories that emerged during interviews with patients and presents evidence of how patients sought to manage HTN in their own ways.

4.1 Perceptions of HTN

Patients were asked about HTN in terms of how they understood the disease and conceptualised HTN in everyday life. The categories linked to this theme are diagnosis, symptoms and causes of HTN.

4.1.1 Diagnosis

Diagnosis is the point at which patients receive confirmation of their condition through consultation with a doctor. In this study, the responses of patients indicated that they were able to recall and list their diagnosed HTN status as documented in their medical files. The majority of patients interviewed cited that their diagnosis of HTN had occurred during routine clinical visits for another medical condition. They provided detailed explanations of the events that led up to diagnosis of HTN and how they became aware of their condition.

> *I was just sitting near to stove to make tea in the evening, one day; then I felt suddenly, suddenly……something is wrong with me like my head was spinning. Then, I went to a nearby hospital, there doctor told me that your blood pressure is very high. Then he gave me tablets to take and placed one tablet under my tongue. He told me take a tablet every day and come after a week…hmmm…when I went after a week it was again high. He then confirmed that you have this disease. Umm. I was all right before that. (Patient 25)*

Patients described their initial reaction to being diagnosed with HTN as one of confusion and denial. The 'sudden' diagnosis of HTN and the instant necessity for reliance upon prescription drugs came as a shock to many patients. This denial in relation to diagnosis was more common amongst patients who perceived themselves to be physically 'fit' and had not previously experienced any symptoms.

> *When…. my doctors [first] told me about disease diagnosis, I was shocked and worried. I thought I was all right so how this can be possible? It was difficult for me in the beginning but gradually I became used to it and started my treatment. (Patient 21)*

They described that diagnosis of the disease requires physical symptoms and were therefore uncertain about their diagnosis of HTN as they had not experienced any such indicators of the disease.

> *I think, I was shocked in the beginning due to no symptoms and nothing. Disease must be with some symptoms and warning signs. But gradually after the diagnosis, I had the disease symptoms and then I thought oh yes, this disease can be without symptoms. (Patient 7)*

Definitions and meanings of HTN

Most of the patients struggled to define high blood pressure. They reported their own description such as 'high blood' or 'tension' and explained this as a pressure of blood distributed in the veins to control the heart.

> *I think it's the pressure of blood that run-in veins. It becomes high when pressure raises and become low when it settles. Hmm… I think when the first one, the top one, not the bottom one, crosses 130 number then it becomes dangerous and high. When it stays below or on 120 then its normal. (Patient 1)*

Some patients possessed awareness about systolic and diastolic blood pressure; however, patients did not report that these levels were used to achieve optimal blood pressure control and low blood pressure readings.

> *I don't know what the top and bottom numbers [are] about blood pressure. I think they are the same. What can I tell? I don't know really, it seems complex and I really don't know. (Patient 7)*

Most patients reported HTN to be a dangerous disease in the context of complications such as the possibility of having strokes and were therefore concerned. They understood the consequences of the disease but not necessarily the medical explanations of HTN which led to these serious outcomes.

> *I have heard from many people that it can develop serious complications in the human body very easily. I [have] heard that if the blood pressure shoots suddenly, it could even result in the bursting of a blood vein. I have also heard that a patient can get a paralysis due to the problem of high blood pressure. (Patient 30)*

> *I think it's a terrible disease, it can kill you gradually. It can cause stroke and heart attack in people. I have seen many people suffering and heard about this. (Patient 11)*

Whilst some patients attempted to explain HTN in the context of its severity, conversely, many patients relied on descriptions of the symptoms and causes to understand HTN.

4.1.2 Symptoms

Medical literature often describes HTN as a silent killer (Zusman, 2009; Accad & Fred, 2010; Makridakis & DiNicolantonio, 2014). However, many patients reported the manifestation of three to four physical symptoms as the disease progressed, including headaches, muscle pain, dizziness and fatigue, which they associated with increased blood pressure. Symptoms were characterised as having serious features and were often gradual in onset.

Most patients reported frequent bodily aches and pains associated with tiredness and fatigue; however, the most common complaint was a throbbing pain and unpleasant sensations to the head. Some patients described experiencing problems with their sleep patterns, such as frequent waking, sleep deprivation and nightmares. The impact and experience of such symptoms gave rise to frustration and emotional distress amongst patients on many occasions.

I feel so much pain in my whole body. I feel backache too. I feel headache and at times my veins move very fast and I can even feel that sensation on both sides of my head. I feel someone is hitting me on my head. I feel tiredness in my legs…you know in my legs, I feel no energy and [I have] pain in my leg muscles. (Patient 17)

I feel headache and severe headache like throbbing. I become angry too and my mood changes. Then I know that this is due to my high blood pressure. The headache and pain [is] all over the body most of the time. (Patient 25)

Patients were concerned about the possibility of a recurrence of symptoms such as dizziness and felt that they could tell if their blood pressure was better or worse by the intensity of their physical symptoms. A few patients said they often experienced headaches and stated that they would invariably self-treat the headaches with painkillers, drinking extra water, having a rest, or simply just waiting for the headache to subside. They did not appear to regard less severe symptoms as a serious risk and believed they could be minimised with stress-reducing activities. However, they viewed a change in their heart rate, particularly with pain to be a possible sign of a heart attack or stroke and therefore believed these symptoms to be serious.

Many patients expressed that the onset of HTN symptoms had a negative impact on their work productivity and reported a significant decline in their ability to focus. They described that due to constant headaches and impaired vision as a result of HTN, they were unable to work and focus as effectively as their co-workers. The appearance of such symptoms forced patients to take sick leave from work and consequently consider taking early retirement due to the impairments HTN was causing in their working lives.

When I have high blood pressure then I don't go to work and send my sick leave to my officer. I'm thinking to take retirement early due to this disease because I cannot work the way I was used to do before this. My vision is badly affected, and I cannot concentrate much. I often have headache. (Patient 22)

High blood pressure has affected my life because sometimes my blood pressure rises, and I stop my trailer on the side of road until my blood pressure gets settled. Sometimes, I cannot go to work and talk happily with people as I was used to do so. My company also advise drivers not to drive if they are not feeling well. (Patient 15)

Some patients experienced impaired interpersonal relationships and family conflict following the onset of the disease. Patients described experiencing changes in mood and anger issues after the occurrence and exacerbation of their symptoms. Some men reported becoming aggressive and physically violent towards their wives and children which often resulted in the breakdown of relationships. One patient described experience as follows:

When my children don't listen to me. I feel angry, very angry…. my heart says that I should beat them hard. Then, I expel my anger on others like my wife and slap her or my kids, sometimes. I know, it's not good… Hmmm. But I cannot control my mood and anger due to this disease. I often go to the room and close my door inside unless I feel better. (Patient 3)

One woman shared how her HTN symptoms had led to a breakdown in her relationship with her husband. She cited not being able to tolerate the controlling nature of her husband after her HTN diagnosis and this had a devastating effect on the stability of her marriage.

> *My husband was not able to understand my situation. He is very controlling. Ever since I have high blood pressure, I have become impatient and I could not fulfil his demands and orders. We had a fight and he has sent me to my parents' home now. He says he will go for another marriage now. (Patient 20)*

Patients' believed that the HTN affected many aspects of their daily life. They described how mental, physical and family life had been affected in a number of ways after being diagnosed as having HTN and experiencing its symptoms. The consistency and frequency of physical symptoms had been the trigger for some patients to visit their doctors and receive a confirmed diagnosis. By contrast, patients who had experienced no HTN symptoms were less likely to take the condition seriously, considered the illness to be harmless showing that it is therefore vital to gain insight into the beliefs of these patients with HTN management.

4.1.3 Causes of HTN

Stress due to financial problems and interpersonal issues was highlighted as a main cause of HTN amongst patients. A few patients mentioned that eating an unhealthy diet increased their blood pressure and this will be explored further in section 4.3

Stress

A stressful lifestyle was a common cause highlighted by most patients as hindering optimal control of their HTN and this also included patients who claimed to be adhering to their recommended treatment plan.

Stress was perceived as both a cause and a consequence of HTN by almost all patients and they also identified specific sources of stress. Patients' reported avoiding stressful situations but frequently mentioned stress-inducing factors that they perceived out of their control, such as the sudden death of loved ones or emotional tensions with their spouses and family members. More generally, male hypertensive patients associated job-related stress and unemployment as reasons for their constant high blood pressure, whereas female patients reported stress caused by their husbands and in-laws.

> *I don't think there is any other reason behind this disease than the tensions. In me, it happened the day when my husband passed away on Eid day and went to Allah. After that I started this disease due to stress because things had changed like my responsibilities and I had no idea how to manage those. I was worried and took tensions and now I'm here with high blood pressure. (Patient 12)*

Many patients described tension and difficult relationships within their immediate environment and felt that family members were unsupportive. When living within extended family networks this situation was exacerbated due to the frequent contact with other relatives. Most female patients reported feeling that there was a lack of adequate support

from their husbands. The following extract from an interview with a female patient illustrates how family relationships were perceived to negatively influence the well-being of individuals, which in turn was thought to impact the severity of HTN for patients.

> *K: My child, I have lot of tensions in my life. My elder son has left me and moved with his in laws. I can't live without his children. Without my grandchildren, I feel broken and incomplete. My daughter-in-law don't allow my grandchildren to come and live with me.*
>
> *[Pause]*
>
> *My husband…Umm… had diabetes due to that doctors had to cut his leg in an operation to spread the infection… now my husband thinks I did this to him by allowing doctors due to my evil intentions. But I had no evil intensions. Umm. Now I'm just passing my time here and feel very helpless. He is taking revenge from me by giving me tensions and he knows tension is not good for me.*
>
> *[Crying]*
>
> *Q: I can understand what you are going through. It must be so stressful.*
>
> *K: My younger son… he has a wife and two children, but he doesn't care about his family. He is also a drug addict. I'm taking care of his wife and kids.*
>
> *Q: I'm so sorry to hear this. Hopefully everything will be fine soon.*
>
> *K: Now I'm affording the treatment cost of my son as well so that he should leave the drug addiction. Due to these tensions I got this disease and now my blood pressure remains high. (Patient 23)*

Similarly, some female patients reported communication problems with their in-laws and as a result felt helpless and depressed. They described that in-laws often viewed the cost of HTN treatment as a financial burden on their sons which brought additional worries and frustrations in family life. Due to these tense relationships with in-laws several female patients experienced a lack of financial and emotional support from their husbands.

Financial difficulties directly affected the emotional well-being of patients and caused uncertainty, insecurity and stress. Such situations had knock-on effects when it came to choose a healthy diet and the acquisition of drugs that often led to poor HTN management in hypertensive patients. As the following patient describes:

> *My father has separated me after marriage. Now, I live in a separate house, I have my family, house rent, electricity bills, telephone bills, and children school fees, then my disease. When I go to bed at night, everything comes into my mind. These tensions never spare me. I even don't buy healthy food and my medicine sometimes. This is really not good for my health, I know. (Patient 6)*

Limited financial resources and the need to keep within a fixed budget created a state whereby compromises had to be made and less healthy, high calorie food was chosen over more expensive healthier options. The recommendations of doctors to eat healthy food was seen to be an additional source of stress for patients as this was not always possible on a daily basis.

Difficulty meeting the cost of drugs was another reason to cause stress amongst hypertensive patients. As a result of financial hardship, patients often delayed purchasing their antihypertensive drugs, or sometimes stopped buying them altogether and this was perceived to lead to further deterioration in the condition of their health.

> *When I don't have money to afford my tablets then I don't buy at all. Because income is limited, and I have a lot of things to manage in life. Many times, when I cannot afford my tablets [and] I become tense. That is another additional tension that I face, and I know it will make me sicker. But this is another worry that I don't have money to buy tablets for myself. Hmmm…. (Patient 9)*

'A family disease'

Even though a majority of patients believed stress to be the cause of HTN, some viewed it as an inherited condition, referring to it as a 'family disease'. Patients reported family histories of heart disease or HTN in close relatives, such as their mothers, fathers and siblings. Certain common features in their family history strengthened their belief that the condition was inherited, such as the number of family members affected, age at diagnosis and the severity of the illness. By noticing the pattern of symptoms amongst family members, patients would assess their own risk of becoming hypertensive.

> *If this disease is common in your family, then it happens to you. In my in-laws no one has this disease but in my mother family; my father got it. My granddad had this too and he died due to stroke. That's why I have the same problem. (Patient 14)*

Patients who had witnessed first-hand the suffering of hypertensive family members expressed fear, anxiety and uncertainty about their future; a few patients made comparisons between the physical symptoms of affected relatives and their own when considering the risk of developing complications and considered HTN to be a contagious disease transferred from one family member to another.

> *I think, in my case, my father has transferred this disease to me. My father had the same disease and he passed away due to stroke. In early days of his disease he had the same symptoms as I have. I had a doubt in the beginning when these started to appear that I have the same disease as my father. It was true. (Patient 5)*

Moreover, in order to avoid the negative consequences of the disease that their family members had suffered some patients adopted a positive attitude towards drug adherence.

> *I had seen how badly my mother condition [was] when she had a stroke due to this blood pressure. She was unable to stand and talk but not concerned about her drugs. Umm. That's why I take my drugs daily because I don't want to die like her. (Patient 14)*

In addition to identifying HTN as a family condition, a few patients had very particular beliefs associated with the cause of the condition. For instance, constant disturbed sleep and fatigue were considered to be the two main causes of increasing blood pressure amongst three patients. They believed that rest and good sleep helped them in order to control the prevalence of HTN symptoms and cope with the disease.

This disease is related to sleep, I think. When I don't sleep well then, I get this high blood pressure and when I take rest then it disappears. I lay and sleep mostly when this happens, and blood pressure comes down. (Patient 27)

A patient who received a blood transfusion when undergoing uterine surgery stated that she believed the blood transfusion of someone else's blood to be the cause of her HTN; if she had not undergone this surgery then she believed she would not have become a sufferer:

I underwent a uterine surgery five year ago and being transfused by someone else blood at that time that's why I got this disease. I have heard that when someone blood enters into your body then you get this disease. Hmmm…Before that, I had no high blood pressure. (Patient 16)

The accounts of patients surrounding HTN diagnosis, symptoms, causes and consequences reflected their lay understandings of HTN as a condition. The following theme will present patients' experiences and attitudes regarding taking antihypertensive drugs.

4.2 Experiences and Attitude Concerning Taking Antihypertensive Drugs

The experiences of patients when taking antihypertensive drugs affected their adherence attitude towards an overall optimal treatment plan. Some patients reported positive experiences, but some had reservations and reported the negative effects of taking such drugs. The positive effects of taking antihypertensive drugs were expressed by patients as being the ability to control their blood pressure and prevent progression of the disease.

These patients reported that regular use of such prescription drugs had provided them with beneficial outcomes such as better control of their blood pressure, a general feeling of well-being and a relief of their symptoms. Some patients believed that adherence to the drugs was an important factor in managing their blood pressure and stated that they had received positive experiences with doctors encouraging them to take the drugs. As the following patient described:

My doctor advised me to stick to your medicine. I also feel better when I take my tablets. My blood pressure doesn't give me any trouble like headache, fatigue nothing when I take my tablets daily. I take these [pointing towards bag of medication] daily as my doctor suggested. (Patient 22)

Many patients described that despite experiencing side-effects, antihypertensive drugs continued to be taken.

I'm regular in taking my drugs, I feel better and this is my treatment. Sometimes, I do feel side-effects like mild rash, but my doctor told me it is common with this tablet and you don't need to worry. Rash disappears gradually but I carry on with my tablets. (Patient 26)

On the other hand, some patients cited intentional non-adherence with regard to antihypertensive drugs. They reported negative consequences such as side-effects and dependence after taking prescribed antihypertensive drugs and as a result had decided to stop taking them. They were concerned that antihypertensive drugs were toxic and harmful

in nature and produced more side-effects than they had benefits. Symptoms such as an upset stomach, nausea and a dry mouth caused them to gradually skip doses and finally they gave up without reporting these side-effects to their doctors or consulting with them first.

> *When I take tablets, my body starts to swell like a balloon then I left the tablets. My body was not like that before. My stomach can't tolerate these tablets too. I don't want my stomach troubling me all day, it is not good. (Patient 29)*

The fear of developing side-effects after taking their tablets made patients anxious and they questioned the efficacy of antihypertensive drugs. Missing doses and ceasing to take the tablets altogether was also prevalent amongst those who believed that they would become dependent or addicted to antihypertensive drugs for the rest of their lives. They had a common belief that all drugs contained chemicals which were harmful in nature and therefore prolonged use of tablets was dangerous.

> *Tablets make you addict and do more harm. These tablets contain chemicals and not good to use for a longer period. I don't use these tablets very often. I don't want that my body rely on these all the time. I'm just sick of these tablets. (Patient 3)*

Some patients shared an intermittent pattern of using prescribed medications, reporting that they would abruptly stop taking the antihypertensive drugs after just a few days. They cited taking a full, regular dose one day and then no dose the next and not resume taking their drugs after that. When asked why they were using their tablets in this way they responded that they were curious to observe the effects of intentional non-adherence on their blood pressure and would do so if they happened to be feeling particularly well.

> *Sometimes I leave the tablets by myself. Because I want to see what happens to my body if I leave. This blood pressure tablets never spare a human body. So, I check what happens if I leave the tablets. I don't feel the need of taking these sometimes, when I feel better. (Patient 10)*

Whilst a pattern started to emerge as to how patients understood and experienced taking antihypertensive drugs, additional responses highlighted that unintentional non-adherence was often due to simply forgetting to take their medications or put it down to the cost and accessibility of them. Some patients reported forgetting to take their drugs if they were busy or away from home. Older hypertensive patients also reported that they often forgot to take their tablets and they ascribed this to memory loss or just general forgetfulness due to their age.

> *Sometimes, I forget to take tablet then it misses. I usually can't remember either I have taken my tablet today or not. Either, I have taken my tablet in the morning or not. I do forget lots of things now. It has started happening me just few years ago because I'm getting old. (Patient 11)*

Patients citing forgetfulness described how support and motivation from family members to take their tablets with constant reminders resulted in improved adherence.

Many times, my daughter asked me either I have taken my tablets or not. She knows, I often forget that's why she always asks. Almost all the times [laughter] she never forgets. (Patient 25)

Many patients described that unintentional reasons for non-adherence to antihypertensive drugs came down to the cost and accessibility of medication. The high cost of antihypertensive drugs was highlighted as a common issue to compliance with their recommended treatment plan.

The fact is that most of the times, I don't have money to buy the tablets. This is difficult to afford all because tablets are expensive. One blood pressure tablet cost around 200-250Rs for 15 days. Sometimes, I borrow money too from here and there. So, a person like me who has little money where he would go then? He/she will just ignore the tablets or only buy when money have. Ummm. (Patient 2)

Besides cost, some hypertensive patients reported the unavailability of prescription drugs in hospital pharmacies at certain times. They indicated that when their usual brand was not available in the hospital pharmacy, they would often resort to buying the drugs from private pharmacies. As a result, poorer patients were placed under greater financial burden and inclined to be non-adherent until such time as their drugs became available again in the hospital pharmacy. In addition, patients also reported that doctors did not provide sufficient information regarding prescription antihypertensive drugs and this was another reason of their non-adherence.

4.2.1 Lack of information about drugs in consultations

Most patients reported receiving little information regarding their drug treatment from their doctors and indicated that the relationship was often problematic and disappointing. Patients mentioned that doctors provided a generic and quick reminder about antihypertensive drugs but without any specific or helpful information with regard to their use or the duration for which they should be taken. As a result, patients felt frustrated when they were unable to acquire sufficient information regarding their treatment and this often contributed to their attitude to stop taking the drugs prescribed.

They don't tell anything briefly. Even they don't tell anything like here in this hospital. Here they just tick the box, yes, we have seen this patient. Even, I came first time and diagnosed as high blood pressure then doctor did not tell me anything after that. They just say to take tablets, come again. Not when I have to stop the tablets or not. It can be a minor thing for them but definitely not for me. (Patient 25)

Some patients reported that although they had been provided with some basic information, they had faced difficulties when requiring greater clarification and additional support. The responses of patients indicated a wish to receive detailed information about their drug treatment; however, they felt reluctant to ask questions due to the busy routines of their doctors and the style of communication with which information was imparted to them.

For instance, patient 4 illustrated a number of communication issues he experienced during consultations with a busy doctor which had left him feeling passive and therefore unable to

ask questions about his treatment. The patient was afraid to ask for more information from his doctor due to past experiences where he had perceived that his doctor did not appreciate being questioned and that pressing him for further information may cause the doctor irritation.

> *Doctors even don't tell anything. I do ask questions from my doctor. For example, last time I asked: my doctor, tell me what this high blood pressure is, please tell me about this disease. He said just take these tablets you won't understand what this is. Next patient [Laughter].*
>
> *What I can say about this? I just obey him because I feel fear that he will be angry and upset with us by asking questions [Laughter].*
>
> *When your turn comes after waiting many hours then a patient tries not to displease doctor [Laughter]. I don't ask questions now no matter what [Laughter]. (Patient 4)*

This illustrates that there is a concern amongst some patients about the quality of care they are receiving and in particular the speed with which they are dealt with by some doctors and the attitudes of those doctors towards their patients. A lack of essential information due to breakdowns in communication may lead to failures in therapy for some patients and ultimately delay their recovery. Further exploration of this issue revealed some interesting findings as the following paragraph illustrates.

A few patients reported that doctors often encouraged them to visit them in their private clinic where they would receive an improved service, additional information and shorter waiting times. They described this as unacceptable and unprofessional practice and as a result it had affected their level of trust in these doctors. This may suggest that some doctors are adopting strategies to compel patients to use their private clinics and intentionally providing less information as a means of encouraging this.

> *Sometimes, if you ask more information, they become irritated and simply ask you to come to my private clinic in the evening if you want to know more and good service. If you go to the same doctor in the evening in his private clinic he will behave in a totally different way. When you come here to him in the government hospital, he will not give you even a smile. He will suggest you come to his private clinic. This is very frustrating. (Patient 8)*

Furthermore, some patients were concerned that they may face negative consequences in the form of poor-quality care and inadequate communication at their next consultation if they had not visited a doctor in the private clinic. To overcome this issue, a few patients suggested increasing the number of doctors in public hospitals and that steps could be taken to prevent them from working in private clinics.

> *I think more and more doctors should be there in public hospitals to deal with patient burden and gain information that is needed. There should be a ban on doctor private practice, so they won't see us as a profit but as a patient. (Patient 17)*

4.3 Perceptions About Lifestyle Management

Within this theme, five categories emerged that highlight lay beliefs of patients informing their practices about exercise, diet, salt intake, smoking and alcohol consumption.

4.3.1 Understanding concerning exercise

In this study many patients reported awareness that exercise was beneficial to adopt in their daily routine in order to stay active and should be undertaken as part of blood pressure control. Their awareness of the benefits of exercise was wide-ranging and included sustaining physical fitness, maintaining optimum body weight and improving general well-being. Some patients were uncertain about the correct amount of exercise, type and intensity required for hypertensive patients. They perceived exercise as a walk around the house, managing household tasks and described a wide range of activities they were involved in. For instance, some hypertensive patient cited common household tasks such as washing dishes, cooking and cleaning as her main source of exercise.

> *I do clean with besom in all the house, clean the kitchen and washes the bath room and do dish washing. I don't think, I need any other exercise as these all tasks are my exercise and my body remain active. So, in this way I do exercise all day by running here and there and by doing household tasks. (Patient 1)*

Similarly, moving things from room to room, shopping trips to the market and visiting relatives that lived near to the house were also viewed as exercise amongst some patients. One female patient indicated that her job provided the opportunity to walk around, although seemed confused between the terms exercise and walking and used both interchangeably.

> *I work in a college and as a part of my job, I make many rounds like walk all over the place. Sometimes 3-4 turns in a day. I have to go to many class rooms, so I make many rounds all over the place and that exercise. What else do I need to do? I don't think I need any more walk other than these turns. (Patient 14)*

Walking was most commonly cited by both male and female hypertensive patients when asked about forms of regular exercise. They reported that undertaking a brisk walk led to feelings of improvement both mentally and physically. For instance, a 56-year-old male patient said:

> *I do walk daily, doctor has asked me to do walk. At night after meal I walk for 200-300 steps. I prefer to do walk every day at least before sleep. Because, walk makes me feel good, happy, and it is easy to do, it makes me comfortable and I enjoy it. (Patient 17)*

However, a few patients stressed that walking and exercise should be specific to the daily life routines of obese hypertensive patients and stated that their doctors had not considered them to be overweight when they had sought advice about walking and exercise. As a result, they did not make any effort to adopt exercise into their daily routine and distinguished themselves from obese hypertensive patients on the basis of body weight alone.

In contrast, obese hypertensive patients were aware of the benefits of exercise in relation to weight control and took a different viewpoint from the non-obese patients. Two obese patients who were trying to lose weight reported doing vigorous exercise for a longer duration every day. These hypertensive patients described their exercise routine in a broader context

that covered a range of structured exercises such as running, jumping, stretching and weightlifting.

> *I used to run 2-3KM every day early in the morning, there were poles in the ground, so I used to do exercise there too. I do a variety of exercises as jumping, climbing and stretching. The exercises in sitting posture to burn only the belly fat and activities like this. (Patient 4)*

> *I have a ladder at home, so I mostly use that ladder as an exercise. I keep ascending and descending the ladder frequently in a day. Approximately 8-9 turns in a day. Sometimes, very slow and sometimes very fast. I also use a pole in home for stretching and sometimes weight lifting too. (Patient 5)*

The effect of exercise in terms of weight loss motivated these patients to strictly adhere to a pattern of regular exercise. For instance, an obese hypertensive patient reported a 10KG weight loss over a three-month period as a result of undertaking exercises such as running and weightlifting. He had strong faith in the benefits of adopting exercise in order to control and manage his weight. In contrast, a few obese patients reported that they had received negative comments about their weight, and it was this combined with a general stigma surrounding obesity that had been the motivation behind their programme of weight loss. They described being met with derision, adversely judged by family members and friends about their eating habits, and it was this that had driven them to be more proactive in their decisions about diet and exercise.

> *Nobody had realised me that my weight was increasing in the beginning but gradually people made fun of me and poked me often. Then one day, I realised that I will show them that I'm not a joker, you know and started doing vigorous exercise. I think, if they had not realised me about my massive body maybe I would not have achieved my weight lose goal. (Patient 9)*

It seemed that these patients were maintaining an exercise routine in order to reduce their weight to avoid discrimination, and not as part of HTN management. One obese patient described how he tried for months to shed the extra weight but without success and most days he went for a brisk hour-long walk, describing himself as almost like a paratrooper in terms of his intensity. However, when he saw no apparent change in his weight reduction, his motivation waned, and he ceased exercising. During this period of intense activity, he neither felt the need to monitor his body weight nor the effect of exercise on his blood pressure readings, as described below:

> *I could not check and truly I did not consider that I should also monitor my blood pressure or check my weight during that period. But when physically I did not see any difference in my body size at that point, I thought my weight is the same and I'm not slim and that is why I left exercise. I was just tired. (Patient 4)*

The insights of patients' understandings highlighted the wide range of issues in place to adopting and maintaining exercise and that some of these were related to personal and social aspects of the lives of patients. Therefore, the following section will reveal four subcategories which emerged from the main category.

Socio-cultural norms

Some Pakistani socio-cultural norms are believed to affect the ability to sustain a routine of exercise, as highlighted by some of the study participants. Some patients indicated that due to the absence of a culture of exercise they felt less committed and motivated in continuing with it as a part of their daily routine. The lack of a culture of exercise in Pakistan restricted the participation of patients in certain forms of exercise such as swimming and running.

Women for instance reported how they had been unable to follow the recommendations of their doctors to visit the gym and workout due to the lack of availability of facilities and trained instructors. The absence of public parks in every city limited the opportunities for women to walk safely. One woman stated that it would be difficult for her to visit a gym as she lived in a remote area.

> *It's not easy for me to go to the main city only to join gym and then pay for the membership and transport. Most of the times, I don't have enough money to spend so how can I think to get a gym membership. There are no public parks in the area where we can go and walk easily. (Patient 12)*

Further analysis of the responses from participants in the interviews revealed that some socio-cultural norms were women-specific, and they were therefore restricted from exercising. Some women referred to various responsibilities they had and what was expected of them by their families after marriage. They described how they devoted much of their time to the responsibilities associated with their roles as mothers, wives, sisters and daughters in order to fulfil family demands.

Some participants described a socio-cultural norm whereby once a woman married, she was expected to stay inside the home and attend to domestic chores. These women indicated having extremely busy daily routines which made it difficult to find time for additional exercise.

> *Every day I wake up early in the morning at 5am and then I run around the house to make breakfast, sending the children and husband to school, office and then get ready myself. Sometimes, I have preferred my children over my own choices, I think most of the times. (Patient 8)*

> *I have so much work to do at home. I have to cook and provide meal to my kids, husband and father in law on time. (Patient, 16)*

There was a strong sense amongst many of the women that family is the first priority, with their own interests and activities coming second to the obligations of family chores and childcare. As a result, some women reported that taking time out for themselves for exercise could be seen as selfish and therefore a culturally inappropriate activity. Patient 8, was the only woman partially maintaining some form of daily exercise, even during the time she was seeing the doctor, recounted in her interview that she had stopped going for a walk regularly after her marriage as she felt she must always put the needs of her husband before her own:

> *I'm not regular in going for a walk from the last six months because before that I was not married and had no responsibility. I think now I'm a wife too and I don't want to make my husband feel that I don't look after him and he is not my priority, you know. (Patient 8)*

Lack of time

Intensive work schedules and time restraints were barriers to exercise mentioned by most of the male working-class patients. They described how work duties consumed much of the day and left them with very few opportunities and little energy for exercise.

> *I have a treadmill at home, but I feel so tired after my job and go back home in the evening, I feel so tired and cannot do this. When I finish all work by the end of the day, then it's already very late and my heart don't admit doing anything. I just go to the bed. (Patient 10)*

Working class patients cited long working hours as a barrier to them remaining physically active. These patients described an intensive schedule of work involving long and anti-social hours, often in retail with shops opening early in the morning and closing very late at night.

