



# **An Evaluation of the Global Pharmacy Workforce Highlighting Pharmacy Human Resource Issues within Countries in the Gulf Cooperation Council**

---

This thesis is submitted in accordance with the requirements of UCL School of Pharmacy for the degree of Doctor of Philosophy by:

**Dalia Almaghaslah**

**The Research Department of Practice and Policy**

**UCL School of Pharmacy**

First supervisor: **PROFESSOR IAN BATES, UCL SCHOOL OF PHARMACY**

Second supervisor: **PROFESSOR KEVIN TAYLOR, UCL SCHOOL OF PHARMACY**

## Plagiarism statement

This thesis describes research conducted at the UCL School of Pharmacy between March 2012 and November 2015 under the supervision of Professor Ian Bates and Professor Kevin Taylor. I certify that the research described is original and that any parts of the work that have been conducted by collaboration are clearly indicated. I also certify that I have written all text herein and have clearly indicated by suitable citation any part of this thesis that has already been published.

Dalia Almaghaslah

The Research Department of Practice and Policy

UCL School of Pharmacy

## Abstract

This thesis intends to develop an understanding of the status of pharmacy workforce and pharmacy education in the six Gulf Corporation Council Countries, namely Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the UAE. It also evaluates the development of pharmacy services and job satisfaction in Kuwait and Saudi Arabia. Quantitative methodology was employed to provide comparisons between the Gulf region and other WHO regions.

Data was collected using the FIP (The International Pharmaceutical Federation) Global Pharmacy Workforce Questionnaire, which is a validated tool, and conducted on a country-by-country basis. Country-level data was provided by the Ministry of Health and key education body in each country. The questionnaire gathered information about the number of pharmacies and pharmacy workforce in different sectors, data on pharmacy education, and information about pharmacy workforce planning. For the comparative analysis, data from the 2012 FIP Global Pharmacy Workforce Report was used. WHO regions categorisation was used. The WHO conceptual framework (availability, accessibility, acceptability and quality) was used to compare pharmacy in the GCC region with other WHO regions. Mann-Whitney test was used for the analysis. Qualitative methodology in the form of 30 semi-structured interviews with hospital pharmacists in Kuwait and Saudi Arabia was utilised to provide an in-depth understanding of pharmacy services' development and job satisfaction in both countries. A thematic analysis was used for the analysis.

The comparison between the GCC region and other WHO regions produced the following results.

**Availability** or the density of pharmacists in the GCC region was significantly higher than in the African region. **Accessibility** or the density of community pharmacies in the GCC region was significantly higher than in the African region; however, it was significantly lower than in the American region, the Eastern Mediterranean and the European region. **Acceptability** or the density of female pharmacy workforce in the GCC region was significantly higher than in the African region; however, it was lower than in the American region and the European region. Job satisfaction was negatively affected by high work overload, lack of appreciation from other health professionals and the public, poor financial incentives, and lack of clear job description. Pharmacy services' development was influenced by the current pharmaceutical policies.

## Abbreviations

ACPE	Canadian Council for Accreditation of Pharmacy Programs
CCAPP	Canadian Council on Accreditation of Pharmacy Programs
CE	Continuing Education
CPD	Continuing Professional Development
CPPD	Continuing Professional Pharmacy Development
D	Depersonalisation
EE	Emotional Exhaustion
EMPS	Eastern Mediterranean Regional Symposium
FIP	International Pharmaceutical Federation
<i>FIPEd</i>	Pharmacy Education Initiative - FIP
GCC	Gulf Cooperation Council
GHQ	General Health Questionnaire
ILO	International Labour
IPSF	International Pharmacy Student Federation
KAU	King Abdulaziz University
KSU	King Saud University
MDGs	Millennium Development Goals
NHRA	National Health Regulatory Authority
OAPI	The Oman Assistant Pharmacists Institute
OTC	Over-The-Counter
PA	Personal Accomplishment
PIC	Pacific Island Countries
QA	Quality Assurance
SCH	The Supreme Council of Health
SPEP	Structured Practical Experience Program
UAE	United Arab Emirates
USA	United States of America
WHO	World Health

## Contents

Plagiarism statement .....	2
Abstract .....	3
Contents .....	5
List of figures .....	10
List of tables .....	11
List of appendices .....	13
Acknowledgements.....	14
Chapter 1 – Background and Literature Review .....	16
1.1 Introduction .....	16
1.2 Global healthcare shortage .....	16
1.3 Pharmacy workforce supply and demand .....	22
1.3.1 International Migration (International Labour Markets).....	24
1.3.2 Push and Pull factors .....	25
1.3.3 Effects of international migration on developing countries.....	25
1.3.4 Migration for education and training .....	26
1.4 Pharmacy workforce issues and trends.....	27
1.4.1 Gender distribution .....	27
1.4.2 Attrition and retention .....	28
1.5 Workforce development.....	30
1.6 Description of pharmacy workforce .....	31
1.7 Workforce distribution .....	35
1.8 Pharmacy workforce role.....	36
1.9 Pharmacy workforce in the GCC Countries .....	37
1.10 Results.....	42
Demographics of the GCC countries.....	42
1.11 Pharmacy education and pharmacy practice in GCC countries .....	42
1.11.1 Bahrain.....	42
1.11.2 Kuwait.....	42
1.11.3 Oman .....	43

1.11.4 Qatar .....	44
1.11.5 Saudi Arabia .....	45
1.11.6 UAE .....	47
1.12 Pharmacy workforce description in the GCC countries.....	47
1.13 Pharmacy human resources shortages in GCC countries and non-indigenous pharmacists.....	49
1.14 Public and healthcare professionals' perceptions of pharmacy in the GCC countries .....	50
1.16 Conclusion.....	54
<b>Chapter 2 – Aims and Objectives .....</b>	<b>55</b>
2.1 Aims .....	55
2. Rationale .....	56
2.3 Research project overview .....	59
<b>Chapter 3 – Methods .....</b>	<b>61</b>
3.1 Quantitative research .....	61
3.1.1 Data collection tool in quantitative research: Surveys .....	61
3.1.1.1 Descriptive surveys .....	62
3.1.1.2 Analytical surveys .....	62
3.1.2 Data collection tool in the current quantitative study .....	63
3.2 Qualitative research.....	63
3.2.1 Qualitative research designs.....	64
3.2.1.1 Case study design .....	64
3.2.1.2 Ethnographic Research Strategy.....	64
3.2.1.3 Phenomenological Research .....	64
3.2.1.4 Grounded Theory Research Strategy.....	65
3.2.1.5 Historical Research .....	65
3.2.1.6 Thematic Analysis .....	65
3.2.17 Framework analysis .....	65
3.3 Sampling .....	66
3.3.1 Probability sampling .....	66
3.3.1.1 Simple random sampling .....	66
3.3.1.3 Stratified random sample .....	67
3.3.1.4 Cluster sampling .....	67

3.3.2 Non-probability sampling .....	67
3.3.2.1 Quota sampling.....	68
3.3.2.2 Convenience sampling.....	68
3.3.2.3 Propulsive sampling.....	68
3.3.2.4 Snowball sampling .....	68
3.3.2.5 Sampling method at the current study .....	69
3.4 Data collection tools in qualitative research .....	70
3.4.1 Observation .....	70
3.4.1.1 Participant observation .....	70
3.4.1.2 The complete participant .....	70
3.4.1.3 The participant as observer .....	71
3.4.2 Interviews .....	71
3.4.2.1 Structured interviews .....	72
3.4.2.2 Semi-structured interviews .....	72
3.4.2.3 Focused interviews .....	72
3.4.2.4 Group interviews .....	73
3.4.2.5 Telephone interviews.....	73
3.4.2.6 Data collection tool at the current study: .....	73
3.4.3 Interview content .....	74
3.4.4 The sequence of questions.....	74
3.5 Data analysis .....	74
3.5.1 Data Coding .....	76
3.5.2 Constant comparison.....	76
3.6 Reliability and validity of the Research.....	78
3.6.1 Credibility in the current study.....	79
3.7 Study design in the current qualitative study.....	79
Chapter 4 – Quantitative Study of the Pharmacy Workforce in the GCC Countries.....	80
4.1 Study design.....	80
4.1.1 Questionnaire Development and Content .....	81
4.1.2 Data collection and entry and validation.....	82
4.1.3 Analysis method .....	83
4.2 Results.....	85
4.2.1 Comparison between the GCC region and other WHO regions.....	85

4.2.1.1 Availability .....	85
4.2.1.2 Accessibility .....	103
4.2.1.3 Acceptability .....	105
4.2.1.4 Quality .....	108
4.2.2 Comparison between GCC countries.....	114
4.2.2.1 Availability in GCC countries.....	114
4.2.2.2 Accessibility in GCC countries.....	121
4.2.2.3 Acceptability in the GCC countries.....	123
4.2.2.4 Quality in the GCC countries .....	123
4.3 Main outcomes and discussion .....	125
4.4 Bias and limitation .....	128
<b>Chapter 5 – Pharmacy Workforce Work Attitudes, Job Satisfaction, And Services</b>	
Development In Kuwait And Saudi Arabia .....	129
5.1 Background on Kuwait and Saudi Arabia.....	129
5.1.1 Saudi Arabia .....	129
5.1.2 Healthcare system in Saudi Arabia .....	130
5.1.3 Kuwait .....	133
5.1.4 Healthcare system in Kuwait .....	133
5.2 Background on global pharmacy workforce attitudes and job satisfaction .....	134
5.2.1 Workload in pharmacy .....	134
5.2.2 Job satisfaction and turnover intentions .....	137
5.2.3 Strategies to improve job satisfaction .....	141
5.3 Study design.....	142
5.3.1 Recruitment .....	144
5.3.2 Participants .....	144
5.3.3 Piloting.....	144
5.3.4 Interviews .....	145
5.3.5 Analysis (thematic analysis).....	145
5.3.6 Translation .....	146
5.3.7 Credibility.....	146
5.4 Results.....	147
5.5 Main findings and discussion.....	188
5.6 Limitations .....	190



Chapter 6 – Discussion of the Main Findings.....	191
6.1 Description of the pharmacy profession in the GCC region in comparison to other WHO regions (regional level).....	191
6.2 Description of the pharmacy profession in GCC countries (country level) .....	203
6.3 Qualitative comparative study of services development and job satisfaction in Kuwait and Saudi Arabia .....	212
6.4 Conclusion .....	216
5.6 Key messages .....	216
6.7 Recommendations.....	218
Chapter 7 – Conclusion .....	220
7.1 Introduction.....	220
7.2 Limitations.....	221
7.3 Research methods.....	221
7.4 Key findings .....	222
7.5 Future research .....	226
References.....	227

## List of figures

Figure 1. 1 Flow Chart of the Literature Review Process .....	41
Figure 3.1 The iterative qualitative research process .....	63
Figure 3.2 Semi-structured interview schedule guide (Smith, 2010) .....	72
Figure 3.3 The Sequence of Interviews (Robson, 1994) .....	74
Figure 3.4 The Steps for Data Analysis.....	75
Figure 4.1: The Research Timeline .....	81
Figure 4.2 Correlation between the density of pharmacy graduates per 10,000 population and the density of pharmacists per 10,000 population.....	87
Figure 4.3 Correlation between the density of pharmacy schools per 10,000 population and the density of pharmacists per 10,000 population.....	88
Figure 4.4 Correlations between the density of pharmacy technician graduates per 10, 000 population and the density of pharmacy technicians per 10,000 population .....	92
Figure 4.5 Correlation between the density of pharmacy technician training schools per 10,000 population and the density of pharmacy technicians per 10,000 population. ....	93
Figure 4.6 Correlation between the density of pharmacists per 10,000 population and the density of pharmacies per 10,000 population.....	97
Figure 4.7 Correlation between the density of pharmacy technicians per 10,000 population and the density of pharmacies per 10,000 population .....	98
Figure 4.7 Comparison of the density of pharmacists and the density of pharmacy technicians per 10,000 population in the GCC region .....	120
Figure 4.8 The density of pharmacies in all sectors per 10,000 population in GCC countries .....	121
Figure 4.9 The density of community pharmacies per 10,000 population in GCC countries	122
Figure 5.1 Current structures of healthcare sectors in Saudi Arabia (Almalki et al., 2001)...	131

