

**ROLE OF PHARMACISTS IN PAKISTAN'S HEALTHCARE  
SYSTEM: A QUALITATIVE AND QUANTITATIVE ASSESSMENT  
OF PERSPECTIVES AMONG HEALTHCARE PROFESSIONALS  
AND GENERAL PUBLIC**

**SAIRA AZHAR**

**Thesis submitted in fulfillment of the requirements for the degree of  
Doctor of Philosophy**

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## **DEDICATION**

I would like to dedicate this work to my lovely kids Sawaira Azhar, Taha Azhar and Nimra Azhar. They sacrificed a lot throughout this journey, and to my loving and caring husband, Azhar Hussain, who made my parents dream to see me at the peak of educational excellence a reality.

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**Saira Azhar**

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Appendix 14	Certification of English translation

## LIST OF PUBLICATIONS AND COMMUNICATIONS

Publication and communications arising from this thesis:

### Journal Publications

#### Published

1. **Azhar S**, Hassali, MA, Ibrahim, MIM, Ahmad, M., Masood, I. & Shafie, A. A. The role of pharmacists in developing countries: the current scenario in Pakistan. Human Resource for Health, 2009; 7(1):54. **(Impact Factor 1.37)**
2. **Azhar S**, Hassali MA, Ibrahim. MIM. Community pharmacist towards their role in Pakistan healthcare system: a qualitative study. Pharmacologyonline, 2009; 2:715-721.
3. **Azhar S**, Hassali MA, Ibrahim, MIM. Doctors' perception and expectations towards the role of pharmacist in Pakistan's healthcare system. Tropical Journal of Pharmaceutical Research, 2010;9(3):205-222. **(Impact Factor 0.338)**
4. **Azhar S**, Hassali MA, Ibrahim. MIM, Khan TM. (2010). A qualitative evaluation of nurses' perception towards the role of pharmacist in Pakistan healthcare system. Health Med, 2010; 4(1):71. **(Impact Factor 0.2)**
5. **Azhar S**, Hassali MA, Ibrahim. MIM. A Qualitative study evaluating perception of hospital pharmacist towards their role in Pakistan's healthcare system International Journal of Pharmacy Practice, 2010; 18(1):13.
6. **Azhar S**, Hassali MA, Ibrahim. MIM. Community pharmacist perception towards their role in healthcare system of Pakistan: a quantitative assessment. Value in Health 2010; 13(7):545 **(Impact Factor 3.032)**
7. **Azhar S**, Hassali MA, Ibrahim. MIM. Evaluating perception of academic pharmacist towards their role in healthcare system of Pakistan. Value in Health 2010; 13(7):545 **(Impact Factor 3.032)**
8. **Azhar S**, Hassali MA, Ibrahim. MIM. Evaluating perception of hospital pharmacist towards their current clinical role in Pakistan's healthcare system. Value in Health 2010; 13(7):384 **(Impact Factor 3.032)**

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## Conference Presentations

1. **Azhar S**, Hassali MA. & Ibrahim M I M. Evaluating perception of doctors towards the role of pharmacist in Pakistan's healthcare system. 15<sup>th</sup> International Pharmacy Conference and Exhibition 12-15 March 2009, Lahore Pakistan.
2. **Azhar S**, Hassali MA. & Ibrahim M I M. Exploring role and responsibilities of community pharmacists in healthcare system of Pakistan. 16th Annual Canadian Conference on International Health 25-28 October 2009. Ottawa, Ontario, Canada.
3. **Azhar S**, Hassali MA. & Ibrahim M I M, Ahmad M, Shafie AA., Saleem F. & Masood I. (2009) Evaluating perception of doctors towards the role of pharmacist in Pakistan's healthcare system. *Malaysian Journal of Pharmacy*, 1, S105.
4. **Azhar S**, Hassali MA. & Ibrahim M I M. Evaluating the perception of community pharmacists towards their role in Pakistan's healthcare system. A Qualitative approach. 10th Common Wealth Pharmacists Association & Pharmaceutical Society of Ghana Conference 19-21 May 2009 Accra-Ghana.
5. **Azhar S**, Hassali MA. & Ibrahim M I M. Doctors' perception and expectation towards the role of pharmacist in healthcare system of Pakistan. Asian Conference on Clinical Pharmacy 26-28 September 2009 Seoul South Korea.
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## LIST OF ABBREVIATIONS