Individual factors and concurrent health conditions

A lack of motivation or interest in carrying out exercise was significant within this theme. A few patients cited lack of inspiration and/or laziness when it came to exercise, and some linked this with a lack of time. One patient reported his low mood and anxiety issues as possibly being the underlying reason for him not engaging in exercise and an activity that he found unpleasant:

> *My family go but I don't feel good in my heart that's why I don't go. My hearts say to me stay at home. That's it. I stay at home. I don't feel doing any exercise or walk. It is just laziness maybe, what else I can say. I know, I have anxiety and mood problems and exercise is not for me really. (Patient 15)*

Poor weather conditions were also seen to be a contributing factor in preventing both men and women engaging in exercise. They expressed a profound dislike of going out in cold and windy weather. Two patients described how during the winter months they preferred to stay indoors, go to bed early and used their cars and motor bikes for even very short journeys.

> *In winter it's very cold and I don't like going out in winter. Even for going to a grocery shop I prefer my motor bike. In winter, it is hard to do any exercise. (Patient 21)*

Besides climate conditions, some patients described co-existing health conditions such as joint pain, blisters to the feet and injuries which impeded their ability to engage in exercise and walking. These patients provided justifications for not walking more frequently. Breathlessness, blisters to their feet and painful knees were given as justification by such patients for not walking more regularly, thus making attempts at following even a simple exercise regime highly challenging, and left some patients feeling frustrated and hopeless.

> *Due to this blister, I can't go for a walk or move and that's why I don't walk at all. You know…hmmm…. exercise is best of all and the most important thing to do but I'm helpless in this matter. What can I do in this……? (Patient 3)*

> *Doctor said to me about exercise but how can I do exercise? I'm a patient of joint pains. I don't feel comfortable while walking. Exercise is just not for me. (Patient 9)*

Some patients described how they had health conditions such as asthma which left them feeling extremely weak and lethargic; one patient was recovering from an accident, another had suffered paralysis following a fall resulting in becoming housebound.

The accounts of older patients tended to be fatalistic in outlook and demonstrated a strong sense of powerlessness over their own bodies. They described ill-health and a general decline in physical fitness as an inevitable part of the ageing process and believed their health would continue to decline. A fear of falls or sustaining injury was responsible for a majority of older patients developing a negative attitude towards exercise. The risk of falling due to poor balance discouraged them from participating in exercise and strengthened their belief that there was little they could do about their decline in physical fitness. They frequently expressed a fear of not being able to get back up after having fallen. For example, an 80-year-old male patient was fearful of exercise having sustained multiple fractures resulting from a fall.

> *Two times I have been fallen and got leg and knee fractures. I'm trying to walk briskly once and the other time while climbing the stairs. Before that I was used to walk but now I'm scared and uncertain. I don't think, I 'm scared now, I won't be able to get back on my feet if I fall again. (Patient 11)*

Another patient cited:

> *When I stand up from the bed, my body can't bear my weight and I feel fear that I might fallen away. That fear doesn't allow me to exercise. I just sit on the bed or walk sometimes in the room. I feel I might fall away, will get hurt and this will complicate my situation more. (Patient 13)*

Inability to actively participate in daily activities and having a sense of their deteriorating health proved challenging for these patients.

Lack of exercise information from doctors

A majority of patients felt that lack of guidance and advice from their doctor was a significant factor in their failure to maintain a regular programme of exercise. A common criticism was that general advice was given but with no specific details as to frequency, duration of exercise and what types of activity should be undertaken. Some patients indicated a strong desire for greater information regarding the benefits of exercise and its relationship with high blood pressure.

> *If I don't have much information about exercise and why this should be done to control my blood pressure, my doctor should tell me the benefits. Well, my doctor should inform me about exercise and if he/she will explain me in detail then I will understand and take this seriously. (Patient 7)*

4.3.2 Dietary management

In this study, it was noted that failure to comply with dietary recommendations was particularly common amongst hypertensive patients and this was found to be the case across all age ranges. An unwillingness or inability to make changes to diet may be due to a number of factors. Data analysis reveals four categories: (i) preference for traditional foods; (ii) socio-cultural practices and influence of family and friends (iii) healthy food and personal preferences; (iv) availability and accessibility to junk food (v) lack of dietary information

Preference for traditional foods

Eating traditional food strengthens feelings of belonging and is a vital part of cultural life (Kittler et al., 2012). Traditional Pakistani food is aromatic, with spices added and generally prepared with a generous quantity of oil, therefore it is often high in fat content. Traditional dishes such as curry in Pakistan are commonly made with oil and Desi ghee (clarified butter) and regularly use cooking methods such as shallow or deep fat frying. Patients in this study described routinely eating traditional foods which they believed impacted their ability to maintain a healthy diet. The following sections will illustrate these beliefs.

Paratha and oily food

A typical Pakistani breakfast, locally called 'Nashta', includes paratha (made by baking whole wheat dough and finishing off with shallow frying) stuffed with Desi ghee. Eating paratha fried with oil or Desi ghee is central to a traditional breakfast in Pakistan. Many patients reported eating paratha with fried egg, omelette or curry in the morning and also at night. Some patients shared concerns that eating oily paratha and the consumption of Desi ghee was not good for their blood pressure, and doctors had suggested this, however they found it difficult to change this eating practice.

> *Every day there is a paratha in breakfast daily as you know it's our culture at home to eat paratha in the breakfast so that also contains oil. So, you cannot avoid these things at all. (Patient 10)*

One patient reflected that eating oily paratha and fried snacks on a regular basis had caused his blood pressure to rise on several occasions; he often felt discomfort after eating oily food items and felt these to be 'dangerous' due to their high oil content.

> *When I eat something that I should not eat like when I take some 'pokora' (a piece of vegetable or meat, coated in seasoned batter and deep-fried)* or *'samosa' (a triangular savoury pastry fried in ghee or oil, containing spiced vegetables or meat) and very oily food hmmm like paratha then my blood pressure again rises and then I feel very uncomfortable. (Patient 3)*

A few patients claimed to have changed their diet following HTN diagnosis in an attempt to manage their disease but appeared bound to their former eating habits. Patients in this study were exposed to and had been dependent on oily foods since childhood and reported a particular liking for the taste of such food. For instance, a 50-year-old patient described how 'I need paratha in breakfast because I have been brought up on that' (Patient 7). Many patients linked their inability to resist traditional food due to the habit of eating the same food for many years and to make changes to their diet was seen as a daunting task.

> *When I was young and was not sick, I was used to eat lot of oily food even I still remember I used to eat parathas three times in a day. My mum used to cook different kind of parathas like with potato and sugar and sometimes with green chilies. So, these habits develop since childhood, you know. I feel difficult to change this. (Patient 13)*

Some patients described the sensory satisfaction they derived from eating oily traditional foods due to the mixture of ground spices and ingredients such as ginger, garlic, cinnamon and cardamom, commonly used in their cooking. They indicated that the addition of such

ingredients helped to give flavour to these foods, and this combined with the aromas generated during cooking made it difficult for them to resist traditional dishes.

> *We were used to cook 'gosht karahi' (a South Asian dish prepared with goat or lamb meat instead of chicken with oil and spices) at home every day. Who can resist it? It is very tasty dish and my wife add all the ingredients to make this good. When I enter the house... by smell I can tell what she has cooked, and I cannot resist that nice smell… [Laughter]. (Patient 6)*

Cultural practices and influence of family and friends

Although the majority of patients appreciated the attentiveness of their doctors regarding diet, the most common problem recounted by patients was the incompatibility of the dietary recommendations with their daily lives and their views surrounding food and the culture of eating. In this context, the culture of eating is strongly connected to the social aspects of eating and cooking, and the pleasure derived from enjoying a traditional meal.

In many societies eating out is a pleasurable experience, a way to honour guests and deepen friendships. In Pakistan most, social gatherings involve eating with family and friends in order to strengthen relationships. In this study many patients expressed difficulties in following a particular diet plan alongside eating out with family and friends. At festivals and special occasions such as weddings and religious gatherings many patients felt less able to maintain control of their dietary plan.

> *In Ramadan, mostly I eat oily things. Why I would lie? I do because when everyone eats and cook the tasty things how can you avoid? After fasting your heart asks to eat tasty and spicy stuff. All the family sit together, and we eat delicious food after a long fast. (Patient 15)*

A striking feature of Pakistani society is the importance attached to family members; a typical Pakistani family consists of older and younger generations living together under the same roof and their daily lives are closely interconnected. Therefore, eating patterns can also be influenced positively or negatively by the experiences and opinions of family members.

For example, some patients described how all the family members sit together for their evening meal of curry, under the same roof, prepared and served in a large pot called a 'handi'. This cultural norm of preparing curries in one cooking pot from which it is then served may make the elimination of unhealthy ingredients impractical. A few patients described difficulties in complying with their recommended diet plan when food was brought by a member of the family as a gift, and especially children from children. A 55-year-old man shared his concerns:

> *Within the extended family it's very difficult to do proper prevention and avoid oily food and salt. I have lot of children so when one son comes, he brings one thing, the other brings something totally different to eat. I cannot break their heart by returning food, you know. (Patient 2)*

Some patients described a culture of gift exchange whereby a meal was either given or received on special occasions such as Eid, passing an exam, a wedding or the celebration of the birth of a new baby. They felt uncomfortable refusing gifts of food from a loved one or friend at such events in spite of how unhealthy the food proffered may be.

We exchange food like curry and rice with our neighbours and extended family members when it is Eid, some similar occasions and sometimes when we make extra food. All made with oil or desi ghee and it becomes difficult and seem impolite to say no to someone who is bringing the meal for you. It is not acceptable in our culture. (Patient 7)

Some older patients described how they found it difficult to sustain the changes to their diet in an extended family. Older family members hold a place of high respect in Pakistani society due to their wealth of skills, life experience and hierarchical position within the family unit. In this study some older patients described that the family often seek their advice on cooking and preparing food, but the majority indicated that they had very little influence when it came to promote healthier cooking - they had always been served food high in spice and oil content and this was determined by the food choices of other family members.

When my daughters cook spicy food like rice and Biryani then I become annoyed with them that you have added too much spice and oil in it. My daughters say mother it's not too much spice and oil, it's just little spice, otherwise it will be tasteless…you are just feeling more. Hmmm…. I can't eat that food. I feel chest discomfort. They don't listen. (Patient 23)

Sometimes, in curry they add more ghee, then I become irritable and annoyed with my family that please don't add this much ghee in the curry. They think about themselves only. (Patient 17)

Many older patients described skipping meals altogether if the food was unappetising in appearance, was not flavoursome, contained ingredients they disliked or found difficult to tolerate (such as hot spices), chew and digest. In Pakistan, women play an important role in the selection, purchase and processing of food. Many older patients reported that they were reliant upon the daughter-in-law for preparation of meals and choices over food and this was a matter of concern for them.

A small number of older patients interviewed stated that they did not have a positive relationship their daughter-in-law due to conflicts in a number of areas. A few patients felt that they had little choice but to accept and get used to the food served by their daughter-in-law and fear of repercussions made these patients reluctant to complain or voice their concerns over food choices.

I don't say anything to my daughter in law. She cooks food and in charge in house. Why I should ask her to add little salt. If she insulted me? I don't say anything to her. (Patient 1)

My daughter in laws fight with each other. As you know, fight in elder daughter in law and younger daughter in law is common in Pakistan, that's the reason. When I see they are fighting and beating the kids I become upset and ask them not to do this. How can I ask her to take care about me and my food? They all just fight all the time. (Patient 14)

By contrast patients who had understanding partners and a supportive family network reported that they were more able to comply with their recommended diet plans. For example, some elderly patients described how their spouse or children would remove the unhealthy ingredients from meals or prepare a separate portion of food without the addition of oil or spice. Two patients described how they had always been served carefully prepared and cooked homemade food by their partner.

I have informed my wife in the house to add less salt in the curry. I told her that doctor has advised me to eat less salt. She takes care now and put less salt in the curry. I forget often but she always remembers. (Patient 5)

My husband is very nice; he has no comparison. He loves me unconditionally and his breath is connected with my breath. He always takes care of my food and medicine. He never cooks or bring the food that is unhealthy for me. (Patient 8)

The majority of patients described how cultural practices and the influence of others impacted their food choices. However, analysis of the interviews further revealed that patients' personal preferences had also a strong influence on choices of food.

Healthy food and personal preferences

Besides socio-cultural influences, eating practices may also depend heavily on the personal understanding of an individual as to what constitutes healthy food. A few patients believed that a healthy diet consisted of fruit, vegetables and meat, but perceived such healthier products to be more expensive. Some patients stated that they would purchase fruit and vegetables when on special offer, but otherwise this did not form part of their regular buying habits. Patients spoke of the difficulties they had in obtaining fresh fruit and therefore felt unable to instigate the healthy food interventions necessary in controlling HTN.

In contrast, a few patients reported that they avoided these healthier options due to lack of interest and found it difficult to resist fatty food because of lack of self-control and willpower. It appeared that their desire to enjoy life outweighed any resolve they had to follow a healthy diet.

I'm a lion in matter of eating and drinking. I eat chicken, chicken leg piece, lamb. I cannot live without meat. This is my life. I just only know one thing eat, drink and enjoy, that's it. (Patient 3)

Food in itself can carry many symbolic meanings and certain emotions may be associated with the act of eating. Often people use food as a means of compensating or comforting themselves at times of emotional distress or to satisfy a different need that they have been unable to fulfil. For instance, a patient described how eating her favourite snack would at times satisfy her cravings and act as a temporary form of escapism from the strict dietary rules that seemed to govern her life.

When I come to the city then I request my daughters to buy some 'pakoras' (*a piece of vegetable or meat, coated in seasoned batter and deep-fried) and a naan (A South Asian bread) and I eat not very often. My heart asks for eating fried thing occasionally. Yes, I feel helpless in this matter at times. (Patient 13)*

Other patients claimed to be under the influence of factors beyond their control, the appetising appeal of delicious fatty food was virtually impossible to resist and made it all the more difficult to comply with a healthy diet plan.

Availability and accessibility to fast food

Quick and easy access to fast food outlets was mentioned as a contributing factor in the over-consumption of fatty food by both sets of respondents. When patients had easy access to

eating establishments such as hotels, takeaways and fast food restaurants they seemed to be easily tempted. One patient, for instance, described how having a takeaway near to his house provided him with comfort in the knowledge that he would be able to obtain ready to eat food and this influenced his decisions when it came to making food choices.

> *When I was posted in Chistiyan city, I was used to eat from the nearby hotel. Every day I used to go there and was eating oily and spicy food. Because it was very close to my house. I think if you have a hotel or takeaway near to your house you can eat food there easily. (Patient 4)*

For a small number of working-class patients, they were habitually eating takeaways as their long working hours left them with less time to prepare and cook a fresh meal at home. Many patients were aware that eating fast food was not beneficial for health, although this was also an option who found cooking too much of a chore and a time-consuming process.

A minority of patients described fast food as a treat when they fancied a change from conventional homemade food and their usual meal routine. The variety of food items on offer, the flavours and attractive colours of fast food were all mentioned as appealing factors when it came to their consumption. A number of middle-aged patients cited fries, pizza and fizzy drinks as the preferred fast food choices when eating out and spending time with friends and family. One patient expressed how fast food was a way of eating something 'different', socialising and spending time with friends and family members.

> *It happens that you can't eat homemade food every day. Most of the time we eat homemade food. But for something different and get rid of typical routine eating pizza and drinks outside is not a bad option. When I go out with friends and family then we prefer to eat fast food just to try out something new and different. I think these restaurants are a good source to sit and eat together. (Patient 3)*

Conversely, a few patients shared concerns with regard to fast food terming it as 'bad for health' and therefore avoided eating it. For example, one male patient described that his main concern originated from rumours with regard to the quality of ingredients used in fast food as well as to the manner in which it was manufactured and prepared. Two patients expressed concerns about the hygiene within fast food restaurants and stated that they had experienced symptoms such as discomfort, constipation and stomach upsets after eating beef and cheese burgers. They preferred to eat healthy meals cooked at home and prepared in a hygienic environment and avoided takeaway and restaurant food. Patient 22 also described:

> *I saw myself once that person in the restaurant was using old and smelly oil in making food. I left the place straight away! I also had problem of chest discomfort whenever I had eaten food from restaurants. Now I avoid all these places. I like to eat home cooked food because home cooked food is safe to eat, and my family make sure to add good quality ingredients. (Patient 22)*

Lack of dietary information

Most of the patients stated an overall lack of dietary advice from doctors. They desired for detailed information about dietary changes in consultations to manage their high blood pressure. Patients pointed out that information on changes in diet was often based on a

nonspecific suggestion of a healthy diet rather than specific food and nutrition advice provided by doctors. They raised concerns that a simple indication to control the diet was useless except when it was accompanied by concrete information about how to achieve this.

> *They don't tell me anything about food. They are always in hurry. (Patient 7)*
>
> *If they tell me in detail about food, then I can think this is good and why and that is not good and why. They just tell me about high or low blood pressure, that's it. (Patient 8)*

4.3.3 Salt consumption

Many patients linked their dietary salt consumption with taste, customary practices and information received from doctors. Most of the patients believed that salt was an essential seasoning for their meals as it provided flavour and fragrance and made them delicious to eat and extra salt was frequently added to boiled eggs and curries. One female patient described an overwhelming sense of satisfaction when oranges, water melons and boiled eggs were eaten with salt because she felt 'unable to eat these food items without salt'. (Patient 23)

Increased salt consumption was also customary practice. Many patients were reluctant to change their cooking practices and add less salt to curries for fear that the resulting meal would lack flavour. They considered a meal to be unacceptable if it has no salt or less salt and stated that this is a 'basic ingredient' when cooking traditional dishes. For instance, an older patient recounted how:

> *Look, there is a rose petal that will not give fragrance till it will blossom properly. It will blossom properly then it will give the fragrance fully. Similar is like my curry. When I add salt in it that's good, if no salt then…Yuk…hmmm…so in this way. So, I add more when I feel it's tasteless. (Patient 11)*

Tea is consumed in most Pakistani families more than twice a day or even more and prepared by boiling water, tea, milk and sugar in a saucepan. Some patients indicated that they preferred the addition of salt to sugar in their tea and felt that without salt tea seemed raw and unpalatable. These patients described how salty tea was served and enjoyed by family members at breakfast and after dinner. It is also customary in Pakistan to offer tea to guests with a small portion of biscuits and some snacks. One 56-year-old female patient described how she was served a salty tea every time she visited her daughter-in-law's home, 'I don't know why they offer me salty tea every time, I think it's common in that family, they all drink this.' (Patient 13)

Another patient expressed his reluctance to change a practice that he had been familiar with since childhood, even though he had been diagnosed with HTN and his doctor had recommended he reduce his salt intake.

> *If we don't add salt in the tea, it remains semi boiled or like something remains raw or uncooked. It tastes good with salt. From my childhood, I have seen this thing in my house. This is childhood habit you can say. Children and all young and old people in the house like salty tea. Doctor has asked me not to use too much salt, but it is difficult you know. (Patient 27)*

One patient stated that the addition of salt in tea helped to relieve her headaches and provided a soothing effect, whilst patient 9 expressed that taking salty tea with paratha helped ease her digestion and tasted 'delicious'. Further exploration relieved that some patients also added salt to flour to improve the taste of parathas and chapatti. They held a common belief that the addition of salt to the flour made chapatti and parathas easier to cook and provided a 'unique' taste when accompanied with tea. The salty paratha was also considered a substitute if there was no curry or eggs available to eat at breakfast. Patients who were accustomed to a salty taste seemed reluctant to eat parathas and chapatti cooked without salt.

> *I do add salt in tea and in flour, without salt chapatti don't taste good. Otherwise, flour seems tasteless and sweet and when I add salt in it then chapatti becomes tasty, easy to cook and salty. In flour we must add. In tea, [Giggling] not very often but yes, sometimes. I can't eat my parathas and chapatti without salt. (Patient 25)*

In contrast, some patients were familiar with the risks associated with high salt consumption and indicated that they used less salt in preparation of meals. These patients described how eating foods that were high in salt sometimes increased their blood pressure, made them feel dizzy and suffer headaches. They reported that doctors had advised them during consultations to reduce their salt consumption as a method of controlling their blood pressure. They referred to food items with a high salt content as 'dangerous' for their health and had frequently refused curries that they felt to be too salty. These patients described how they would request of family members not to add excessive salt when preparing meals or ask for a separate portion prior to salt being added.

> *As a high blood pressure patient, I know that there should be less salt in diet. My doctor told me this in detail and I try not to eat too much salt. I have asked my family not to add too much salt in cooking food or take my portion out soon before adding salt and they make this sure. (Patient 10)*

> *Doctor told me don't eat too much salt. I don't eat much salt, I use very little salt. I feel when I use more salt; I feel problem inside my stomach. I hate salty curries and don't eat that. My daughters avoid adding excessive salt while making food. (Patient 13)*

However, most patients had little or no knowledge about the maximum amount of salt required per day for someone with a hypertensive condition. Almost all patients reported that they were never informed by doctors as to the quantity of salt they were safely allowed to consume. Patient 4 shared his concerns:

> *I don't need how much amount of salt I should take daily and what is enough or excessive. My doctor never told me how much is required to me and what was excessive. They just tell me add little, so how much is little? I just add some that give good taste to my food. (Patient 4)*

4.3.4 Smoking

In this study, all ten patients who were smokers were aware of the health risks surrounding tobacco when it came to developing complications with their HTN. However, they had their own beliefs in support of their smoking habit and seemed keen to discuss why they enjoyed smoking and how they felt it had helped them to some extent. For instance, a few held the

belief that smoking stabilised their mood and provided relief from stress and anxiety during difficult situations in life. They felt that this was not something that they would be able to achieve without the aid of nicotine and it was for that reason that they found it very difficult to quit smoking.

> *Sometimes, I smoke to release tensions and worries in my life. I just go outside and smoke, sometimes two packs in a day. I know it is not good for my blood pressure as doctor told me, but I can't cope with stress without cigarettes. (Patient 10)*

Two patients described how smoking aided their digestion and acted as a muscle relaxant to the bowel, relieving them of constipation.

> *I started smoking to relieve indigestion and gas problem because I had heard smoking cures indigestion and gas problem and it really works. I don't feel relaxed and relieved unless I smoke. After smoking when I go to toilet, I don't feel any trouble in my bowel movements. (Patient 27)*

Some patients identified different stages of smoking from their 'first puff', experimentation, through to social, casual and then fully established smoking. In this study there were emerging themes relating to smoking and the role that family and friends played in its adoption. Facilitating access to tobacco and socialisation with smokers were the common reasons that had contributed to uptake of the habit in early life.

Socio-environment influences

When discussing smoking many patients highlighted the role of their environment and social influences when it came to adopt the habit. Acquiring tobacco from family members and friends was seen to be a common pathway into early experiments with smoking and was mostly opportunistic in nature, facilitated by the availability of tobacco in the home. Some patients had been supplied tobacco directly by family members, usually cousins, siblings and also close friends. The smoking habits of loved ones greatly influenced a few patients and the likelihood of them taking up the habit and their continued use of tobacco. As one patient described:

> *My friend Syed, his brother was abroad, and he used to give me cigarettes from abroad, that were in black in colour and smell was like a lychee. They were different than the local and he always used to send me packs from abroad or brought himself. We both had to enjoy smoking in each other's company. He was the first person who started my smoking habit because he was already into it and asked me to try as well. (Patient 17)*

They stated that experimenting with smoking occurred usually between the ages of 10 and 13, resulting in increased nicotine dependence and greater consumption later in life. Those who revealed that they had started smoking earlier generally lived with other smokers and therefore had greater exposure to the behaviours of smokers and tobacco was readily available to them. The main motivation for taking up smoking appeared to be curiosity, watching others smoke and seeming to enjoy it and this was compounded by high exposure amongst family and social networks.

The majority of smokers in this study were males and no females confessed to being smokers. It is possible that they would hide this habit due to the social stigma associated with women smoking in Muslim countries. A few female patients used negative terms to describe the behaviours of the male smokers in their families, referring to them as 'annoying' and 'bad'. One female patient recalled the suffering and poor health that a smoker in her family had experienced and this had been a sharp warning to her not to fall into the same trap.

> *My father died with a heart attack and in the start, he had high blood pressure. He was a chain smoker. Many times, doctor asked him to quit but he couldn't. That's why I hate smoking. I even can't see someone smoking in front of me. This annoys me. (Patient 13)*

Perhaps unsurprisingly, non-smoking patients appeared more strongly convinced of the health risks associated with tobacco smoke than the smokers. They described that smoking not only caused symptoms such as coughing, sneezing and irritation to the throat and eyes, but also had serious consequences in terms of high blood pressure. These patients described how they would request that smokers in the family go elsewhere to smoke outside the home and that they would remove their children so as not to expose them to harmful tobacco smoke.

Cost was also a concern and a few smokers mentioned the negative impact their habit had on the family budget. They indicated that money spent on smoking was a waste and could be better used to improve their economic circumstances. Many conceded that smoking had detrimentally affected their relationships with family members. One patient described that his family members hated the physical discomfort that tobacco smoke gave them, irritating their eyes and how the smell made them feel sick. Another patient felt stigmatised by family members, believing that they held him responsible for contracting his disease as a direct result of his smoking habit.

> *I think, my family don't like me due to my smoking habit. I don't smoke in front of them now. They blame I have brought this disease into me due to smoking. Many people have this disease and they are not smokers. But my family blame me and don't feel comfortable when I smoke. (Patient 10)*

Personal factors

Three patients said that in spite of advice from their doctor they felt hopeless in their bid to quit smoking due to strong nicotine dependence and the potential for unpleasant withdrawal symptoms. They described that they had attempted to quit on various occasions, this would sometimes last a few days, sometimes only a few hours, but they would always relapse. One patient described feelings of sadness and depression on quitting smoking and this had eventually led to frustration, anxiety and ultimately a return to smoking.

A few patients who had previously been smokers described their dislike of being a smoker and how they found the smell of cigarettes unpleasant and irritating. They were aware that smoking was harmful to health and had received such warnings from their family members; with family support and enough motivation they had been able to stop smoking.

It was really very difficult to quit but, in the end, I had to quit it for the sake of my health. Nothing is more important than the health. It all depends on the personal choice, determination and the priorities. My wife supported me in that. (Patient 5)

My family really helped me in coping with symptoms when I quit smoking. They always supported me, but I think your own determination also plays a main part. (Patient 2)

It was noted that some patients did not view doctors as being of assistance in their efforts to stop smoking. A few smokers felt that their inability to give up smoking had impacted negatively on the behaviour of their doctor towards them and they felt they were deliberately afforded less time and information as a result. They reported hiding the facts about their smoking habit from doctors for fear of this reaction. Patient 11 stated:

I know that smoking is not good for my health and blood pressure and that's why I don't tell doctor about this now. I know, he will be angry and blame me as used to do in past. He doesn't like to spend time on smokers in general. I don't share with him that I still smoke. I think he must be angry and will let me go quickly. (Patient 22)

4.3.5 Alcohol consumption

The religious beliefs of all patients strongly informed their attitudes towards alcohol consumption. Alcohol consumption is explicitly prohibited in the Islamic faith and viewed very much as a symbol of sin and evil in Muslim societies (Michalak & Trocki, 2006; Ghandour et al., 2016). As with many other Muslim countries, sale and use of alcohol is illegal in Pakistan and there are strict laws of enforcement (WHO, 2004). Despite it being illegal in Pakistan, drinking and denying is a growing problem in the country (Haider & Chaudhry, 2008; Butt, 2015).

In this study, all patients stated that they did not partake of alcohol, except for one respondent who belonged to the Sikh faith. It might possible that they tried to hide their drinking habit, however, in discussions on alcohol consumption all patients described that their religion promoted abstinence and that there were strict rules under Islam on alcohol consumption. Some patients believed drinking alcohol as 'Haram' (forbidden by Islamic law) and a shameful activity in accordance with Islamic teachings.

May Allah forbid me, it's not a good thing to adopt in Islam. I stay away from such things. Any kind of addiction is 'Haram' in my religion. Allah curse people who drink and like this evil thing. (Patient 21)

No, no such things. I have never come across alcohol in my entire life. It's a very bad thing to think about in our religion. Allah forgives me. I never thought about this ever in my life. Such things are 'Haram'. (Patient 17)

It would seem that patients consider alcohol consumption to be a harmful activity on religious grounds and their reported abstinence was not due to an awareness of the health hazards of drinking in association with HTN. Other than taking antihypertensive drugs and managing lifestyle, some patients reported involvement in alternative treatments as the following theme explains.

4.4 Involvement in Alternative Strategies

Patients reported involvement in a variety of alternative strategies that they employed to manage their HTN. Within this theme, identified categories were: consulting quacks and Hakeem, using alternative medicine and home-remedies, and employing religious practices.

4.4.1 Consulting quacks and Hakeem

A majority of the patients believed visiting a quack and Hakeem in the hope of seeking an alternate solution to their long-term HTN treatment. They were often referred by a family member who had past experience with quacks and Hakeem treatments or patients had been enticed by eye-catching advertisements on television.

According to some patients visiting quacks and practicing Hakeem medicine had been effective in the early days of treatment and they felt energetic, happy and symptom-free. However, gradually they experienced the deleterious effects of the medicine in the form of severe symptoms and harmful side-effects.

> *I took Hakeem medicine 3-4 times and I got relief for time being for my breathing problem due to blood pressure. But eventually I got swelling all over the body and my body was like a balloon. I felt that my breathing problem is relieved but I'm getting some opposite and awful results. My blood pressure never came down after that. (Patient 13)*

> *First of all, I had only problem and then I took Hakeem medicine, after that I got only more diseases and complications. Hmmm… He only treated my joint problem. He never asked about my blood pressure, I took his medicine for six months and after that my health has been ruined. I just gone very far away in my health. (Patient 22)*

Patients cited that most of the medication used in HTN treatment by quacks and Hakeem were loose packaged with no written information and could not be administered via injection. Patients termed injectable medicine as 'minerals' which provided quick relief of their HTN symptoms, however they were charged extra as a result of separate injection administration fees. Suffering the slow but often risky side-effects, a worsening of their HTN and the appearance of further complications caused patients to realise that they had made a misinformed choice in adopting non-mainstream treatment. For example, patient 30 describes his experiences of visiting a famous quack in his city in the following extract:

> *There is a fake doctor in our city. He is very famous. But he gives the same injection to every patient. An injection …… Now, everyone knows that injection is a very powerful medicine. Even a very weak horse will feel powerful after that injection. The same happens with all people. A very sick person feels better right after that injection. He gives very cheap and almost same medicine to every patient. After some days very, bad results start to appear! I feel regret now and advice people not to go to these people. Hmmm. (Patient 30)*

Some patients expressed how quacks and Hakeem took advantage of their gullibility and reflected upon the manipulated clinical tricks and their ability to exude self-confidence. Some highlighted a technique whereby Hakeem exploited religious beliefs by associating their treatment or services with an article of faith.