## List of tables

Table 1.1 research strategy .....	39
Table 1.2 Colleges and Universities that Award the Pharm D as a Terminal Degree in Pharmacy .....	46
Table 1.3 Country profile (GCC).....	49
Table 1.4 community pharmacy regulations in the gulf countries .....	52
Table 3.1 Sampling in quantitative and qualitative research .....	66
Table 3.2 Advantages and disadvantages of observation (Robson, 1994).....	70
Table 3.3 Advantages and disadvantages of interview style compared to observation (Robson, 1994). .....	71
Table 4.1 Respondent frequencies by WHO region .....	84
Table 4.2 Comparison of the density of pharmacy graduates per 10,000 population in the GCC region and other WHO regions using Mann–Whitney test .....	89
Table 4.3 Comparison of the density of pharmacy school per 10,000 population in the GCC region and other WHO regions using Mann–Whitney test. ....	90
Table 4.4 Comparison of the density of pharmacy technician graduates per 10,000 population in the GCC region and other WHO regions using Mann–Whitney test.....	94
Table 4.5 Comparison of the density of pharmacy technician training schools per 10,000 population in the GCC region and other WHO regions using Mann–Whitney test.....	95
Table 4.6 Comparison of the density of foreign pharmacists per 10,000 population in the GCC region and other WHO regions using Mann–Whitney test. ....	96
Table 4.7 Comparison of the density of pharmacists per 10,000 population in the GCC region and other WHO regions using Mann–Whitney test. ....	100
Table 4.8 Comparison of the density of pharmacy technicians per 10,000 population in the GCC region and other WHO regions using Mann–Whitney test. ....	101
Table 4.9 Comparison of the density of pharmacies per 10,000 population in the GCC region	

and other WHO regions using Mann–Whitney test. ....	102
Table 4.10 Comparison of the density of community pharmacies per 10,000 population in the GCC region and other WHO regions using Mann–Whitney test. ....	104
Table 4.11 Comparison of the density of female pharmacists per 10,000 population in the GCC region and other WHO regions using Mann–Whitney test. ....	106
Table 4.12 Comparison of the density of foreign pharmacists to the density of home pharmacists per 10,000 population in the GCC region and other WHO regions .....	107
Table 4.13 Number and type of pharmacy schools in GCC nations.....	115
Table 4.14 Comparison of the density of pharmacy schools per 10,000 population and the density of pharmacy graduates per 10,000 population in GCC countries.....	116
Table 4.15 Comparisons between the density of pharmacy graduates per 10,000 population and the density of pharmacists per 10,000 population in the GCC region .....	117
Table 4.16 Number and type of pharmacy technician training schools in GCC nations.....	117
Table 4.17 Comparison of the density of pharmacy technician schools per 10,000 and the density of pharmacy technician graduates per 10,000 population in GCC countries. ....	118
Table 4.18 Gender distribution of pharmacists in the GCC countries .....	123
Table 4.19 Pharmacy workforce quality in the GCC region .....	124
Table 4.20 The quality of pharmaceutical facilities .....	125
Table 5.1 Hospitals and Beds in All Health Sectors (MOH, 2009) .....	131
Table 5.2 Health Resources Indicators per 10,000 population (MOH, 2009) .....	132
Table 5.3 Comparison between health status indicators of Saudi Arabia and Kuwait (WHO,2012) .....	134
Table 5.4 Sample demographics Kuwait participants (n=15, 50%).....	147
Table 5.5 Sample demographics of Saudi participants (n=15, 50%).....	148

## List of appendices

Appendix 1.1 countries included in the FIP Global pharmacy workforce study.....	237
Appendix 1.2 FIP Global Pharmacy Workforce Survey 2012 .....	239
Appendix 2.1 list of contacts in GCC countries who filled out the questionnaire .....	281
Appendix 2.2 Sources contacts in each country used to fill out the questionnaire.....	287
Appendix 3 Saudi Arabia MOH vision and mission .....	289
Appendix 4 Challenges facing the MOH .....	290
Appendix 5 summary of the studies used to design part II the qualitative study.....	291
Appendix 6 how the literature influenced the structure of the part II the qualitative study	294
Appendix 7 Interview guide for the qualitative study .....	299
Appendix 8 Pharmacists' work attitudes in Kuwait and Saudi Arabia consent form.....	302
Appendix 9 an example of the emerged themes (non-nationals pharmacists and workload) .....	304
Appendix 10 summary of presentation and articles.....	306

## Acknowledgements

I would like to express my sincere gratitude to the International Pharmaceutical Federation (FIP) and UCL School of pharmacy for offering me this opportunity. Also, I would like to thank the Ministry of Higher Education in Saudi Arabia for funding my research.

Particular thanks must go to the Ministries of Health in the Gulf Countries for their dedicated contribution to this study: Sana Joudeh, Roaya Al Abbasi, Bahrain; Sara Albalushi, Osama Rahmtalla, Oman, Nadir Mohamed Kheir, Qatar, Ola Ghaleb, UAE, and Nourah Almadhi, Kuwait.

A sincere thank to all the hospital pharmacists who took time from their hectic schedules to participate in the qualitative study of this research.

I would never be able to accomplish this PhD, without the guidance, encouragement and support from my supervisors professor Ian Bates and professor Kevin Taylor.

A special thanks to Dr. Andreia Bruno FIPed research coordinator for her support and mentoring and expertise in pharmacy workforce.

Many thanks to my colleagues, friends and family for their generous support and encouragement- especially Dalal Alsaeed, Mona Almanasef, and Naoko Arakawa.

To my mama. For her support, her presence to answering my "do you think" and "just guess" silly questions, and for reading people's minds for me. To my co-travellers, my co-fighters, my running friends, my colleagues, my flat-mates, and my best friend, Mona. To all my family who inspired me to write. To everyone who helped me with my surveys and interviews. To the Turkish cafe for accommodating us for the last five years and preparing our dinners, especially the complementary Turkish teas. To London, my lovely city. To my Dad, wish you were here so I could make you proud. My PhD, thank you for what you offered me. Ahamdullah

## **Chapter 1 – Background and Literature Review**

### **1.1 Introduction**

This chapter provides a general introduction to global pharmacy workforce and health workforce issues. It also includes specific literature relating to the pharmacy workforce in the Gulf Cooperation Council countries (GCC), which are Bahrain, Kuwait, Qatar, Saudi Arabia, and the United Arab Emirates.

Section 1.2 provides a summary about the global healthcare shortage

Section 1.3 discusses pharmacy workforce supply and demand and presents some theories about international migration

Section 1.4 explains pharmacy workforce issues and trends

Section 1.5 provides elaborates on pharmacy workforce development

Section 1.6 describes the global pharmacy workforce

Section 1.7 discusses global pharmacy workforce distribution

Section 1.8 identifies pharmacy workforce roles

Section 1.9 provides a brief introduction to the pharmacy workforce in GCC countries

Section 1.10 summarises demographics in GCC countries

Section 1.11 explains pharmacy education and pharmacy practice in GCC countries

Section 1.12 describes the pharmacy workforce in GCC countries

Section 1.13 discusses the shortage of pharmacy personnel in the region and the reliance on expatriates

Section 1.14 provides some perceptions of the pharmacy profession in GCC nations

### **1.2 Global healthcare shortage**

The healthcare workforce shortage has been increasing globally (WHO, 2006). In the early 1970s, some papers on the shortage of medical professionals were published. However, deep understanding, investigations and calls for international actions in relation to this issue did not begin until the World Health Organisation (WHO) report appeared in 2006 (WHO, 2006). The report stated that the total number of full-time paid health workers was approximately 59.2 million, which comprised healthcare professionals working in health



organisations, those working in non-health agencies, and a third group of health management and support workers (WHO, 2006).

There is an extremely diverse skill mix within healthcare teams worldwide. The global shortage of health workers varies enormously depending on each particular job and on the country where it exists (WHO, 2006). For example, the ratio of nurses to doctors ranges from 8:1 in the African countries to around 5:1 in the Western Pacific region. In the United States of America and Canada, the ratio is nearly 4:1, whereas in South American countries, including Chile, Peru, El Salvador and Mexico, there is less than one nurse per doctor (Hawthorne and Anderson, 2009)

The WHO states that a certain workforce density is required to meet the health-related Millennium Development Goals (MDGs). However, at the moment, there are approximately 57 nations with significant shortages, which equals an international shortfall of around 2.4 million doctors, nurses, and midwives (WHO, 2006). The proportional deficits are highest in sub-Saharan Africa, whilst Southeast Asia has huge deficits due to its vast population size. Interestingly, these shortages occur in countries with high unemployment rates (WHO, 2006).

The WHO 2014 report *No Health without a Workforce* stated that there are approximately 27.2 million healthcare providers for a global population of 6.7 billion. For these 6.7 billion, the density threshold corresponds to 23.2 million skilled health professionals, and the distribution varies widely. There are 8.9 skilled healthcare workers for a population of 4.7 billion in the countries under the threshold, which indicates a deficit of around 7.2 million. Half of the shortage, 3.4 million (47%), is in the Southeast Asia region, which accommodates 27% of the world's population. The African region has a deficit of 1.8 million (25% of the global total). The Western Pacific and Eastern Mediterranean regions follow, both with deficits in skilled human resources of about 0.8 million (11% of the world total). The American region accounts for a 0.3 million deficit (4% of the global total). The deficit is smallest in the European region, at 0.07 million (1%).

Later In 2014, WHO published an update about the global workforce. WHO defined the following terms to describe this workforce:

**Availability** – the sufficient supply and stock of health workers, with the relevant competencies and skill mix that correspond to the health needs of the population (WHO, 2014).

**Accessibility** – the equitable access to health workers, regarding travel time and transport, opening hours and corresponding workforce attendance, whether the infrastructure is disability-friendly, referral mechanisms, and the direct and indirect cost of services, both formal and informal (WHO, 2014).

**Acceptability** – the characteristics and ability of the workforce to treat everyone with dignity, create trust and enable or promote demand for service (WHO, 2014).

**Quality** – the competencies, skills, knowledge and behaviour of the health worker as assessed according to professional norms and as perceived by users (WHO, 2014).

### **Availability**

Not many countries have valid and comprehensive information about the available healthcare professionals. However, data from 186 countries is available at the WHO Global Health Observatory. WHO created an international snapshot in comparison to the three density thresholds of skilled health workers (midwives, nurses and physicians) per 10,000 population. The three thresholds (22.8, 34.5 and 59.4 skilled health professionals per 10,000 population) were selected to highlight the differences in workforce availability (WHO, 2014).

The findings were as follows:

- 83 countries had a threshold below 22.8 skilled health professionals per 10,000 population
- 100 countries had a threshold below 34.5 skilled health professionals per 10,000 population
- 118 countries had a threshold below 59.4 skilled health professionals per 10,000 population
- 68 countries had a threshold above 59.4 skilled health professionals per 10,000 population.

The analysis showed that 46 countries out of the 57 countries with low densities of healthcare professionals had seen an increase in the numbers and densities of midwives, nurses and physicians. However, in some of these countries the increase in stock was not commensurate with population growth. As a result, more attention should be paid to demographic dynamics to ensure health coverage of a larger proportion of the population (WHO, 2014).