WHO	World Health Organization
FIP	International Pharmaceutical Federation
CWR	Collaborative Working Relationship
US	United States
UK	United Kingdom
HIV	Human Immunodeficiency Virus
GDP	Gross Domestic Product
BHU	Basic Health Unit
RHC	Rural Health Center
PHC	Primary Health Center
THQ	Tehsil Head Quarter
DHQ	District Head Quarter
Pharm-D	Doctor of Pharmacy
GPP	Good Pharmacy Practice
PPA	Pakistan Pharmacists Association
UAE	United Arab Emirates
SD	Standard Deviation
MOH	Ministry of Health
MOF	Ministry of Finance
VSO	Voluntary Services Overseas

**PERANAN AHLI FARMASI DALAM SISTEM PENJAGAAN KESIHATAN  
PAKISTAN: SUATU PENILAIAN KUALITATIF DAN KUANTITATIF  
BERDASARKAN PERSEPTIF DALAM KALANGAN PROFESIONAL  
PENJAGAAN KESIHATAN DAN ORANG AWAM.**

**ABSTRAK**

Sejak sedekad yang lalu, profesion dalam bidang farmasi mulai berubah dengan ketaranya dari segi perkhidmatan kesihatan terhadap pesakit dan penduduk secara keseluruhannya. Dalam tempoh perubahan ini, ahli farmasi, terutamanya di negara-negara maju, begitu dihormati dalam sistem penjagaan kesihatan. Sebaliknya, di negara yang sedang membangun, perkhidmatan dan kepakaran yang ditawarkan oleh ahli farmasi tidak dimanfaatkan sepenuhnya. Di samping itu, peranan mereka sebagai profesional penjagaan kesihatan tidak dianggap penting sama ada oleh komuniti atau penyedia penjagaan kesihatan lain, terutamanya doktor dan jururawat.

Dalam usaha meneliti perspektif pelbagai pemegang taruh berhubung dengan peranan ahli farmasi dalam konteks negara sedang membangun, maka suatu penyelidikan yang mantap diperlukan. Bagi tujuan penyelidikan ini, Pakistan dipilih sebagai tapak kajian. Pakistan merupakan negara keenam di dunia yang mempunyai penduduk teramai, iaitu dengan jumlah penduduk seramai 160 juta dan kadar pertumbuhannya 7% sejak lima tahun yang lepas. Kementerian Kesihatan Pakistan bertanggungjawab bagi semua perkara yang berkaitan dengan perancangan dan koordinasi dalam bidang kesihatan negara. Suatu carian literatur dijalankan bagi memperoleh maklumat tentang perspektif pelbagai pemegang taruh, penyedia penjagaan kesihatan dan orang awam berhubung dengan peranan ahli farmasi.

Kajian ini dijalankan di tiga buah bandar di Pakistan, iaitu: Lahore, Faisalabad dan Islamabad. Kedua-dua kaedah kualitatif dan kuantitatif digunakan dalam proses

pengumpulan data. Setiap seksyen dibahagikan kepada tiga subseksyen. Dalam seksyen pertama, kajian dilakukan dalam kalangan ahli akademik, pihak hospital dan komuniti untuk mengetahui persepsi mereka tentang peranan ahli farmasi dalam perkhidmatan penjagaan kesihatan. Dalam seksyen kedua dan ketiga, kajian dilakukan dalam kalangan penyedia penjagaan kesihatan yang lain (dokter dan jururawat) dan orang awam untuk mengetahui persepsi mereka tentang peranan ahli farmasi dalam perkhidmatan penjagaan kesihatan. Dalam usaha menjalankan suatu penyiasatan yang lebih mendalam, kaedah kualitatif digunakan dalam fasa 1. Keputusan dan kesimpulan yang diperoleh daripada analisis kualitatif digunakan untuk mengolah soal selidik untuk fasa II (kaedah kuantitatif)

Keputusan daripada fasa kualitatif menunjukkan bahawa ahli farmasi menghadapi halangan dalam menyediakan perkhidmatan penjagaan farmasi klinikal dan juga yang berorientasikan pesakit, sama ada di hospital mahu pun dalam komuniti. Kekurangan sumber manusia dikenal pasti sebagai satu daripada faktor utama yang menyumbang kepada masalah ini. Sebagai tambahan, hal ini juga menyebabkan perubahan dalam peranan ahli farmasi, yang lebih menjurus kepada yang berorientasikan pengurusan, bukannya yang berorientasikan perkhidmatan. Persepsi ini ditemui dalam kalangan responden pada semua peringkat: komuniti, hospital dan institusi pendidikan. Senario yang sama dilaporkan dalam kalangan doktor dan jururawat. Walaupun mereka menganggap ahli farmasi sebagai suatu sumber maklumat yang penting, namun kerjasama di antara kedua-dua profesion ini adalah terlalu kecil.