When I asked how useful the method is, he smiled and said: modern medical science is actually nothing. Actual treatment is from ancient science of Unani medicine and that's what our religion also says. (Patient 27)

Hakeem told me that his treatment was according to what Quran says and not dangerous and having side-effects. (Patient 12)

Moreover, a few patients were offered a cup of tea or drinks during the consultation to display magnanimous hospitality, thereby building a good relationship. The secret of this art made the patient believed that he/she cared about as a person as the following quote illustrates:

I think the tricks they use are very effective. They feel you very comfortable and important person and treat you very well. They also offer tea or drink, and, in this way, you feel like a family member really. I felt open up automatically in front of him because he felt me special but now, I got it why he does all this just to gain my trust and make me fool. (Patient 10)

Most patients cited that they needed to visit quacks to monitor their blood pressure when asked by their doctors to undertake blood pressure monitoring. With regard to blood pressure monitoring the majority of patients reported having easy access to quacks and non-regulated services for blood pressure monitoring. Easy access to clinics runs by quacks had created a lack of interest amongst patients to monitor their own blood pressure, learn the necessary skills or indeed purchase a monitor. As patients described:

I go to the dispensary nearby to my house. I mostly go to that dispenser for blood pressure check-up. When I feel that my blood pressure is very high and uncontrolled then I mostly go there and ask him to check my blood pressure. If I have a facility nearby, then what's the big deal? I go straight to the dispensary and they check and tell me my blood pressure. Main thing is availability of a facility. If the facility is not available, then you think about checking by your own but if the facility is not available then you don't think in this way. (Patient 15)

We have a dispensary close to the house. My son brings me there every time for blood pressure check-up. He takes some money for checking blood-pressure. That's why I did not think to buy a blood pressure monitor. (Patient 18)

Even patients who were highly educated also expressed reliance upon non-regulated services and quacks due to their ease of access and also seemed disinterested in monitoring their blood pressure at home. Unofficial service providers and quacks often scheduled visits to patients' homes in order to check their blood pressure check and this had caused patients to place greater trust in these services.

4.4.2 Alternative medicines use and/ home remedies

Some patients believed in using herbal and home remedies to attempt to cure and manage HTN. Herbal remedies were described as being 'bitter' in taste but were purchased locally with herbs and roots forming the main ingredients. Some patients referred to interaction with hypertensive friends and other sufferers in the community as being a source of information. These remedies were taken in addition to prescription antihypertensive drugs for the treatment of HTN. The patients reported that they did not inform doctors that they were taking herbal remedies and had stopped taking their antihypertensive drugs; they felt that

their doctors would disapprove of their actions, perhaps not listen to them and make judgements about their intellect. Many patients indicated that doctors did not understand the efficacy or benefits of home remedies.

> *When I took garlic then I didn't take my blood pressure tablets because I wanted to see either garlic is doing some work in my body or not. I did not tell this to my doctor because he doesn't like such things and don't believe on remedies. He will think I'm an idiot. (Patient 21)*

In addition to home remedies, a few patients relied upon traditional therapies which they believed would purify their blood. For example, a female patient cited that wearing a magnet around her neck was a cultural practice amongst women in her area to cleanse the blood and it was believed to restore energy which would help in dealing with HTN.

> *As you can see, I have a magnet necklace here. [Pointing towards neck] Some women in my area asked me to wear this magnet all the time in the neck. Once I have started wearing this I feel really good about my blood pressure. Other than this I don't use anything. Many people wear this. A magnet to control the blood pressure to clean blood and gain energy. Many people wear this in my city and its common here. (Patient 28)*

Religion was another significant component of patients' lives and played an important role in shaping beliefs, adopting certain attitudes and making decisions regarding HTN management as discussed in the following category.

4.4.3 Faith healing

All patients in the interviews except for one were Muslims. Patients cited involvement in religious practices in order to seek faith and strength during times of stress with the appearance of HTN symptoms. Considering Allah as the ultimate authority on life and illness, a dominant belief, helped and encouraged patients to cope. For example, some patients reported connecting with Allah through prayer, whom they believed to have unlimited powers and be infinitely merciful, this helped them to relax and made them feel more optimistic about the future. They shared that the distress and suffering they experienced with the disease would not continue forever and eventually they would be cured.

Moreover, some patients frequently recited the word 'Alhamdulillah' (I thank Allah) indicating their appreciation and respect for Allah's will when discussing their disease and its management, stating "I have blood pressure but thanks to Allah I'm well" or "I take my tablets but thanks to Allah - He has given me a lot'.' (Patient 8). Positive religious beliefs seemed to help patients cope with their disease and face its consequences. For example, when dealing with stress they were encouraged by their faith to be optimistic, which afforded them a sense of peace, tranquillity and diminished any self-blame.

However, negative beliefs adversely affected health and impacted upon their disease management. For example, some patients in this study used religion frequently as a reason to avoid taking responsibility for their own health and for not accepting medical intervention. The potentially harmful effects of such beliefs were clear when patients refused to take drugs and defended their non-adherence to HTN treatment in the context of religion. Perceiving

disease and its cure to be in Allah's hands influenced some patients into thinking that adherence to treatment plans were not essential unless Allah did not wish to grant a cure. As a result, these patients decided to stop taking their drugs and failed to seek timely medical attention.

> *The death is in Allah's hand and it will come one day if you follow the treatment or not. That day is written and final. What a human can do in front of Allah. I don't tangle myself too much in disease management. Only that will happen what Allah has written for us so why so much preventions then? (Patient 4)*

Some patients believed that HTN was a form of punishment from Allah as a result of sins committed in a past life and this weakened their desire to take antihypertensive drugs. They indicated that only Allah's mercy could cure them and therefore turned to religious healers.

> *I still remember that I have done something bad to my younger sister and she was not worthy of that. That's why this blood pressure disease is punishment of my bad deed from Allah. Only a religious and pious man can get me out of it. I know medicine won't work in me. (Patient 23)*

In contrast, a few patients preferred to rely on destiny and fate, believing that everything, all events and happenings in life have a purpose and there were no random accidents or occurrences. They cited that their destiny was in Allah's hands and they were not worthy to ask 'why me'? when they had first been diagnosed with the disease or developed complications.

> *Life and death are in Allah's hand. The day written in grave on that day you cannot be outside whatever you do. But Alhumdolillah, (praise be to Allah) what Allah can do He can. The life that has given by Allah and write for us will happen in that way no matter you have disease or not. I have left everything in Allah hands. (Patient 10)*

4.5 Summary

This chapter provided insights into understandings of patients which shaped their approach towards managing the disease. The responses of patients regarding their understanding of HTN in terms of diagnosis, symptoms, causes and justifications for intentional and unintentional non-adherence to antihypertensive drugs have been presented. The analysis of patients' narratives illustrated how socio-cultural context and an inadequate information regarding lifestyle changes shaped their practices. Finally, the chapter presented patients' involvement in alternative treatment strategies as they perceive these to be effective and made decisions to visit quacks, Hakeem and religious healers.

Chapter 5: Doctors Perceptions of HTN and its Treatment

Doctors' understanding about HTN is also an important indicator of their practice and approach towards disease management. This chapter will explore what emerged from interviews with doctors regarding their understanding of HTN, its treatment and treating hypertensive patients. The five main themes that emerged from the analysis of doctors' interviews are: perceptions about HTN, treating hypertensive patients, perceptions regarding lifestyle management, informing hypertensive patients about HTN and communication issues during consultations.

5.1 Perceptions about HTN

All doctors at the beginning of the interviews were asked about HTN as a disease. They described HTN as a chronic disease that is highly prevalent in Pakistan; they expressed concerns that HTN and diabetes were the two main reasons for cardiovascular disease and renal complications amongst patients in Pakistan. Most doctors reported a gradual increase in the number of hypertensive patients with uncontrolled HTN visiting outpatient departments in public hospitals.

> *Hypertension is very common in Pakistan and every second person is hypertensive nowadays here. I see around fifty patients of HTN every day that come with BP problems. In every family there are at least two hypertensive patients here in Pakistan. Their number is increasing. (Doctor 5)*

Doctors also cited HTN to be a silent disease that progresses slowly and causes organ damage if it remains undiagnosed and untreated. Many doctors believed that the absence of symptoms, non-specific symptoms and a delay in seeking appropriate medical advice by patients made it difficult for them to detect and diagnose HTN in its early stages. Doctors believed that it was the delay in diagnosis that adversely affected quality of life for patients and ultimately impacted upon prognosis and survival rates; they explained that delays in diagnosis allowed HTN symptoms to develop into complications in patients and a worsening of their prognosis.

> *Frankly speaking the patients come to us with primary or essential hypertension very late and without that specific time period. Sometimes we are unable to confirm and label as primary hypertension due to delay in diagnosis. They develop the complications at that time period when they come to us. (Doctor 6)*

The doctors identified some particular risk factors; for example, many emphasised eating unhealthy food and stress as a major reason of ineffective blood pressure control amongst patients. There was a general concern in doctors that patients from urban areas in particular were adopting sedentary lifestyles and as a result had become obese and hypertensive. Doctors correlated their views with the medical literature and considered some patients to be at greater risk of developing HTN than the others due to the presence of risk factors.

A few doctors highlighted that age was a factor in developing HTN due to the almost inevitable process of hardening of the heart blood vessels with increased age. They cited that most of the hypertensive patients who presented in the outpatient department were over the age of forty and therefore inferred that increasing age was a cause of HTN.

> *HTN can be age related and the risk of having blood pressure increase with an increasing age. When a patient comes to me, I first check the age of the patient, if it is above forty then the risk of HTN is there and mostly these patients have HTN. Age is non-modifiable risk factor and we cannot change this. (Doctor 8)*

Whilst reporting causal factors many doctors indicated that HTN was a genetic disorder and individuals with a family history of HTN were possibly at higher risk of developing HTN. They explained that if one or more members of a family had HTN the likelihood of other individuals within the same family developing HTN the condition in the future was doubled. The absence of screening tools to evaluate the genetic risk earlier in these families was considered to be a barrier to the control of HTN.

> *One of the main causes of HTN is a positive family history, you know. If it is genetic then you can't escape from it and in such families, the risk doubles among individuals. Unfortunately, we don't have any screening and evaluation tool to monitor such families and their blood pressure annually. (Doctor 2)*

> *Positive family history of HTN is the main cause in our patients, I think. If you have hypertensive parents, then your chances of becoming hypertensive are double. How we can screen these families this is the point to think. (Doctor 26)*

A few senior doctors who had been working in hospitals for many years had a different viewpoint and this was based on their extensive work experience. They expressed the opinion that poor adherence to antihypertensive drugs and a lack of follow-up consultations were the main factors of uncontrolled HTN amongst patients. These doctors highlighted that patients often stopped taking their antihypertensive drugs on a regular basis with the disappearance of their physical symptoms, ceased to attend appointments and therefore became non-adherent. The doctors stated that patients often failed to attend their second appointment and would only come back once the same symptoms had returned. This was highlighted by a senior doctor who had been working in a hospital for four years in the following quotation:

> *Many patients come to us who have skipped their medicine. We recommend them to use their medicine on regular basis but when their complaint resolves such as headache and dizziness, they think they are ok now and then they stop taking medicine. They won't come for check up until they will get the same problem or symptoms again. So, this is the main cause of high prevalence of HTN. (Doctor 7)*

Most of the doctors indicated using HTN diagnostic criteria and guidelines to best determine how to treat HTN. Further analysis of doctors' interviews identified two categories: (I) awareness about HTN guidelines (II) practicing HTN guidelines

5.1.1 Awareness about HTN guidelines

All the senior doctors were familiar with the national HTN guidelines produced by the Pakistan Hypertension League and the NICE (the National Institute for Care and Health) guidelines that are in line with the UK NICE guidelines for HTN detection, control and treatment (PHL, 1988; NICE, 2011). They reported adherence to these guidelines when diagnosing and treating hypertensive patients in consultations. Many doctors emphasised that they used the HTN guidelines to prescribe appropriate antihypertensive drugs for patients. However, many junior doctors reported that they were not updated regarding HTN treatment guidelines and were unsure how to apply the guidelines in their clinical practice.

For example, a few junior doctors stated incorrect systolic and diastolic blood pressure readings when describing how they labelled and documented HTN in patients. Some of these doctors established an HTN diagnosis on the basis of only one reading at 130 mmHg and reported starting drug treatment at this stage in their patients.

> *Hmm, you confirm this when you have a BP reading on 130 mmHg and then you label this as HTN and start giving beta-blockers to patients, I think. (Doctor 12)*

A family history of HTN and the age of the patient were other factors that some junior doctors used to document HTN diagnosis and prescribe antihypertensive drugs. They reported immediately commencing with antihypertensive drugs in these patients without confirming their diagnosis via two further high blood pressure readings as recommended within the guidelines.

> *Patients who are old and walk in patients while some with positive family history come with high blood pressure reading then I think in my mind that he must be a case of primary hypertension and prescribe them antihypertensive drugs accordingly. (Doctor 22)*

Lack of awareness about HTN guidelines amongst junior doctors may go some way to explaining why senior doctors would more commonly confirm the diagnosis in hypertensive patients first seen by their junior peers. Furthermore, many doctors felt that junior doctors were not given the opportunity to observe new cases, identify HTN and make a diagnosis or to refresh knowledge throughout their training in public hospitals.

A number of senior doctors felt there to be gaps in the training of junior doctors with regard to the management and treatment of HTN, mentioning that heavy workloads often meant that junior doctors did not receive sufficient training and their knowledge were not kept up-to-date with the recommended clinical guidelines.

> *I think the training of junior doctors is not up-to-mark. One reason is workload and in that we cannot provide them enough time. Secondly, in medicine a house officer spends only 3 months when he/she starts dealing the disease, learns how to manage patients then he/she moves to the next rotation. So, in three months under heavy patient load what kind of learning will take place? (Doctor 13)*

Senior doctors felt that inappropriate medical practice and inadequate training with regard to disease management was compromising levels of patient care in public hospitals. However,

they expressed some concerns and reservations about the practicalities of HTN guidelines and their uncertainties as emerged in the following sub-category.

5.1.2 Practicing HTN guidelines

The guidelines for HTN treatment were designed to assist doctors in determining the appropriate management of HTN in order to increase the percentage of patients with controlled blood pressure. However, in this study a few doctors expressed concerns regarding the practicality of these guidelines in consultations such as implementing the HTN diagnostic criteria in order to confirm the diagnosis.

According to some doctors, a lack of patient follow-up for second and third blood pressure readings after two to four weeks made it difficult to confirm and diagnose HTN as recommended by the guidelines. This concern was expressed in the following quotation:

> *In primary HTN you need a specific time period to label that as a primary. But patients they don't turn up usually in two to four weeks so how we can confirm HTN diagnosis as the guidelines say? How we can actually implement these guidelines here in Pakistan, this is the question. (Doctor 4)*

Due to a lack of patient follow-up, doctors expressed uncertainty regarding the best way to record and interpret the HTN diagnosis in practice. They suggested the need for a more standardised approach to HTN diagnosis and felt that the guidelines needed to be more relevant to general practice.

Some doctors highlighted that blood pressure recordings made by most patients were not representative of accurate blood pressure measurements and as a result, they were not able to document the HTN diagnosis and advice on changes to antihypertensive drugs in accordance with the guidelines.

> *BP measurements are the core of HTN treatment guidelines and help us to document HTN stage but if we have no readings or the false which are not the identical what we get in consultation then how we can follow the next step of guidelines and treat patients properly. (Doctor 19)*

In explaining this further, they identified the greater reliance by patients on dispensary services and quacks for blood pressure monitoring and expressed their frustration at the false readings this often gave rise to. Many doctors believed this to be due to the inability of the quacks and dispensaries to record blood pressure correctly and precisely and this was an essential requirement for the management of HTN.

> *I will say everything is linked to BP monitoring. Either it is stage one HTN or that is stage two HTN. When you have high BP on three different occasions and then you label the HTN. When we know that monitoring is here then we can start antihypertensive to them. But most of the patients go to the dispensers and ask them to monitor and then bring the wrong record to us. Local dispensers and quacks have machines, but they don't monitor blood pressure correctly. (Doctor 23)*

In exploring the methods doctors used to evaluate the status of patients with regard to HTN in such circumstances, they reported being solely reliant on previous medical notes, prescriptions and medical histories from patients. However, when evaluating the medical notes in order to confirm HTN, a confirmed diagnosed of HTN was not always documented on the most recent notes. Therefore, it was essential to explore the factors behind this practice in order to identify the barriers to documenting a diagnosis of HTN and following the recommended clinical guidelines.

When asked most of doctors seemed to be aware about the need to document the HTN diagnosis and the stage at which it was at on the notes of their patients. However, a few doctors stated that workload and the shortness of consultations had affected their adherence to documenting the disease in accordance with the recommended clinical guidelines.

> *To write everything in such a shorter time is very difficult, I think. Sometimes, we forget when we are in hurry. According to WHO [World Health Organization] criteria there should be 25 minutes consultation time for every patient but again patient load is too high and giving proper time to every single patient is not possible. We are not practicing the way we should, and mistakes happen like this. (Doctor 29)*

It seemed that doctors were aware of the shortcomings of their practice at times but justified that the pressure of work affected their approach towards treatment standards. Some doctors stated that when treating patients sometimes more emphasis was placed on prescribing antihypertensive drugs as opposed to discussing lifestyle changes with patients. One explanation for this may lie in the preference of patients to take the drugs route first and foremost, often believing this to be the only treatment available for HTN.

> *Every patient wants tablet, they think consultation useless if we don't prescribe drugs. I understand that lifestyle changes are equally important and often we should rely on these solely, but we doctor admit this, some patients just want tablets and then we prescribe. They are difficult to counsel really. (Doctor 22)*

Such patients were described as 'difficult' and as a result doctors often reported prescribing them nutritional supplements in order to satisfy their demands. Some doctors even reported prescribing antihypertensive drugs without a clinical need because patients were so insistent in their requests for it during consultations. Therefore, at times doctors were acting against the recommended treatment standards and guidelines; their own judgements about patients and failure to counsel them properly often influenced their decisions to deviate from the treatment recommendations of the guidelines.

5.2 Treating Patients with HTN

When asked about their views of treating hypertensive patients they reported patient-related factors that they perceived as barriers to successful HTN management. For example, the failure of patients to accept their condition and remain in denial about their HTN diagnosis were highlighted as important barriers influencing patient adherence to drugs and lifestyle changes.

They don't consider high blood pressure a serious disease because most of the time patient has 180/120 mmHg blood pressure and he/she feel fine and does his/her daily activities. They think we are all right and high blood pressure is nothing. So, when a patient thinks like this how he/she can be compliant. This is the thing. (Doctor 18)

Many doctors reported that patients lacked an understanding that HTN was a chronic disease and this only served to strengthen their denial with regard to treatment needs. Doctors believed that due to this lack of awareness patients took antihypertensive drugs only for a short time, did not comply with recommendations or advice and often failed to attend scheduled check-up visits.

This is the fact that people don't have awareness that once you are diagnosed with HTN you must have taken the drugs lifelong and take the treatment throughout the life. They think HTN is like a sessional flu, they take drugs for a day or two stopped and don't come to us for further check-ups. (Doctor 7)

Furthermore, the majority of doctors highlighted a lack of awareness amongst patients about the benefits of controlling their HTN and there was a common concern that patients were not aware of the consequences of uncontrolled HTN and as a result they would often go on to develop complications. They considered that patients paid very little attention to adhering to their plan of drugs and felt frustrated by the seeming lack of interest by patients in disease management.

They even don't bother what will happen if blood pressure will not control and they even don't know the consequences of high blood pressure and its complications. For example, a patient with CVA (Cerebrovascular Accident) wants to go home after four days by own feet. [Laughter] Due to lack of awareness they are not well informed about a proper HTN treatment. (Doctor 4)

Some doctors mentioned that patients were reluctant to rely on lifestyle changes alone and cited that their desire to enjoy life often overruled the need to regulate their lifestyle. They considered it to be difficult to change the attitudes of such patients with regard to the efficacy of an active lifestyle as opposed to antihypertensive drugs.

Patients think drugs are more effective and rely on this. To modify the lifestyle is difficult. They think tablets will give instant cure and they expect after five minutes they will feel better. They don't get satisfied unless we write drugs because they have a typical mind-setup. Who thinks to make efforts, everyone picks an easy option? (Doctor 21)

It was clear that the doctors felt frustrated by the non-adherence by their patients to drugs plans and lifestyle changes, however, they also reported adherence to be a complex issue for patients to adopt. To explain this further they highlighted economic barriers that may affect the decisions of patients regarding HTN treatment, such as skipping doses and purchasing alternatives to the drugs originally prescribed due to financial problems. One doctor felt that financial difficulties and other priorities in the lives of patients often meant that the efforts made by doctors to treat HTN were wasted to some extent:

Because the affordability issues here, not every patient can afford the treatment. Patients who are poor, their tensions are something else. They think about money not about the

health. Sometimes, they buy the cheap medicine similar to the prescribed ones but relatively less effective than the original so what will happen? Obviously if a patient cannot afford a proper treatment due to economic issues then every effort, we make becomes zero. (Doctor 6)

There was a general perception amongst all the doctors that educated patients were better able to follow their HTN treatment plans and take the advice provided in spite of financial difficulties in their lives. The doctors believed that educated patients were better equipped to understand the information provided and were aware of the consequences of complications with their disease. By contrast, a few senior doctors believed the opposite and that educated patients were more likely to adopt riskier behaviours than their non-educated counterparts, such as eating junk food, not exercising and subjecting themselves to greater levels of stress despite being fully aware of the consequences.

The educated patients mostly present with high incidence of HTN, unfortunately. They like to eat junk food, stressed then go to restaurants and do hoteling more as compared to poor people. Obviously, they have an office work such as contracts, tenders and office tensions and job-related stress they have more blood pressure problem and very common in them as compared to uneducated patients. They seem more stressed, forgetful, type [A] personality due to work in competitive fields. So, we cannot say that educated people are more compliant to treatment and advice given. (Doctor 14)

They further emphasised that educated hypertensive patients often smoked tobacco even though they were aware of the health hazards associated with this habit. According to these senior doctors', patient behaviour was a key factor in treatment adherence and decision-making as compared to educational status.

Educated patients tell us that they smoke and feel unable to stop this. Even if they have no money or less still, they spend money on smoking, why? They should not smoke if education is everything. The actual problem is their behaviour that develops from childhood and that's why patients are unable to change this or understand what is required for disease management. Uncontrolled HTN is a consequence of it. (Doctor 9)

Seeking alternative treatment in the form of quacks and Hakeem medicine was perceived as a reason associated with the choices of patients despite being aware of the consequences of using such practices. Quack and Hakeem medicine was described as being fast-acting but interfered with antihypertensive drugs and led to complications in patients which left doctors with very few treatment options. A few doctors reported that quacks administered incorrect intravenous medication such as steroids to treat hypertensive patients and put their lives at risk.

Quacks are working because they are giving instant cure medicine. They give steroid injections to hypertensive patients which further creates the problems. It is harmful for patients to visit such healers, as they prescribe medication based on guesswork only. You can't start a drug without any true logic. (Doctor 24)

All the doctors interviewed felt frustrated by the actions of their patients in seeking alternative treatments for their HTN. They stated that some hypertensive patients had a strong faith only in Allah to heal their illness and treating such patients was considered to be

very difficult. Doctors stated that such patients would often attribute improvements in their condition to prayer rather than drugs and believed that their faith and prayers would eventually cure their disease. In addition to this, some doctors described how a few patients asked them to pray for their health during consultations.

> *Religious patients ask us to pray for them and sometimes they say: oh, doctor you have written a tablet for me, but nothing will happen unless Allah wants. I say Allah also says take treatment when necessary. They also demand us to pray for them along the prescription [Laughter] (Doctor 11)*

Many doctors expressed concerns at the way in which the religious beliefs of patients often led them to put their faith in spiritual healing for their illness. One doctor indicated that patients often shared their spiritual treatment experience with her and assurances from a spiritual healer had led patients to not adhere to their recommended treatment plan or seek appropriate medical advice.

> *Patients tell us about their spiritual healing treatments. Like a patient told me that he went to a saint and saint gave him a Tawiz (amulet) for dizziness and he told me that after wearing that he did not feel dizziness. He continued saint treatment and also informed this to me. (Doctor 3)*

At the same time as highlighting the religious beliefs of patients the doctors emphasised that faith in Allah had a strong role to play in the lives of Muslims, however, they disapproved of the practice of patients consulting saints and spiritual healers for treatment. It appeared that doctors had different explanations and expectations from patients when it came to manage HTN and making choices about treatment.

5.3 Perceptions Regarding Lifestyle Management

This theme explores doctors' understanding regarding exercise, dietary changes, salt intake, smoking and alcohol consumption.

5.3.1 Understanding concerning involvement in exercise

A majority of doctors indicated that exercise is equally important to all, including obese and non-obese hypertensive patients, for managing HTN, regardless of their body weight. They believed exercise was more effective than antihypertensive drugs, highlighting medical literature to this effect and shared their experiences with some patients. They pointed to the need for exercise to progressively control high blood pressure. For instance, doctor 2 described how some patients who maintained exercise as part of their daily routine were seen to have better control over their blood pressure than non-exercising patients:

> *First of all, the most, most important thing is exercise and then increase this gradually. It does not matter either you are obese or not, exercise is must. It is for everyone. I have seen many patients who do exercise daily and in better control of their blood pressure control as compared to those who sits all day. (Doctor 2)*

Doctors shared how patients indicated patients being aware of different types of exercise but considered household activities such as washing, cutting vegetables and walking to a local shop as an alternative to exercise. They highlighted a general lack of interest amongst patients in exercise and that some patients expressed that it is difficult to 'get going', particularly in the morning and evening. To improve the knowledge of patients some doctors highlighted the need for education in schools to raise awareness about exercise and an active lifestyle.

> *The school and colleges should involve in this awareness. Children should be aware the benefits of games and doing exercise from the childhood. So, when they grow-up, they will have a clear understanding, I think. That is the way to create awareness and bring change in behaviour. People will develop the habit of exercise and walk from childhood and that will also grow with them and remain long lasting. (Doctor 13)*

Doctors indicated that due to the busy nature of their lives, patients might think that they may be undertaking adequate exercise already in form of work. They described how some patients used their occupation and working hours as an excuse for not taking any exercise, for example doctor 1 described a patient's justification for not going for a walk after a long day at work as follows:

> *I have a patient and yesterday when I asked him to do exercise, he used to tell me all his routine [Laughter] he told me I come home at 5pm then two hours every day I spent with my father and brothers to discuss current political issues then I eat dinner and go to bed. So how can I find a time for exercise. [Laughter] So I think it is a matter of priority in patient life and what is important to achieve. They have various excuses. (Doctor 1)*

Many doctors viewed providing advice on exercise to hypertensive patients as part of their role and reported promoting walking and cycling during consultations. The majority of doctors claimed that whilst they had provided information during consultations, they felt patients were not taking an interest in or responsibility for exercise, possibly due to an unwillingness to change their behaviours. Only two doctors believed that they provided insufficient information about exercise due to time restraints and thought this could potentially be a barrier to patients achieving an active lifestyle.

> *Unfortunately, due to lack of time and patient burden we cannot do counselling in a proper way. Even, we cannot tell everything in detail to our patients. Although, they need motivation and more information how to adopt exercise in their life. (Doctor 24)*

The insights from doctors' accounts highlighted the wide range of issues in place to adopting and maintaining exercise, and that some of these were related to personal and social aspects of the lives of patients. Doctors often perceived these issues as 'barriers' to adopting and maintaining a healthy lifestyle.

Socio-cultural norms

Many doctors indicated that it was not the norm within Pakistani culture to adopt exercise as part of everyday life and therefore often not encouraged. They pointed that living in a society where exercise is not viewed as a valuable practice contributes towards a lack patients' involvement. The absence of cycling tracks, outdoor supports and absence of regular exercise programs were pointed out by many doctors.

Most of the doctors believed that Pakistani society observes a lack of women outdoor exercise. Doctors stated that the priorities of Pakistani women had shifted towards taking care of their house and children and after marriage they had a sense of "it is no longer all about me". By contrast, some doctors felt that Pakistani men discourage outdoor exercise for women due to social norms. For instance, they cited that in most Pakistani families it is not acceptable to allow wives and daughters to run and walk along roads due to the widespread prevalence of sexual harassment, such as whistling and catcalling. This was thought to be one of the reasons that women preferred to stay indoors and attend to domestic chores.

> *Women face social restraints like where they will go for a walk. They don't have area to walk, no permission from homes to go out, socially they are not allowed. In our society it's not acceptable to see a woman walking alone outside due to whistling and catcalls. All these factors matter and make the situation difficult for them. (Doctor 19)*

> *This is a fact because our culture is not so open. It's not acceptable for a woman to go outside and start running and jogging on the road. Walk is acceptable but not the exercise and these are the hurdles a Pakistani female patient can face. (Doctor 26)*

Doctors also cited women's reluctance to join gyms due to difficult access, membership cost and an overall lack of exercise culture. Some doctors highlighted the absence of female-only gyms in most cities as an additional barrier for women.

> *Here, in Pakistan it's uncommon for a woman to go outside and start doing exercise. There should be gyms and health clubs from the government that should be less expensive or free of cost so everyone can afford. (Doctor 18)*

> *There are no female gyms and fitness centres from the government side. No health clubs are available for women. The government should build free fitness centres for patients especially for women. (Doctor 21)*

Some doctors indicated that the socio-cultural restrictions made providing advice on exercise to a female patient challenging and as a result they omitted such advice at times or modified it according to the circumstances of the individual. A few doctors advised that instead of joining a gym or running and jogging outside, women undertake regular and frequent activities within their home setting.

> *Due to some socio-cultural restraints instead of asking them to go outside…. I ask my female hypertensive patients that instead of short passage route take a longer passage when you need to go somewhere and in their routine activities. Use stairs most of the time…. Try not to sit all day and use stairs a lot and if you don't have stairs at home then go to roof and take rounds again and again, do walk around. (Doctor 19)*

Concurrent health conditions

Some doctors indicated that co-existing health conditions often restricted them in providing exercise-related advice to some patients. They pointed out that health conditions such as joint pains restricted patients' mobility therefore they considered such issues while suggesting exercise to patients.