### **Accessibility**

Accessibility to healthcare professionals is considered a fundamentally challenging feature in most nations. All the 36 presented countries aimed at reducing the imbalance in the geographical distribution of healthcare professionals. To ensure equal distribution of the health workers, WHO suggested policy tools such as providing workers in remote areas of countries such as Afghanistan, England, France, Hungary, India, Mozambique, Nepal, Thailand, Senegal and South Africa with financial incentives. Although these countries have different geography, underserved rural areas are still common in developed countries, as the workforce in these countries tends to concentrate in more urban cities leaving remote areas underserved. It also suggested enhancing the availability of continuous professional development opportunities in rural areas in countries such as Australia, England, Hungary and Nepal, and prolonging the residence in less desirable areas in countries such as Ghana, Mexico, the Philippines and South Africa. WHO also promotes non-financial incentives including free housing, security, and free access to healthcare in countries such as Mozambique, Nepal and the Philippines. WHO also suggested an adjustment of educational processes (recruitment of students from rural and remote areas, decentralising training, sensitising health workers to the needs of the underserved regions and access to continuing professional development), and an enhancement of regulations (contracting, reviewing the division of tasks and forming new types of healthcare providers), and providing a mix of financial, professional and personal incentives (WHO, 2014).

### **Acceptability**

Acceptability is achieved when a society has access to healthcare professionals who meet its needs regarding age, gender, profile, composition, and cultural awareness. To make services

more accessible and acceptable, various types of health worker are essential. Using distribution of physicians by gender and ratio of nurses to physicians as proxies for acceptability showed wide variation in health workforce configurations and no significant pattern in skill mix. In countries where being served by a healthcare professional of the other sex is not culturally acceptable, availability and acceptability of female healthcare professionals are considered an essential factor in user demand and satisfaction with services. This issue is critical in low-income countries, where the majority of healthcare professionals are men. For example, in India 83% of physicians are males. On the other hand, in high-income countries, the majority of medical students are women and women are gradually becoming the majority of doctors. This, however, may not result in increasing access to female doctors by the same proportion, because the new graduates often do not enter the workforce and prefer a more flexible work pattern (WHO, 2014).

## **Quality**

WHO used competencies of healthcare professionals, as influenced by the enabling environment of education, regulation and association, to define quality.

In the 36 profiled nations, an accreditation system for education institutions and regulation of access to professional practice were used as proxy indicators of conditions that positively influence the quality of the health workforce (WHO, 2014).

The findings were the following:

- 33 countries have some formal or informal system for accreditation of education institutions.
- A total of 27 countries have begun to enhance health workers' quality of education.
- 35 countries have an operating system to regulate access to practice.

The quality of healthcare professionals' performance is affected by multiple factors, defined in terms of effectiveness and efficiency. Some of these factors are related to professionals' education and training before entering the labour market. It is also influenced by quality assurance of the education institutions, which ensures that curricula are designed to reflect

good practice and produce graduates with competencies, practical skills and experience to be suitable for practice. Other factors are related to the workplace, and include the quality of infrastructure, equipment and consumables, continuing education and training, regulation, management, supervision, performance incentives and the perceptions of communities and individuals towards them (WHO, 2014).

In high-income countries such as Australia, England and the United States of America, the quality-assurance mechanisms are implemented, and all the gaps are identified and addressed, but still some of the offered services lack the required quality (WHO, 2014). In low-income countries, quality of services is considered poor in terms of workers' adherence to norms and protocols or unacceptable behaviour such as impudence and disrespect.

Thirty-three out of the 36 profiled countries had a formal or informal accreditation system for education institutions in development or already implemented. This includes:

- Well-developed and legally recognised independent accreditation bodies, such as the Australian Medical Council, the Liaison Committee on Medical Education in Canada and the United States of America, and the General Medical Council in the United Kingdom. It also includes the most recent ones such as the Caribbean Accreditation Authority for Education in Medicine and other Health Professions (WHO, 2014).
- Government-led accreditation systems, such as in Germany (Ministry of Health), Ghana (National Accreditation Board), Hungary (Hungarian Education Board), Kyrgyzstan (Ministry of Education and Science), Lithuania (Ministry of Education and Science) and the Philippines (Technical Education and Skills Development Authority (WHO, 2014)
- Permission to operate (Morocco, by the Secretary-General of the Government)
- Evaluation and recommendations from a recognised international professional authority, such as the World Federation of Medical Education (WHO, 2014).

The WHO routinely uses the regional classification of regions, which categorises countries into regions according to the geographical location. The WHO used this categorisation scheme in the 2014 report "No health without a workforce". This classification neglects the fact that in some regions there is a great variance in terms of health workforce numbers, distribution, and quality of education and training. Using other classification schemes such

as the World Bank classification could be a better method to avoid misrepresentation of regions with huge differences. For example, the American region includes developed countries such as the US and Canada and South American countries, which are far from homogenous in terms of health workforce availability, accessibility, acceptability, and quality.

### 1.3 Pharmacy workforce supply and demand

The presence of a well-trained pharmacy workforce is necessary to ensure appropriate use of medicine. However, in some countries, there is a critical deficiency in the number of pharmacists, pharmacy assistants, and pharmacy technicians, and in some areas they are trained to extremely insufficient levels (Hawthorne and Anderson, 2009). Pharmacists represent the third largest healthcare group after doctors and nurses. The ratio of pharmacy personnel to the population size differs considerably between countries, from 0.8 per 10,000 population in the African region to 5.4 in the Americas (Hawthorne and Anderson, 2009).

Although the overall supply of pharmacists has grown in the last decade, there has been unanticipated demand for pharmacy services, which has not been fulfilled by the existing supply. The increasing demand for pharmacists is created by the following: first, the roles and responsibilities of the pharmacist have grown in both community and institutional settings. Second, market growth, which results in the opening of new retail pharmacies, expanded working hours and the creation of more pharmacist positions. Third, the use of prescription medications has increased sharply, as has the elderly population (Schafheutle and Hassell, 2009).

Pharmacy workforce shortage has a negative influence on the pharmacy profession as well as on the public, including limited time for patient counselling, job-related stress, low job satisfaction levels, and schedule inflexibility and long working hours (HRSA, 2000).

There are some aspects which affect the supply of pharmacists involving, firstly, ageing of the current pharmacists and increases in the proportion of female pharmacists in the workforce, which led to a rise in part-time working patterns. Secondly, decrease in the numbers of pharmacy graduates. Thirdly, migration of pharmacists to other countries. For instance, in 2006, approximately 11% of the UK's qualified pharmacists were working abroad

(Hassell and Eden, 2006). Thirdly, changing the pattern of pharmacy education to focus more on pharmaceutical care; this shift lengthened the education courses and the clinical practice.

Pharmacy workforce supply has increased in other nations. The number of pharmacy schools and the pharmacy degrees offered has expanded enormously in Australia. In 1997, there were six university programs offering 6 bachelor of pharmacy degrees, with approximately 485 graduates per annum. In 2002, the number increased to 9 universities offering 9 bachelor of pharmacy degrees producing 720 graduates, and in 2008, there were 16 universities offering 21 pharmacy degrees (14 bachelor and 7 graduate-entry master of pharmacy degrees) producing 1250 graduates (Marriott et al, 2008).

The increase in the number of pharmacy programs offered may be due in part to a large shortfall in the number of pharmacists available to meet demand predicted in pharmacy workforce surveys, especially in rural and regional areas throughout Australia. The “Pharmacist in Focus” report suggested that pharmacy graduate numbers had increased year on year from 2008 to 2012, with a peak of 1,914 in 2012 with 18 pharmacy schools (Health Workforce Australia, 2014). The number of registrable pharmacy degrees (Bachelor of Pharmacy) offered has increased from one to three: Bachelor of Pharmacy, Bachelor of Pharmacy (Rural), and Master of Pharmacy (The National Pharmacy Workforce, 2003). A new degree is now also available, Bachelor of Pharmaceutical Science, which provides cadres for the pharmaceutical industry (The National Pharmacy Workforce, 2003).

The UK is experiencing a similar situation: the number of pharmacy schools providing degree programmes has grown to 26. The number of pharmacy graduates had risen to 2,639 in 2012 (Bates and Johns, 2012). Pharmacists were removed from the Home Office’s Shortage Occupation List. The increase in the number of pharmacy undergraduates, reduced vacancy rates in the National Health Service, and the economic climate indicate that there is no undersupply of pharmacists. In fact, the pharmacist human resources might be moving to oversupply.

It has been suggested that there is an imbalance between the number of graduates and pre-registration trainee posts, which might lead to graduate numbers exceeding or not meeting the number of placement sites available (Livingston, 2012). In addition, the number of independent prescribers grew by 39% between 2009 and 2010.

The number of pharmacy schools in Portugal increased significantly between 1998 and 2013, from three to nine, which resulted in a significant growth in the number of pharmacy graduates (Anderson, 2013).

In response to the increased demand for pharmacists in Singapore, the Department of Pharmacy at the National University of Singapore, the only university that produces pharmacy graduates, was reported to be steadily increasing its education capacity from 160 to achieve an annual intake of 240 pharmacy students (Chew, *et al.* 2012).

Bradley and Osman (2012) reported that there was a shortage in all areas of pharmacy practice in South Africa. The country produces on average 476 pharmacy graduates annually. Pharmacy graduate numbers need to double to meet future demands. This could be achieved by increasing the number of pharmacy graduates from the eight existing pharmacy schools or by opening new education institutions.

### **1.3.1 International Migration (International Labour Markets)**

Migration is a complicated phenomenon, and there has been a heated debate about its contribution to human for a health crisis. Migration of health professionals internationally is believed to be a result of widening global inequalities. Furthermore, it contributes to worsening of health systems and working conditions, as well as workforce shortages in developing countries (Wuliji *et al.*, 2009).

At the moment, there is no single theory of international migration, but only some economic and sociologic theories which have been developed separately and are affected by disciplinary boundaries. Understanding the current global migration trends and patterns requires an elaborate theory which involves different levels, assumptions, and perspectives (Massey *et al.*, 1993).

Several theoretical models explain the reasons for international migration. These models use different concepts, assumptions, and frames of reference. The neoclassical economics model, the oldest and most famous theory, focuses solely on the differences in wages and employment conditions between nations. It considers migration as a personal decision for



income maximisation. It suggests that international migration is caused by differences in wages, and elimination of that factor will stop movement. Additionally, movement can be controlled by influencing labour markets in sending/receiving countries (Massey et al., 1993).

New economic migration conceives of movement as a family decision taken to reduce risks to household income or to overcome constraints on family production activities. In this model, wage difference is not the main cause of migration, and its elimination will not necessarily end immigration. It suggests that migration can be controlled by influencing not only the labour market but also the insurance market, capital markets, and future markets. On the other hand, the dual market theory and world system theory associate migration with the modern industrial market. They link migration to economic globalisation and market penetration across national boundaries. These theories suggest that migration is demand-based and is caused by employers' recruitment in developed nations (Massey et al., 1993).

### **1.3.2 Push and Pull factors**

Motivations for migration can be divided into 'push' and 'pull' factors. 'Pull' factors, factors that attract workers to rich countries, include better income and remunerations, higher education and training opportunities, higher employment rates, higher job satisfaction levels, and joining a family. 'Push' factors are the factors that make staying in the home country unappealing; they include political and social instability, poor living conditions and poor working conditions, (Wuliji et al., 2009; Kuehn, 2007).