Dapatan juga mencadangkan bahawa orang awam tidak begitu berpuas hati dengan perkhidmatan yang disediakan oleh ahli farmasi pada peringkat komuniti. Disebabkan peranan dan tanggungjawab ahli farmasi masih dalam fasa membangun, maka orang

awam kurang tahu tentang perkhidmatan yang mereka sediakan. Oleh itu, perlunya ditingkatkan interaksi serta komunikasi sedia ada serta merapatkan jurang yang wujud supaya orang ramai boleh memanfaatkan kepakaran ahli farmasi.

Keputusan daripada fasa kualitatif dianalisis dan digunakan sebagai panduan untuk mengolah soal selidik bagi fasa kuantitatif kajian. Sejumlah 135 komuniti ahli farmasi terlibat dalam fasa kajian ini. Daripada 135, hanya 104 memberikan respons, iaitu dengan kadar 77.03%. Hanya 26% ( $n=27$ ) berinteraksi dengan doktor, Hal ini kerana maklumat tentang kebolehdapatan ubat. Sejumlah 60.6% ( $n=63$ ) daripada ahli farmasi terlibat dalam memfailkan pesanan ubat, dan 98.1% ( $n=102$ ) terlibat dalam pengekalan rekod farmasi.

Sejumlah 205 ahli farmasi akademik dihubungi, dan 131 bersetuju ikut serta, iaitu dengan kadar respons 63.9%. Kebanyakan responden (82.4%) mengakui bahawa akademia adalah kerjaya pilihan pertama mereka, dan hanya 27.5% daripada mereka adalah ahli akademik kerana peluang kerjaya lain yang agak terbatas. Hampir separuh daripada responden (55.7%) bersetuju bahawa kurikulum farmasi semasa menepati standard, dan kesetujuan ini secara signifikannya berkaitan dengan jenis universiti ( $p=0.009$ ). Ahli farmasi hospital menyatakan bahawa mereka jarang sekali menerima panggilan daripada doktor. Alasan utama para doktor menelefon mereka adalah semata-mata untuk bertanya tentang kebolehdapatan ubat. Lebih kurang 77.6% ( $n=90$ ) daripada responden terlibat dalam kaunseling pesakit. Hanya 33.60% terlibat dalam pemantauan hasil regimen terapeutik: nilai ini secara signifikannya berkaitan dengan gender dan jenis hospital yang terlibat. ( $p=0.040$  dan  $p=0.029$  masing-masing).

Seramai 462 doktor dihubungi dan 354 bersetuju untuk ikut serta, iaitu dengan kadar respons 76.6%. Sejumlah 59.9% ( $n=212$ ) daripada mereka mengakui bahawa mereka

tidak pernah berinteraksi dengan ahli farmasi. Selanjutnya, 65% menyatakan bahawa mereka tidak begitu selesa dengan kehadiran ahli farmasi. Walau bagaimanapun, 84.5% bersetuju bahawa ahli farmasi bertanggungjawab menyelesaikan masalah berkaitan ubat, yang signifikan terhadap spesialisisme doktor ( $p=0.022$ ). Dalam kata lain, 60.9% daripada para jururawat mengakui bahawa mereka mempunyai interaksi dengan ahli farmasi, sekurang-kurangnya sekali dalam sehari. Dalam kebanyakan masa, mereka sentiasa merujuk ahli farmasi berhubung dengan isu farmakoterapi, dan ini secara signifikannya berkaitan dengan tahun-amalan ( $p=0.024$ ).

Dalam kalangan orang awam, 50.2% berpuas hati dengan perkhidmatan yang disediakan oleh ahli farmasi. Mereka (65.3%) percaya akan nasihat yang diberikan oleh ahli farmasi, tetapi menyatakan bahawa hanya 45.8% daripada ahli farmasi terlibat dalam kaunseling. Mereka percaya bahawa ahli farmasi boleh menyelesaikan masalah berkaitan ubat, dan ini didapati secara signifikannya berkaitan dengan tahap pekerjaan orang awam ( $p=0.001$ ).

Secara keseluruhan, keputusan kajian menjelaskan senario semasa serta menonjolkan profesion ahli farmasi di Pakistan. Profesional penjagaan kesihatan di Pakistan menganggap ahli farmasi sebagai pakar dalam maklumat yang berkaitan dengan ubat dan mereka dialu-alukan untuk mengadakan usaha sama demi kebaikan penjagaan kesihatan. Walau bagaimanapun, terdapat beberapa halangan dalam merealisasikan usaha sama ini. Halangan atau masalah utama adalah kekurangan bilangan ahli farmasi, yang menyebabkan mereka lebih tertumpu pada produk daripada perkhidmatan. Akibatnya, peruntukan perkhidmatan penjagaan farmasi diabaikan.