If he/she already have joint pains, then I cannot tell my patient about cycling and running. How my patient will run or even walk briskly with joint pains. So, it happens that you become conscious and aware that what kind of advice will suit patient and which one not. (Doctor 5)

Age-related factors in elderly hypertensive patients were commonly reported by doctors. Many doctors felt that providing exercise advice is not valuable for older patients due to the old age and as a result, they might get discomfort and disability. They reported that ageing makes patients bones weak and as a result they often fall that can be prevented by less physical activity.

Doctors expressed a fatalistic view describing exercise-related advice to be of no value for older patients due to their increasing age, loss in muscle mass and decline in their ability to balance. They frequently made reference that ageing inevitably involves a marked decline in physical fitness. For instance, a doctor who had worked in a hospital for five years claimed that exercise was not safe for anyone over a certain age:

For exercise, I mostly see the age of a patient. For example, if patient is very old because…. and about exercise sometimes he/she feels too odd to do exercise in old age. Because if the patient is 60 or 65+ then how a patient can do exercise? Older patients cannot do cycling and running they fell down and get hurt so it is not good to advise them exercise. (Doctor 4)

Doctors displayed a tendency to neglect the notion of exercise as beneficial for older patients. This is in stark contrast to research which suggests that the older population experiences a greater decline in their physical functioning and an increase in disease through lack of exercise (Ip et al., 2013).

5.3.2 Dietary management

A majority of doctors considered dietary management effective to control HTN and considered it for all hypertensive patients. However, doctors indicated a number of issues that were believed to influence patients' adherence to healthy diet. These were (i) role of traditional foods (ii) influence of family and friends and (iii) accessibility to junk food.

Role of traditional food

The majority of the doctors indicated that the use of traditional food high in saturated fats is the major obstacle to an adjustment to a patient's healthy diet plan. Doctors reported that hypertensive patients should follow a diet that is lower in fat, spice and sugar content, however, they felt there to be insufficient knowledge amongst patients with regard to eating healthily. Eating traditional food cooked in oil and particularly paratha at breakfast was believed by most doctors to be damaging the healthy eating plans of patients. Consumption of fats in form of Desi ghee and developing a taste for this in childhood was perceived as a near-unavoidable dietary habit amongst patients.

They have one logic; that they eat one thing from the start and throughout the life and since they born. Ghee and oil. Ghee and butter, they like the most and to leave these at once is difficult for them. Most of them, they say it's difficult and to leave this they have never thought about this. (Doctor 19)

Our all traditional dishes like 'Chicken Biryani' (Biryani is normally made with basmati rice and flavoured with cloves, cinnamon, cardamom, bay leaf, coriander, mint, ginger, garlic and onions) and korma (a mildly spiced Indian curry dish of meat or fish marinated in yogurt or curds) contain high cholesterol content. All this led towards unhealthy diet, but patients cannot resist because of traditional foods. (Doctor 28)

The majority of the doctors indicated that patients held beliefs and misconceptions associated with certain foodstuffs. One doctor, for instance described how his patients believed that a healthy diet should consist of salad and vegetables and these were considered to be lacking in flavour. One doctor indicated that the majority of patients were confused about the intake of Desi ghee in their diet and assumed it to be a source of energy and high in calories. The belief by patients that Desi ghee would supply them with high amounts of energy and strength was illustrated by doctor 8 in the following quotation:

Here in Pakistan, people use ghee instead of cooking oil. Ghee contains cholesterol. They think ghee is more beneficial for their health. They have in their minds that Desi ghee can give us extra energy and make us strong. [Laughter]. (Doctor 8)

A senior doctor who had been working in a hospital for one year indicated that as opposed to providing nutritional value, food had now become considered as a socially constructed status symbol amongst some upper-class families and representative of their social standing. He highlighted that serving a variety of expensive traditional dishes displayed a level of distinction, wealth and power for individuals compared to that of other people in society. Moreover, this custom was linked to the protocol and honour given to guests in providing a diversity of food items, as doctor 14 highlighted below:

Nowadays it become our culture, if you have 10 dishes in an upper-class family dinner to represent this as a status symbol. Plus, those 10 dishes would be definitely rich in oil. Food has become a status symbol and presence of oily chicken dishes represents that you belong to a respected and a wealthy family. People think if someone has invited me on dinner and cooked 5-6 different variety of dishes then he/she will think an honour has been given. If a person will not cook 5-6 dishes and invite someone the guest will think 'Oh he/she has just tried to get rid of me.' People don't think these are healthy or not, they count number. This is the thing. (Doctor 14)

Some doctors reported that convincing patients to reduce their intake of ghee or change their dietary patterns was challenging due to what they believed were misconceptions held by patients. This view was echoed by a doctor who described how some patients would often argue against making healthy food choices and would not make the recommended changes in order to manage their disease.

I don't think they understand what we told them about ghee or food. These patients are very foody, if you tell them even 100 times don't eat this, it is not good for you, but they will not listen make arguments like 'Look doctor you have stopped us eating too.' They eat the food they like, that's it. (Doctor 18)

A lack of self-control

A few doctors stated that people in Pakistan are very fond of eating and enjoy great variety in their food with family and friends. They described how at family reunions eating a meal

was a regular event and that it was often hard for patients to resist the temptation of fatty foods at such gatherings.

> *Pakistani people are fond of eating and food contains a lot of spices, salt and oil. Due to company people eat more and that is the cause of obesity and other diseases and patients don't accept dietary recommended suggested by their doctor and they eat whatever they want. (Doctor 29)*

> *Patients in Pakistan are very fond of eating. They always want to eat oily and spicy food when they eat together. I think they don't find this useful that healthy food can be an option to their treatment. They just want to eat what comes in front. (Doctor 27)*

However, a majority of doctors recognised this a lack of self-control and/or an unwillingness to stick to a healthy diet plan. They reported patients' lack of interest in making dietary changes and pointed that in family gatherings and presence of friends' patients' lack of self-control become prominent due to the temptation of tasty food. Doctors pointed that patients believe taking the tablet to control HTN is enough rather follow dietary restrictions. By taking tablets they had a reason to support their non-adherence to dietary changes.

Accessibility to junk food

Doctors indicated that the consumption of fast food was very prevalent in major cities in Pakistan due to the variety of fast food restaurants and outlets such as McDonald's and KFC offering pleasant surroundings and a varied menu. They believed that eating fast food was a common practice for everyone in major cities of Pakistan. Some felt that the proliferation of vendors and hawkers in major and minor cities selling low-cost unhealthy street food was exacerbating the problem. They highlighted the fact that low quality fast food was readily available and provided people with a sense of independence, joy and a wealth of opportunity.

> *Eating junk food is increasing day by day. In homes, who have money, they prefer and run to eat from outside rather to cook inside the house. Because everywhere is fast food hawkers and restaurants. The poor people eat fast food from hawkers and rich from McDonald and KFC. Everyone is eating this unhealthy food. I think eating fast food give people an independence that they have choices in life, and they feel happy (Doctor 27)*

A few doctors also indicated experiencing difficulty in avoiding fast food due to the time it took to prepare and cook traditional meals at home. The convenience of ready meals combined with a busy schedule was one of the reasons given by doctors for opting for fast food. One junior doctor reported feeling tired and unable to cook and eat a healthy meal after a long shift at work and empathised with patients who felt the same way:

> *We doctor even don't have time to make salads, we go towards readymade, not time to eat fresh food every day. Even sometimes, we eat three days old food that is present in the fridge. What comes front of us we do eat? We as doctors even cannot follow all this even, we have greater knowledge and know everything. Then what we can say about patients who even have less knowledge. This is the thing. (Doctor 21)*

A few junior doctors described that due to their busy schedules they had adopted unhealthy eating patterns such as skipping breakfast and snacking on small unhealthy meals throughout

their shifts. The availability and accessibility of energy-dense foods such as fries, pizza and fizzy drinks and an absence of salad, fruit and vegetables at hospital canteens also played a part in the eating choices of doctors. It was noted that fast food could cause heart problems and unmanageable HTN, but many doctors viewed the easily accessible fast food outlets selling low-quality fatty foods and sugary drinks as a contributing factor.

> *Who never wants to eat healthy but when it comes to choices, we see what is easily available? Here in hospital canteen we have fast food and drinks because they get profit on that. I myself don't eat healthy all the times, I do eat fast food and drink Pepsi due to a lack of time and easy access. Sometimes, I skip my breakfast and same others do. So, you can't stick to healthy food all the times, I know it's not good but this is a fact, unfortunately. (Doctor 3)*

The majority of doctors felt that mass media could play an important role in the promotion of healthy eating amongst the population and highlighted the need for local food authorities to improve the availability of healthy food in schools and hospital canteens. This section has illustrated the factors that doctors believed inform the food choices of patients. Moreover, doctors have also revealed that their own eating behaviours can at times be found wanting and that they sometimes hold erroneous views or stereotypical perceptions with regard to their patients which may need to be addressed. The following category will examine the views of doctors with regard to salt intake.

5.3.3 Salt consumption

Doctors indicated that hypertensive patients should cut down their salt intake, however, they reported cultural practice and taste preferences as barriers to follow a less salt diet amongst patients. The use of salt is firmly established within Pakistani cuisine hence the majority of doctors believed it to be harmful to hypertensive patients following a healthy diet regime.

Doctors believed that the use of salt in tea instead of sugar was possibly a cultural practice in certain Pakistani areas; being more prevalent in some specific villages, geographical areas and to the north of Pakistan. For instance, a senior doctor described:

> *Once I was travelling and I used to stay at one place. It was a local hotel and you can say poor people can afford this easily. So, I ordered the tea, when I took one sip, it was full of salt. I asked from the hotel manager what this is. He said, sir here only bus drivers and truck drivers come, and they used to take salty tea only. (Doctor 27)*

Many doctors indicated that salt is used to flavour traditional foods in Pakistan and therefore management of salt intake could prove challenging for patients. A junior doctor reflected that a diet high in salt was prevalent amongst some of his hypertensive family members and this was due to particular taste preferences. One doctor described how he had counselled his mother about reducing her salt consumption and advised her to avoid salty tea. Initially she was ambivalent but after some encouragement and explaining the risks associated with high salt consumption, he was able to modify his mother's behaviour:

In Kashmir, it's a tradition to have a salt in tea instead of sugar. I myself a doctor, and my mother used to take salty tea in front of me, what can I say more… What she does? She takes her antihypertensive medicine with salty tea. If this is happening in a doctor's house, then you can understand what is happening elsewhere. I counselled and encourage her again and again. Many times, even daily and now finally she doesn't add salt. I counselled her not to take this and the risks associated and finally she gave up salty tea. [Laughter] (Doctor 14)

Some doctors emphasised that patients with greater knowledge about the benefits of a reduction in salt intake were more likely to be able to control their blood pressure. However, a majority of the doctors were in opposition to this viewpoint and believed that knowledge did little or nothing in changing the behaviour of patients since the practice was firmly embedded within custom and preferences of taste. Only one doctor argued that an inability to change behaviours may be linked to a lack of awareness and inadequate provision of information during consultations.

In this public setup, we have too much patients then we cannot do counselling as it required but we try to do our best as much as we can. Unfortunately, due to lack of time and patient burden we cannot do in a proper way. We cannot tell them how much salt is needed in diet and how much they need to cut off and also, we cannot tell in detail about high salt foods. (Doctor 21)

Some doctors were familiar with how much patients understood about the dangers of high salt intake and their current practices in that regard, however, a few confessed to being unable to convey sufficient advice and counselling to patients during consultations due to a lack of time and a heavy workload.

5.3.4 Smoking cessation

Doctors largely believed that smoking was harmful for all humans, whether hypertensive or not. Despite being harmful to health, a majority of doctors mentioned that smoking cessation was challenging for hypertensive patients due to some barriers. They highlighted a lack of motivation, enjoyment and concealing their habit as main barriers behind patients taking up the habit.

A lack of motivation by patients to quit smoking was criticised by many junior and senior doctors and they believed that many patients did not wish to quit as they felt no detrimental effects on their health, enjoyed smoking and made false promises that they would eventually quit at some point in the future. Junior doctors believed that the common reasons for smoking amongst patients were pleasure, relief from boredom and enjoying seeing others smoke. Doctors indicated that patients often concealed their habit from them as well as from other family members due to the stigma surrounding smoking and fear of embarrassment in public.

I think they believe that this kind of information is very personal and confidential that's why they hesitate to tell us or maybe they feel shy and not respect worthy if they tell us about this. Because no one like the smokers and smokers are socially stigmatised. (Doctor 5)

About smoking, no patient tells us or disclose us himself/herself and smoking is the universal truth nowadays. Every second person is the smoker here except the few people. But patients don't tell us and even their families due to shame. (Doctor 2)

Interestingly many doctors displayed a lack of interest in asking questions from smokers and providing them with support and counselling in order to help them quit. By way of explanation they stated that smoking was difficult to quit and that patients were reluctant to discuss or change their attitudes towards smoking cessation. Doctors indicated that the doctor-patient relationship may be compromised if the patient was perceived to be uninterested in discussing smoking cessation during a consultation. Some doctors admitted that they had on occasions brought consultations to an end more rapidly if they felt the patient lacked interest or appeared uncomfortable when the topic of conversation turned to their smoking habit.

Many doctors stated that lack of time was the main reason why they did not provide more support and motivation to help patients quit smoking. A few doctors felt there was a need for a separate service that paid specific attention to assisting hypertensive patients engage with smoking cessation.

Smoking is a habit that is very difficult to leave. In one session, we cannot change who is smoking from the past 20 years. It's like their habit and due to nicotine, they become addicts. We do ask them to quit and I especially emphasis on this, but we cannot achieve this in just few short consultations. (Doctor 19)

Due to lack of time we do ask about their smoking status, but we cannot counsel them briefly. This needs long discussions with patients and sessions to counsel them. I think there should be a separate service for such patients and that should be paid so we can engage doctors with these patients. (Doctor 23)

Some doctors also highlighted the need for a mass media campaign to raise awareness amongst people about the risks surrounding smoking. Doctors pointed factors such as a lack of a patients' interest and time restraint for counselling in order to change their smoking habit. The next section examines the views of doctors with regard to alcohol consumption.

5.3.5 Alcohol consumption

Excessive alcohol consumption was reported as damaging for HTN control amongst all doctors. Almost all the doctors pointed to the role of religion in patient choice to drink. They believed that patients with strong religious commitments did not consume alcohol of any form. Doctors' believed that in a Muslim society like Pakistan, drinking alcohol is seen as an unacceptable practice and a symbol of evil.

However, the majority of doctors conceded that patients with weak religious commitments did partake in the consumption of alcohol for enjoyment's sake, but this was kept secret from their families and doctors. Doctors stated that breaking Islamic laws bring shame and stigma for patients within the society and that is the main reason they hide this habit. Many doctors felt that the taboos surrounding drinking alcohol in Muslim countries would not allow patients to openly acknowledge their habit. They described how such patients felt ashamed and

concerned that they would be met with family disapproval and therefore tended to avoid such discussions.

> *No one discloses anything about alcohol, we have to ask them again and again. We try that they tell us the truth, but patient often does these kinds of things by hiding from the family. People drink but if they drink, they should not tell their doctors. Who admits that I'm a drinker too? (Doctor 18)*

> *If they are alcoholic, they won't admit this and don't let us know because drinking is not a good practice in our culture and religion. (Doctor 23)*

A few doctors indicated that despite the strict laws some hypertensive patients were still able to illegally purchase alcohol of various brands provided they had sufficient purchasing power. They also stated that patients who could not afford good quality alcohol often ended up drinking toxic homemade liquor, often with fatal consequences.

> *The biggest problem of our society is that nothing is present at front but behind everything exists and people do everything behind the closed doors. No one discloses anything about alcohol, we have to ask again and again. We try that they tell us the truth, but some patients often do these kinds of things and hide it from the family. (Doctor 2)*

The majority of doctors stressed that time constraints prevented them from counselling patients adequately about the hazards associated with alcohol and the consequences it could have on their HTN. One senior doctor stated:

> *We don't have so much time to follow up these patients or to counsel them. First of all, they don't share with us and if they do sometimes, we ask them to stop this habit as it is dangerous for your health. We cannot counsel them briefly. (Doctor 11)*

5.4 Informing Patients about HTN

A majority of the doctors reported providing information to patients about the disease and the treatment of HTN during consultations and most stated that providing detailed information was part of their role. By contrast, some perceived their role with regard to the provision of information as being confined to treatment with drugs alone and referred to other sources of information from nutritionists or the mass media.

> *A doctor can't do everything, there should be other people like a nutritionist and sources like media or the newspaper. I think in this way, things will get better, and patients will be more informed. There should be a multi-disciplinary approach to deal with this problem, I think. (Doctor 19)*

Some doctors reported that due to insufficient time, provision of detailed information about the treatment of HTN was often ignored or delayed. Similarly, information about specific lifestyle changes tailored to the specific needs of the patient was not always discussed as discussed previously (5.3). Doctors also believed that patients should take responsibility for their own health and ask for more information if required.

We accept that we have a lack of time, but at the same time I think a patient should be responsible for his/her health. They should ask us questions not silly ones [Laughter] and we try to give them information despite the lack of time. (Doctor 12)

Though this assumption cannot under-estimate patients' desire and need for more information from their doctors. This is due to the reason that some patients' felt hesitant to ask questions and reported being shy by nature. It therefore seemed that doctors tried to achieve satisfaction in the wake of their demanding job to neutralise the negative impacts of less information. Owing to the limited time and the need to run to schedule for other patients waiting, doctors stated they often lacked time to initiate a discussion about patient specific needs and maintain a good doctor-patient relationship. A lack of time and work load resulted in less interaction with patients which further created a sense of conflict for many patients.

Patient wants time and we don't have enough. When there is a long queue waiting outside how you can provide the information in a comprehensive way. It is very difficult in public hospitals. (Doctor 23)

Due to lack of time, we cannot provide them proper time that they require and in this way patient and doctor communication is affecting. (Doctor 2)

Only a few doctors acknowledged that lack of information regarding HTN was one of the reasons of patients' non-adherence to an optimal treatment plan. The next theme explores the doctor's perceptions in relation to communication issues in clinical interactions with hypertensive patients.

5.6 Communication Issues in Clinical Interactions

In this study only, a few doctors reported having a satisfactory relationship with their hypertensive patients. Most doctors had different expectations of clinical visits and they recognised that there were certain issues that often had an impact on their interaction with patients and the provision of information. Due to a shortage of time and the pressures of work they were often left with less time for interaction with patients and could only counsel them very briefly. Furthermore, providing treatment to large numbers of patients in a limited timespan exposed doctors to high levels of stress and often resulted in a lack of tolerance that raised communication problems.

Doctors are normal human being as well. How can a doctor manage the patient when doctor is under pressure due to patients load and sometime administration put so much pressure on doctors? Due to lack of time, we cannot provide them proper time that they require and in this way patient and doctor relationship affects. (Doctor 28)

Some patients were described as 'difficult' and as a result doctors often reported prescribing them nutritional supplements in order to satisfy their demands. Some doctors even reported prescribing antihypertensive drugs without a clinical need because patients were so insistent in their requests for it during consultations. In contrast, some junior doctors indicated that they had experienced difficulties in explaining basic medical concepts to patients in Urdu; patients would frequently request simple information to be provided to them in Urdu and many doctors viewed their constant demands as a source of frustration. Continually being

asked to repeat the information caused doctors to make assumptions about their patients and they described such patients as 'illiterate' and 'fussy' and deemed them to be over-demanding.

> *Some patients become so fussy. They ask same questions every time and, on every visit, again and again. Mainly, because they are illiterate. Doctor is also a human not a machine. In that way, a doctor becomes rude and harsh. Then they complain doctor is rude. Why patients ask same questions again and again, though they are aware of a long queue outside? They are just…! (Angry) (Doctor 22)*

> *Some patients ask same question over and over unless we become upset. I don't know why they do this. Maybe they are attention seekers. (Doctor 11)*

Only two doctors felt empathy for their patients, stating that the individual life circumstances of their hypertensive patients may cause them to experience emotional and psychological problems such as stress and depression as a result of the chronic nature of their HTN.

> *We as doctors can do things in terms of disease management, but everything depends on good doctor and patient relationship and that will not develop unless you don't know the principles of doctor-patient communication. If anywhere during the encounter; you feel that other than the disease patient has some psychological issues coming up and you see tears in patient eyes so give him/her a clue that I'm feeling and understanding that you're in trouble and you are stressed out. (Doctor 6)*

A few doctors indicated that better communication was needed to ensure that patients overcame any concerns about drugs and lifestyle changes, and this would in turn improve the quality of their HTN management. To improve the service, they suggested extending the outpatient clinic timings and the number of doctors in public hospitals to overcome communication problems.

5.7 Summary

Findings presented in this chapter clearly showed that doctors had their own understandings about HTN and its treatment. An inadequate awareness of the HTN guidelines amongst junior doctors was evident due to deficiencies in their training and often fraught relationships with senior doctors. Though generally they expected patients to take responsibility for the management of HTN and discussed their patients lack of HTN awareness. This chapter has also highlighted doctors' understandings on drug adherence and provided insight into what doctors believe about patients' practices in terms of adopting lifestyle changes. Doctors seemed aware of the socio-cultural influences, patients' choices regarding seeking alternate therapies and limited information provision in consultations. They acknowledged that information to patients about HTN treatment and particularly lifestyle changes were often curtailed due to the time constraints and their heavy workload. Consequently, this justified the communication difficulties in consultations and as a result poor HTN management in urban hospitals of Pakistan.

Chapter 6: Discussion

This chapter is comprised of four main sections. The first section 6.1 will summarize and reflect upon key findings from the study described in the previous two chapters. Implications of the study findings for practice, Pakistan's policymakers and future research will be discussed in section 6.2. Section, 6.3 will describe the strengths and limitations of the study and finally, the chapter will discuss the contributions of the findings to current knowledge and draw conclusions.

The objectives of the study were:

- To examine what is already known about patients' and doctors' understandings of HTN and its treatment in urban areas of Pakistan.
- To elicit hypertensive patients' perceptions, attitudes and beliefs regarding HTN and its medical and lifestyle management in urban areas of Pakistan.
- To elicit doctors' perceptions, attitudes and beliefs regarding HTN and its medical and lifestyle management in urban areas of Pakistan.

The first objective of the study was addressed by conducting a systematic review that summarised existing evidence and found a lack of HTN awareness regarding disease and poor HTN control in patients and suboptimal treatment practices amongst doctors were identified. Furthermore, the review showed a dearth of qualitative studies about hypertensive patients' understanding of disease and no qualitative studies were found regarding doctors' beliefs about HTN management in Pakistan. Chapters four and five addressed the second and third study objectives.

The findings revealed that patients understood their diagnosis, cause of illness and the importance of the medicines differently from the way doctors did. Patients had insufficient information on antihypertensive drugs and lifestyle changes, and all this influenced where patients sought care, their adherence to treatment and management. A detailed discussion of the study findings is presented below in relation to the conceptual framework that is based on health beliefs as discussed in chapter two (2.11).

6.1 Discussion of Findings

Participants' health beliefs were found to influence their understanding of illness, attitudes and management of HTN (Shaw, 2002; Helman, 2007). Specifically, the findings of the current study revealed how participants often drew on a range of frames of reference regarding disease management in their everyday decision making. Patients' beliefs underpinned how they made sense of and experienced HTN in their daily lives that affected their interpretation and perceptions regarding disease treatment and management. Likewise, doctors' beliefs rationalised their attitudes and approach towards HTN management and the provision of treatment. Both patients and doctors possessed various beliefs and expertise that shaped their thinking, attitudes and decisions regarding HTN management. Doctors were more familiar with the medical definition of HTN, guidelines, prognosis, treatment options (mainly medications) and outcome probabilities, whereas patients drew on a range of lay beliefs

regarding the HTN meanings, symptoms, causes and treatment. The following sections will discuss patients' and doctors' findings separately and then a comparison is provided to discuss what further understanding the findings from the current study may add.

6.1.1 Patients' beliefs

Patients' beliefs were complex, deep-rooted and informed by lay understanding gleaned from their socio-cultural environment (local norms, social relations, religion), individual factors (e.g. income, co-morbidities) and to a lesser extent interaction with doctors. These beliefs influenced patients' health-seeking behaviour, adherence to treatment and coping strategies. The findings offer insights about the personal understanding of HTN and revealed that most patients constructed the meaning of HTN in their everyday life based on symptoms, causes and consequences that they experienced.

According to patients' narratives, they were not constantly alert to their condition as they performed their activities of daily living. These findings are consistent with a study conducted in India amongst the Bondos tribe, which found that people defined illness as being unable to work, feeling weak and being non-functional and not being able to carry out everyday tasks (Dixit et al., 2008). A lack of symptoms at the initial stage of HTN made it difficult for patients in this study to adopt an early and appropriate health-seeking behaviour. This finding is comparable to those identified in other studies (Ypinazar & Margolis, 2006; Shamsi et al., 2017; Ashoorkhani et al., 2018) where patients perceived illness to be associated with explicit physical symptoms.

As the disease progressed, patients' experienced daily symptoms of HTN and based on severity of those, they explained that they could tell when their blood pressure was high. Despite clinical literature that describes HTN as asymptomatic, the study findings are consistent with other qualitative studies around the world where patients described experiencing physical symptoms of HTN (Chow et al., 2013; Legido-Quigley et al., 2015; Rahman et al., 2015; Kusuma, 2009; Shima et al., 2014; Shamsi et al., 2017). Patients experiencing physical symptoms believed that their blood pressure was high, and they relied on the intensity of symptoms to prompt them to take medication or see a doctor. A general misconception that disease is always an episodic illness associated with physical symptoms is a belief that discounts HTN as a chronic disease. Having symptoms did not equate to having an illness, however, clearly patients understanding about the nature of HTN here reveals how they managed it, which can explain their non-adherence towards medications.

Consistent with Boutain (2001), findings revealed that many patients in the current study believed stress, tension and worries caused their elevated blood pressure and therefore they reported avoiding stressful situations. One explanation, as suggested by Blumhagen (1980) could be that lay people interpret 'hypertension' as excessive tenseness and refer to tension, stress and worry as a cause of their high blood pressure; this was a commonly expressed belief in the current study. Arguably these findings confirm that patients' attitudes are influenced by their beliefs and such beliefs impacted how they understand and experience disease causes. Patients endorsed stress-producing factors (e.g. family problems, overwork, emotional state) as the predominant cause of their HTN. This finding is consistent with studies

that explored HTN beliefs in several other populations around the world (Wilson et al., 2002; Lukoschek, 2003; Legido-Quigley et al., 2015; Rahman et al., 2015). Patients indicated that they avoid stressful situations in order to manage their HTN and there is increasing evidence suggesting that psychosocial stress contributes in the development of HTN (Vrijkotte et al., 2000; Cohen et al., 2007; Spruill, 2010). However, such stress avoiding techniques alone are not sufficient to control HTN (Whelton et al., 2002). Patients need to be aware of the multifaceted approach to the management of HTN and doctors must address this (WHO, 2009; Chow et al., 2013; Jung & Ihm, 2019).

Patients believed that taking antihypertensive drugs was necessary to control HTN, but they frequently admitted intentional and non-intentional drug non-adherence. A review of the literature on drug adherence has shown that non-adherence is a problem across all patient groups and for all diseases (Martin et al., 2005; Jimmy & Jose, 2011), although this is particularly common amongst people who experience unpleasant side-effects from drugs (Saleem et al., 2012; Nayeri et al., 2015; Rahmawati & Bajorek, 2016). Patients who believe and experience side-effects from hypertensive drugs cannot appreciate the physiological benefits of continuing therapy (Enlund et al., 1991; Benson & Britten, 2002). Nichter (1996) has identified that in Asian countries the concerns patients have about drugs may be derived from the popular belief that Western drugs are powerful but inherently dangerous in nature.

If patients believe side-effects are an inevitable by-product of taking drugs they may not present promptly when they feel unwell or volunteer information about side-effects in consultations (Benson & Britten, 2002; Mostafavi et al., 2016). Findings from the current study support this notion, where the patients even considered minor side effects as potentially significant. This could mean patients were ready to quit the medicines at the first sign of a side-effect. Moreover, patients in this study were not informed about the drug's use and coping with medicine adverse reactions. A study in North India reported that the provision of appropriate medicines-related information, including information pertaining to side effects is crucial to ensuring continuation of drug therapy.

A further influence on people's health beliefs and attitudes is the impact of the socio-cultural context in which they grow up and live (Kleinman, 1988; Lucire; 2003; White, 2005; Aylward, 2006). The meanings attached to health and illness experience are rooted in a socio-cultural environment that provides a normative standard for decisions, ways of behaving, as well as making treatment choices. Findings from the current study revealed that patients' beliefs were often contextual and dominated by the culture and norms of Pakistani society. For instance, the socio-cultural aspects of eating, social interactions and following advice from other lay people, had a major influence on patients' HTN management.

Many patients in the study adopted limited changes to their diet following diagnosis of HTN due to the key roles of commensality and the role that traditional food had played in their lives since childhood. The etiquette of preparing traditional food with ghee and spices made the removal of 'unhealthy' ingredients difficult. A central concern for these patients was the continued enjoyment of their lives which came from eating delicious traditional food and maintaining a social life. Certain social practices such as eating together and one dish for all were seen to be norms that limited patients' ability to make adaptations to controlling their

diet and this is consistent with other studies conducted in South Asian populations (Lawton et al., 2008; Choudhury et al., 2009; Lucas et al., 2013). Probably, the presence of others increases the amount consumed and thus extends the meal duration.

Similarly, women prioritised family over their individual health needs, reported a lack of an exercise culture and as a result, they were less likely to adopt and integrate exercise into their daily routine. This finding is in accordance with studies conducted in Saudi Arabia and Qatar, which highlighted that women perceived exercise as beneficial but were restricted in their adoption of outdoor exercise due to family obligations and lack of facilities (Donnelly et al., 2011; Samara et al., 2015). Similar experiences have been noted in studies conducted with British Pakistani women that highlighted how diabetic women were restricted in their outdoor exercise due to family obligations and the absence of women-only facilities (Lawton et al., 2006; Penn et al., 2014).