### **1.3.3 Effects of international migration on developing countries**

Remuneration in the source countries was found to be a crucial reason for the international migration of healthcare professionals (Kuehn, 2007). The nations of origin are believed to be adversely affected by the labour market forces 'pull' from the developed countries, which result in depletion of human capital. However, 'push' factors in the poor developing countries should be taken into consideration when designing new policies and implementing new interventions (Wuliji et al., 2009). For the source countries, the cost of the outflow of

skilled workers manpower can be considerable. When developing countries pay for their health workers' education and these workers then leave for developed countries, the countries of origin are, in effect, subsidising wealthier countries. According to the International for Migration, developing nations spend \$500 million each year on the education of health workers who leave to work in North America, Western Europe, and South Asia (Kuehn, 2007).

Health systems in these countries are already weakened by epidemics or healthcare shortages and might collapse, consequently. Unmonitored health workforce flows result in leaving the regions with the highest healthcare needs the fewest workers (Kuehn, 2007). For instance, 37% of the world's health personnel work in the Americas, mainly in the United States and Canada, although these countries carry only 10% of the global disease burden. In contrast, Africa, which has 24% of the global burden of illness, has only 3% of the global health workforce (WHO, 2006).

As a result, migrants from developing nations might fail to find a job in their area of expertise in the receiving nations, and they end up working for low wages in unrelated jobs, which is called "brain waste" (Kuehn, 2007).

#### **1.3.4 Migration for education and training**

Only one system has been developed to examine the relationship between foreign education and migration (Deefort, 2009). Its four outcomes were demonstrated such as migration of highly educated individuals to high-skill prices countries, which provide them with more benefits. Students prefer international schooling; as the quality of national education decreases, the income increases and the difference in the international skill prices rises. In this case, the sole reason for migration is higher income. This model ignores other factors which might influence migration, such as family. However, other models which evaluate factors other than wages are not available.

Some individuals might choose a health profession because it is associated with migration possibilities (Deefort, 2009). Higher education acts as a source of skill from low-income countries to high-income countries, with talented individuals tending to choose international

training (Saravia and Miranda, 2004). Individuals who have migration intentions might not be able to invest in education abroad due to liquidity constraints (Deefort, 2009). Some individuals leave home for foreign education, but they have the intention to return home when qualified. However, temporary migration for education and training increases the possibility of settling abroad permanently (Saravia and Miranda, 2004).

## **1.4 Pharmacy workforce issues and trends**

### **1.4.1 Gender distribution**

The high proportion of females in the pharmacy workforce has coincided with the increasing need for pharmacists recently. As a result, the percentage of women pharmacists has been increasing worldwide (Hassell and Eden, 2006). However, in the UK, high numbers of women pharmacists leave the pharmacy sector or start to work part-time shortly after qualifying. Approximately 8.5% of women withdraw from pharmacy work and move into a non-pharmacy career five years after qualifying; this increases to 16% after 10 years of practice. The 2003 Great Britain National pharmacy workforce report stated that 44% of female workers between the ages of 30 and 39 worked part-time (less than 32 hours or less per week) (Gidman, 2007).

More recent data showed that, in the UK in 2005, 54.3% of the registered chemists were female (Hassell and Eden, 2006). The percentage of female pharmacists had reached 59.4% in 2011 (Hassell, 2012). In the United States, approximately 46% of the practising pharmacists are women (Dotson, 2011). High proportions of women in the pharmacy workforce are associated with more part-time working patterns and attrition of the pharmacy sector (Hassell, 2006).

Similarly, in Canada in 2001, over half of the pharmacy workforce were females (57%) (Pitblado, 2007). Over the period from 1991 to 2001, the proportion of female workers had increased by 5% (Pitblado, 2007). The percentage of female pharmacists continued to grow, reaching 59.7% in 2011 (Canadian Institution for Health System Information, 2011). Higher numbers of female pharmacists in the pharmacy workforce contribute to staff attrition. Female pharmacist s perceptions of lack of possibilities in job promotion made females who had left the profession less attracted re-join the workforce (Gidman, 2007).

In Australia, females accounted for most of the growth in pharmacy workforce numbers, increasing by 548 from 2011 to 2012, more than double the increase in male pharmacists (203) over the same period. The percentage of female labour force had reached 58.2% in 2012 (Health Workforce Australia, 2014).

There was an increase in the female employment rate by 4.6% (12,415) compared to 2.3% (8,916) for male pharmacists between 2011 and 2012.

Pharmacy graduate trends have a significant impact on how pharmacy is practised in the future; they also influence the workforce planning issues. In the United Kingdom, female graduates were more likely to work in hospital pharmacy settings whereas men intended to own their own community pharmacy (Willis, 2006).

A high proportion of female pharmacists intended to work full-time with maternity leave earlier in their career. Research from 2006 found that part-time working pattern, especially among women pharmacists, will decrease the supply of workers, since female students account for more than 60% of the total pharmacy students (Hassell, 2006).

Higher proportions of female pharmacists was also reported in the USA. In the 2008 academic year, 64.6% of USA pharmacy school graduates were female, whilst 46% of the actively practising pharmacists were women (Dotson, 2011).

#### **1.4.2 Attrition and retention**

Health workforce planning is crucial to supply professionals. Workforce plans involve remaining (retention) or leaving (turnover) with one's current employer (O'Neill and Gaither, 2007). The Annual American Society of Health-System Pharmacy Staffing Survey stated that the vacancy rates had increased to 6.2% in 2005 compared to 5% in 2004. Similar rates were found in a National Association of China Drug Stores Survey of its members in 2005 (Pedersen et al., 2011). Pharmacists' turnover rates are estimated to range between 7.5% and 17% (Pedersen et al., 2011).

Factors affecting attrition include organisational factors such as inflexible and long working hours, inadequate staffing, conflicts with colleagues, low salaries and limited promotional

opportunities, and personal (individual) factors such as age, gender, ethnicity, position, practice setting, education level and years of experience. Younger pharmacists who are educated to higher levels and are in staff positions are more likely to leave their current employers than older pharmacists. Independent community pharmacies who run their own pharmacies are found to have fewer turnover intentions (O'Neill and Gaither, 2007).

Recent studies in the US found that one-third of pharmacists had job turnover intentions; the estimated turnover rate was 17% in 2007 (O'Neill and Gaither, 2007). Pharmacists' perspectives of the image of their employer and organisation identification play a crucial factor in job turnover rate. Practising pharmaceutical care was found to intensify pharmacists' organisational identification and, consequently, reduce job turnover intentions. Other factors enhancing job turnover rate include high workplace stress, low salaries, and insufficient employees (Anderson et al., 2009).

Job retention strategies included wages, salaries, overtime premiums or bonuses and incentive plans. Other non-financial job retention policies incorporate performance management, awards and appreciation, promotion opportunities and staff-development opportunities (Gaither et al., 2007).

Gaither et al. (2007) also found that relationships with peer workers and organisation consideration of kinship responsibilities are fundamental reasons for pharmacists to remain within their workplace.

A study of healthcare in Kenya suggested that main reasons for attrition among health workers including pharmacists were: death, retirement, and resignation from the public sector, where employees moved into the private sector for higher salaries and better working conditions (Chankova et al., 2009).

The Society of Hospital Pharmacists of Australia (2007) suggested that eighteen percent of hospital pharmacists in Australia were planning to leave the hospital pharmacy sector in the immediate or distant future. Retirement was found to account for 77% of pharmacists' attrition reasons (The Society of Hospital Pharmacists of Australia, 2007).

In the case of South Africa, financial incentives such as competitive financial packages and fringe benefits were considered the most attractive policies to recruit and retain pharmacists into the public sector. Less favourable incentives included supportive working conditions, and recognition from colleagues and patients (Matshotyana, 2009).

On the other hand, job retention policies that were rated highest by Australian hospital pharmacists were sufficiently staffed departments, management which encourages the practice of hospital pharmacy and having professional development opportunities (The Society of Hospital Pharmacists of Australia, 2007).

### **1.5 Workforce development**

Healthcare professionals are required to provide safe and efficient medical intervention, based on the most updated resources (Hasan, 2009). Pharmacists are expected to remain competent throughout their career. Keeping their knowledge and skills up to date is also essential to keep up with new challenges and responsibilities occurring in the pharmacy profession (Hasan, 2009).

Continuous education (CE) is a primary level of workforce development. It is often required by pharmacy regulatory bodies for pharmacists to renew their licences. CE credits are obtained by attending certified training events or undertaking online or distance-learning courses. It is counted by either CE clock hours or credits. CE was required in the UK until 2004 and is still a requirement for most of the US State Boards (Schafheutle et al., 2013).

However, research has shown limited benefits of participation in CE, especially in terms of practice outcomes and dedicated delivery (Schafheutle et al., 2013).

Continuous professional development (CPD) is “self-reflection into a self-directed, cyclical process of reflection (on learning needs, strengths, and weaknesses), planning, action, and evaluation”. The FIP defined CPD as “the responsibility of an individual pharmacist for systematic maintenance, development and broadening of knowledge, skills and attitudes to ensure continuing competence as a professional throughout their career” (Adepu and Shariff, 2010).

Schafheutle et al., (2013) acknowledge CPD as an outcome focused and self-directed technique for learning and professional development. CPD has been introduced by several countries such as Australia, Canada, New Zealand, Singapore, the UK, and USA (Schafheutle et al., 2013), and has been found to be beneficial in pharmacy workforce revalidation.

Barriers to CPD include time, financial costs, resources, personal motivation and understanding the CPD, perspectives towards CPD, system constraints and technical issues. In the absence of the identified barriers, CPD is believed to have a positive impact on the individual's personal and professional development and consequently benefit the patients (Hasan, 2009).

### **1.6 Description of pharmacy workforce**

A survey conducted by the FIP between 2011 and 2012 provides the most accurate and recent pharmacy workforce data available. It includes data from 80 countries and territories, representing 2.5 million pharmacists and approximately 1.5 million technicians and support cadres ( Bates and Bruno, 2012).

The density of pharmacists to population differs widely among the 80 countries and territories surveyed in the 2012 questionnaire. It ranges between 0.02 in Somalia and 25.07 in Malta, with the mean of the 80 countries and territories (sample mean) being 6.02 pharmacists/10,000 population. Most of the countries have a greater density of pharmacists than pharmacies. However, in some countries, there is a higher number of pharmacies than pharmacists, such as in Afghanistan, Bangladesh, Bhutan, Burundi, India, Nepal, Pakistan, Somalia, Vietnam and Zambia, raising the issue of unsupervised pharmaceutical services (Bates and Bruno, 2012).

It has been suggested that there is a correlation between pharmacist workforce density and economic development (Gross National Income per capita), with higher-income nations having a greater density of pharmacists than the lower-income nations (Bates and Bruno, 2012).

Countries having a higher density of pharmacists were found to have more pharmacies ( $R^2 = 0.38$ ,  $p < 0.001$ ). In contrast, the African region lacks both pharmacists and pharmacies, indicating inadequate access to medicines and limited availability of a competent workforce (Bates and Bruno, 2012).

The economic status of a country according to the World Bank classification has a linear relationship with the number of pharmacists per capita. There are noticeable demographic similarities between the lower-middle income and upper-middle income countries. However, larger differences were found between the low-income and high-income countries. The gap between pharmacies and pharmacists grows with economic income, which could be a result of pharmacists having wider roles in the developed countries. Pharmacy density is higher compared to pharmacists in the low-income nations, indicating that such an environment is associated with supply challenges and inadequate access to medicine (Bates and Bruno, 2012).

However, the proportions of the licensed pharmacists might not be an accurate measure of the active workforce. The percentage of actively practising pharmacists ranges between 8% and 100% ( $n=69$  countries and territories). There is a great difference between the WHO regions in this figure, with the highest means for the Americas and Europe and lowest means for Southeast Asia and the Western Pacific. Discrepancies between the registered and active workforce should be considered to obtain accuracy in workforce planning (Bates and Bruno, 2012).