Daripada kajian ini, dapat disimpulkan bahawa ahli farmasi dapat diterima sebagai sebahagian daripada pasukan penjagaan kesihatan. Walau bagaimanapun, kekurangan

bilangan ahli farmasi telah membatas usaha sama mereka dengan profesional penjagaan kesihatan yang lain. Di samping itu, amalan penjagaan farmasi adalah bergantung pada pendedahan amalan yang diterima oleh pelajar farmasi, yang tiada dalam kurikulum sedia ada..

Bagi pemajuan sistem penjagaan kesihatan, kepakaran yang ada pada ahli farmasi sepatutnya dimanfaatkan. Ahli farmasi sendiri sepatutnya prihatin tentang peranan profesional mereka, dan perlu proaktif dalam meningkatkan perkhidmatan mereka. Mereka perlu mengadakan usaha sama dengan profesional penjagaan kesihatan lain, juga dengan orang awam untuk menyediakan perkhidmatan kesihatan yang optimum. Perkara ini akan membuka jalan ke arah pengembangan konsep penjagaan farmasi dalam sisten penjagaan kesihatan di Pakistan.

# **ROLE OF PHARMACISTS IN PAKISTAN'S HEALTHCARE SYSTEM: A QUALITATIVE AND QUANTITATIVE ASSESSMENT OF PERSPECTIVES AMONG HEALTHCARE PROFESSIONALS AND GENERAL PUBLIC**

## **ABSTRACT**

In the last decade, pharmacy profession had transformed tremendously in terms of health and pharmaceutical service provision to both patients and general population. Within this practice transformation, pharmacists, especially those in developed countries, now occupy a respectable position within the healthcare system. In contrast, services and expertise offered by pharmacists in developing countries are still underutilized, and their role as healthcare professionals is not deemed to be important either by the community or by other healthcare providers, especially doctors and nurses.

In order to explore the current perspectives of different stakeholders regarding the role of pharmacists in the context of a developing country, a systematic research is needed for evidence generation. For this purpose, Pakistan was chosen as a study site. Pakistan is the sixth most populous country of the world, with a population of approximately 160 millions with an average growth rate of 7% over the past five years. The Pakistan Ministry of Health is responsible for all matters concerning national planning and coordination in the field of health. An extensive literature review exploring issues concerning the pharmacy workforce in Pakistan failed to reveal any studies which aimed to highlight the perspectives of different stakeholders, healthcare providers and general public regarding the role of pharmacists.

This study was conducted in three cities of Pakistan: Lahore, Faisalabad and Islamabad. Both qualitative and quantitative methods were used in data collection process. Each section was further sub-divided into three sub-sections. In the first section, the perceptions of pharmacists at academic, hospital and community levels towards their

role in the delivery of healthcare services were investigated. In sub-sections two and three, the perceptions of other healthcare providers (doctors and nurses) and the general public pertaining to the role of pharmacists in the delivery of healthcare services were investigated. In order to conduct an in-depth investigation of the issues in hand, qualitative methodology was used in phase I. The results and conclusions from the qualitative analysis were used to design the questionnaires for phase II (quantitative methodology).

The results from the qualitative phase revealed that pharmacists were facing barriers in providing clinical and patient-oriented pharmaceutical care services both in hospitals and in the community. A lack of human resources was identified as one of the key factors causing this problem. In addition, this caused a shift in the role of pharmacists, to management oriented rather from a service-oriented. This perception was found at all levels; in the community, in hospitals and in teaching institutions. Similar scenarios were also reported among doctors and nurses. Although they considered pharmacists to be a vital source of information, there was a minimal amount of collaboration between the professions.

The findings also suggested that the general public was not satisfied with the services provided by pharmacists at the community level. As the role and responsibilities of pharmacists are still in their developing phase, the general public knows less about the services they provide. There is a need to improve the existing levels of interaction and communication and to bridge gaps so that the general public can utilize the expertise of pharmacists.

Results from the qualitative phase were thematically analyzed and were then used as a guide to design the questionnaire for the quantitative phase of this study. A total of 135

community pharmacists were approached for this phase of the study. Out of these 135 community pharmacists, 104 responded with a response rate of 77.03%. Only 26% (n=27) interacted with doctors, and the reason for these interactions was queries about the availability of drugs. A total of 60.6% (n=63) of the pharmacists were involved in filling out medication orders, and 98.1% (n=102) were involved in maintaining the records of the pharmacy.