A qualitative study conducted amongst South Asians living in the UK stressed that understanding external motivators and social context of the lives of patients is crucial for developing successful exercise interventions (Jepson et al., 2012) and recommended strictly women-only spaces, facilities and opportunities. Others argue that in order to effectively deal with these issues, any interventions must acknowledge and incorporate patients' lay understandings they have acquired from their lived experiences with the illness (Kirmayer et al., 2004; White, 2005; Marshall et al., 2012). For example, in this study obese hypertensive patients believed exercise to be purely a strategy for weight loss; and controlling their HTN was not the aim. Moreover, patients stopped taking exercise when they did not feel it was making any change to their body weight.

The social unacceptability of tobacco use amongst women in Pakistan is also anchored in socio-cultural meanings about being a 'female smoker'. Women avoided smoking due to the social norm and this finding is in line with a qualitative study conducted in the British Asian population which observed social factors such as stigma associated with women smoking (Bush et al., 2003). Due to the social taboos associated with women smoking, it may be possible that women under-reported their smoking status in this study. In contrast to females, smoking is a socially acceptable norm for men living in Pakistan (Shaheen et al., 2018) where it represents a strong sense of social bonding and is seen as a normal part of 'being male' (Irfan et al., 2014). Male patients who smoked emphasised the influence of peers and believed that family members and friends who smoked played an important role in the initiation of their smoking and its continuation. These findings concur with the results of other studies that reported smoking was common amongst people when they were in the company of other smokers and would therefore spend time smoking with them (Rozi et al., 2005; Kelishadi et al., 2007).

Likewise, patients' religious beliefs played a crucial role in terms of how to manage, cope, seek help and cure HTN. For instance, none of the patients were aware of the relationship between high alcohol intake and HTN, however, the dominant Islamic belief that the consumption of alcohol in any of its forms is forbidden, influences their attitude and decisions regarding drinking. Findings revealed that patients also drew upon fatalistic beliefs when coping with HTN, believing in destiny, or an act of fate, using this to explain what was

happening to them. The notion of a condition or disease being an act of fate, God or related to chance or supernatural forces have been reported by other studies conducted in Asian countries such as Malaysia and Iran (Swami et al., 2009; Shahrbabaki et al., 2017). In this study, some patients believed that their disease was an unavoidable and uncontrollable event.

Islamic teaching encourages Muslims to seek treatment when they fall sick and forbids acts that will expedite suffering and ultimately death (Al-Shahri & Al-Khenaizan, 2005; Attum et al., 2019). Farooqi et al. (2006) points out that such beliefs are associated with a lack of understanding of Islamic principles and low literacy rates. Likewise, having the belief that a religious healer can help cure disease compelled patients to the services of spiritual healers claiming to provide treatment in the name of faith. In low income countries such as Pakistan, it is common for saints, Hakeems and quacks to misuse religion and provide fake remedies for personal financial gain (Qureshi & Shaikh, 2006; Sumbal, 2014). Khan et al. (1996) and Farooqi (2006) have emphasised that traditional healers and other non-formal providers that are less expensive and easily accessible play an important role in influencing the minds of patients. Additionally, most traditional healers in Pakistan treat their patients in their religio-cultural context charging less than seeing a medical doctor (Saeed et al., 2000; Shaikh & Hatcher, 2005; Farooqi, 2006). This appeared to contribute to why patients increasingly choose to go to traditional healers rather than seeking timely treatment from qualified doctors. In this study, the results illustrate that spiritual healers attracted some patients by offering them amulets made from the Holy book and quacks linked their treatments with religious teachings. With regard to Islam, as well as providing guidelines for leading a healthy life, it encourages seeking orthodox medical care for alleviating sickness (Qureshi & Shaikh, 2006). However, traditional healers and quacks are involved in practices that contradict Islamic teachings in Pakistan (Hunte & Sultana, 1992; Shaikh & Hatcher, 2005; Qidwai, 2009). This clearly shows that traditional healers tend to emphasise building communication that is consistent with cultural traditions and the religious belief of the patients. This has important implications for the training of doctors in their approach to care and how to communicate with patients.

Other than religion, findings of the current study identified that some individual factors such as economic difficulties, availability of medication, a busy routine, comorbidities, a lack of motivation also influenced patients' disease management. For instance, cost of medication as a reason for intentional non-adherence (Hugtenburg et al., 2013) was a noteworthy factor amongst most of the patients in the current study which had a direct impact on their decision to adhere to drug therapy or not. This finding corroborates the observed association between poor drug adherence and lack of funds for the purchase of medications reported by Bilal et al. (2015). People are not covered by medical insurance in the Pakistani healthcare system, however, they receive medications and public health services at a very low cost. Poor availability of prescription drugs at the public hospital's pharmacy was a system related problem affecting treatment. Another study conducted in Pakistan also found that inadequate access to essential medicines in public hospitals leads to poor drug adherence in patients (Zaidi et al., 2013) and therefore this could be a significant issue that needs addressing. Similarly, a busy schedule and forgetfulness were other some of the non-

intentional non-adherence reasons presented by the patients for not adhering to medications which are consistent with the experiences of participants in previous research (Almas et al., 2006; Hashmi et al., 2007; Jimmy & Jose, 2011; Shima et al., 2014; Nayeri et al., 2015).

Whilst some individual factors shaped patients' disease management, the findings of current study exposed how a lack of information from doctors during a clinical interaction played a crucial role in patients' decisions about HTN management. Only a few patients in the study reported that they were informed of changes adjunct to the management of HTN such as regular exercise, reducing salt intake and eating a diet low in fat; a finding similar to some other studies conducted in various countries (Gascón et al., 2004; Tan et al., 2017; Alefan et al., 2019; Legido-Quigley et al., 2019). A number of patients reported not having received adequate information and support from doctors and this put them at a significant disadvantage in developing the understanding necessary to manage their condition. Moreover, patients in the study were fearful of asking their doctors treatment-related questions. Similar results have been obtained in a recent mixed-method study conducted in Pakistan which found that due to the technical expertise of doctors, patients often believed they were inferior and unable to raise their concerns (Jalil et al., 2017). Piette et al. (2004) in their study highlighted that patients may not discuss issues with doctors when they think their concerns are not important enough, feel embarrassment due to an inadequate understanding of disease or are, deterred by the lack of time in the clinical consultation. As a result, patients can feel disempowered and may be unable to achieve their health goals.

Patients' in the current study refrained from sharing information with doctors as they felt intimidated by the perceived attitude of doctors who were often overburdened and in a hurry. Patients' who used home remedies as well as alternative treatments were reluctant to reveal this information to doctors due to the lack of doctor's interest and disapproval of such practices. Perceived negative actions or responses by the doctor to patients could make them even more reluctant to disclose their beliefs about using alternative treatments (Chan & Wong, 2004; Stokols & Milden, 2004; Wahner-Roedler et al., 2006; Kelak et al., 2018). This communication problem augments the risk of developing adverse drug reactions and complications in patients by using allopathic and alternative therapies in combination.

Likewise, the sense of feeling blamed caused patients to conceal their smoking habit from doctors and they no longer felt comfortable in discussions related to smoking. It is not surprising, therefore, that patients felt upset when they perceived that they were being judged and even blamed for developing their disease. Likewise, in a study by Chapple et al. (2004) patients felt ashamed because of the association held between their disease and smoking. People can become highly dependent on tobacco due to nicotine addiction and complete cessation of smoking may be difficult which some doctors fail to recognise (Fowler, 2000). However, there is a dilemma for doctors in this study who take it as their responsibility to deter people from smoking and to encourage them to stop, but without being seen to be blaming their patients (Chapple et al., 2004; Stead et al., 2008; Meijer et al., 2018). The following section will discuss the study findings related to doctors' understandings of HTN and how this influenced HTN management.

6.1.2 Doctors' beliefs

Like patients, doctors exhibited their own understandings of HTN management, and their beliefs were informed by bio-medical or scientific knowledge, socio-cultural context, work experience, stereotype assumptions and encounters with patients. Doctors in this study mentioned HTN as a chronic, often symptom-free condition which could be moderated by biological and behavioural factors and requiring life-long treatment, as supported by bio-medical evidence. This finding reflects a 'scientific attitude' in which the meaning of events is provided through abstract rules derived by the scientific evidence (Arnold, 1989).

Likewise, the majority of doctors believed that reducing HTN complications such as stroke and heart attack were not very important to their patients. They generally adopted a narrow traditional biomedical belief reliant on medication for the management of HTN and concluded that patient non-adherence to drugs was a deliberate and an unacceptable practice. It is not realistic to expect patients to comply with treatment when a low level of disease-related information from doctors exists. Arguably, if a doctor believes that drug non-adherence is the main cause of increased disease burden and an unacceptable practice, he/she would avoid providing advice on drug adherence or pay less consideration to other treatment options. Doctors should acknowledge the challenges that patients might find with taking medication regularly with very little information (Tuckett, 1985; Britten et al., 2000; Fischer et al., 2010). Doctors need to set aside their own beliefs as this may help facilitate patient-doctor discussion about treatment adherence (Stevenson & Scambler et al., 2005; Dyer, 2008; Bezreh et al., 2012).

Socio-cultural context informs doctors' understanding of HTN as well as the lay public with studies indicating that beliefs and attitudes within a particular culture can be broadly similar irrespective of occupation and role (Koeing, 2012; Richards et al., 2014; Haddad et al., 2016). Doctors in the study pointed to the influence of social norms, cultural values and individual factors which they believed to be barriers (traditional food, a lack of exercise culture in the country, busy routine of patients, access to junk food and individual problems such as economic difficulties). Doctors were aware of the cultural restrictions on women in Pakistan, therefore, female patients were often not advised by doctors to undertake any outdoor activities. In a conservative society such as Pakistan, where women are often expected to cover their heads, wear ankle-length dresses and sometimes cover their faces, the notion of running on roads and swimming was perceived by doctors and patients as daunting. Arguably, the lack of an exercise culture and social limitations for women with regard to sporting and outdoor activities presents a particular challenge for doctors like to prescribe exercise.

Likewise, doctors conceptualised falls as inevitable and advised older patients not to exercise due to the risk of injury. In Pakistani culture, it is a common belief that older people should rest often and slow down due to a decline in body functions (Cassidy, 2018). This finding supports that due to a shared cultural/national background, doctors and patients from the same country can have similar beliefs than doctors from different countries. However, evidence supports that the beneficial effects of exercise are observed in older people with non-communicable chronic health conditions such as HTN, diabetes, cardiovascular disease and some cancers (Warburton et al., 2006; Blair et al., 2012; Taylor, 2014). Clearly, education has a role to play here in addressing some of the challenges older patients faced with regard

to the uptake of exercise and may explain the lack of awareness amongst doctors about HTN treatment guidelines and be aware of their own bias in clinical decision-making.

Due to sharing a similar religious background, doctors seemed aware that patients gain strength from their religious faith in cases of illness and other major life events. Although the fatalistic attitudes of patients such as seeking help from spiritual healers, quacks and, Hakeem were considered as inappropriate. Doctors were unable to appreciate that patients who are spiritual often utilise their religious beliefs in coping with illness and this can affect decision-making and the treatment choices they make. This also highlights that doctors approached patients through the filter of their own beliefs that resulted in stereotyping patients. Doctors need to be fully aware about the choice's patients make and why (Eisenberg, 1997; Haynes et al., 2000; Helman, 2007; Wilson et al., 2007; Street et al., 2007; Street & Haidet, 2011). Similarly, due to the use of alternative treatments patients were often perceived to be 'difficult'. However, the use of alternative treatments amongst patients is common to all cultures (Lee et al., 2004; Subramanian & Midha, 2016) and patient explanations of disease management can be technically complex (Kleinman & Benson, 2006).

Doctors often highlighted the pressure of work in public hospitals and conflicts that arose from encounters with patients. They acknowledged that information provided to patients in the consultations was limited due to work pressure and being able to spend more time with patients would be desirable in order to support them. Competing expectations, work pressure and reported interpersonal conflict in consultations provided an insight into showing the real-world working situation of doctors in Pakistani public hospitals. Scarcity of other resources (nutritionists/dietitians, mass media messages) was also a source of frustration for some doctors, who believed that more of their patients could benefit from a greater provision in this area.

Owing to the limited time and the pressure to run to schedule for patients waiting, junior doctors at times did not diagnose HTN according to the guidelines, prescribed unneeded nutritional supplements and antihypertensive drugs without a clinical need in order to satisfy patients. Prescribing non-essential drugs to patients is a serious concern (Basaran & Akici, 2012) and the choice of drug for a patient is one of the most important clinical decisions in evidence-based medical practice (Masic et al., 2008; Chow et al., 2018; Lehane et al., 2019). Moreover, taking antihypertensive drugs without a clinical need in undiagnosed patients cause adverse consequences including making them hypertensive, drug resistance and other side-effects (Wall et al., 2014). This finding is similar to the results of other studies which reported that a substantial number of doctors agreed that most irrational prescriptions were patient-driven (Bazigha et al., 2006; Ojo et al., 2014). However, doctors need to be fully aware that irrational antihypertensive drug prescription contributes to the increased burden of HTN and has severe health consequences in patients (Liu & Wang, 2008; Jarari et al., 2016).

This attitude shows that at times doctors were acting against the recommended treatment guidelines and failure to counsel patients properly often influenced their decisions to deviate from the standards required for HTN management in hospitals. However, it was also evident that junior doctors were not given the opportunity to improve their existing knowledge due to high workload, time restraints and poor working relationships with senior doctors. Whilst

doctors were open about the existence of work pressure, particularly inadequate time and a desire not to run late, they were not able to recognise pragmatic decision-making in the workplace. Evidence shows that a productive and healthy work environment is essential for doctors to both achieve the goals of the organisation, patient care and derive personal satisfaction from their work (Hyman & Pavlik, 2000; Van der Zwet et al., 2011; Patel et al., 2018).

In contrast, a poor work environment contributes to medical errors, inaccurate decision-making, stress and burn-out, absenteeism and high levels of staff turnover, which, in turn, compromises the quality of care (Green & Ruff, 2005; Cook et al., 2013; Salyers et al., 2017; West et al., 2018). Moreover, if doctors are unable to update their existing understanding, they cannot construct an appropriate diagnosis or act upon new knowledge and translate accurate information into their practice (Ely et al., 2002; Davis & Harrison, 2007). No doubt, limited consultation time and patient burden was a constant source of stress for doctors. However, Howie et al. (1991) contend that doctors who believed and committed to offer longer consultation times that enable identification and treatment of more patient problems result in greater satisfaction levels amongst patients. As a result of rushed consultations, doctors in the current study experienced a lack of patient trust which affected their communication and ultimately the doctor-patient relationship. These findings are consistent with several studies conducted in Pakistan on patient satisfaction and medical interactions related to chronic disease management (Saeed & Ibrahim, 2005; Khattak et al., 2012; Jalil et al., 2017).

It is evident from the findings that doctors' beliefs were influenced by their bio-medical knowledge, socio-cultural context, working situations and daily encounters with patients. It is clear that doctors' own understanding shaped their practice, clinical decision-making and how they managed HTN in Pakistani urban hospitals of Pakistan. The following section will provide a comparison between patients' and doctors' beliefs to reveal similarities and differences about HTN management across participants.

6.1.3 A comparison between participants' beliefs of HTN management

Differences between doctors' and patients' beliefs were noted in this study regarding understanding HTN and its management for HTN. High blood pressure was often defined by patients as a varied personal experience rather than by a specific sphygmomanometer reading, was equated with stress, characterised by physical symptoms, treated with numerous home or alternative remedies and underestimated as a major cause of death amongst patients. Patients in this study emphasised difficulties in the social domain and the impact of HTN on their lives, while doctors perceived HTN primarily as a pathophysiological problem with impact on the patients' physical well-being. Patients evaluated HTN control in terms of how they felt about symptoms while doctors evaluated blood pressure readings.

Many hypertensive patients mentioned a variety of physical symptoms of HTN as the disease progressed and did not experience it as a silent chronic disease which is in sharp contrast to what doctors believed. Likewise, the explanations of HTN differed widely from that of doctors as increasing age, a positive family history and poor treatment adherence in patients were

considered prominent causes of HTN amongst doctors. A possible explanation for this difference is that doctors have been trained according to the bio-medical model and hence their disease explanations often exclude the social, cultural and psychological dimensions of ill health (Nettleton, 2006). Eisenberg (1977) points out that for doctors, disease is an abnormality in the structure and function of the body's organs, and they try to fix it. In contrast, for patients an illness is an individual personal experience which is embedded in their everyday life.

With regards to adherence, doctors seemed frustrated about patients' medicine non-adherence and assumed that patients paid little attention to their treatment plan which is significantly different compared to patients' beliefs. These findings are consistent with other studies suggesting that doctors' beliefs may vary and are generally in opposition to what patients think, regarding taking medicine according to a treatment plan (Gascón et al., 2004; Richard & Haidet, 2011; Rahman et al., 2015). From the perspective of biomedicine, non-adherence may seem irrational and incorrect. However, according to patients', non-adherence can be rational due to possible side-effects of the given treatment or considering that HTN requires symptomatic treatment like other diseases. This highlights disparities in doctors' awareness of their patients' beliefs, attitudes and treatment decisions. Eliciting patients' beliefs regarding prescribed treatment and related concerns is essential to support informed choice and optimal adherence to appropriately prescribed treatment (Ross et al., 2004; Shiyanbola et al., 2012; Horne et al., 2013).

Findings from the present study also revealed an overlap between beliefs of doctors and patients in some areas about HTN management. For instance, alike patients, doctors also reported how certain socio-cultural norms, concurrent health conditions, individual factors, and religious beliefs influenced patient's treatment adherence and approach to manage HTN. However, patients were often criticised for showing an overall lack of interest in adopting lifestyle changes that contradicted the aspects patients highlighted. Evidence supports that doctors need to understand the reasons behind treatment non-adherence and raise questions with the patient in a problem-solving and non-judgmental manner (Ley, 1988; Jin et al., 2008; Kleinsinger, 2010) which is opposite to what is revealed in the current study.

In addition, doctors reported operating a paternalistic consulting style, deciding on consultation time and the amount of information appropriate for patients without involving them in the decision-making process. Patients also found consultations short, not helpful and desired information regarding lifestyle changes from doctors. Lack of information is an important reason for non-adherence to lifestyle changes amongst patients (Hamer, 2010; Alefan et al., 2019). Evidence shows that patients' information needs differ from doctors' perception of those needs and when left unresolved, this may lead to lower adherence rates (Broström et al., 2009; Stavropoulou, 2012). In contrast, sufficient information provided by doctors on prescribed medicine and proposed lifestyle changes helps in adherence to drugs and lifestyle recommendations (Gascón et al., 2004; Martin et al., 2005; Sharma & Agrawal, 2017). According to Hussain et al. (2015) the majority of hypertensive patients reported doctors as being their primary source of information regarding advice about a healthy lifestyle in Pakistan.

Previous research shows that doctors need to focus on delivering information in simple language (Clarke, 2010; Ha & Longnecker, 2010; Eaton et al., 2015; Warde et al., 2018) which informs patients about how to modify their lifestyle in terms of changes in exercise, diet, salt and smoking, and ideally tailoring this to the personal situation and beliefs of patients (Walseth et al., 2011; Noordman et al., 2013). Patients who feel that their doctor provides them sufficient information, actively encourage them to be involved in adopting lifestyle changes tend to be more motivated to adhere to these changes (Kerse et al., 2004; Bennet et al., 2010; Vahdat et al., 2014; Elbur, 2015; Sharma & Agrawal, 2017). However, a lack of time and work load can result in less information exchange with patients which further create a sense of conflict for patients as acknowledged many doctors in the current study.

Consciously or unconsciously, doctors used social constructs (e.g. time) with patients to manage HTN without taking account of their own biases. Doctors' were unable to consider how their own beliefs and attitudes may affect clinical practice and interactions with patients. Due to time pressure and communication issues exchange of knowledge between patients and doctors was not evident and consequently, patients could not construct a rationale (new knowledge) for HTN treatment adherence. Whilst, patients' health-seeking practices and adherence to treatment were highly dependent on their lay beliefs. It is without doubt that due to limited interaction and severe time constraints, doctors may make recommendations that are inconsistent with beliefs of their patients and the realities in their lives (Heritage & Maynard, 2006; Jin et al., 2008; Claramita et al., 2010; Turner, 2013; Currie et al., 2015). Consequently, discordant understandings may result in conflict, poor adherence to medical recommendations and patient's dissatisfaction that is obvious in the current study.

It is evident from the findings that the beliefs held by both patients and doctors regarding HTN management were multiple and diverse. Doctors' beliefs were greatly influenced by their bio-medical knowledge, working situations and daily encounters with patients. In general, doctors seemed unaware that patients acquire a unique 'expertise' by experiencing a chronic illness and most of the patients' choices and decisions about HTN management can clash with their beliefs and becomes a major barrier to effective disease management. Inevitably, a shared understanding of HTN management by patient and doctor was not obvious in this study, which advocates that there is plenty of room for improving doctor-patient relationships. If the doctor is to improve a patient's condition, the elicitation of the patient's beliefs should, therefore, occur at every stage of the clinical process (Tukett, 1985; Kleinman & Benson, 2006; Ha & Longnecker, 2010; Basset, 2011; Rahman et al., 2015).

6.2 Doctor-Patient Relationships

By gaining a deeper understanding of patient beliefs and practices, doctors will be better able to establish trust-based relationships with their patients and can provide a better service. A way to improve service delivery for patients lies in creating a willingness amongst doctors to engage in social, cultural and environmental aspects of illness that extend beyond the biomedical model of disease (Thomas et al., 2014). It is vital to consider that a person may present to a doctor with a variety of explanations for the illness experienced (Bolam et al.,

2003; Street & Haidet, 2011). Patient beliefs maybe different than biomedical explanation but these are usually consistent and rationale in their own terms (Donovan, 1999).

As evident in this study, patients drew on their health beliefs to make treatment decisions. Hence, to manage the disease effectively, a doctor should understand patient beliefs and there is need for negotiation between patient and doctor 'clinical realities' or 'social construction of illness' (Hardey, 1999; Conard & Barker, 2010; Ha & Longnecker, 2010; Bassett, 2011; Mik-Meyer & Obling, 2012). It is evident that the clinician basic relational attitudes, for instance, being friendly, being non-judgmental and taking interest in the patients' illness by eliciting their beliefs have a very positive influence on patients' health (Jagosh et al., 2011; King & Hoppe, 2013; Raja et al., 2015; Ranjan et al., 2015; Kornhaber et al., 2016; Saqib et al., 2018). Several studies point out that doctors acknowledging patients' beliefs can improve therapeutic outcomes, patient satisfaction and patient quality of life (Rocco et al., 2011; Chipidza et al., 2015; Vahdat et al., 2014; Zanini et al., 2014; Kornhaber et al., 2016; Kee et al., 2018).

Evidence supports that the fundamental component of patient-centred care is the doctor's interaction with patients and understanding of patients' beliefs and concerns (Epstein & Street, 2011; Mirzaei et al., 2013; Weiner et al., 2013; Kennedy et al., 2017). It requires a strong doctor-patient relationship that is built through empathy and involves careful listening and responding to patients' preferences and providing clear and simple information regarding care (Roger et al., 2005; Halpern, 2003; Adams et al., 2012; Marcum, 2013). Empathy is known to be an essential component in promoting patients' empowerment following a clinical consultation and patients expect compassion from their doctors (Kim et al., 2004; Mercer et al., 2008; Hardy, 2017). This situates the doctor in a unique place of obligation and opportunity to act not only as diagnostician but also as a confident patient educator and listener.

In this respect, patients put emphasis on doctors' empathetic qualities, in being interested, listening and devoting time (Gascón et al., 2004; Anfossi & Numico, 2014; Mazzi et al., 2015; Derksen et al., 2016; Hardy, 2017). Hence, instead of simply asking patients, 'where does it hurt'? -the doctor should focus on eliciting the patient's answers to why, when, how and what next (Gregory & Dowd, 2004). In the therapeutic alliance[22], questions are the tools of the therapist in a therapeutic conversation and they are to be guided and informed by the views of the clients so that the conversation is geared toward the maximum production of new knowledge (Anderson & Goolishian, 1992; Nørgaard et al., 2012; Kornhaber et al., 2016). However, without eliciting patients' beliefs about their illness, clinicians may make recommendations that are incompatible with the expectations of patients and the realities in their lives. This implies that a new perspective on healthcare in Pakistan, one which goes beyond the biomedical side of medicine is needed and that doctors must become more active in their interaction with the patients and be able to examine the patient's understanding of the world (Gascón et al., 2004; Ranjan et al., 2015).

[22] refers to the relationship between a healthcare professional and a client. It is an approach in which healthcare professional and a client connect and engage with each other (Muran & Baber, 2011).

Since the patient is at the heart of learning, a constructivist perspective suggests that it is essential that doctors make the effort to try to understand the patient beliefs (Rashid & Jaggar, 1996; Dennick, 2016). It involves finding out the background knowledge of the patient (Sensky, 1996; Thomas et al., 2014), communicating with them (Silverman et al., 2005; Ali et al., 2006; Kee et al., 2018) and then educating them in a way that they can understand (Savin-Baden & Major, 2004). According to Dennick. (2016) that it is an engagement with an individual that is analogue to the learner-centred approach and hence is stated as patient-centred. However, it can be argued that physical barriers in health service availability such as time constraints in public hospitals are an obstacle to addressing patients' individual needs. In putting doctors' accounts into perspective within their work environment, the current study's findings cannot overlook the work load as a factor contributing to their practice. The pressure to see next patient within a short period of time undoubtedly influenced doctors' ability to create an active learning environment.

A study conducted in Britain found that increasing appointment times from 5 min per patient to 7.5 min per patient was associated with identifying 50% more psychological problems (Wagenaar et al., 2016). In countries like Pakistan, Bangladesh and China, an individual doctor may undertake over 90 consultations per day with a substantial amount of time taken up providing repeat prescriptions (Irving et al., 2017). In such circumstance, nurses' importance cannot be ruled out as they are generally good at communicating and explaining things to patients (Balzer-Riley, 2004; Kourkouta & Papathanasiou, 2014). In developed countries such as the United Kingdom, nurses not only play a vital role in providing clinical care in hospitals but take part in a variety of health promotion activities, deliver counselling services, treat patients and prescribe medications; tasks previously undertaken only by doctors. However, in Pakistan the main responsibilities of the nurse are limited to administering medicine and providing medicines-related information to inpatients in the public hospitals (Saqib et al., 2018).

A randomised controlled trial conducted in Pakistan found that patient satisfaction with doctors who were trained in scheduling follow-up visits, providing satisfactory consultation sessions with an explanation of non-pharmacological interventions was 50% higher than in those consulting untrained doctors (Abbasi et al., 2002). Similarly, Anderson and colleagues in one hospital in Sweden trained doctors treating diabetic patients to capture the essence of empathy in effective communication and to incorporate it into their day-to-day practice (Anderson et al., 2000). Their evaluation demonstrated that as a result of a two-day workshop, doctors were more understanding to the needs of patients, less judgemental and provided detailed information regarding treatment. Hence, the Ministry of Health in Pakistan needs to invest in coaching doctors throughout their medical training in how to conduct a more 'equal conversation' with patients in order to improve service quality. In this way, patients will be able to share their concerns, beliefs and socio-cultural practices with ease and doctors will feel more confident in treating patients and obtain more validation from them which will also lead to greater job satisfaction.

The association of findings between clinical workload, doctors' inability to follow treatment guidelines, ad hoc decision-making, and patient dissatisfaction, indicates that doctors were

less productive at handling hypertensive patients' needs. However, there is much more than the lack of time and work environment that hinders effective communication. Evidence supports that patient satisfaction, commitment to treatment and perceived outcome of care are greater when the doctor and patient achieve a shared understanding on issues such as the patient's role in decision-making, the meaning of information and the treatment plan (Michie et al., 2003; Kleinman & Benson 2006; Epstein & Peters, 2009; Ha and Longnecker, 2010; Rathert et al., 2013; Kennedy et al., 2017). This dissertation takes forward the argument that patients' understandings of disease need to be heeded in routine clinical interaction and addressing issues through a robust transferable healthcare delivery system is necessary if hypertensive patients are to be effectively treated in public hospitals of Pakistan.

6.3 Recommendations

Following the insights of this study recommendations for practice, policy and future research are detailed below:

6.3.1 For doctors

Key finding

Doctors made assumptions about patients due to lack of understanding of the importance of patients' beliefs which affected the effectiveness of the consultation in terms of treatment outcomes.

- Medical education should incorporate learning from social science research.
- Promote patient-centred empathic consultations with hypertensive patients through organising workshops or courses for qualified doctors to help them improve and update their skills on a regular basis as a part of postgraduate training.

Address workload-related challenges that hinder doctor-patient relationships.

- Hospital administration, (mainly the Medical Superintendent) should consider how to further foster a supportive work atmosphere for doctors. This could include the establishment of supportive networks (e.g. clinical supervision, workgroups, peer study support group, supervisor support).
- Junior doctors showed poor awareness of HTN guidelines, therefore, PMDC needs to consider actions to address this. This might include regularly assessing junior doctors' knowledge through workplace-based assessments and annual reviews. To improve and update the knowledge of junior doctors', the availability of a continual professional development (CPD) programme is required. This might include regularly assessing junior doctors' knowledge through workplace-based assessments and annual reviews.
- The government needs to pay particular attention to developing a strategy to organise workforce planning in public hospitals.

6.3.2 For patients

Key finding

All patients wanted more information on HTN, its treatment and specifically more advice on lifestyle changes.

- Provide patient information in an accessible format focused on its management, specifically about the chronic nature of HTN, causes, benefits of controlling high blood pressure, the association of lifestyle changes with HTN and risks involved in using alternate therapies.
- Specific supportive training could be provided to other individuals (i.e. nurses, LHWs, nutritionists) in order that they are able to transfer information to patients in a more appropriate setting, either individually or by group sessions. Nurses can be trained by to provide follow-up information about HTN, lifestyle changes and treatment adherence to hypertensive patients soon after their consultation. Pamphlets (in Urdu), clear messages and 'signposting' services can be provided as part of their everyday contact with the public.

Recommendations specific to each lifestyle change

The study findings demonstrate the importance of tailoring lifestyle changes to patients' socio-cultural context and individual needs.

Key finding

Hypertensive patients, particularly women, exhibited a lower level of engagement in adopting an exercise routine.