The proportion of workforce gender mix distribution suggests that the number of women in the pharmacy profession is increasing; the average is 54, 9%. However, this proportion varies widely between the WHO regions.

The increased proportion of female pharmacists indicates that pharmacy as a degree and career is still appealing for women. This could be due to the opportunity to practise pharmaceutical care together with flexible career breaks (Bates and Bruno, 2012).

Distribution of workforce by sector shows that the community pharmacy sector has the highest proportion of pharmacists with 55%, followed by hospital pharmacy with 18%,



industry with 10% and academia with 5%. There is a noticeable variance in the distribution between the WHO regions. For example, the pharmaceutical industry employs less than 5% of pharmacists in African countries, whereas 30% of the Southeast Asian workforce are employed in the same sector. Community settings employ the highest proportion of the European pharmacy workforce (Bates and Bruno, 2012).

The education section of the FIP Global Pharmacy Workforce Report provides education-related information from 90 different countries. The data suggests that three countries have no university-based pharmacy schools, and 14 have only one pharmacy school. On the other hand, the USA and India have 127 and 1400 pharmacy schools respectively. The sample of 82 countries and territories was reported to have a total of 2,347 pharmacy schools, of which 1,568 were accredited. The academic workforce (as a percentage of the total workforce) ranges from 0.1% (China) to 35.7% (Cameroon) with a sample mean of 5.2% of the workforce (Bates and Bruno, 2012)

The number of pharmacy graduates per year equals 58,239 (n=54 countries and territories), with the sample mean of 71.4 graduates per year per school. The length of education and training programmes leading to up to registration varies widely between countries. It was also reported that there is a great correlation between the number of institutions offering an entry-level degree in pharmacy and the population size (Bates and Bruno, 2012).

In general, although most of the countries have established systems for quality assurance (QA) for pharmacy education, not many have specific pharmacy education QA systems. Other countries lack such systems while others rely on internal (institutional) QA processes (Bates and Bruno, 2012).

The global pharmacy workforce survey found that only a single country (Uruguay) did not have any accredited pharmacy schools, and only one respondent country (Burundi) did not have any accredited pharmacy technician training schools (Bates and Bruno, 2012).

Out of 49 countries which were able to provide data, eight were found to have a difference in the total number of pharmacy schools and the number of accredited schools. In addition, there was variance in the total number of pharmacy technician training schools and the

number of accredited pharmacy technician training schools in five out of 26 countries. It was also found that 42 and 23 countries had their pharmacy schools and pharmacy technician training schools under a national accreditation system respectively (Bates and Bruno, 2012).

Distribution of pharmacy support workforce varies between WHO regions. In the low-income countries, there is a limited number of pharmacists and inadequate technologies. For that reason, the support workforce has extended roles and responsibilities. In middle to high-income countries, the availability of a competent support workforce gives pharmacists more time to provide pharmaceutical care, leading to better patient health outcomes and savings on health expenditure (Bates and Bruno, 2012).

The 2012 Global Pharmacy Workforce Report suggests that workforce support staff form the highest proportion of the pharmacy workforce in Southeast Asia (67.5%) and the least in the Americas (28.4%) (Bates and Bruno, 2012).

Various terms are used to describe pharmacy support workforces such as pharmacy technician, assistant, technologist, dispenser, and an assistant pharmacist with different competency patterns. The International Labour Organisation defines their role as: “Pharmacy technicians and assistants perform a variety of tasks associated with dispensing medicinal products under the guidance of a pharmacist, or other health professional”. However, this definition is not used consistently; some nations require those staff to work without supervision, particularly in rural areas. Understanding education, training, and registration policies of pharmacy workforce cadres is still needed (Bates and Bruno, 2012).

Weaknesses of the FIP global workforce study could be summarised in the following points: the data collection tool or “questionnaire” was lengthy and required information to be obtained from several organisations including Ministries of Health, education bodies, and pharmacy regulatory bodies, which might have been a reason for the low responses. Additionally, the questionnaire was translated into French, Spanish, and Arabic so the terminology used to describe certain aspects of workforce development such as “ Good Pharmacy Practice Guidelines” and “performance indicator” might have different definitions in different countries, although process steps were taken to crosscheck translations. Some regions including the South East Asian and Eastern Mediterranean regions might not have

been represented accurately due to the low response rate. The WHO classification of regions used in presenting the data might have resulted in inaccurate representation of some regions such as the American region, which includes countries that are far from homogenous in terms of workforce data; for instance, the USA and Canada are much more developed than South American countries. Also, some of the collected data such as availability of national accreditation systems for pharmacy education programmes, and pharmacist licensing are country specific, so presenting such data at regional level might not have been accurate. Nonetheless, the basic process was to recover direct data from national agencies and those bodies responsible for stewarding such data.

### 1.7 Workforce distribution

Distribution of workforce can be divided into four categories: urban and rural, the private sector and public sector, global migration, and changing between workplace sectors. The proportions of pharmacists working in urban areas to the total population tend to be larger than those in rural and remote locations (Hawthorne and Anderson, 2009).

Socioeconomic factors affecting residents in the rural areas, such as having higher chronic health issues and lower insurance coverage, create an inverse relation between the cost of staffing and salary levels in these areas (McRee, 2002). In Canada, proportions of pharmacists in the metropolitan areas are higher. The private sector was found to employ more pharmacists than the public sector (Hawthorne and Anderson, 2009). For instance, in the United States, research in 2002 found that the community-pharmacy workforce accounted for 55% of the total workforce; 25% of this workforce was working for retail pharmacy stores (McRee, 2002). Similarly, in the UK, some hospital employees in the pharmacy sector have been outsourcing their outpatients dispensing departments (Livingston, 2012). It was found that 12,891 out of the total 13,264 of the total pharmacies in the UK were community pharmacies (Bates and Bruno, 2012)

Hawthorne and Anderson, (2009) found that international migration commonly occurs from less developed nations to richer nations. This trend is clearly spotted in the African region.

## 1.8 Pharmacy workforce role

In 1997 it was found that pharmaceutical services provided by pharmacy personnel were flourishing around the globe (Boyko et al., 1997). The roles of pharmacists and pharmacy support workers vary widely depending on the supply of those cadres, their competencies, and their distribution (Potter et al., 2013).

Pharmaceutical services were found to be cost-effective in several aspects of health services including haemodialysis unit and rehabilitation. Pharmacists were found to have a positive impact on adverse drug reactions, medication errors, pharmacokinetics, and nutrition support (Boyko et al., 1997).

Pharmacists' interventions not only improve health outcome but also are economically sound. Boyko et al. (1997) suggested that participation of a pharmacist in the medical team has resulted in a significant reduction in patients' length of stay, and pharmacy costs.

Another study in Sweden stated that pharmacists working in a multi-disciplinary oncology team improved drug-related issues (Bremberg et al., 2006).

Pharmacists who provide medication therapy management (MTM) services have shown better clinical outcomes and decreased the overall healthcare costs. An example of these services is the Maryland P3 Program, in which pharmacists provided diabetes patients with the required knowledge to handle their condition, ensured adherence to their medicines, and helped them achieve better self-management of their condition (de Bittner and Zaghab, 2011).

Having pharmacists in the post-admission ward round resulted in more accurate drug history documentation, decreased prescribing costs, and reduced the potential risk to patients (Fertleman et al., 2005). Pharmacists working with physicians on medical wards resulted in shorter hospital stays, and both pharmacy and total hospital costs were reduced (Boyko et al., 1997).

The traditional role of pharmacy technicians is supporting preparation and dispensing of medicines under pharmacist guidance and supervision (Myers, 2011). In some rural areas,

there is an expansion of pharmacy support workforce roles to balance the workforce shortage. In such areas, the pharmacy support workforce undertakes the responsibility of managing medicines independently (Myers, 2011).

In the United States, pharmacy technicians are still engaged with traditional tasks of drug products acquisition, preparation and dispensing under a pharmacist's supervision. However, they also provide more advanced services including entering medication orders into pharmacy department computers, obtaining and documenting patients' medication histories, administering medications, conducting benchmarking surveys, preparing quality-improvement reports, managing inventory, managing medication assistance programmes, and managing medication disposal and destruction (Myers, 2011).

Community pharmacies in Europe provide a wide range of services beyond dispensing and patient counselling. These include glucose measurement, cholesterol measurement, blood pressure measurement, weight measurement, counselling on smoking cessation, vaccination, education on different therapeutic topics, and follow-up services for patients with chronic conditions such as hypertension and diabetes (Pharmaceutical Group of the European Union, 2002).

In the United Kingdom, pharmacy technicians might manage inventories, provide patients with counselling, make up compound preparations and in some cases review prescriptions independently (Chan and Wuliji, 2006).

## 1.9 Pharmacy workforce in the GCC Countries

### 1.9.1 Aim and objectives

**Aim:**

To describe the pharmacy workforce in six Gulf countries, namely: Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the UAE.

**Objectives:**

1. To assess the composition of the pharmacy workforce in the Gulf countries.
2. To identify the capacity of pharmacy education in the Gulf countries.

3. To identify community regulations in the Gulf region.
4. To highlight the public perceptions of the pharmacy profession.
5. To describe healthcare professionals' views on the pharmacy profession.

### 1.9.2 Methodology

#### Search Sources and Strategies

In order to identify potential relevant research articles addressing the above objectives, the following electronic databases were searched: Embase, Human Resources for Health, Science Direct, International Pharmaceutical Abstracts, Ovid MEDLINE, and PubMed. Hand searching of the reference lists of the retrieved studies was performed to identify further relevant publications. Terms and key words used to conduct the literature search include the following: "pharmacy workforce", "pharmacy", "public perceptions", "community pharmacy", "perceptions", "healthcare professional perceptions" cross-checked with AND "Gulf region", "Gulf countries", "Bahrain", "Kuwait", "Oman", "Qatar", "Saudi Arabia", "UAE", "United Arab Emirates".

#### Selection Criteria

Articles that met the following inclusion criteria were selected: (1) journal articles describing the pharmacy profession and/or pharmacy workforce in the Gulf countries; (2) journal articles describing community pharmacy in the Gulf countries; (3) journal articles discussing perceptions on the pharmacy profession in Gulf countries; (4) research papers published in English. Reviews, notes, editorials and conference papers were excluded from the review.

#### Process for extracting literature and publications

Electronic database searches were conducted to identify studies that met the inclusion criteria. Entering the key words revealed the following number of articles: Embase (n=23), Human Resources for Health (n=12), Science Direct (n=46), International Pharmaceutical Abstracts (n=13), Ovid MEDLINE (n=24), and PubMed (n=212). The search yielded a total of 330 publications. The first stage of the review involved screening titles and abstracts of the identified studies. This phase resulted in excluding 244 articles for the following reasons:

duplicates (n= 24), conference papers (n=23), editorials (n=17), reviews (n=5), notes (n=7), thesis (n=1), irrelevant (n=203).