A total of 205 academic pharmacists were contacted, and 131 agreed to participate thus giving the response rate of 63.9%. Most of the respondents (82.4%) admitted that academia was their first choice of career, and only 27.5% became academics due to a lack of other opportunities. More than half of the respondents (55.7%) agreed that the current pharmacy curriculum is up to standard, and this agreement was significantly associated with the type of university ( $p=0.009$ ). Hospital pharmacists stated that they sometimes received calls from doctors. The main reason for these calls was enquiries by doctors asking about the availability of medicines. Around 77.6% (n=90) of the respondents were involved in patient counseling. Only 33.60% were involved in monitoring the outcomes of therapeutic regimens; these values were significantly related to gender and the type of hospital involved ( $p=0.040$  and  $p=0.029$  respectively).

A total of 462 doctors were contacted and 354 agreed to participate, with a response rate of 76.6%. A total of 59.9% (n=212) of the doctors admitted that they never interacted with pharmacists. Furthermore, 65% stated that they felt moderately uncomfortable in the presence of pharmacist. However, 84.5% agreed that the pharmacist is responsible for resolving drug-related problems which was significant to the doctor's specialization ( $p=0.022$ ). On the other hand, 60.9% of the nurses admitted that they have at least one interaction a day with pharmacists. Most of the time, they consulted pharmacists

regarding pharmacotherapy issues, and this was significantly associated with the year of practice ( $p=0.024$ ).

Among the general public, 50.2% were satisfied with the services provided by pharmacists, if available. They (65.3%) trusted the pharmacist's advice, but mentioned that only 45.8% of pharmacists were involved in counseling. They believed that pharmacists can resolve drug-related problems, and this was found to be significantly related with the employment level of general public ( $p=0.001$ ).

The overall results of the study highlighted the current scenario and portray the pharmacy profession in Pakistan. Healthcare professionals in Pakistan consider pharmacists as experts in drug-related information and are receptive to working in collaboration for the betterment of healthcare. However, there were some obstacles hindering the development of this collaboration. The main problem was the shortage of pharmacists, resulting in pharmacists becoming focused on product-oriented rather than service-oriented service. As a result, the provision of pharmaceutical care services is being neglected.

From this study, it can be concluded that pharmacists are perceived as an integral part of the healthcare team. However, the shortage of pharmacists has resulted in limited collaborations with other healthcare professionals. In addition, pharmaceutical care practice is dependent upon the practical exposure of pharmacy students, and this is totally absent from the existing curriculum.

For the advancement of the healthcare system, it is necessary to utilize the expertise of pharmacists. Pharmacists themselves should be concerned about their present professional role, and need to be proactive in improving their service delivery. They have to move towards collaborative care with other healthcare professionals as well as

the general public in order to provide optimal health services. This will pave the way for the expansion of the concept of pharmaceutical care in Pakistan's' healthcare system.

# **CHAPTER ONE: GENERAL INTRODUCTION**

## 1.1 Introduction

In the charter of the United Nations, health is defined as a “state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity” (WHO, 1946). The enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being without discrimination based on race or religion (Bok, 2004). In order to create a healthy population, the roles of healthcare providers are very important. Effective service given by healthcare providers are essential in ensuring that the objective of building a healthy society can be met and sustained. Healthcare providers are the ones who makes this possible as their role is basically two folds; that is, to promote choice in healthcare for all and to ensure that they can continue to provide excellence in care at all levels within a sustainable funded sector. Among the healthcare providers, such as doctors and nurses, the most important personnel interlinking all these healthcare providers are the pharmacists. The review explored the evidence for the effectiveness of skill mix changes in the form of task substitution between doctors, nurses and pharmacists in care of the community. It provides evidence that pharmacists can provide ongoing care or health promotion and improve the quality of care (Dennis *et al.*, 2009).

A pharmacist is the healthcare professional who has responsibility of ensuring the rational use of medicine. Pharmacists play a vital part in the delivery of healthcare world-wide. There is an increasing number of opportunities for pharmacists to assume a greater role in helping patients make better use of their medications and achieve optimal therapeutic outcomes in both the public and private sector (Charlotte *et al.*, 2006).

The World Health Organization (WHO) and the International Pharmaceutical Federation (FIP) recommended that the basic role of the pharmacist should cover seven major

components: care-giver, decision-maker, communicator, leader, manager, life-long-learner, and finally teacher. WHO also mandated that future pharmacists must possess specific knowledge, attitude, skill and behavior in order to support their roles (WHO, 2006a).

One of the international documents supporting the role of the pharmacist in the healthcare system was published by WHO in 1996. The document highlighted the professional role of pharmacists in the broader context of healthcare delivery (WHO, 1996). The document stated that pharmacists are highly qualified professionals who have sound knowledge about distribution channels in addition to effective inventory control and regulating the pricing and quality assurance of drugs. Besides these, they are competent enough to offer counseling regarding the use of drugs.

The future of the pharmacy within primary care lies in its ability to make the best use of complementary skills of the entire “Pharmacy Family”, which includes community pharmacists, hospital pharmacists, pharmaceutical and prescribing advisers as well as pharmacists working in specialized areas (Hutt, 2001).