- Local authorities and gyms should be encouraged by the health ministry to offer discounted memberships for women in order to help alleviate their anxieties associated with issues of high cost.
- Women would benefit from the provision and promotion of facilities such as women-only gyms/sessions with same sex instructors. Address the known problems related to women's safety to create opportunities for women to exercise in a familiar setting such as public parks and green areas.
- Work in partnership with religious centres and mosques to enhance understanding about the benefits of exercise. Draw on role models from religious and political backgrounds (at a local and national level) to provide inspiration and motivation to the general public.

Key finding

The socio-cultural aspects of eating (e.g. traditional foods, family expectations) impacted hypertensive patients' choices of food.

- Information needs to be conveyed that healthy food options do not have to be bland and tasteless. Patients should be informed that traditional dishes can be cooked in healthy ways and eaten alongside high-fibre foodstuffs such as fruit and vegetables.

- Due to the shared consumption of food within families, it is recommended that education and advice should be available to the whole family and not just the hypertensive patient.
- Promote dietary changes which work with the types of foods Pakistani people are already eating. In particular, this highlights the need for strategies to reduce the consumption of fat whilst still focusing on traditional cooking practices and more specifically, through the promotion of lower fat but authentic versions of recipes which are commonly consumed dishes (Kassam-Khamis et al., 2000).

Key finding

Patients consumed a high salt diet and were unaware of the recommended amount of salt per day.

- Conduct a national public education campaign and implement salt reduction strategies in purchased food in conjunction with broader policies and programmes, as has been conducted in Indonesia, Malaysia, Thailand and Finland (Cobb et al., 2012; Batcagan-Abueg et al., 2013). The campaign should focus on sensitising the general public to the addition of salt to homemade dishes and its effects, teaching them to preserve natural flavours with better cooking methods and without the addition of salt.
- Pamphlets and the Short Message Service (SMS) in local language (Urdu) on the benefits of reducing salt consumption to help with controlling blood pressure could be initiated by the Ministry of health as suggested by researchers in Iran (Golshahi et al. 2015).

Key finding

The role of family and friends was seen as an important medium through which rules and values associated with smoking were shaped.

- This finding provides a foundation for testing existing tobacco control intervention and campaign ideas in Pakistan. Currently the role of family and friends is not given special mention in the national policies on smoking cessation in Pakistan. Given that the family plays an important role in the initiation and discontinuing smoking, tobacco use prevention and cessation interventions should be focus on targeting the family role.
- It is imperative that the government and authorities should establish an appropriate anti-smoking campaign and harness the power of positive peer influences to reduce smoking.
- Religious leaders should be involved in disseminating information about the risks associated with smoking such as lung cancer, stroke and high blood pressure.
- Effective tobacco control requires an anti-smoking policy backed by well-monitored and strictly enforced national legislation in Pakistan. In addition, doctors need to place greater emphasis on the availability of nicotine replacement therapy provided to smokers by the government to handle addition and motivate patients to quit successfully.

6.3.3 Recommendations for future research

The systematic review conducted has identified that there are a very few qualitative studies carried out in Pakistan to understand the 'emic' understandings of patients and doctors regarding HTN management. Therefore, further qualitative research is recommended including observational studies to examine associations between doctors' attitudes, their consultation styles and referral decisions.

Studies are required to explore other areas such as cultural competence, consistency and patient-centred healthcare approaches with doctors. An ethnographic study that explores information exchange and communication in consultations through observations and in-depth interviews with patients and doctors would provide a better understanding of what actually occurs during the consultation, including what and how information is delivered regarding HTN treatment in Pakistan. Some of the findings that arose from the study indicated that HTN treatment guidelines were not followed by junior doctors in Pakistan. Therefore, for future studies, it is vital to explore further contextual factors that affect the training of junior doctors and the barriers to following HTN guidelines across various healthcare settings and how these influence the management of hypertensive patients in Pakistan. In particular, there is a pressing need to investigate whether findings obtained from this study are resonate in the rural areas of Pakistan, where healthcare services are more dispersed.

In this study, none of the doctors mentioned the need for patients to undertake blood pressure monitoring as a part of their HTN management and did not suggest it as an important strategy. Pakistan does not have any national or regional blood pressure screening programmes available (Ahmad & Jafar, 2005), therefore, HTN usually remains undiagnosed unless patients visit a doctor for a routine examination and to have their blood pressure checked. Future studies should look at the advantages and barriers to routine blood pressure monitoring as currently people are diagnosed after seeking help for symptoms or consultation for other health issues.

6.4 Study Strengths and Limitations

This is one of few qualitative studies in Pakistan that provides an in-depth insight into the beliefs of patients as well as doctors with regard to HTN and, its management. A large amount of data was collected during the study and the research design was strengthened due to my language skills and sharing a similar professional background with doctors. My ability to speak Urdu and Punjabi fluently helped me to establish a good rapport with the study participants. Additionally, acknowledging my position as a Pakistani qualified medic, doctors demonstrated an interest in the study and felt comfortable sharing their experiences in interviews.

In common with any research study, there were several limitations that should also be recognised. The participants were recruited from two cities in Pakistan, therefore the sample was not representative of all hypertensive patients and doctors in Pakistan. Nevertheless, as the hospitals were typically representative of hospitals across Pakistan, patients were recruited with a range of demographic characteristics, so the findings should be of wider use. It is also important to be mindful of the limitations which may arise from using in-depth

interviews. As noted by Lawton (2003) interviews may invite a particular kind of account in which people may be more concerned with presenting themselves in a socially favourable light than conveying their beliefs and behaviours in literal and direct ways. Therefore, ethnographic approaches using observation could be employed in future work to find if there are any discrepancies between what participants say and what they actually do, in particular, observation of consultations.

The study findings may be relevant to other Asian populations. Although when applying the findings from this study to other populations, it is important to note that patients in this study were from urban areas and included hypertensive patients who were already diagnosed with HTN and on prescribed treatment. As a Pakistani qualified medic, I had my own set of beliefs about HTN treatment, causes and management. In order to counteract any potential bias, I constantly reflected on my thinking about the experiences of study participants' and the beliefs they held.

6.5 Conclusion

The present study is one of the few qualitative studies to offer insights into hypertensive patients' beliefs, one of the first studies to explore doctors' beliefs about HTN and the first study to provide a comparison between patients' and doctors' beliefs regarding HTN management in Pakistan. This study complements and adds to the existing knowledge on patients' and doctors' understanding regarding management of HTN and provides a detailed picture of how beliefs shape attitudes and decision making. Additionally, the study highlights important differences between doctors' and patients' beliefs about HTN management that show the urgent need for educating and training doctors in patient-centred care.

It is evident that raising awareness about HTN amongst the Pakistan population is essential; however, doctors must first recognise a patient's worldview to better understand the meanings behind patients' health decisions. This should focus on what matters most to a patient (their personal goals) and the support they necessitate to manage their condition. Therefore, the interactions between patients and doctors needs to be considered as one of the main building blocks towards establishing an effective care plan for HTN. If the interaction is effective and meaningful it could positively affect the outcome through improved HTN control, fewer complications and better well-being. Doctors' understanding of the difficulties patients face and how they navigate the illness in their everyday life is a basis for being able to facilitate an improved healthcare experience. To conclude, successful HTN management will rely on doctor willingness to engage patients' in every step of disease journey to form a doctor-patient team in order to achieve the agreed goals.

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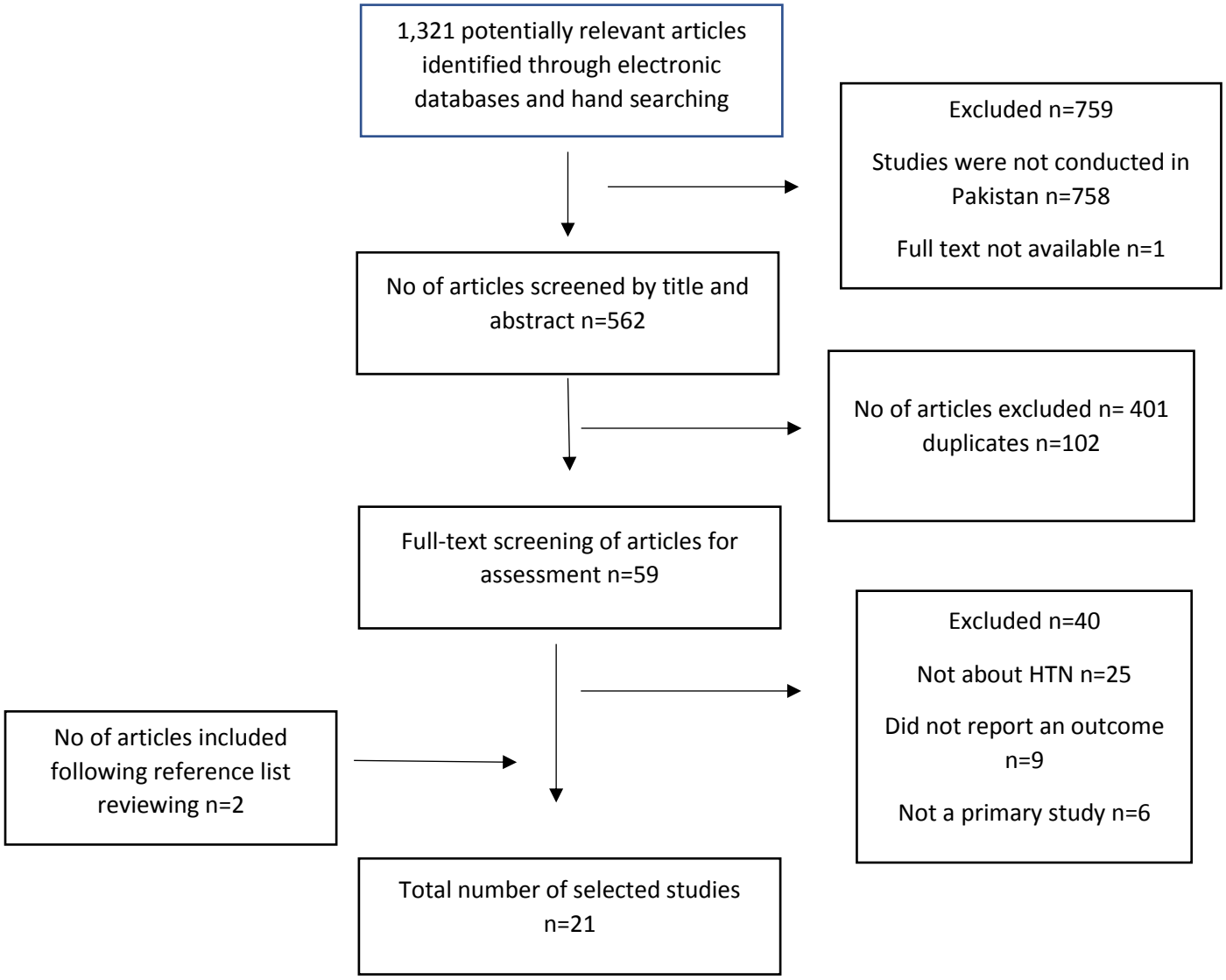
Appendices

Appendix 1: Search Strategy with a PRISMA flow diagram



Appendix 2: Table 2.1 Detail of the included studies

Authors	Study location	Aim of study	Sample size	Methods	Key findings
1: Jafar et al., 2005	Karachi, Lahore, Quetta and Peshawar	To determine whether general practitioners' approach to high BP is in accordance with international guidelines.	In total 1000 male doctors were randomly recruited from four cities (Karachi 701, Lahore 99, Quetta 99, Peshawar 99)	Cross-sectional study	Deficiencies in the knowledge and approach of GPs in Pakistan toward treatment of high BP
2: Almas et al., 2006	Karachi	To determine factors affecting compliance to antihypertensive therapy.	200 hypertensive patients (66% were male 33.5% female)	Cross-sectional study	Factors of noncompliance were missed doses due to forgetfulness. 11.6% could not take the medicine due to side effects and 10.4% missed dose due to increased number of tablets.
3: Ashfaq et al., 2007	Karachi	To compare awareness of hypertension among patients attending Primary Health Care Centre (PHC) and outpatient department (OPD) of a tertiary care hospital of Karachi.	202 hypertensive patients (male 49: female 153)	Cross-sectional survey	The tertiary OPD patients had a better knowledge of regular medication use for HTN as compared to patients coming to the PHC centre.
4: Hashmi et al., 2007	Karachi	To investigate the factors associated with adherence in the studied population.	438 hypertensive patients (male 199: female 239)	Cross-sectional study	Key findings are younger age, monotherapy, poor awareness and symptomatic

					treatment to be the strongest factors affecting adherence to anti-hypertensive medication amongst Pakistani patients.
5: Ahmed et al., 2008	Abbottabad	To assess the relationship of control of hypertension with factors like compliance to antihypertensive drugs, salt restriction and exercise among the hypertensive patients	89 hypertensive patients (male 22: female 67)	Cross-sectional study	48.3% patients were compliant. 51.7% were not compliant to antihypertensive drugs, 55.1% were having salt restriction and 44.9% had no salt restriction. 23.6% were used to do physical activity while 76.4% were not involved in any physical activity.
6: Ladha et al., 2009	Karachi	To presents socio-demographic characteristics and health seeking behaviour of elderly and to determine frequency of HTN and diabetes in elderly population.	438 hypertensive patients (male 280: female 158)	Cross-sectional study	The elderly population of this urban community has financial constraints in seeking health care. Deterrence from seeking health care was associated with illiteracy (p=0.001) and living alone (p=0.06).

7: Saleem et al., 2011	Quetta	To explore the perceptions of disease state management among Pakistani hypertensive patients.	19 hypertensive patients (male 12: female 4)	Qualitative study (four focus group discussions)	Hypertension management was influenced by peers, family and very little information received from doctors.
8: Rehman et al., 2011	Karachi	To evaluate the awareness of HTN among medical students and junior doctors.	475 doctors (no male to female ratio was provided)	Cross-sectional study	The result of study indicated an inadequate level of awareness of HTN diagnosis among doctors.
9: Saleem et al., 2012	Quetta	To explore the perceptions and experiences of hypertensive patients toward medication use and adherence	16 hypertensive patients (no sex ratio was mentioned)	Qualitative study (semi-structured interviews)	Poor knowledge lay perceptions and doctor attitude were noted as major contributing factors that resulted in nonadherence to therapy prescribed.
10: Almas et al., 2012	Karachi	To elucidate the knowledge about hypertension in hypertensive patients	447 hypertensive patients (male 262: female 262)	Cross-sectional study	Knowledge score in hypertensive patients was not up to the mark. Furthermore, score in patients with

					uncontrolled hypertension was significantly low
11: Aslam et al., 2013	Karachi	To evaluate the relationship between diet and socioeconomic conditions among hypertensive patients	176 hypertensive patients (no male to female ratio was given)	Cross-sectional study	Highest frequency of HTN was in high class and high middle-income group. Low social class has the highest ratio of stress
12: Khan et al., 2014	Karachi	To determine factors which can help to increase dietary compliance in hypertensive patients	400 hypertensive patients (male 262: female 138)	Cross-sectional study	Knowledge score in hypertensive patients was not up to the mark. Furthermore, score in patients with uncontrolled hypertension was significantly low

13: Bilal et al., 2015	Karachi	To determine the frequency and factors associated with non-compliance to anti-hypertensive medications.	113 hypertensive patients (male 42: female 71)	Cross-sectional study	Study revealed that 68.14% patients were non-compliant out of 77. Non-compliance was found to be associated with gender, occupation and monthly income. No association is found between non-compliance and positive family history of HTN Women were non-compliant than men.
14: Khan et al., 2015	Peshawar	To access primary causes of HTN in hypertensive patients	298 hypertensive patients (male 172: female 126)	A survey study	Study found phycological and individual level factors. Lack of exercise, sedentary lifestyle and less knowledge about disease was pointed.
15: Hussain et al., 2015	Karachi	To find out drug usage trends in Stage I hypertensive patients without any compelling indications in Karachi	100 doctors (no sex ratio was provided for doctors) In general population 200 were male and 200 female)	Two randomized stratified surveys	Doctors have misconception about the cost effectiveness of certain antihypertensive agents. Feedback received from participants showed that therapeutic

					guidelines were not followed for choosing pharmacologic agents by the doctors.
16: Gowani et al., 2016	Karachi	To explore how health perceptions and beliefs influence behaviour for non-communicable diseases prevention	30 participants in total (20 hypertensive patients in total) (male 17: female 13)	Qualitative study	A sense of personal invincibility, limited knowledge, inadequate health education, health care and financial constraints appeared as key barriers to the self-management of chronic disease in participants.
17: Malik et al., 2016	Islamabad-Rawalpindi	To assess the knowledge and perceptions of doctors regarding adherence to guidelines for the treatment of HTN	385 doctors (male 58.2%: female 41.8%)	A descriptive, cross-sectional study	The knowledge of doctors working in public and private healthcare facilities regarding HTN guidelines is not adequate.
18: Qamar et al., 2016	Karachi	To get knowledge regarding the treatment and lifestyle modification of a hypertensive patient	200 hypertensive patients (male 100: female 100)	Cross-sectional survey	Use of drugs and lifestyle modifications are helpful to decrease the morbidity and mortality rates among hypertensive patients.

19: Ishtiaq et al., 2017	Rawalpindi-Islamabad	To estimate the prevalence of hypertension and to explore the risk factors associated with it	219 hypertensive patients (male 89: female 130)	Cross-sectional study	62.5% individuals were not interested in maintaining their health status, and 7.8% patients were not currently taking medication to control their blood pressure. Marjory of the patients were not living healthy lifestyle.
20: Murad et al., 2017	Karachi	To assess the readiness of lifestyle modification among hypertensive patients	50 hypertensive patients (male 30: female 20)	Cross-sectional study	Out of 50 participants 84% respondents consider lifestyle modifications as a best way to maintain their blood pressure and only 16% respondents do not implement any lifestyle modification to maintain their blood pressure.

21: Legido-Quigley et al., 2019	Bangladesh, Sri-Lanka, Pakistan (District Thatta)	To identify patients' experiences of symptoms, awareness of prevention, knowledge and control of HTN	60 hypertensive patients (20 in each country)	Qualitative study	Patients mentioned several difficulties in accessing services. The main barriers to accessing health services, as reported by participants, were dearth and poor quality of existing facilities, the busyness of doctors, long transportation, long waiting times and medication shortages.

Appendix 3i: Table 2.2 CASP checklist ten questions

CASP checklist tool based on ten questions[23] for qualitative studies (n=4)											
Study	1: Is there a clear statement of study aims?	2: Is qualitative methodology appropriate?	3: Was study design suit to address the aims of research?	4: Was the recruitment strategy appropriate?	5: Were the data collected in a way that it addressed the research issues?	6: Was the relationship between researcher and research participants' been considered?	7: Have ethical issues been taken into consideration?	8: Was the data analysis procedure rigorous?	9: Is there a clear statement of findings?	10: Is the research valuable?	**Total score**
Saleem et al., 2011	Yes	Yes	No	No	No	No	Yes	No	Yes	Yes	5
Saleem et al., 2012	Yes	Yes	No	No	No	No	Yes	No	Yes	Yes	4
Gowani et al., 2016	Yes	Yes	No	No	No	No	Yes	No	Yes	Yes	5
Legido-Quigley et al., 2019	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes	Yes	7

[23] A number of prompts are given after each question that are assessible on source https://casp-uk.net/wp-content/uploads/2018/03/CASP-Qualitative-Checklist-2018_fillable_form.pdf

Appendix 3ii: Table 2.3 Quality assessment scores by using NHLBI criteria

Quality assessment scores according to the NHLBI Quality Assessment Tool[24] for observational cross-sectional survey studies (n=17)															
Study	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Score
Jafar et al., 2005	Yes	Yes	Yes	No	Yes	NR	NR	Yes	Yes	No	No	Yes	NR	No	Fair
Almas et al., 2006	Yes	Yes	Yes	No	No	NR	NR	Yes	No	No	No	No	NR	No	Poor
Ashfaq et al., 2007	Yes	No	Yes	No	No	NR	NR	Yes	No	No	Yes	No	NR	No	Poor
Hashmi et al., 2007	Yes	Yes	Yes	No	No	NR	NR	NA	Yes	NA	Yes	No	NR	No	Poor
Ladha et al., 2007	Yes	Yes	No	Yes	Yes	NR	NR	NA	No	NA	No	No	NR	No	Poor
Ahmed et al., 2008	Yes	Yes	Yes	No	No	NR	NR	Yes	No	No	No	No	NR	No	Poor
Rehman et al., 2011	Yes	Yes	Yes	Yes	No	NR	NR	Yes	No	No	No	No	NR	No	Poor
Almas et al., 2012	Yes	Yes	Yes	No	No	NR	NR	NA	Yes	NA	No	No	NR	Yes	Poor

[24] Available at: https://www.nhlbi.nih.gov/health-topics/study-quality-assessment-tools NA, not applicable; NR, not reported. The quality assessment criteria consisted of fourteen questions with five tools (Yes, No, Not Applicable NA, Not Relevant NR, Not Determined ND) and used to guide the overall rating for the quality of each study as 'good', 'fair' or 'poor'.

Aslam et al., 2013	Yes	Yes	Yes	Yes	Yes	NR	NR	Yes	No	No	Yes	No	NR	No	Fair
Khan et al., 2014	Yes	No	Yes	ND	No	NR	NR	Yes	Yes	No	No	No	NR	No	Poor
Bilal et al., 2015	Yes	No	CD	No	No	NR	NR	Yes	No	No	No	No	NR	No	Poor
Hussain et al., 2015	Yes	Yes	Yes	No	No	NR	NR	Yes	Yes	No	Yes	No	NR	No	Fair
Khan et al., 2015	Yes	Yes	No	No	NR	NR	NR	Yes	Yes	No	No	No	NR	No	Poor
Qamar et al., 2016	No	No	No	NR	No	NR	NR	NA	No	NA	No	No	NR	No	Poor
Malik et al., 2016	Yes	Yes	Yes	Yes	Yes	NR	NR	Yes	Yes	NR	Yes	No	NR	No	Good
Ishtiaq et al., 2017	Yes	Yes	No	No	No	NR	NR	Yes	Yes	Yes	No	No	NR	No	Poor
Murad et al., 2017	No	No	No	Yes	No	NR	NR	NA	No	NA	No	No	NR	No	Poor

Appendix 4: Changes made in topic guides after pilot study

Appendix 4i: Changes made in topic guide for patients after pilot study

1: Initial demographic details of patients were limited to age, employment status and education. **Change:** More demographic details (gender, duration of HTN, smoker/non-smoker, obese/non-obese, alcoholic/non-alcoholic) of the patients were considered to sample a wider group of people.
2: Question 2 previously: Can you tell me what are hypertension (HTN) or high blood pressure symptoms? **Change**: deleted and replaced by (How is your experience about symptoms of high blood pressure?) this replacement better addressed the research question. Moreover, it was recognised that patients struggled to understand term 'hypertension 'as compared to high blood pressure. Therefore, the term was replaced with high blood pressure throughout for patients.
3: Question 3 previously: Do you think having HTN or high blood pressure has affected your life? **Change:** Reworded to (In any ways do you feel high blood pressure has affected your life?). The reason behind this change was to use an open-ended question to explore patients' difficulties of living with a disease. Following prompts were then used: • daily activities • family obligations • work commitments
4. Question 4 previously: What you do for your HTN or high blood pressure complications? **Change** Deleted and replaced with a clearer question (Have you had any complications from your high blood pressure?) Questions regarding high blood pressure treatment were moved into the second part of the topic guide which is related to patient understanding of HTN treatment.
5. Question 9 previously: Have you taken your tablets today? **Change** deleted and replaced with a more generic and less personal question (How long you have been taking tablets?) The reason for this was to keep questions open and to avoid using leading questions.
6. Question 10 and 11: (Do you take your tablets regularly or just occasionally?) (If occasionally, why it happens?) **Change** question 10 and 11 were merged together as question 10 (Do you take your tablets regularly or just occasionally? If occasionally, why it happens?) Various prompts were then used to get information about drug adherence and non-adherence such as cost, side-effects and availability of medicine at hospital.
7. Question 12: Do you think taking drugs regularly is necessary for controlling your blood pressure? Or taking only in periods of high blood pressure is important? **Change** deleted as this was the repetition of amendments to question 10 and 11.
8. Question 15 previously (Have you heard about self-management?) **Change** reworded (Have you heard anything about self-management or taken part in anything else?) The reason was to explore patient high blood pressure management strategies that they might adopt. Various prompts were used to explore their understanding such as blood pressure monitoring and use of home remedies.
9. Question 15 previously (Do you feel or experience any problems when you follow lifestyle changes?) **Change** deleted and replaced to (Have you experienced any problems/difficulties to adhere/follow these changes in life? If yes, what they are?). Various prompts were used such as: diet (the role of family members friends and peer, role of doctors' advice) exercise (the role of family members and doctor, co-morbidities) salt intake (the role of family and friends, the role of doctor advice) smoking (the role of friends, family and doctor, any role of stress) alcohol intake (the role of friends, family and doctor advice)

10. Question 17 previously (Would you like to tell me how frequently you see your doctor and if he tells you about lifestyle changes?) **Change** deleted and replaced to (Do you feel doctor explains you about exercise, lower salt intake, and cessation of smoking, stress management and diet along the drug therapy? If no, what could be a reason?) This change was made as the question is a less personal and more generic and covers most issues. Following prompts were considered: the given advice, either specific or general and the depth of information
11. Question 20 and 21 previously were two separate questions (20. Do you think it is important to take care of your health and your blood pressure?) (21. If, not what do you think whose responsibility is this?) **Change** reworded and merged in one question (Do you feel it is important to take care of your health and your own blood pressure? If, not what do you think whose responsibility this should be?) In the pilot interviews, many patients answered question 20 with responses that linked to question 21. Hence it was essential to merge the questions together. Various prompts were then considered such as: family members, spouse (if married), own or doctor.

Appendix 4ii: Changes made in topic guide for doctors after pilot study

1: Question 3 previously (Can you tell me what the main issues of HTN are in Pakistani patient?) **Change** reworded and replaced to (What do you feel about the main reasons of HTN in Pakistani patients) that is more generic.
2: Question 4 previously (What do you think is the most important factor in controlling HTN in patient?) **change** reworded and reordered (11. In your opinion what is more important for hypertensive patients to control high blood pressure through drug treatment, lifestyle changes or both?) which is more explorative to elicit doctor views regarding two main components of HTN treatment: drug treatment and lifestyle changes.
3: Question 5 (Do you believe your patient know importance of HTN treatment?) **change** reworded and reordered (13. In your opinion do patients know the importance of HTN treatment?) which is not confusing, less personal and more generic.
4: Question 6 previously which is now number 5 (When you say HTN treatment for patient what you mean by this?) **change** reworded (5. What do you think about the types of treatment for hypertensive patients?). Pilot interviews showed that initial question was confusing and not clear to participants therefore it was essential to reword the question.
5: Question 8 previously (Can you tell me what lifestyle advice you provide to hypertensive patient?) **change** reworded (8. What lifestyle advice do you feel it to be essential to provide hypertensive patients?) it was recognised in the pilot interviews that the original question was leading, and the given response was not related to interviewees experience. Hence it was essential to refine and rephrase the original question and to explore participant awareness regarding a particular lifestyle change in relation to the need of hypertensive patients.
6: Question 11 and 12 previously (11. What do you think what they prefer more to follow and why?) (12. If they don't follow what's the reasons for this?) **change** reordered and reworded (16. In your experience, what do patients prefer more to follow and why?) which is more explorative, generic and linked to previous question.
7: Question 19 (Do you think that patients' education level and social status play part in medical adherence?) **change** reworded into two clear and separate questions (19. Do you feel there are some issues arising in HTN control due to the low literacy levels of patients in Pakistan? If yes, can you describe these issues?) (20. In your opinion, does a patient's social status play any part in their lifestyle?) It was noticed in the pilot interviews that the original question was not explorative to elicit doctors' responses regarding patients' literacy level and social status. Therefore, questions on the relationship between HTN treatment, patients' literacy level and social status in were added separately to explore doctors' responses.

Appendix 5i: Challenges associated with conducting the pilot study

The research culture in Pakistan, in general, been described as in its infancy (Pardhan, 2010, p.33). Native scholars undertaking research in Pakistani hospitals have warned against the lack of a research culture and can encounter unique challenges (Yasir, 2014). Moreover, the Ethics Review Committee (ERC) in public hospitals is a relatively new phenomenon in Pakistan and only a few private healthcare organisations have an ethics committee and staff members who understand research ethics (Khan et al., 2012; Punjwani, 2015).

To date, the Aga Khan University Hospital in Karachi is the only private hospital with a formal ethics committee that established in 2000 (Moazam & Jafarey, 2005). Previously, some native scholars undertaking research in Pakistan have relied on ethics approval gained from their universities where the study is being conducted (Mufti, 2011; Faiz, 2015). Hence, initially, this study was intended to be conducted solely in accordance with the ethical principles of the Research Ethics Policy of University of Hertfordshire. However, the pilot study identified that it was essential to secure permission from the hospital medical superintendent in Pakistan in order to gain access to potential research participants.

A brief telephone conversation with the Pakistan Dental and Medical Council[25] resulted in guidance on how a native researcher should approach the hospital management and participants for a research study. PMDC recommends gaining approval from the review board of the institution where the study is being conducted and informed written consent from the study participants (PMDC, 2006). Therefore, before the commencement of the pilot study the ethical approval to conduct the pilot study was gained from the University of Hertfordshire Ethics Review Committee. Written permission to conduct the study was first obtained from the medical superintendent of the hospital in Pakistan. After which each of the study participant was approached and their informed written consent obtained. Identical ethical procedures have been followed by many native and local researchers undertaking qualitative and cross-sectional studies in Pakistani hospitals (Essani & Ali, 2011; Saleem et al., 2011; Saleem et al., 2012; Yasir, 2014; Noorani et al., 2014; Saleem et al., 2015; Atif et al., 2016).

Gaining a signed letter of permission from the hospital medical superintendent in Pakistan was challenging due to the lack of research culture and communication problems. However, as a result of work experience in a Pakistani hospital, the researcher was aware of the necessity of gaining accurate details of the medical superintendent in order to establish a direct contact. Direct contact could mitigate unnecessary delays arising from common errors such as failure of the administration staff to forward the documents, deleting emails by mistake and lack of response. The pilot study underlined importance of using a personal contact to gain the accurate details of the hospital medical superintendent.