Table 1.1 research strategy

Electronic database	Search terms	Total number of hits
<b>Embase</b>	\$"pharmacy workforce" OR \$ "pharmacy" AND "Gulf region", "Gulf countries", "Bahrain", "Kuwait", "Oman", "Qatar", "Saudi Arabia", "UAE", "United Arab Emirates". \$ "community pharmacy" AND Gulf region", "Gulf countries", "Bahrain", "Kuwait", "Oman", "Qatar", "Saudi Arabia", "UAE", "United Arab Emirates"	23
<b>Human Resources for Health</b>	"pharmacy workforce" AND "Gulf region", "Gulf countries", "Bahrain", "Kuwait", "Oman", "Qatar", "Saudi Arabia", "UAE", "United Arab Emirates".	12
<b>Science Direct</b>	"pharmacy workforce" OR "pharmacy" AND Gulf region", "Gulf countries", "Bahrain", "Kuwait", "Oman", "Qatar", "Saudi Arabia", "UAE", "United Arab Emirates".	46
<b>International Pharmaceutical Abstracts</b>	"pharmacy workforce" OR "pharmacy" AND Gulf region", "Gulf countries", "Bahrain", "Kuwait", "Oman", "Qatar", "Saudi Arabia", "UAE", "United Arab Emirates". "community pharmacy" AND Gulf region", "Gulf countries", "Bahrain", "Kuwait", "Oman", "Qatar", "Saudi Arabia", "UAE", "United Arab Emirates"	13
<b>Ovid MEDLINE</b>	"pharmacy workforce" AND "Gulf region", "Gulf countries", "Bahrain", "Kuwait", "Oman", "Qatar", "Saudi Arabia", "UAE", "United Arab Emirates".	24
<b>PubMed</b>	[MeSH Terms] "pharmacy workforce"  OR "[MeSH Terms] "pharmacy"  OR "[MeSH Terms] "public perceptions" OR "[MeSH Terms] "community pharmacy"  OR "[MeSH Terms] "perceptions", OR "[MeSH Terms] "healthcare professional perceptions"  AND "[MeSH Terms] "Gulf region", "[MeSH Terms] "Gulf countries", "Bahrain", "Kuwait", "Oman", "Qatar", "Saudi Arabia", "UAE", "United Arab Emirates".	212
<b>Total number of articles</b>		330

Full texts of potentially relevant research studies (n=36) were obtained electronically (n=33) or on paper (n=3) to be assessed again for inclusion. A total of 16 articles were excluded in the second stage of the review for the following reasons: assessing certain modules in pharmacy education courses (n=11), evaluating prescribing specific drugs in community pharmacy settings (n=5). Hand searching of the reference lists of the relevant three articles identified three relevant publications. A total of 23 full-text articles were included in this review. A standardised data extraction sheet was used to document the details of the studies reviewed (Figure 1. 1 shows a Flow Chart of the Literature Review Process).



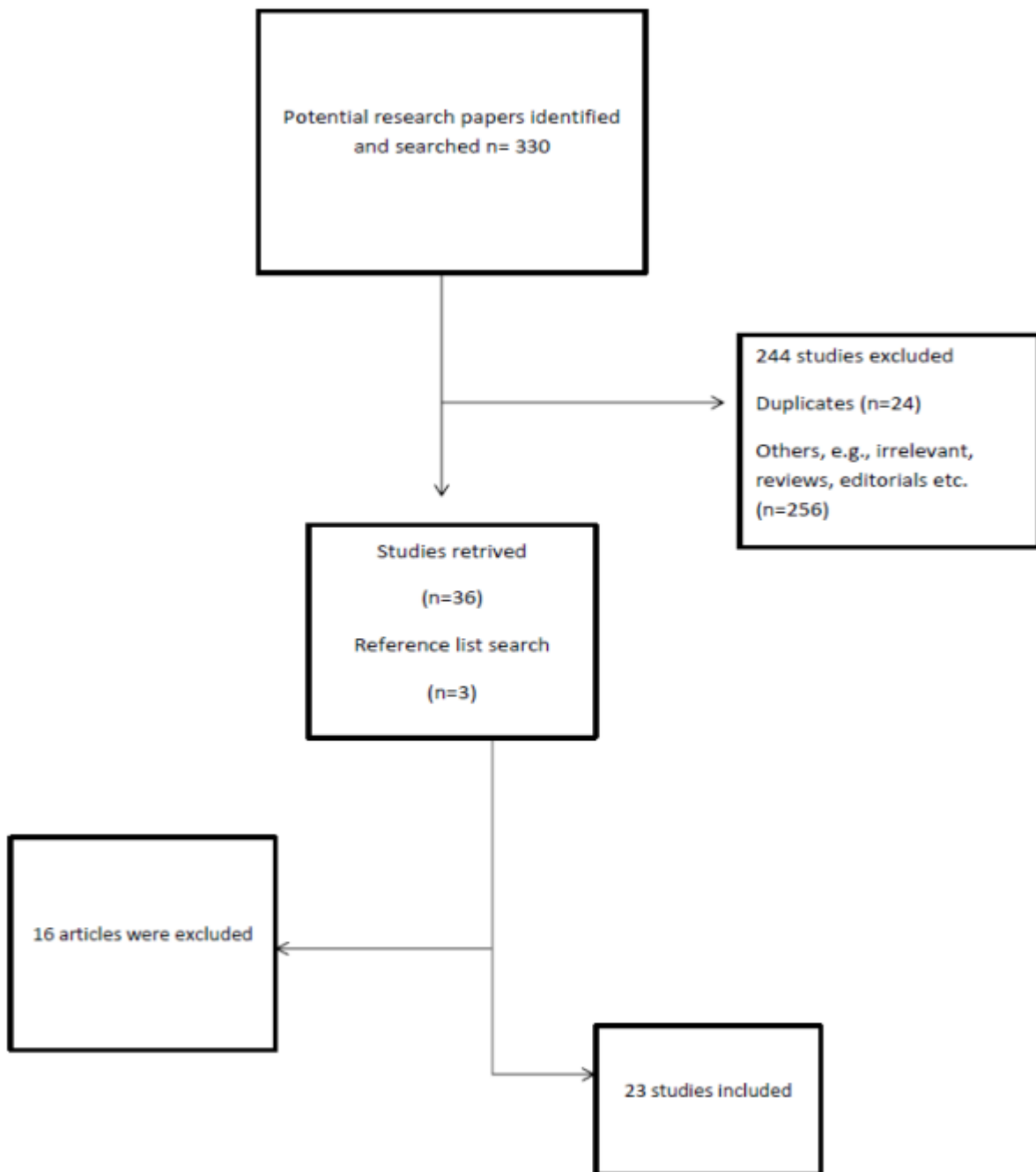


Figure 1. 1 Flow Chart of the Literature Review Process

## 1.10 Results

### Demographics of the GCC countries

In GCC countries, the discovery and exportation of oil in the mid-20<sup>th</sup> century brought tremendous and rapid development to the area, including advancement of the healthcare system (Maben et al., 2010). The positive impact of the oil and gas industry on social and economic factors involved changes in morbidity patterns, increased life expectancy, and increased literacy rates for both men and women (Maben et al., 2010).

GCC countries are considered demographically young with rapid population growth. In many of them, 40% of the population are less than 15 years old (Kheir and Fahey, 2011).

The research will now look at pharmacy education and practice in each of the GCC countries in turn.

### 1.11 Pharmacy education and pharmacy practice in GCC countries

#### 1.11.1 Bahrain

There are no pharmacy schools in Bahrain, but there is a diploma course for pharmacy technicians. There are intentions to establish a pharmacy school within the Bahrain-Royal College of Surgeons in Ireland (MUB-RCSI) within the next decade. There was a total of 500 pharmacists working in the different sectors in 2008 (Kheir et al., 2008).

#### 1.11.2 Kuwait

Kuwait established a pharmacy school in 1996 with the introduction of a five-year bachelor's degree course in pharmacy which has a curriculum based on the United States Pharm D program. The University produced its first graduates in 2002 (Matowee et al., 2003).

Most of the Kuwaiti pharmacists work in governmental hospitals since community pharmacy is perceived as a 'supermarket' due to the free access to almost all the medicines (Matowee et al., 2003). Other factors for this could be the lack of interaction between pharmacists and

patients when dispensing medications, technology is hardly used in community settings, and pharmacists are not legally required to keep patients' records.

Clinical pharmacy is not well established, and only a single hospital offers pharmaceutical care. However, there is an ongoing effort from Kuwait University together with the Ministry of Health to introduce the concept of clinical pharmacy. The resistance against this concept stems from underestimation of its positive impact on patients and clinicians, and policymakers' resistance (Matowee et al., 2003).

Despite of all the challenges, the future for clinical pharmacy is promising. Opening the first pharmacy school, which is staffed by Western-trained faculty members, continuous consultation with Auburn University in the United States, and possibly accreditation from a reputable university will help in enhancing clinical pharmacy practice in the country (Matowee et al., 2003).

### **1.11.3 Oman**

There are currently three pharmacy colleges in The Sultanate of Oman. Two of them are Oman Medical College and the College of Pharmacy at the University of Nizwa. They are private institutes but are supported by the government and accredited nationally by the Ministry of Higher Education. Furthermore, they both offer a bachelor's degree. The Oman Medical College started an affiliation with the West Virginia University School of Medicine (USA), and the first group of graduates (mainly Omani nationals) were awarded their degrees in 2007(Kheir et al., 2008).

The Oman Assistant Pharmacists Institute (OAPI) started a three-year diploma course which is exclusively for Omani students. Up to eight of the graduates who complete the diploma have the opportunity to start the second year of a four-year MPharm programme in one of two UK universities. This course was established to reduce the reliance on the expatriate pharmacy workforce. As a result, Omani pharmacists started to replace non-nationals in hospitals and healthcare centres (Kheir et al., 2008).

#### 1.11.4 Qatar

Qatar founded its first and only public pharmacy school in 2007 (Kheir and Fahey, 2011). The college was given international accreditation by the Canadian Council for Accreditation of Pharmacy Programs (CCAPP) in 2008 (Kheir and Fahey, 2011). It implemented the Pharm D programme alongside a bachelor's degree in 2007. Graduates from these degrees entered the workforce in 2012. The school also offers a Continuing Professional Pharmacy Development (CPPD) programme and an organised Structured Practical Experience Program (SPEP) for undergraduate students, giving them the opportunity to practice pharmacy in both hospital and community settings (Kheir and Fahey, 2011).

Moreover, students from the College of Pharmacy at Qatar University joined the International Pharmacy Student Federation (IPSF), which has a total of about 350,000 students from over 70 countries. In 2011, this group successfully hosted the second annual Eastern Mediterranean Regional Symposium (EMPS) in Qatar (Kheir and Fahey, 2011).

A pharmacy technician programme was started by the Qatar branch of the College of North Atlantic (Canada) (Kheir and Fahey, 2011). The government or various health organisations sponsor most of the students. The biggest governmental hospital in Qatar (Hamad Medical Corporation) set out a strategic plan for pharmacy services which suggests that pharmacy technicians are responsible for giving pharmacists more time to provide patient-oriented pharmaceutical care (Kheir et al., 2008).

The absence of pharmacy regulatory bodies such as a pharmaceutical society or pharmacy association in Qatar has led to the lack of a code of ethics that binds pharmacists with a code of conduct; until recently there were no competency frameworks for pharmacists.

Currently, pharmacy laws emphasise mainly pharmacists and pharmacy registration and the physical structure of pharmacy premises rather than the practice-related aspects (Kheir et al., 2008).

Pharmacist registration is relatively well established and comes under the jurisdiction of the Supreme Council of Health (SCH, Medical Licensing Department) (Kheir and Fahey, 2011).

This is also the same authority that registers and inspects pharmacy premises. Community pharmacy (private sector) is the major provider of over-the-counter medicines and non-pharmacological products (Kheir and Fahey, 2011). There are limited opportunities to improve community pharmacy settings because most of the public hospitals dispense medicines to their patients. In addition, financial incentives are limited and the salaries offered are not competitive; as a result of that, the community pharmacy sector is too far behind to be considered the secondary healthcare facility in Qatar (Kheir and Fahey, 2011).

There is a lower number of pharmacy technicians than pharmacists, so it is not surprising that many pharmacists are responsible for dispensing. However, some of the new hospitals are equipped with automated and computer-controlled drug distribution packages. Other hospitals provide specialised pharmaceutical care services including paediatrics and acute admission units (Kheir et al., 2008).