WHO recommends a pharmacist population ratio of 1:2000 for optimal healthcare delivery. The pharmacists, being core members, should be held responsible for the cost, quality and results of the pharmaceutical care provided to their patients. As vital members of the clinical healthcare team, they should also be responsible for helping patients in achieving the desired results of therapy and work as advisors to physicians and nurses in helping patients obtain suitable drug treatment (Khan, 2007).

The pharmacy profession has undergone an intensive review for its core value, mission, practice roles and educational preparation methods. Within this context, the pharmacy profession continues to view itself as a major part of the system (Byrd, 2002). The role

of the pharmacist has shifted from “a focus on the preparation and supplying medicine” to “a focus on the sharing of pharmaceutical expertise and knowledge among doctors, nurses and patients”. On the other hand, the role of pharmacists in public health is gaining importance and this topic is currently on the agenda of several professional organizations.

Pharmacist is an active member and the most accessible health professional of the healthcare community, thus providing education and advice or instruction to the public regarding medicines and health. Pharmacists have the opportunity in this important area of public health to actively get involved in public health, indicating that pharmacists’ counseling seems to be helpful (Gilbert, 1997).

Therefore, a pharmacist should be engaged in an environment of dramatic change and stress in academic health science centers and in healthcare generally. This can be done by encouraging pharmacists to take active roles in shaping the policies, practices and future direction of the profession (Byrd, 2002).

## **1.2 Justification of study**

An increase in healthcare demands with an everlasting and complex range of medicines as well as a poor adherence to prescribed medicines has forced the pharmacist’s role to become more patient-centered (WHO, 2006a). Direct contact with patient and other healthcare providers helps to achieve maximum patient therapeutic outcome. The paradigm shift for the pharmacy practice took shape in 1990, when Hepler and Strand introduced the term “pharmaceutical care” (Hepler & Strand, 1990). Over the next decade, pharmacy organizations and academic training programs around the world promoted pharmaceutical care as a philosophy and standard of care provision for patients (Farris *et al.*, 2005). In essence, the concept of pharmaceutical care has

transformed the pharmacy profession to be more accountable in patient care, especially in ensuring that a patient achieves positive outcomes from drug therapy (Rosemin, 2006). This promotes the pharmacist as a key member of the healthcare team, with additional responsibility for the outcome of medication therapy. As a result, over the years in developed countries, the role of the pharmacist has been adopted to fulfill the increasing public need of better pharmaceutical care in a clinical setting with collaboration from other healthcare providers (Smith, 2007).

On the other hand, pharmacy practice models in developing countries vary significantly from one country to another. Some of the major limiting factors that prevent the enhancement of the pharmacist role include an acute shortage of qualified pharmacists, no dispensing separation practices, and a lack of standard practice guidelines.

From Pakistan's perspective, the current pharmacy practice situation is less favorable compared to other developing countries. Over the years, Pakistan has been confronted with problems of inequity, scarcity of resources, inefficient and untrained human resources, gender insensitivity and structural mismanagement (Islam, 2002).

During recent years, small numbers of pharmacists have been appointed in most of the public-sector hospitals and their roles are limited to drug delivery, procurement and inventory control. There has been a lack of pharmaceutical services in hospitals and community pharmacies because of isolation and the lack of recognition of a pharmacist's role as a healthcare professional. The lack of trained personnel and minimal contact of pharmacists with the public are also among the main factors contributing towards the lack of recognition of the pharmacy profession (Goel *et al.*, 1996). It has also been observed that in the country's official health resources statistics, there are no statistics shown on the availability of or number of pharmacists in the

country compared to other medical professionals such as doctors, dentist and nurses (Ministry of Economic Affairs and Statistic, 2009).

It is important now to ascertain the contributing factors affecting the role of the pharmacist in Pakistan's healthcare system. Furthermore, no study has yet been conducted to acknowledge the perception of the general public regarding the role of pharmacists and its importance in the system. Indeed, it is important to know the perception of healthcare professionals and the general public regarding the role of pharmacists. Moreover, perception of the pharmacists themselves is needed to be fully enlightened. This study was therefore designed to investigate the perception of doctors, nurses, the general public and the pharmacists themselves regarding the role of pharmacists in the healthcare system of Pakistan.

In-depth interviews were conducted with participants from each of these groups to ascertain their perceptions. Based on the outcomes from these interviews, further studies were undertaken. This study will have a strong impact on policy makers, who will have to contemplate over the unfortunate fact that one of the most important health professions is being ignored.