Hence, one of the researcher's personal contacts (brother) in Pakistan helped to obtain the medical superintendents' details. After a week, follow-up phone calls were made to confirm the medical superintendent had received the application and required documents. However, many times the researcher was unable to reach to the medical superintendent due to

[25] The Pakistan Medical and Dental Council (PMDC) is the government regulating body that recognises all medical universities and public hospitals in the country.

attendance at meetings and variations in working hours between the UK and Pakistan. On some occasions the receptionist refused to direct the call to the medical superintendent. During the follow up period, the researcher's personal contact secured a face-to-face meeting with the hospital medical superintendent and shared researcher previous professional background as a Pakistani qualified medic. This meeting, along with the documents received from the researcher, supported the medical superintendent decision to grant permission for the pilot study to proceed.

Appendix 5ii: Lessons learned from the pilot study

The pilot study highlighted the significance of building up the relationship of trust with the medical superintendent through effective communication to ensure recruitment was smooth and effective. Therefore, prior to the fieldwork, a face-to-face meeting was scheduled with the hospital medical superintendent to deliver a summary of the pilot study. The meeting resulted in an informal discussion regarding the implications and future perspectives of qualitative research in the country. It was agreed that the medical superintendent would introduce the researcher to the head of the medicine department, duty doctors and medical staff and make them aware of her presence in the hospital. Therefore, the researcher's first day at hospital involved a non-official meeting with the head of department, face-to-face meeting with the medical staff (doctors and nurses) and a detailed visit to the hospital building. This step assisted with breaking the ice and familiarity with the hospital setting, environment and staff before commencing the study.

The pilot study identified that the process of patients' recruitment was effective and many of them showed interest in the study. A few patients approached the researcher directly after reading the patient information leaflet or study poster at the hospital entrance, presented their medical notes and asked the researcher if they were eligible to take part in the study. It was recognised during the pilot study that whilst in the hospital, the researcher would wear a badge with her name and the University of Hertfordshire logo on to make herself approachable and recognised. The junior doctors expressed more interest to take part in the study as compared to the senior doctors. The researcher had not previously been in contact with the hospital but learned that the junior doctors' co-operation was linked to their curiosity about the research and that they considered the researcher to be a part of Pakistani doctors' community. Additionally, the researcher spent time building a relationship of trust through regular greetings, informal visits, active listening and showing an interest in the doctors' daily routine.

The audio recording was an issue for some patients who hesitated to share the information even after they had been informed that audio recording would be used. In this situation, it was necessary for researcher to build a bridge of trust between herself and the participants and to clarify to them how highly privacy and confidentiality of data are valued in the University of Hertfordshire regulations. Pre-interview conversations with patients also focused on establishing empathic ties that put them at ease. The researcher reassured participants' about the confidentiality of their identity and that any information obtained would only be used for the research purpose.

During the pilot study, the researcher learned that keeping a research diary in the field was essential for writing notes, thoughts and her own assumptions to aid reflexivity in the research process. For instance, after each interview reflections on the interview experience were noted with comments on how well the researcher felt the interview went, what were the practical issues, how the participant felt during the interview and any methodological issues (e.g. by noticing the non-verbal aspects of the interviewee's behaviour). Additionally, the diary acted as a useful organizational aid to keep track of the research progress. Therefore, for the main study, the researcher carried an A4 lined notebook as a research diary to adopt a reflexive practice into the research process.

After the pilot study, the researcher transcribed the interviews audio recordings in Microsoft Word and discussed them with the supervisors. This feedback obtained from the supervisors along with the professional training and workshops attended at the University of Hertfordshire helped improve interviewing skills. For instance, the researcher improved areas in terms of identifying own bias, listening, probing and follow-up, where and when to pause, using the funnelling technique[26] and the emotional dynamics of qualitative interviews. Overall, the pilot study gave valuable lessons in relation to various aspects of the study as described above. However, the findings of the pilot interviews were not embedded in the analysis for the main study as this was not the aim of the pilot study.

[26] Funnelling technique involves starting from general questions before getting into the specifics and asking more detail at each level (Wengraf, 2001; Galletta, 2013).

Appendix 6: (Interview topic guides in English)

Appendix 6i: Interview topic guide for patients

Interview topic guide for patient

An Exploration of the Perspectives of Hypertensive Patients and Doctors about Hypertension and its Treatment in Pakistan

To be translated in Urdu

Age …… **Gender…….**

Education ……. **Employment status …….**

Duration of Hypertension…….

Smoker……Non-Smoker…… **Obese: Yes/No**

Alcoholic: Yes/No

Date……. **Time……**

Patient understanding of high blood pressure (HTN)

Ice breaking questions (Turn on tape recorder)

For how long have you been diagnosed with high blood pressure?

How did you find out that you have high blood pressure?

1. What do you understand by high blood pressure?
2. How is your experience about symptoms of high blood pressure?
3. In any ways do you feel high blood pressure has affected your life?
4. Have you had any complications from your high blood pressure?
5. Have you heard about anything you can do to reduce your blood pressure?
6. How would you like to monitor your blood pressure?
7. Personally, what do you feel is the most important thing you can do to control high blood pressure?

Patient understanding of high blood pressure (HTN) treatment

8. I would like you to tell me what you use to control your high blood pressure? Antihypertensive medication/lifestyle change/both?
9. How long you have been taking tablets?
10. Do you take your tablets regularly or just occasionally? If occasionally, why that happens?
11. Have you experienced some side effects from your tablets? If yes, how do you feel when you are taking them?
12. Have you heard anything about self-management or taken part in anything else?
13. I would like you to tell me the names of some lifestyle changes?
14. Are there any changes in your lifestyle in terms of exercise, weight reduction, smoking cessation, dietary changes, low salt and alcohol intake after being diagnosed as a patient with high blood pressure?
15. Have you experienced any problems/difficulties in adhering to or following these changes in lifestyle? If yes, what they are?
16. Do you find that lifestyle changes are part of your disease treatment? Or is this additional advice from the doctor?
17. What is your experience of your doctor's role in providing lifestyle advice?
18. Do you feel that your doctor explains to you about exercise, lower salt intake and cessation of smoking, stress management and dietary changes along with drug therapy? If no, what could be a reason?
19. Do you feel lifestyle changes help to control high blood pressure? If yes, then how and what motivate you?
20. Do you feel it is important to take care of your health and your own blood pressure? If not, whose responsibility do you think this should be?

Is anything else you would like to add about your health condition or treatment?

Is there anything you would like to ask me?

Thank you for taking part in this interview.

Appendix 6ii: Interview topic guide for doctors

Interview topic guide for doctor

An Exploration of the Perspectives of Hypertensive Patients and Doctors about Hypertension and its Treatment in Pakistan

Date……Time…….

Ice breaking questions (Turn on tape recorder)

Before we start the interview, it would be very useful to find out a little bit about you:

- Would you like to tell me how long you have been working in this hospital?
- For how long have you been qualified as a doctor?

1. How many hypertensive patients do you usually see in a day?
2. I would like you to tell me what you hope to achieve before seeing a hypertensive patient?
3. What do you feel about the main reasons of HTN in Pakistani patients?
4. When you say treatment for hypertensive patient what do you mean by this?
5. What do you think about the types of treatment for hypertensive patients?
6. How patients are usually diagnosed? Are there any guidelines?
7. In your experience, how do you usually decide whether or not to put the patient on antihypertensive drugs?
8. What lifestyle advice do you feel it to be essential to provide hypertensive patients?
9. How do you usually provide this advice? Oral or written?
10. Do you feel it is important to provide lifestyle recommendations along with drug therapy to all diagnosed hypertensive patients or only some specific patients? If yes to all then why? If no, then which patients require these recommendations more?
11. In your opinion what is more important for hypertensive patients: to control high blood pressure through drug treatment, lifestyle changes or both?
12. Do you think it is your duty to provide lifestyle advice to patients? Or should someone else be responsible for this?

13. In your opinion do patients know the importance of HTN treatment?
14. How do you feel about the compliance of hypertensive patients to the treatment you provide?
15. Do you feel patients understand the role of drugs and lifestyle advice separately in the treatment of HTN? If no, then why?
16. In your experience, what do patients prefer more to follow and why?
17. If they don't seem to follow lifestyle changes what the reason is for or barriers to this from your point of view?
18. How do you deal with common queries from patients about lifestyle changes and what is your experience of this?
19. Do you feel there are some issues arising in HTN control due to the low literacy levels of patients in Pakistan? If yes, can you describe these issues?
20. In your opinion, does a patient's social status play any part in their lifestyle?
21. Do you feel there are some barriers that affect patient adherence to HTN treatment? For instance, stress, money and family burden.
22. What you would suggest to improve the understanding of HTN treatment for patients in Pakistan?
23. Do you feel there is a need for health promotion activities for hypertensive patients in Pakistan?

Is there anything you would like to ask me?

Thank you. Clarify arrangements for further contact if needed.

Appendix 7: (Interview topic guides in Urdu)

Appendix 7i: Interview topic guide for patients (In Urdu)

پاکستان میں مریضوں اور ڈاکٹروں کے ہائی بلڈ پریشر اور اسکے علاج کے متعلق خیالات پر تحقیق

مریض کے لیے سوالنامہ

عمر_____ جنس_____

تعلیم_____ پیشہ_____

ہائی بلڈ پریشر کا دورانیہ_____ تمباکو نوش / غیر تمباکو نوش____ موٹاپا____ہاں / نہیں

شراب نوش_____ ہاں / نہیں تاریخ_____ وقت_____

ہائی بلڈ پریشر کے متعلق مریض کی سمجھ بوجھ

ابتدائی سوالات (ٹیپ ریکارڈ آن کریں)

آپ میں ہائی بلڈ پریشر کی تشخیص کو کتنا عرصہ ہوا ہے؟

آپ کو کیسے پتہ چلا کہ آپ کو ہائی بلڈ پریشر ہے؟

1. آپ ہائی بلڈ پریشر کے بارے میں کیا جانتے ہیں؟
2. ہائی بلڈ پریشر کی علامات کے بارے میں آپ کا کیسا تجربہ ہے؟
3. کیا آپ محسوس کرتے ہیں کہ ہائی بلڈ پریشر نے آپ کی زندگی کو کسی بھی طرح متاثر کیا ہے؟
4. کیا آپ کو ہائی بلڈ پریشر سے کسی بھی قسم کی پیچیدگیاں ہوئی ہیں؟
5. کیا آپ نے ہائی بلڈ پریشر کو کم کرنے کے بارے میں کچھ سنا ہے؟
6. آپ بلڈ پریشر کو کیسے جانچنا پسند کریں گے؟
7. ذاتی طور پر آپ کیا محسوس کرتے ہیں کہ وہ کونسی اہم چیز ہے جو آپ ہائی بلڈ پریشر کو قابو کرنے کے لیے کر سکتے ہیں؟

ہائی بلڈ پریشر کے علاج کے بارے میں مریض کی سمجھ بوجھ

8. میں چاہوں گی آپ مجھے بتائیں کہ آپ ہائی بلڈ پریشر کو قابو کرنے کے لیے کیا استعمال کرتے ہیں؟ ہائی بلڈ پریشر کی ادویات / طرز زندگی میں تبدیلیاں یا دونوں؟
9. آپ کتنے عرصے سے ادویات لے رہے ہیں؟
10. کیا آپ ہائی بلڈ پریشر کی ادویات باقاعدگی سے لیتے ہیں یا کبھی کبھار؟ اگر کبھی کبھار تو ایسا کیوں ہے؟
11. کیا آپ کو ان ادویات کے استعمال سے کسی قسم کے مضر اثرات کا سامنا کرنا پڑا ہے؟ اگر ہاں تو آپ ان کو لیتے ہوئے کیسا محسوس کرتے ہیں؟
12. کیا آپ نے خود کو منتظم رکھنے کے بارے میں سنا ہے یا کسی اس طرح کی چیز میں حصہ لیا ہے؟

13. میں چاہوں گی کہ آپ مجھے طرز زندگی میں تبدیلیوں کے کچھ نام بتائیں؟

14. کیا آپ نے ہائی بلڈ پریشر کی تشخیص کے بعد طرز زندگی میں کچھ تبدیلیاں اپنائی ہیں جیسے کہ ورزش، وزن کو کم کرنا، تمباکو نوشی سے پرہیز ،نمک کا کم استعمال، غذائی تبدیلی اور شراب نوشی سے پرہیز؟

15. کیا آپ کو طرز زندگی میں ان تبدیلیوں پر عمل پیرا ہونے سے کسی بھی طرح کے مسائل یا مشکلات کا سامنا کرنے کا تجربہ ہوا ہے؟ اگر ہاں تو وہ کیا ہیں؟

16. کیا طرز زندگی میں تبدیلیاں آپ کی بیماری میں معاون حصہ ہے یا صرف ڈاکٹر کا اضافی مشورہ ہیں؟

17. طرز زندگی میں تبدیلیوں کا مشورہ فراہم کرنے کے بارے میں آپ کا ڈاکٹر کے کردار کی اہمیت کے بارے میں کیا تجربہ ہے؟

18. کیا آپ محسوس کرتے ہیں کہ آپ کے ڈاکٹر نے ادویات کے استعمال کے ساتھ ورزش، نمک کے کم استعمال، تمباکو نوشی کو ترک کرنا، ذہنی دباؤ پر قابو پانا اور غذائی تبدیلی کے متعلق بھی وضاحت کی ہے؟ اگر نہیں تو اس کی کیا وجہ ہو سکتی ہے؟

19. کیا آپ محسوس کرتے ہیں کہ طرز زندگی میں تبدیلیاں ہائی بلڈ پریشر کو قابو کرنے میں مددگار ہیں؟ اگر ہاں تو کیسے اور کیا چیز اس میں آپ کی حوصلہ افزائی کرتی ہے؟

20. کیا آپ محسوس کرتے ہیں کہ اپنی صحت اور بلڈ پریشر کا خود سے خیال رکھنا اہم ہے؟ اگر نہیں تو آپ کے خیال میں یہ کس کی ذمہ داری ہونی چاہیے؟

کیا اس کے علاوہ آپ اپنی صحت اور علاج کے بارے میں اضافہ کرنا چاہیں گے؟

کیا آپ مجھ سے کچھ سوال پوچھنا چاہیں گے؟

اس بات چیت میں حصہ لینے کے لیے آپ کا شکریہ۔

Appendix 7ii: Interview topic guide for doctors (In Urdu)

پاکستان میں مریضوں اور ڈاکٹروں کے ہائی بلڈ پریشر اور اسکے علاج کے متعلق خیالات پر تحقیق

ڈاکٹر کے لیے سوالنامہ

تاریخ۔۔۔۔۔۔۔۔ وقت۔۔۔۔۔

ابتدائی سوالات (ٹیپ ریکارڈر آن کریں)

انٹرویو شروع کرنے سے پہلے آپ کے بارے میں کچھ جاننا مفید ہوگا:

کیا آپ مجھے بتانا پسند کریں گے کہ آپ کتنے عرصے سے اس ہسپتال میں کام کر رہے ہیں؟

آپ کتنے عرصے سے ایک تعلیم یافتہ ڈاکٹر ہیں؟

1. آپ عام طور پہ ایک دن میں ہائپر ٹینشن کے کتنے مریض دیکھتے ہیں؟
2. میں چاہتی ہوں کہ آپ مجھے بتائیں کہ ہائپر ٹینشن کا مریض دیکھنے سے پہلے آپ کیا حاصل کرنے کے لیے پرامید ہوتے ہیں؟
3. آپ کیا محسوس کرتے ہیں کہ پاکستان میں مریضوں میں ہائپر ٹینشن کی اہم وجوہات کیا ہیں؟
4. جب آپ کہتے ہیں کہ ہائپر ٹینشن کے مریض کے لیے علاج تو اس سے آپ کی کیا مراد ہے؟
5. آپ ہائی بلڈ پریشر کے مریضوں کے علاج کی اقسام کے متعلق کیا سوچتے ہیں؟
6. عام طور پر مریضوں کی تشخیص کیسے ہوتی ہے؟ کیا اس کے لیے کوئی ہدایات موجود ہیں؟
7. اپنے تجربے کی رو سے آپ عام طور پر کیسے فیصلہ کرتے ہیں کہ مریض کو ہائی بلڈ پریشر کی ادویات دیں یا نہیں؟
8. کونسی طرز زندگی کی نصیحت آپ محسوس کرتے ہیں کہ ہائپر ٹینشن کے مریض کو فراہم کرنا ضروری ہے؟
9. عام طور پر آپ یہ نصیحت کیسے فراہم کرتے ہیں؟ زبانی یا تحریری؟
10. کیا آپ محسوس کرتے ہیں کہ ہائپر ٹینشن کے تمام مریضوں کو ادویات کے ساتھ طرز زندگی میں تبدیلیوں کی نصیحت فراہم کرنا اہم ہے؟ یا صرف کچھ خاص مریضوں کو؟ اگر ہاں تمام مریضوں کو تو کیوں؟ اگر نہیں تو کون سے مریضوں کو اس کی زیادہ ضرورت ہے؟
11. آپ کے خیال میں ہائپر ٹینشن کے مریضوں کے لیے ہائی بلڈ پریشر کو قابو کرنے کے لیے ادویات کا استعمال زیادہ اہم ہے، طرز زندگی میں تبدیلیاں یا دونوں؟
12. کیا آپ سوچتے ہیں کہ مریضوں کو طرز زندگی میں تبدیلی کی نصیحت فراہم کرنا آپ کا فرض ہے؟ یا کسی اور کو اسکا ذمہ دار ہونا چاہیے؟
13. آپ کے خیال میں کیا مریض ہائپر ٹینشن کے علاج کی اہمیت سے آگاہ ہیں؟
14. آپ کیسا محسوس کرتے ہیں کہ ہائپر ٹینشن کے مریض کو جو علاج آپ تجویز کرتے ہیں وہ اس کی تعمیل کرتے ہیں؟
15. کیا آپ محسوس کرتے ہیں کہ مریض ہائپر ٹینشن کے علاج میں ادویات اور طرز زندگی میں تبدیلیوں کے کردار کو علیحدہ علیحدہ سمجھتے ہیں؟ اگر نہیں تو کیوں؟

16. آپ کے تجربے میں مریض کس چیز پر عمل کرنے کو فوقیت دیتے ہیں اور کیوں؟

17. اگر مریض طرز زندگی میں تبدیلیوں پر عمل نہیں کرتے تو اسکی کیا وجہ ہے اور آپ کے نقطہ نظر میں اس میں کیا رکاوٹیں ہیں؟

18. آپ مریض کی جانب سے طرز زندگی میں تبدیلیوں کے بارے میں پوچھے گئے عام سوالات سے کیسے نپٹتے ہیں اور آپکا اس بارے میں کیسا تجربہ ہے؟

19. کیا آپ محسوس کرتے ہیں کہ پاکستان میں مریضوں کے کم تعلیم یافتہ ہونے کی وجہ سے ہائپر ٹینشن کو قابو کرنے میں کچھ مسائل پیدا ہو رہے ہیں؟ اگر ہاں تو کیا آپ ان مسائل کی وضاحت کر سکتے ہیں؟

20. آپ کی رائے میں کیا مریض کی سماجی حیثیت ان کی طرز زندگی میں کوئی کردار ادا کرتی ہے؟

21. کیا آپ محسوس کرتے ہیں کہ ہائپر ٹینشن کے مریض کو علاج پر عمل کرنے میں کچھ رکاوٹیں متاثر کرتی ہیں؟ مثال کے طور پر ذہنی دباؤ، پیسہ اور خاندان کا بوجھ۔

22. آپ پاکستان میں مریضوں کے ہائپر ٹینشن کے علاج کے متعلق آگاہی بہتر کرنے کے لیے کیا تجویز کریں گے؟

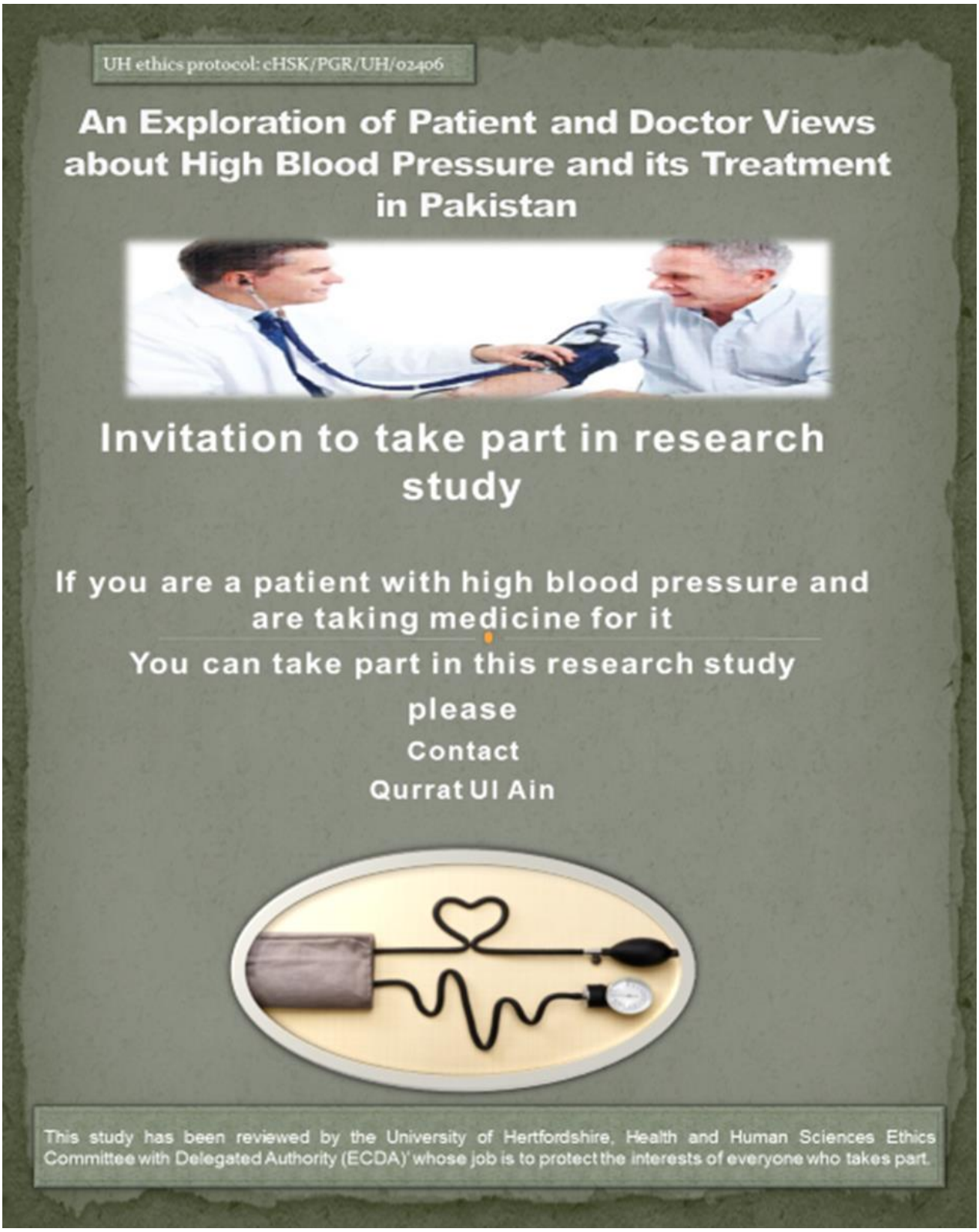
23. کیا آپ محسوس کرتے ہیں کہ پاکستان میں ہائپر ٹینشن کے مریضوں کے لیے صحت کو فروغ دینے والی سرگرمیوں کی ضرورت ہے؟

کوئی ایسی بات جو آپ مجھ سے پوچھنا چاہتے ہوں؟

شکریہ۔ اگر ضرورت ہو تو مزید رابطے کے لیے انتظامات واضح کریں۔

Appendix 8: (Study Poster)

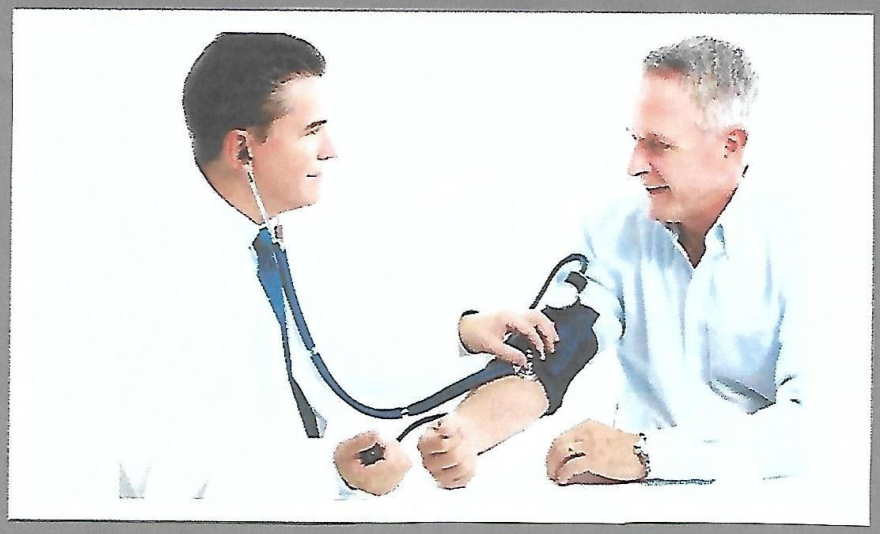
Appendix 8i: (Study poster in English)



Appendix 8ii: (Study poster in Urdu)

UH ethics protocol :cHSK/PGR/UH/02406

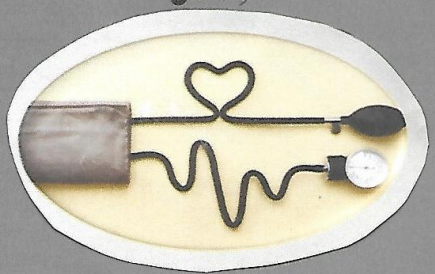
پاکستان میں مریضوں اور ڈاکٹروں کے ہائی بلڈ پریشر اور اس کے علاج کے متعلق خیالات پر تحقیق



تحقیق میں حصہ لینے کا دعوت نامہ

اگر آپ ہائی بلڈ پریشر کے مریض ہیں اور اس کے لیے ادویات لے رہے ہیں تو آپ اس تحقیقی مطالعے میں حصہ لے سکتے ہیں براہ مہربانی رابطہ کریں۔

قراۃ العین



تحقیقی مطالعوں کا جائزہ ہیفورڈ شائر یونیورسٹی میں ہیلتھ ہیومن سائنس ایتھک کمیٹی ڈیلیگیٹڈ اتھارٹی (ECDA) لیتی ہے جس کا مقصد تمام حصہ لینے والے افراد کے مفادات کی حفاظت کرنا ہے۔

Appendix 9i: Patient information sheet

i. Patient information sheet (English)

UH Ethics Protocol No: cHSK/PGR/UH/02406

Invitation to take part in research study

I am inviting you to take part in a study which will explore the views of patients and doctors about high blood pressure and its treatment in Pakistan. Before you decide, it is important for you to understand why the study is being done and what it will involve.

Please take time to read the following information.

Purpose of Study

High blood pressure remains a common and an important risk factor for diseases including coronary heart disease, heart failure and kidney failure. Treatment guidelines are available for patients and doctors to control the disease. The study aims to explore patient and doctor views about high blood pressure and its treatment in Pakistan.

Contact Information

If you need more information and need to discuss it further, kindly contact

Qurrat Ul Ain

Ph.D. student

Thank you very much for reading this information

Patient information leaflet 1

An exploration of the views of patients and doctors about high blood pressure and its treatment in Pakistan

Who can take part in this study?

You can take part in this study if you are a patient with high blood pressure and are taking medicine for it.

What are the benefits of taking part?

This research will help to provide a detailed understanding of the views of patients and doctors about high blood pressure and its treatment, particularly in relation to lifestyle

Do I have to take part?

No, it is entirely up to you whether or not you take part. You are free to withdraw at any time without giving any reason. Any data collected from you will be destroyed.

The decision to withdraw from the study will not affect your medical care.

What will happen if I take part?

A face to face interview will be conducted with you which will last approximately 30 minutes. You will be asked whether you will allow the researcher to record this interview or not. It is entirely up to you whether you decide to take part or not.

Will my taking part in this study be kept confidential?

All information regarding you will be kept confidential. All collected data will be stored on a password protected computer. No personal data regarding you will be recorded without consent. Any personal data collected from you will be destroyed at the end of the study. Only the members of the research team will be able to access the data. At the end of the study all data will be stored by the researcher in a locked filing cabinet for five years before it is destroyed.

Patient information sheet 2

What are the possible risks of taking part in the study?

The researcher will ask questions regarding high blood pressure and its treatment which some might find uncomfortable. You do not have to answer every question. At any point, if you feel uncomfortable you can withdraw from the study without giving any reason. If you do not take part your medical care will not be affected in any way.

Who has organised this study and who can I contact?

The study is being undertaken within the School of Health and Social Work, University of Hertfordshire, UK, for the award of a PhD degree. If you have concerns and complaints about any aspect of the way you have been treated during the course of this study, please contact my supervisor Professor Wendy Wills for more details about the organisation of this study. Alternatively, you can write to the University's Secretary and Registrar, Sue Grant, at the University of Hertfordshire, College Lane campus, Hatfield AL10 9AB, UK.

Who has reviewed this study?

Research projects are reviewed by the University of Hertfordshire, Health and Human Sciences Ethics Committee with Delegated Authority (ECDA) and their role is to protect the interests of everyone who takes part in this study.

Appendix 9ii: Patient consent form (English)

UH Ethics Protocol No: cHSK/PGR/UH/02406

An exploration of the views of patients and doctors about high blood pressure and its treatment in Pakistan

Patient Consent Form

(To be translated in Urdu)

Name of Researcher: Qurrat ul Ain **Signature**

1. I confirm that I have been given a patient information leaflet and I have been given details of my involvement in the study.
2. I have allowed the researcher to access my prescription/medical notes.
3. I have been given the opportunity to ask questions.
4. I understand that I do not have to answer all the questions asked of me.
5. I agree that the interview will be audio recorded.
6. I have been informed that I might be asked sensitive questions in the interview, however, it is entirely up to me whether I give answers or not.
7. I have been told that information related to me will be kept confidential and all data regarding me will be stored in a password protected computer and will not be accessed by anyone other than the research team.
8. I have been told that I may at some point in the future be contacted again in connection with this study for follow up.
9. I have been informed that if I withdraw from the study it will not affect my medical care in anyway.
10. I agree to take part in the above study.