#### **1.11.5 Saudi Arabia**

Saudi Arabia has both the largest number of and the oldest pharmacy schools among the GCC nations, with the number growing rapidly within the last couple of decades from one to 18 pharmacy schools (Sayed and Al-Shehrb, 2012).

King Saud University (KSU) and King Abdulaziz University (KAU) were the first universities to be founded in the country. The Doctor of Pharmacy programme, also called Pharm D (clinical doctorate first terminal entry level in the American higher education system), was adopted by some of the newly founded colleges and universities. Some of the higher education institutions such as KAU opted for Pharm D as the entry-level degree whereas other institutions chose to stick to the classic Pharm B degree. KSU is the only institute that introduced the Pharm D programme alongside the traditional Pharm B programme, and students have the choice to join either of them. Table 1.2 shows a list of Saudi Arabian schools of pharmacy that adopted the Pharm D programme (Sayed and Al-Shehrb, 2012).

This inconsistency in the higher education system has been suggested to create an unhealthy environment for future practitioners who might use their degrees as a point of difference. It also might lead to confusion at practice and market levels (Sayed and Al-Shehrb, 2012).

**Table 1.2 Colleges and Universities that Award the Pharm D as a Terminal Degree in Pharmacy**

Institution	Founding year	Affiliation	PharmD implementation year
King Abdulaziz University	1967	Public	2001
King Faisal University	1975	Public	2002
Taif University	2003	Public	2003
Prince Salman University	2009	Public	2009
Taibah University	2003	Public	2005
Jazan University	2005	Public	2008
Almaarefa College	2009	Private	2009
Batterjee Medical College	2007	Private	2007
Ibn Sina College	2009	Private	2005
Source: Sayed & Al-Shehrb (2012)			

It is worth mentioning that pharmacy schools in Saudi Arabia are segregated, and proportions of male and female students in KSU are similar. However, it has been suggested that there are education inequities between male and female students (Kheir et al., 2008). Most of the pharmacy graduates work in hospitals, as either a hospital or clinical pharmacist. Both clinical and hospital pharmacy are advanced and offer competitive remuneration. On the other hand, community pharmacy is not regarded as a healthcare facility by patients (Al-Wazaify et al., 2006). Consequently, most of the private pharmacies are run by non-indigenous pharmacy personnel (Kheir et al., 2008). Efforts are being made to change societal perceptions of community pharmacy.

Registration and licensing of healthcare professionals including pharmacists in Saudi Arabia is through the Saudi Commission for Health Specialities, which is a relatively new agency (Sayed and Al-Shehrb, 2012).

### 1.11.6 UAE

The United Arab Emirates' first pharmacy school (Dubai Pharmacy College) was opened in 1992. Thereafter, new pharmacy programmes were launched. Currently, there are seven pharmacy schools, of which three are public and four are private (Kheir et al., 2008). Two of the universities offer places exclusively for UAE female citizens as a part of the government's strategy to increase employment of citizens in the pharmacy field. The Gulf Medical University launched a Pharm D programme in 2008 (Kheir et al., 2008).

Pharmacists practising in this country are multinational, so their education and training backgrounds vary widely. As a result, it is very hard to standardise pharmacy practice, and this affects how the local community is perceived by the public (Abu-Gharbieh et al., 2010).

Three different authorities manage drug procurement, registration, and pharmacy practice: the Health Authority of Abu-Dhabi, the Dubai Health Authority and the Ministry of Health (Abu-Gharbieh et al., 2010).

### 1.12 Pharmacy workforce description in the GCC countries

Shortages in health workforce have led to increased migration from low-income to higher-income countries. In the Gulf countries, there is a great reliance on international recruitment of healthcare staff. Historical, social, and religious factors have contributed to the limited participation of female staff in the workforce (Maben et al., 2010).

In the 1970s, increase in the oil prices and investments in infrastructure required recruitment of skilled and unskilled labour. GCC countries depended on foreign workers to sustain this development since at that time the majority of the workforce were immigrants (Chen et al., 2004). For instance, in 2003, 60% (8.27 million) of Saudi Arabia's workforce were migrants (Chen et al., 2004).

A study on the community pharmacy workforce in the UAE reported that 35% and 15% of the pharmacists were from India and Egypt, respectively (Maben et al., 2010). In general, for the last three decades, GCC countries were dependent on healthcare professionals from

other countries such as the Philippines, India, and other Middle Eastern countries including Egypt, Lebanon, and Sudan (Maben et al., 2010).

In the past years, good pay and advanced technologies have made GCC countries more desirable for foreign workers, but, currently, international demand for healthcare workforce has increased. Developed nations such as the UK and the USA offer competitive salaries and better working conditions, especially for females, who face restrictions on their movements and freedom of expression, particularly in Saudi Arabia (Maben et al., 2010). Immigrants might also be subjected to potential abuse from their employers by holding their passports and identity papers (Maben et al., 2010). Terrorist acts in Saudi Arabia also made the region less attractive for immigrant workers (Aldossary et al., 2003).

Increasing the proportions of indigenous healthcare workers could result in several benefits including better understanding of culturally sensitive issues; increased number of staff who speak Arabic, as currently not many of the staff speak Arabic and the majority speak English as a second language (Aldossary et al., 2003); And decrease the unemployment rate by increasing the numbers of indigenous healthcare workers It is suggested by the ILO (2013) that GCC countries struggle to provide sufficient employment opportunities to their local people.

Participation of women in the workforce in the Middle Eastern countries is limited, according to the International Labour (ILO, 2013). In 2012, the participation rate was as low as 19%, and their unemployment rate was 19.3%, which is was twice the rate for men. Ironically, in some Gulf regions women were graduating at a rate approaching double that of men (Girgis, 2002). However, limited numbers of females are employed and are often passed over for employment in favour of less competent male workers. Women are also seen as emotional beings better suited for home and family (Maben et al., 2010).

A summary of the country profile of GCC countries (2012) is shown in table 1.3



Table 1.3 Country profile (GCC)

Category	Bahrain	Kuwait	Oman	Qatar	Saudi Arabia	UAE
<b>Population Mid-2012</b>	1,336,000	2,892,000	3,090,200	1,881,600	28,705,100	8,106,000
<b>Life expectancy at birth (years)</b>						
Female	78	75	76	78	75	77
Male	73	74	70	78	73	76
<b>GDP/Capita</b>	18,184	62,664	25,221	92,501	20,540	45,653
<b>Health expenditures (% of the GDP)</b>		2011	2009	2009	2009	2009
	4.5	6.5	3	2.5	5	2.8
<b>Literacy rate (%)</b>	2010	2005	2003	2010	2010	2003
Female	91.6	91	86.8	95.4	81.3	81.7
Male	96.1	94.4	73.5	96.5	90.4	76.1
<b>Unemployment Rate (%)</b>	2001	2004	2004	2007	2008	2008
Female	27	2.2	15	7.5	45.8	21.8
Male	17.2	2.2	15	0.7	23.6	7.9

(The World Bank, 2012), (CIA,2012), (PRB, 2012).

### 1.13 Pharmacy human resources shortages in GCC countries and non-indigenous pharmacists

It has been suggested that there is a great reliance on non-indigenous pharmacy personnel in the GCC region. In Kuwait, pharmacy faculty members were found to be mainly expatriates from North America and Europe (Matowee et al., 2003). KSU in Saudi Arabia is not very different from Kuwait University in terms of having multinational staff members (Al-Wazaify et al., 2006). Saudi Arabia Manpower Council suggested that there is a critical shortfall of pharmacists, and at least 17,000 are needed by 2026. The government target is to achieve pharmacist density of 0.48/1000 inhabitants (Kheir et al., 2008). In 2008, only 11% of the practising pharmacists in different sectors were Saudi, and the government is aiming for Saudisation (re-nationalisation) of the profession (Kheir et al., 2008).

In the UAE, all the pharmacy sectors – community, hospital and industry – were reported to have a shortage. Pharmacists' density per 1000 population was 0.4 in 2002, whilst, in 2005, only 4.1% of the pharmacists in the UAE were UAE citizens (Dameh, 2009; Hasan et al. (2010).

Qatar's practising pharmacists are mainly expatriates, and most of them are Egyptians, Indians, and Jordanians (Kheir and Fahey, 2011).

Oman reported that Omanization level in the MOH increased from about 52% in 1990 to 68% in 2007 (Gosh, 2009).

On the other hand, Bahrain Ministry of Health statistics state that 98% of the practising pharmacists are Bahraini (Bahrain Ministry of Health, 2010).

#### **1.14 Public and healthcare professionals' perceptions of pharmacy in the GCC countries**

Public and healthcare personnel's perceptions of the pharmacy profession and pharmacists are crucial for assessing the current services and evaluating the need for new pharmaceutical services (Abu-Gharbieh et al., 2010). A study in Qatar showed that physicians are more comfortable with product-related pharmacy services than patient-oriented pharmaceutical services. However, they were encouraged to enhance their collaboration with clinical pharmacists (Wilbur et al., 2012).

Positive views on clinical pharmacy were stated by medical students in the UAE. Improving medical care and reducing medication errors were the main positive impacts that medical students mentioned about clinical pharmacy. Almost all the doctors and nurses surveyed valued the role of clinical pharmacists (Abu-Gharbieh et al., 2010).

Another study assessing patients' perceptions of pharmacists' role in providing over-the-counter (OTC) medication found that one in seven (15.3%) patients were unaware that medical problems can be assessed by a pharmacist, whilst one in five (21.9%) did not know that pharmacists are authorised to supply OTC medicines. The majority (85.3%) showed an interest in such services (Wilbur et al., 2010).

Similarly, a study conducted in Saudi Arabia found that the majority of the participants (71%) appreciated the role of community pharmacists, while 37.3% perceived community pharmacists as mere vendors; 38% suggested that pharmacists' counselling was limited, 35% were positive about the pharmacists' role in improving their compliance with medicines; and 43% of them acknowledged the pharmacists' role in solving medication-related issues (Al-Arifi, 2012).

### 1.15 community pharmacy practice in the Gulf countries

The exact role of pharmacists in the community is determined by the economic, regulatory and organisational frameworks within which pharmacists work and so it will differ from country to country. Factors related to how medications are paid for, patient access to medications, pharmacy ownership, drug procurement and distribution processes will influence the type of pharmacy services available and, ultimately, define the pharmacist's role in the healthcare system (Hasan et al., 2010). Table 1.4 shows community pharmacy regulations in the gulf countries.

Table 1.4 community pharmacy regulations in the gulf countries

Country	Ownership of community pharmacy	Non OTC Medications	Regulatory body of community pharmacy	Workforce
<b>Kuwait (Matowee et al., 2003)</b>	Restricted to Kuwaiti pharmacists	Almost all drugs are available without a prescription	The Ministry of Health in Kuwait	Mostly run by international staff. Perceived as supermarket.
<b>Oman (WHO,2010)</b>	Pharmacy ownership is restricted to Omani pharmacists	Information not available	The Directorate of Drug Control (DDC) is responsible for the registration of drugs and clearance of imported/exported drugs for the private Sector. The MOH in Oman.	The private sector is small and caters mainly for the expatriates employed outside the government sector.
<b>Qatar (El Hajj, 2011; Wilbur et al., 2011; Kheir and Fahey, 2011)</b>	Pharmacy ownership is restricted to citizens (not necessarily a pharmacist). The pharmacies have to be run by a registered pharmacist.	The majority of drug therapy in Qatar is available without a prescription.	Qatar's Supreme Council of Health The SCH also has a Department of Pharmacy and Drug Control, which controls pharmacy premises (registration and inspection) including community pharmacies, private hospitals, and drug stores.	Most pharmacists practicing in Qatar are expatriates.
<b>Saudi Arabia (Al-Mohamadi et al., 2011)</b>	Pharmacy ownership is limited to Saudi pharmacists	Any drug -despite its class- could be easily purchased in Saudi pharmacies without a prescription.	Ministry of Health in Saudi Arabia	Almost all of the pharmacists were non-Saudis and only few were Saudis.