The study will serve as a policy document to enhance the role of pharmacists in the country and guide policy makers to bring about necessary changes in the healthcare system through promoting public health and upgrading curative care facilities. This will ultimately extend to collaboration with other healthcare professionals, which is currently completely absent.

### **1.3 Overview of the thesis**

Chapter 2 starts with the definition of the word ‘pharmacy’. A brief discussion is written on the social dimension of pharmacy along with the evolution of the pharmacy profession and concept of pharmaceutical care. The chapter continues with an overview of the pharmacy profession in an international context and discusses the pharmacy profession in developed and developing countries in detail. The chapter carries on with the definition of healthcare collaboration, with a thorough review of the literature looking at the collaboration of doctors and nurses with pharmacists as well as the barriers in interprofessional relationships. This chapter discusses the healthcare system of Pakistan in depth, including its structure and health services, emphasizing the history of the pharmacy profession in Pakistan.

Chapter 3 is the general methodology for Phase 1 and Phase 2 of the main study. Chapters 4, 5 and 6 are comprised of section A of the thesis which consolidate all the qualitative phase of the study. Chapter 4 focuses on the findings from qualitative interviews with academic, hospital and community pharmacists. Chapter 5 presents the findings from interviews conducted with healthcare professionals, that is, doctors and nurses. Chapter 6 comprises of the general public’s perception concerning the role of pharmacists in the healthcare system.

Section B of this thesis comprised of chapter 7, 8 and 9 which describe the quantitative surveys involving the perceptions of academic, hospital and community pharmacist, in addition to doctors, nurses and the general public regarding the role of pharmacists. Chapter 7 describes the findings from academic, hospital and community pharmacists while Chapter 8 details the findings from doctors and nurses. Chapter 9 provides information on the general public perception of the role of the pharmacist. Chapter 10

draws the thesis towards its conclusion along with a set of recommendations for future research.

## **CHAPTER TWO: LITERATURE REVIEW**

## **2.1 Introduction**

It had been widely recognized that traditional healthcare providers comprised of doctors, nurses, pharmacists and paramedics. Healthcare providers play a major role in attending to all domains of health in a population. In terms of modern healthcare delivery, studies have shown that better health outcomes for population can be achieved by engaging multi-disciplinary expertise. Although the pharmacy profession has been recognized for its importance in many developed countries and being recognized as the third largest healthcare providers in the world, in most developing countries their professional role is still underutilized (Anderson, 2002).

### **2.1.1 Definition of word ‘pharmacy’**

The word pharmacy has been derived from the Greek word *Pharmakon* meaning remedy. The Greeks are largely credited with “being among the first to take a truly scientific approach to the world around them”. It is safe to deduce that modern pharmacy holds many of its roots in the practices of the ancient Greeks (Judqe, 2009).

The definition of pharmacy was suggested by a joint committee of the National Association of Boards of Pharmacy and the American Association of Colleges of Pharmacy in 1959 (Clark, 1961). In this definition, special importance was given to the distributive function of pharmacy in over-the-counter scales as well as in prescriptions as recognized in this proposed definition.

*“Pharmacy is that profession which is considered as the art and science of preparation from natural and synthetic sources, suitable and convenient materials for distribution and use in the treatment and prevention of disease. It embraces knowledge of identification, selection, pharmacological action,*

*prevention combination, analysis, and standardization of drugs and medicines. It also includes their proper and safe distribution and use.”*

Hence, pharmacy may be defined as “the profession whose function is to serve the public in terms of safeguarding the preparation, compounding, dispensing of drugs; storage and the handling of drugs and medical supplies” (Clark, 1961).

### **2.1.2 Evolution of pharmacy profession**

Evolution of pharmacy began with man kinds’ history since it fulfilled one of our most basic demands (Sonnedecker, 1963). Much of the early, history of pharmacy covered the entire history of medicine (Anderson, 2005). This history is clouded with mystery, but there are good evidences that early civilization used many substances from the plant and animals kingdoms and available minerals for cure and prevention of sickness (Maurice & Marcelli, 1959; Clark, 1961).

In Britain, in early 1900s pharmacists fulfilled the role of *apothecary*, preparing products for medicinal use. This is the time when state pharmacy acts mainly established standards for pharmacists and pharmacies (Anderson, 2005). By the 1950s, large scale manufacturing of medicinal products by the pharmaceutical industries brought many new drugs in “ready-to-use” form. The introduction of “prescription-only” legal status for most therapeutic agents, limited the role of pharmacists to compounding, dispensing and labeling prefabricated products (Anderson, 2007). By the mid of 1960s, pharmacy profession shifted to more patient-oriented practice and developed the concept of clinical pharmacy. This marked the beginning of a period of transition that was characterized by an expansion and integration of professional functions. There was an increased professional diversity and closer interaction with physicians and other healthcare professionals (Hepler & Strand, 1990; Adamcik *et al.*, 1986). Traditionally, pharmacy

was regarded as a transitional discipline between the health and chemical sciences and as profession charged with ensuring the safe use of medicine (Pearson, 2007).