One copy of this form to be signed/kept by the researcher and one copy by the participant.

Name of Participant …… Date …… Signature……

Researcher…… Date …….. Signature……

Appendix 10

Appendix 10i: Patient information sheet (Urdu)

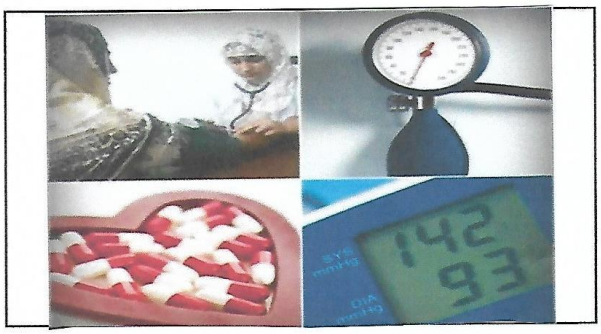
UH Ethics Protocol No: cHSK/PGR/UH/02406

تحقیق میں حصہ لینے کا دعوت نامہ

میں آپ کو دعوت دیتی ہوں کہ پاکستان میں ہائی بلڈ پریشر اور اس کے علاج پر مریضوں اور ڈاکٹروں کے خیالات پر مبنی تحقیق میں حصہ لیں۔
اس سے پہلے کے آپ فیصلہ کریں آپ کے لیے یہ جاننا ضروری ہے کے یہ تحقیق کس لیے ہو رہی ہے اور کس پر مبنی ہوگی۔
برائے مہربانی یہ معلومات پڑھیں۔

تحقیق کا مقصد

ہائی بلڈ پریشر بیماریاں جیسے کہ دل کا مرض، دل کی ناکامی اور گردوں کی ناکامی کا ایک عام اور اہم خطرے کا عنصر ہے۔
اس بیماری کو روکنے کے لیے مریضوں اور ڈاکٹروں کے لیے علاج کی ہدایات موجود ہیں۔ اس مطالعے کا مقصد پاکستان میں ہائی بلڈ پریشر اور اس کے علاج کے بارے میں مریضوں اور ڈاکٹروں کے خیالات کو جاننا ہے۔



رابطے کے لیے معلومات

اگر آپ کو مزید معلومات کی ضرورت ہے اور اس بارے میں بات کرنا چاہتے ہیں تو براہ مہربانی رابطہ کریں
قراۃ العین
پی ایچ ڈی اسٹوڈنٹ
یہ معلومات پڑھنے کے لیے بہت شکریہ

پاکستان میں مریضوں اور ڈاکٹروں کے ہائی بلڈ پریشر اور اس کے علاج کے متعلق خیالات پر تحقیق

مریض کیلئے معلوماتی کتابچہ 1

کون اس تحقیق میں حصہ لے سکتا ہے؟

اگر آپ ہائی بلڈ پریشر کے مریض ہیں اور ادویات لے رہے ہیں تو آپ اس تحقیقی مطالعے میں حصہ لے سکتے ہیں۔

اس تحقیق میں حصہ لینے کے کیا فوائد ہیں؟

یہ تحقیق پاکستان میں ہائی بلڈ پریشر اور اس کے علاج پر مریضوں اور ڈاکٹروں کے خیالات کو تفصیلی سمجھنے میں مددگار ہوگی۔ خاص طور پر طرز زندگی میں تبدیلیوں کے متعلق۔

کیا مجھے حصہ لینا چاہیے؟

یہ آپ پر منحصر ہے کہ آپ حصہ لیں یا نہیں۔ آپ کوئی بھی وجہ بتائے بنا اس تحقیق سے نکل سکتے ہیں۔

آپ کی طرف سے جمع شدہ مواد ضائع کر دیا جائے گا۔ تحقیق سے نکلنے کا فیصلہ کسی بھی طرح آپ کی طبی دیکھ بھال پر اثر انداز نہیں ہوگا۔

اگر میں حصہ لینا چاہوں تو کیا ہوگا؟

آپ کے ساتھ تیس منٹ تک آمنے سامنے گفتگو ہوگی۔ آپ سے پوچھا جائے گا کہ آپ تحقیق کرنے والے کو یہ بات چیت ریکارڈ کرنے کی اجازت دیں گے یا نہیں۔ یہ آپ پر منحصر ہے کہ آپ حصہ لیں یا نہ لیں۔

کیا میرا اس تحقیق میں حصہ لینا خفیہ رکھا جائے گا؟

آپ کے بارے میں تمام معلومات کو خفیہ رکھا جائے گا۔ تمام جمع شدہ ڈیٹا ایک حفاظتی پاس ورڈ لگے کمپیوٹر میں رکھا جائے گا۔ آپ سے جمع شدہ ہر قسم کا ذاتی ڈیٹا تحقیقی مطالعہ کے اختتام پر ضائع کر دیا جائیگا۔ صرف تحقیقی کمیٹی کے ارکان ڈیٹا تک رسائی حاصل کر سکیں گے۔ مطالعہ کے آخر پر تمام جمع شدہ ڈیٹا ضائع کرنے سے پہلے محقق تالا لگی الماری میں پانچ سال کے لیے محفوظ رکھے گی۔

اس تحقیق میں حصہ لینے کے ممکنہ خطرات کیا ہوں گے؟

محقق آپ سے ہائی بلڈ پریشر اور اس کے علاج کے بارے میں سوالات پوچھے گی جو آپ کے لیے غیر آرام دہ ہو سکتے ہیں۔

کسی بھی موقع پر اگر آپ بے آرامی محسوس کریں تو بنا وجہ بتائے اس تحقیق سے نکل سکتے ہیں۔ اگر آپ حصہ نہیں لیتے تو کسی بھی طرح آپ کی طبی دیکھ بھال متاثر نہیں ہوگی۔

اس تحقیق کا اہتمام کس نے کیا ہے اور میں کس سے رابطہ کر سکتا/سکتی ہوں؟

یہ مطالعہ پی ایچ ڈی ڈگری کے لیے ہیٹفورڈ شائر یونیورسٹی (یو کے) میں کیا جا رہا ہے۔ اگر اس تحقیق کے دوران آپ کے ساتھ کیے گئے کسی بھی سلوک پر آپ کو خدشے یا شکایات ہیں تو آپ میری سپروائزر پروفیسر وینڈی ولز سے اس تحقیق کے اہتمام کے بارے میں مزید معلومات کے لیے رابطہ کریں یا آپ یونیورسٹی کی سیکرٹری اور رجسٹرار سوہ گرانٹ سے ہیٹفورڈ شائر یونیورسٹی، کالج لین کیمپس

ہیٹفیلڈ (یو کے) AL109AB پر رابطہ کر سکتے ہیں۔

اس تحقیق کا جائزہ کس نے لیا ہے؟

تحقیقی مطالعوں کا جائزہ ہیٹفورڈ شائر یونیورسٹی میں ہیلتھ ہیومن سائنس اسٹھک کمیٹی ڈیلیگیٹڈ اتھارٹی (ECDA) لیتی ہے جس کا مقصد مطالعے میں حصہ لینے والے تمام افراد کے مفادات کی حفاظت کرنا ہے۔

Appendix 10ii: Patient consent form (Urdu)

پاکستان میں مریضوں اور ڈاکٹروں کے ہائی بلڈ پریشر اور اسکے علاج کے متعلق خیالات پر تحقیق

مریض کا تحقیق میں شرکت کے لیے اجازت نامہ

محقق کا نام: قراۃ العین دستخط:

ا. میں تصدیق کرتا/کرتی ہوں کہ مجھے مریض کے لیے معلوماتی کتابچہ دیا گیا ہے اور تحقیق میں میری شمولیت کے بارے میں تمام معلومات سے آگاہ کیا گیا ہے۔ ☐

2. میں نے محقق کو اپنا نسخہ/میڈیکل کاغذات کی رسائی کی اجازت دی ہے۔ ☐

3. مجھے سوالات پوچھنے کا موقع دیا گیا ہے۔ ☐

4. مجھے معلوم ہے کہ مجھے ہر قسم کے پوچھے گئے سوالات کا جواب نہیں دینا۔ ☐

5. میں آمادہ ہوں کہ انٹرویو آڈیو ریکارڈ کیا جائے گا۔ ☐

6. مجھے آگاہ کیا گیا ہے کہ ہوسکتا ہے کہ مجھ سے حساس سوالات پوچھے جائیں مگر یہ مکمل طور پہ مجھ پر منحصر ہے کہ میں جواب دوں یا نہیں۔ ☐

7. مجھے بتایا گیا ہے کہ مجھ سے متعلق تمام معلومات خفیہ رکھی جائیں گی اور تمام جمع شدہ ڈیٹا ایک حفاظتی خفیہ لفظ (پاسورڈ) لگے کمپیوٹر میں رکھا جائے گا اور سوائے تحقیقی ٹیم کے کوئی دوسرا اس تک رسائی حاصل نہیں کر سکے گا۔ ☐

8. مجھے بتایا گیا ہے کہ ہوسکتا ہے مستقبل میں مجھ سے اس تحقیق کے متعلق دوبارہ رابطہ کیا جائے۔ ☐

9. مجھے آگاہ کیا گیا ہے کہ اگر میں تحقیق سے خارج ہو جاؤں تو میرا طبی علاج کسی بھی صورت میں متاثر نہیں ہوگا۔ ☐

10. میں اس تحقیق میں حصہ لینے کے لیے آمادہ ہوں۔ ☐

اس اجازت نامہ کی ایک دستخط شدہ نقل خود رکھیں اور ایک تحقیق میں حصہ لینے والے کو دیں۔

تحقیق میں حصہ لینے والے کا نام:_____ تاریخ:_____ دستخط:_____

محقق:_____ تاریخ:_____ دستخط:_____

Appendix 11

i. Doctor information sheet (English)

UH Ethics Protocol No: cHSK/ PGR/UH/02406

Invitation to take part in research study

I am inviting you to take part in a study which will explore the views of patients and doctors about high blood pressure and its treatment in Pakistan. Before you decide, it is important for you to understand why the study is being done and what it will involve.
Please take time to read the following information.

Purpose of Study

High blood pressure remains a common and an important risk factor for diseases including coronary heart disease, heart failure and kidney failure. Treatment guidelines are available for patients and doctors to control the disease. The study aims to explore patient and doctor views about high blood pressure and its treatment in Pakistan.

Contact Information

If you need more information and need to discuss it further, kindly contact

Qurrat Ul Ain
Ph.D. student

Thank you very much for reading this information

An exploration of the views of patients and doctors about high blood pressure and its treatment in Pakistan

Doctor information leaflet 1

Who can take part in this study?
You can take part in this study if you are a doctor and treating high blood pressure patients.

What are the benefits of taking part?
This research will help to provide a detailed understanding of the views of patients and doctors about high blood pressure and its treatment, particularly in relation to lifestyle recommendations in Pakistan.

Do I have to take part?
No, it is entirely up to you whether or not you take part. You are free to withdraw at any time without giving any reason. Any data collected from you will be destroyed.
The decision to withdraw from the study will not affect you in any way.

What will happen if I take part?
A face to face interview will be conducted with you which will last approximately an hour. You will be asked whether you will allow the researcher to record this interview or not. It is entirely up to you whether you decide to take part or not. You can ask to take further part in focus group discussion, but it is entirely up to you whether or not you take part.

Will my taking part in this study be kept confidential?
All information regarding you will be kept confidential. All collected data will be stored on a password protected computer. No personal data regarding you will be recorded without consent. Any personal data collected from you will be destroyed at the end of the study. Only the members of the research team will be able to access the data. At the end of the study all data will be stored by the researcher in a locked filing cabinet for five years before it is destroyed.

Doctor information leaflet 2

What are the possible risks of taking part in the study?
The interview will be unlikely to cause any discomfort. You do not have to answer every question. At any point, if you feel uncomfortable you can withdraw from the study without giving any reason.

Who has organised this study and who can I contact?
The study is being undertaken within the School of Health and Social Work, University of Hertfordshire, UK, for the award of a PhD degree. If you have concerns and complaints about any aspect of the way you have been treated during the course of this study, please contact my supervisor Professor Wendy Wills for more details about the organisation of this study. Alternatively, you can write to the University's Secretary and Registrar, Sue Grant, at the University of Hertfordshire, College Lane campus, Hatfield AL10 9AB, UK.

Who has reviewed this study?
Research projects are reviewed by the University of Hertfordshire, Health and Human Sciences Ethics Committee with Delegated Authority (ECDA) and their role is to protect the interests of everyone who takes part in this study.

Appendix 11ii: Doctor consent form (English)

UH Ethics Protocol No: cHSK/PGR/UH/02406

An exploration of the views of patients and doctors about high blood pressure and its treatment in Pakistan

Doctor Consent Form

Name of Researcher: Qurrat ul Ain **Signature**

1. I confirm that I have been given a doctor information leaflet and I have been given details of my involvement in the study.
2. I understand that my participation is voluntary and I am free to withdraw at any time without giving any reason. If I withdraw from the study any data collected from me will be destroyed.
3. I have been given the opportunity to ask questions.
4. I agree that the interview will be audio recorded.
5. I understand that I do not have to answer all the questions asked of me.
6. I have been told that information related to me will be kept confidential and all data regarding me will be stored in a password protected computer and will not be accessed by anyone other than the research team.
7. I have been told that I may at some point in the future be contacted again in connection with this study for focus group discussion.
8. I agree to take part in the above study.

One copy of this form to be signed/kept by the researcher and one copy by the participant.

Name of Participant …… Date …… Signature……

Researcher…… Date …….. Signature……..

Appendix 12: UH ethics approval

University of Hertfordshire UH

UNIVERSITY OF HERTFORDSHIRE
HEALTH & HUMAN SCIENCES

ETHICS APPROVAL NOTIFICATION

TO	Qurrat ul Ain
CC	Prof Wendy Wills
FROM	Rev Dr Kim Goode , Health and Human Sciences ECDA Vice Chairman
DATE	27/05/2016

Protocol number: cHSK/PGR/UH/02406

Title of study: An exploration of hypertensive patient and doctor perspectives about lifestyle recommendations in urban health clinics of Pakistan.

Your application for ethics approval has been accepted and approved with the following conditions by the ECDA for your School.

Approval Conditions:

Researcher to ensure they are compliant with any local ethics approval procedures.

This approval is valid:

From: 27/05/2016

To: 31/05/2018

Please note:

Your application has been conditionally approved. You must ensure that you comply with the conditions noted above as you undertake your research. You are required to complete and submit an EC7 Protocol Monitoring Form once this study is complete. Available via the Ethics Approval StudyNet Site via the 'Making an Application' page http://www.studynet2.herts.ac.uk/ptl/common/ethics.nsf/Homepage?ReadForm

If your research involves invasive procedures you are required to complete and submit an EC7 Protocol Monitoring Form, and your completed consent paperwork to this ECDA once your study is complete.

Failure to comply with the conditions will be considered a breach of protocol and may result in disciplinary action which could include academic penalties. Additional documentation requested as a condition of this approval protocol may be submitted via your supervisor to the Ethics Clerks as it becomes available. All documentation relating to this study, including the information/documents noted in the conditions above, must be available for your supervisor at the time of submitting your work so that they are able to confirm that you have complied with this protocol.

Approval applies specifically to the research study/methodology and timings as detailed in your Form EC1. Should you amend any aspect of your research, or wish to apply for an extension to your study, you will need your supervisor's approval and must complete and submit form EC2. In cases where the amendments to the original study are deemed to be substantial, a new Form EC1 may need to be completed prior to the study being undertaken.

Should adverse circumstances arise during this study such as physical reaction/harm, mental/emotional harm, intrusion of privacy or breach of confidentiality this must be reported to the approving Committee immediately. Failure to report adverse circumstance/s would be considered misconduct.

Ensure you quote the UH protocol number and the name of the approving Committee on all paperwork, including recruitment advertisements/online requests, for this study.

Students must include this Approval Notification with their submission.

Appendix 13: Permission letters from Pakistan

i. Letter from the first hospital

No. 2072 Date 14.4.2016

To,

Dr. Qurrat Ul Ain

You have asked my permission to do study which is part of your PhD research project-an exploration of hypertensive patients and doctors perspective about lifestyle recommendations in urban health clinics of Pakistan.

I am pleased to inform you that you can conduct research study as a part of your PhD project with patents and doctors in this hospital.

[redacted]
Medical Superintendent
[redacted]
[redacted] Punjab, Pakistan
Contact No. [redacted]

ii. Letter from the second hospital

[redacted]

OFFICE OF THE MEDICAL SUPERINTENDENT

[redacted] HOSPITAL [redacted]

Phone No. [redacted] Fax-[redacted]

NO. 3576 [redacted] dated [redacted] the 12/04/2016

To,

Dr. Qurrat Ul Ain,
Student of PhD,
University of Hertfordshire,
College Lane, Hatfield AL109AB, UK.

Please refer Professor Wendy Wills, University of Hertfordshire, College Lane UK letter dated 11 .04.2016.

You have asked my permission to do study which is part of your PhD reasearch project an exploration of *hypertensive patients* and doctrors perspective about lifestyle recommendations in urban health clinics of Pakistan.

Therefore, I am allowing you to conduct research study as a part of your PhD project with patients and doctors in this hospital in response of your recent request.

12/04/16

[redacted]

Medical Superintendent

[redacted]

Medical Superintendent

[redacted]

Appendix 14: The ethics protocol for medically-qualified research student

I, as a health clinician, will intervene in patient care only, when

1. A patient is experiencing a life-threatening event such as cardiac arrest and no qualified staffs are present.
2. A patient is at risk of physical harm and no qualified staffs are present.
3. A patient safety risk is identified such as medical malpractice or inappropriate treatment by a staff member or medical student and no qualified staff are present.

The following actions will be undertaken for step 1:

Collapsed/Sick Patient

Shout for help and access the patient

Signs of life (consciousness, breathing, pulse rate, temperature and colour)

No

Cardiopulmonary resuscitation (CPR)

(30 chest compressions and 2 rescue breaths)

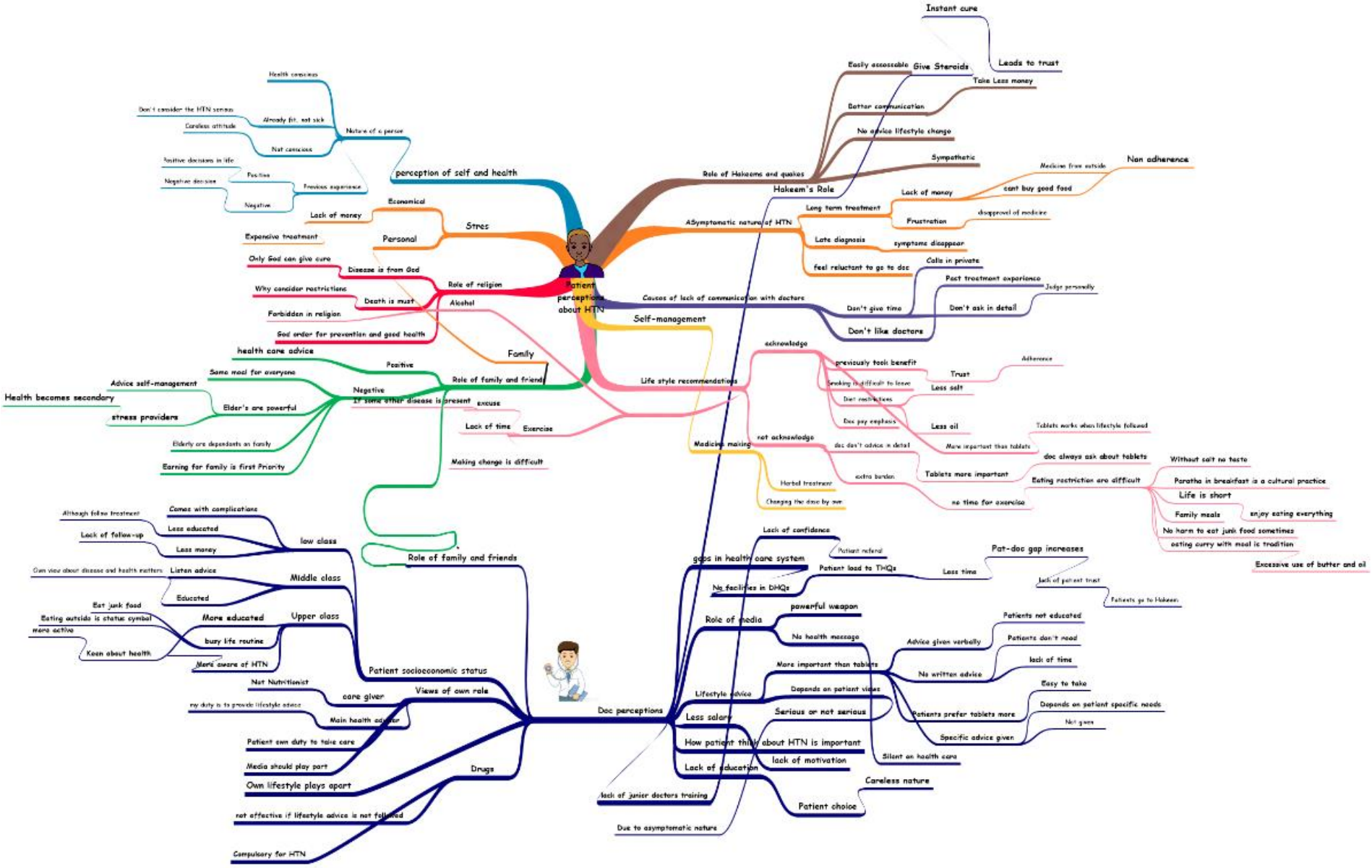
(At least 5 times in 2 seconds)

Continue until help arrives

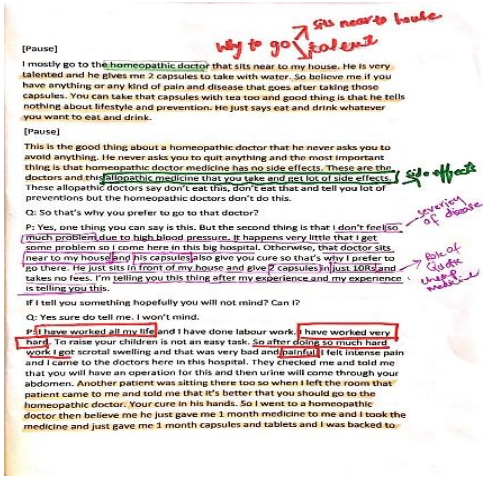
Yes

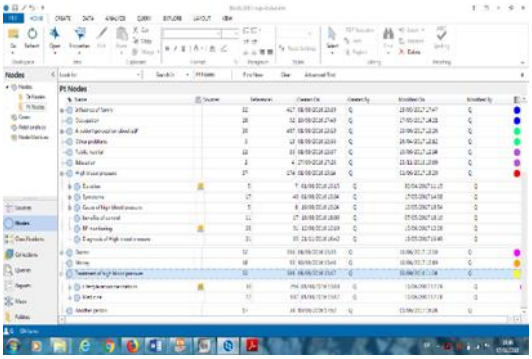
Call Resuscitation Team

Appendix 15: A visual mapping to illustrate different concepts and issues emerging from data



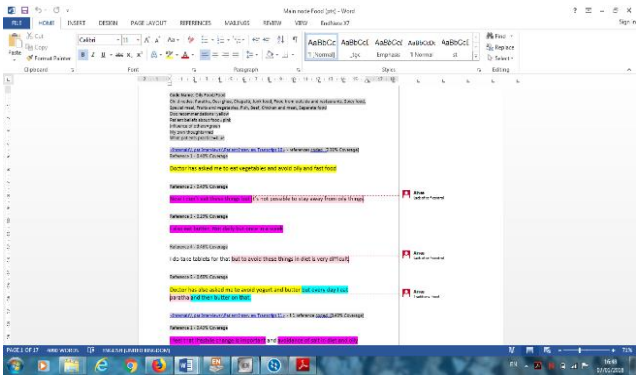
Appendix 16: Visual representation of various coding steps

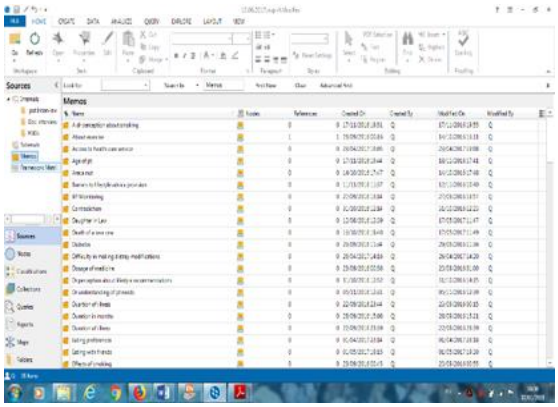




Codes and child-codes in NVivo

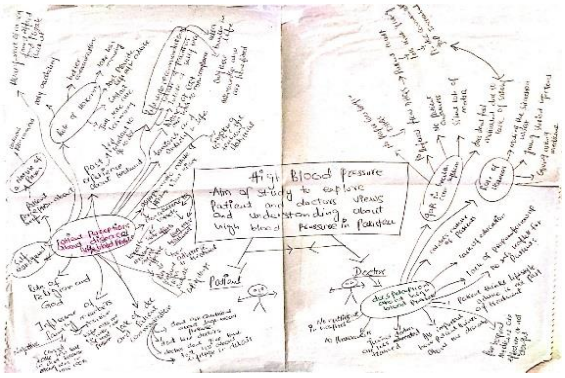
Manual coding





Codes with properties and dimensions in MS word

Memos writing



Codes on post-it notes developing categories

Brain mapping to understand deeper connections between codes, categories and theme

Appendix 17: Data coding frame

Appendix 17i: Patients' coding frame

Main Theme	Categories	Codes and child-codes
➢ Perceptions of HTN	Diagnosis Definitions and meanings of HTN symptoms I. Causes *Stress* *Family disease*	**Parent code**: High blood pressure **Child-codes:** HTN diagnosis**,** physical symptoms, causes, family disease, meanings of HTN, stress
➢ Experiences and attitude concerning taking antihypertensive drugs	I. Positive experiences II. Negative experiences III. Lack of information about drugs in consultations	**Parent-code**: HTN treatment **Child-codes** Anti-hypertensive drugs **Child-codes** reasons of drug adherence, reasons of drug non-adherence, less Information provision during consultation
➢ Perceptions about lifestyle management (**exercise, diet, salt intake, smoking, alcohol intake**)	I. Understanding concerning exercise II. Socio-cultural norms III. Lack of time IV. Individual factors and concurrent health conditions V. Lack of exercise information from doctors	**Parent- code**: Exercise or physical activity **Child-codes**: cultural practices, work commitment, time, weather, laziness, motivation, gender issues, another disease, less information on exercise
	i. traditional foods ii. Cultural eating practices and peer pressure iii. Healthy food and personal preferences iv. Access to fast food v. Lack of dietary information	**Parent-code**: Food/diet **Child-codes:** Oily and spicy food, parathas, junk food, fruits and vegetables, self-control, social gatherings, eating together, family and friends, eating out, less information about diet

	I. Flavour and customary practice II. Information about salt intake	**Parent-code**: Salt intake **Child-codes**: salt and high blood pressure, quantity, salty tea, salty paratha, salt in flour, taste factor, seasoning, family and friends, information on salt consumption
	i. Socio-environmental influence ii. personal factors	**Parent-code**: Smoking **Child-codes**: Smoking and high blood pressure, duration of smoking, family and friends, smoking with others, withdrawal effects, dependency, less motivation, Information on smoking cessation
	i. Religious beliefs	**Parent-code**: Alcohol intake **Child-codes**: Role of Islam
➢ Involvement in alternative strategies	I. Consulting quack and Hakeem II. Alternate medicine use /home remedies III. Faith healing	**Parent- code**: Alternative treatment strategies **Child-codes**: Quack and Hakeem, Hakeem medicine, Quack and Hakeem services, home and herbal remedies, traditional remedies, role of Allah, prayer, destiny.

Appendix 17ii: Doctors' coding frame

Main Theme	Categories	Codes and child-codes
➢ Perceptions about HTN	Understanding about HTN I. Awareness about HTN guidelines II. Practicing HTN guidelines	**Parent-code**: HTN **Child-codes**: A chronic and silent disease, symptoms, diagnosis, causes, risk factors, HTN diagnostic criteria **Parent-code**: HTN guidelines **Child-codes**: Understanding related to HTN guidelines, issues in practicing HTN guidelines
➢ Treating patients with HTN	Patient-related factors	**Parent-code**: Treating hypertensive patients **Child-codes**: patient lack of awareness, patient responsibility, lack of interest, use of alternate treatments among patients
➢ Perceptions regarding lifestyle management (exercise, diet, salt intake, smoking, alcohol intake)	i. Understanding concerning involvement in exercise ii. Socio-cultural norms iii. concurrent health conditions	**Parent-code**: Exercise **Child-codes**: exercise and HTN, patient lack of interest, information provision, social and cultural norms, gender issues, presence of another disease in patients
	I. Role of traditional food II. A lack of self-control III. Accessibility to junk food	**Parent-code:** Diet **Child-codes**: dietary changes and HTN, traditional foods and society, Paratha, ghee intake, less motivation and control among patients, patient misconceptions, role of fast street food, easy access and busy life routine
	I. Cultural practice II. Taste preference	**Parent-code:** salt intake **Child-codes:** cultural practice, salt flavour, patient preference, knowledge about salt intake
	I. Individual barriers	**Parent-code:** Smoking **Child-codes:** Smoking and HTN, lack of patient motivation, nicotine dependency, role of family and friends, time constraints and less information provision

	I. Religious commitment	**Parent-code**: Alcohol consumption **Child-codes**: Islamic laws, strong religious commitment and drinking, weak religious commitment and drinking, time constraints and less information
➢ Informing patients about HTN	I. Information provision	**Parent-code**: Informing patients about HTN **Child-codes**: Doctor's role, lack of time and work pressure, patient responsibility
➢ Communication issues in clinical interactions	I. Doctor-patient interactions	**Parent code:** Communication issues **Child-codes**: work pressure and stress, patient illiteracy, difficulty to explain medical concepts