### **2.1.3 Concept of pharmaceutical care**

The initial definition of pharmaceutical care by Hepler and Strand emphasizes that the role of the pharmacist involves “*the responsible provision of drug therapy for the purpose of achieving definite outcomes that improve a patient’s quality of life*” (Hepler & Strand, 1990). In 1997, Linda Strand provided a new definition of pharmaceutical care “*a practice in which the practitioner takes responsibility for a patients’ drug related needs and is held accountable for this commitment*” (Strand, 1997).

In the current era of rapid change in healthcare delivery, the pharmacy profession is experiencing significant growth and development. Increase in health demands with an everlasting and complex range of medicines, and poor adherence to prescribed medicines have forced the pharmacists’ role towards a patient centered approach (WHO, 2006a). Direct contact with patients and other health care providers help to achieve maximum therapeutic results. The paradigm shift for pharmacy practice took shape in 1990, when Hepler and Strand introduced the term “pharmaceutical care” (Hepler & Strand, 1990). Over the next decade, pharmacy organizations and academic training programs around the world promoted pharmaceutical care as a philosophy and standard of provision of care for patients (Farris *et al.*, 2005). In essence, the concept of pharmaceutical care transformed the pharmacy profession to be more accountable in patient care especially to ensure that a patient achieves positive outcomes from drug therapy (Rosemin, 2006). This promotes pharmacist as a key member of health care team with additional responsibility for the outcome of medication therapy. The pharmacists have many areas of expertise and they are a critical source of drug

knowledge in clinics, hospitals, and community pharmacies throughout the world. It is also believed that a pharmacist could make a great contribution to the provision of the primary healthcare, especially in the developing countries (Smith, 2004; Jesson & Bissell, 2006). Being medicines experts, their role varies in different parts of the world. Some deal with preparation and supply of medicines while some focus on sharing pharmaceutical expertise and knowledge with doctors, nurses and patients (Gilbert, 2001).

#### **2.1.4 Social dimension of pharmacy practice**

Sociology is a branch of social science that examines the organization of the society, and sociologists study a variety of issues concerned with pharmacy, such as profession and role theory. Social science focuses on theory, whereas pharmacy can be viewed as a field of application, taking concepts and facts from the other fields and applying them into practice (Rickles *et al.*, 2009). It was not until the mid 1960s that the seminal papers on social pharmacy topics were published in the pharmacy literature. Harding and Taylor discussed the social dimensions of pharmacy and pointed out that our actions on healthcare professionals are embedded in a social context. Societal change and increased risk awareness prompted health providers to rethink their professional roles and define their activities as an exemplar of social action (Harding & Taylor, 2002).

#### **2.2 Defining interprofessional collaboration in healthcare**

Collaboration is an important element for team work. Several studies have identified the understanding of collaboration with respect to team work including effective communication, common goal and respect for others as critical elements of collaboration (Lorenz & Mauksch, 1999; Sheer, 1996). Collaboration and cooperation are related as

collaboration is built on a cooperative endeavor but in actual they have different constructs (Henneman *et al.*, 1995).

Within the healthcare literature, collaboration has been defined with respect to relationships between physicians and nurses.

Lamb and Napodano's states collaboration as the "*process of shared planning and action over time with joint responsibilities for outcomes, face to face interaction between team members in which there is a contribution of each person to the problem solving efforts, and the integration of ideas which result in a new assessment, problem definition and plan*" (Lamb & Napodano, 1983).

Baggs and Schmitt defined collaboration as "*cooperatively working together, sharing responsibilities for solving problems and making decisions to formulate and carry out plans for patient care*" (Baggs & Schmitt, 1997).

## **2.2.1 Collaboration between pharmacists and other health professionals**

### **2.2.1(a) Pharmacist and Doctors' collaboration**

Earlier studies focused on the value of pharmacist in healthcare rather than the effect of collaboration with physician (Henneman *et al.*, 1995; Lamb & Napodano, 1983; Baggs & Schmitt, 1997). Cochrane reported on expanded role of pharmacists regarding patient outcomes. Studies do focused on the extended role of pharmacists dealing in collaboration with physicians. It has been found that counseling patients improve the outcomes of patient with diabetes or hypertension (Beney *et al.*, 2000; Marrison & Wertheimer, 2001).

In another study, economics of using pharmacist as an advisor to physician helped to lower the costs for drugs and total healthcare (Zunker & Carlson, 2000). Positive impact