<b>UAE (Hasan et al., 2010)</b>	The pharmacies were mostly owned by independent non-pharmacist owners who employed pharmacists to manage them pharmacy	Medications are available for sale without a prescription in most cases	Supervises drug control but there are three institutions that govern drug procurement, registration and pharmacy practice: the Health Authority of Abu-Dhabi, the Dubai Health Authority and the Ministry of Health.	Most of the practicing pharmacist are non-indigenous
<b>Data on community pharmacy regulations in Bahrain was not available</b>				

### 1.16 Conclusion

There is little in the literature about the pharmacy workforce globally. The published literature is limited, especially in developing countries including the Gulf region. Resources on pharmacy workforce data in the GCC countries are mostly outdated and in some cases not available (e.g. Bahrain). In Saudi Arabia, for instance, pharmacy workforce data is published as a part of the MOH healthcare workforce report, which makes obtaining information challenging. Also, the focus is mainly on pharmacists working in the MOH, neglecting those who work in the private sector. Data on pharmacy technicians is also very poor or not available. Most of the Gulf countries suggested that there is still a great reliance on the non-indigenous pharmacy workforce. However, the available data does not indicate accurate figures. Effective pharmacy workforce planning is essential to ensure a future balance between supply and demand. To achieve this, data need to be collated to identify learning needs and gaps in the existing workforce.

Currently, there is an increase in the numbers of pharmacy graduates as a result of the increase in the numbers of pharmacy schools in the region. Workforce monitoring is necessary to avoid moving to an oversupply of pharmacists who cannot be employed within the pharmacy workforce.

One of the main gaps in our knowledge concerns the profile of the community pharmacy workforce. The literature suggests that community pharmacies in the region are mainly run by the non-indigenous pharmacy workforce. Also, the public perceptions, the poor financial incentives, and the high workload do not encourage home pharmacists to join this sector. However, with current renationalisation strategies being implemented in the region, home pharmacists should be educated and trained to be able to serve the community pharmacy sector.

Regular, more detailed profiling of the pharmacy workforce is an essential step to achieving effective pharmacy workforce planning. Currently, there is a large hole in our knowledge of the workforce in the region.

## Chapter 2 – Aims and Objectives

This study was developed to provide an in-depth understanding of pharmacy human resources' issues in GCC countries: Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the UAE. It also elaborates on the variance between the countries' workforces in terms of gender proportions, proportions of pharmacy support workforce, and education status. It also provides insight into pharmacy practice areas. This chapter contains the following sections:

Section 2.1 presents aims and research questions.

Section 2.2 discusses research rationale.

Section 2.3 provides an overview of the research project.

### 2.1 Aims

#### **Quantitative study of pharmacy workforce in GCC Countries (part I)**

- To explore comparisons in the pharmacy profession in the GCC region with other WHO regions about availability, accessibility, acceptability, and quality.
- To analyse the compositions and the capacity of the pharmacy workforce and pharmacy education in Gulf countries.

#### **Qualitative study of pharmacy human resources' work attitudes and job satisfaction in Kuwait and Saudi Arabia (part II)**

To date, services development and work attitudes have not been researched in the pharmacy profession in Kuwait and Saudi Arabia. Saudi Arabia and Kuwait were selected based on the findings of part I. Saudi Arabia is a major influential in developing pharmacy education. It had the highest density of pharmacy education institutions in the region and there was a requirement for pharmacy schools to be accredited and the curriculum to be reviewed. Also, it met all the criteria required for pharmacy workforce quality including the availability of a code of conduct governing the professional behaviour of pharmacists, availability of national good pharmacy practice guidelines, mandatory continuous professional development, availability of performance indicator, licensing for pharmacists,

and availability of a competency framework. On the other hand, Kuwait had the lowest density of pharmacy schools, and it lacked an accreditation system for pharmacy schools, and it did not require the curriculum to be reviewed. Workforce quality measures were lowest in the region as it lacked a code of conduct governing the professional behaviour of pharmacists, national good pharmacy practice guidelines, mandatory continuous professional development, and availability of performance indicator. Therefore, the purpose of this study is to provide further understanding of a current profile of pharmacists' work attitudes and services development in the two countries.

The objectives are as follows:

- To examine the effects of workload, relationships with co-workers, supervisors and other healthcare professionals on job satisfaction.
- To evaluate pharmacists' satisfaction with their earnings.
- To find out the linkages between job satisfaction and turnover intentions.
- To explore pharmacists' perspectives towards pharmacy policies regarding education and training, professional development, and services development.

## **2. Rationale**

Pharmacy practice has been influenced by a number of factors including: the expansion of the roles and responsibilities of pharmacists due to the increase in elderly population and numbers of prescriptions globally. The imbalance between the supply and demand of pharmacists. This imbalance had an impact on the kind and amount of work pharmacists performed in their duties (Mott et al., 2004).

Less is known about the pharmacy workforce in the Gulf countries. In the 2009 and the 2012 Global Pharmacy Workforce Reports, only Kuwait and Saudi Arabia out of the six Gulf nations were represented respectively (Wuliji, 2009; Bates and Bruno 2012). Pharmacy education and pharmacy practice in the Gulf region has been going through dramatic changes recently due to the opening of new pharmacy schools, the adoption of the PharmD programme by some schools and the replacement of expatriate pharmacists by nationals.



Work-related attitudes in the pharmacy profession such as job stress, job satisfaction, workload, and turnover intentions, and services development have not been investigated widely in the Gulf region either.

In contrast, various studies from different countries have indicated that pharmacists are satisfied with their jobs. Gender is believed to affect job satisfaction. Data from the USA suggested a drop in satisfaction levels over time, with men less satisfied than women (Mott et al., 2004). British male pharmacists have also been found to be less satisfied than their female counterparts, and Lebanese pharmacists showed a similar attitude (Seston et al., 2009). In other countries, such as Australia (Liu and White, 2011), Iran (Majd et al., 2012), Japan (Kawabata et al., 1998), and Taiwan (Lee et al., 2009), comparative data is not available and demographic characteristics such as gender are not associated with professional satisfaction. Jordanian female pharmacists, on the other hand, were less satisfied than male pharmacists (Boran et al., 2012).

Satisfaction with earnings has not been explored extensively, but, in Iran, older pharmacists highlighted salary as one of the aspects of their job with which they were least satisfied, whilst Taiwanese pharmacists with longer work experience were more financially satisfied (Lee et al., 2009). British pharmacists in all sectors ranked remuneration as the most dissatisfying feature of their job (Seston et al., 2009), whilst, pharmacists in Lebanon were satisfied with their salaries (Salameh and Hamdan, 2007).

When comparing satisfaction levels among pharmacists working in different sectors, it has been found that the community pharmacy is one of the most dissatisfying workplaces to work. This fact has been shown in the following countries: Ireland (McCann et al., 2009b), Lebanon (Salameh and Hamdan, 2007), and the UK (Seston et al., 2009). In contrast, Qatar hospital pharmacists were the least satisfied group among the different sectors (El Hajj et al., 2009).

Several issues contributed to job dissatisfaction: excessive workload, understaffing, poor remuneration, the lack of promotions, dealing with uncooperative patients and long working hours (Liu and White, 2011).

It has been suggested that enhancing job satisfaction can be achieved via certain strategies. In countries such as Hong Kong, Japan and Qatar, where the concept of clinical pharmacy is relatively new, practising pharmaceutical care was a core feature for better job satisfaction (Kawabata et al., 1998, El Hajj et al., 2009; Lau et al., 2011). In developed countries such as Australia and the USA, skill utilisation was also a key for professional satisfaction (Liu and White, 2011; Cox and Fitzpatrick, 1999).

However, overall, there is limited evidence regarding job satisfaction in the area of pharmacy, suggesting that there is a need for a universal, multifaceted scale to measure satisfaction.

However, Job satisfaction and other work-related attitudes have also not been researched in the pharmacy profession in Kuwait and Saudi Arabia.

Saudi Arabia is growing fast in all fields, especially in health (Al-Dossary et al., 2012). However, the supply of Saudi healthcare professionals does not meet the current demand, so most of the workers are expatriates from around the world (Al-Dossary et al., 2012).

Hospitals in Saudi Arabia are run by various organisations including the military, the Ministry of Health, the National Guard, and universities. Each of these organisations has a different set of rules and regulations to manage their hospitals, which creates a complex healthcare system (Dajani, 2007). As an example, King Khalid University Hospital expanded its pharmacy department to accommodate the increasing workload. The director of the hospital indicated that the pharmacy team's excessive workload is a clear indication of the recognition of the clinical pharmacy profession (Dajani, 2007). Pharmacy technicians had been up-skilled to accommodate the increasing demand for pharmacy services.

Community pharmacy is not as advanced as hospital pharmacy; it has not yet met the standards required by the local health authorities (Al-Arifi et al., 2007). Although drug stores are privately owned, there are some pharmacy chains, which consist of up to five pharmacies. A few community pharmacies run clinics which provide blood pressure and cholesterol monitoring. Most of the medicines can be obtained over the counter (Dajani, 2007).

Pharmacy education has gone through tremendous changes recently. For example, the number of pharmacy schools rose from one to 18 during the last two decades (Sayed and Al-Shehrb, 2012). Some of the universities have adopted the PharmD programme alongside the traditional bachelor's degree in pharmacy, whereas the rest have opted for one of the two programmes. A pharmacy residency programme was established at King Faisal Specialist Hospital & Research Centre (KFSH&RC) in Riyadh in 1997. The development in pharmacy education in Saudi Arabia has increased the number of pharmacy graduates, who have started to replace non-Saudi staff (Al-Haidari and Al-Jazairi, 2010). However, the variation in graduate qualifications together with expatriates who obtained their degrees from their home countries is believed to create tension among the practising workforce (Al-Haidari and Al-Jazairi, 2010).

### **2.3 Research project overview**

This research fills the gap in the literature by developing an understanding of the status of the pharmacy workforce and pharmacy education in the six Gulf Corporation Council Countries, Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the UAE. The purpose of this research is to explore the composition and the capacity of pharmacy human resources in each of the Gulf countries. It comprises two studies, as follows:

The first is a quantitative study based on the 2012 FIP Global Pharmacy Workforce Questionnaire that seeks to monitor and analyse the status of the pharmacy workforce and pharmacy education in the Gulf.

The second is a qualitative study aimed to explore services development, pharmacy personnel work attitudes and job satisfaction in Kuwait and Saudi Arabia.

These two studies are interconnected as the first part examines the pharmacy workforce at a national level (country level) and at a global level where the whole GCC region is compared to other WHO regions. The second part contains case studies on Kuwait and Saudi Arabia looking at pharmacists' work attitudes (individual level). The quantitative, multi-country study provides comparisons between the countries, but there was a need for in-depth understanding of the behaviours and work attitudes of the workforce. The qualitative

component of this research, Kuwait and Saudi Arabia case studies, provides an in-depth understanding of the pharmacists' job satisfaction, workload, and turnover intentions.

## Chapter 3 – Methods

This chapter covers the theoretical assumptions of the methodological approaches in quantitative and qualitative research.

Section 3.1 gives an introduction to quantitative research and data collection tools.

Section 3.2 describes different qualitative study designs.

Section 3.3 explains various sampling techniques.

Section 3.4 highlights the differences between data collection tools used in qualitative research.

Section 3.5 explains qualitative data analysis.

Section 3.6 discusses reliability and validity in qualitative research.

Section 3.7 summarises the current study design.

### 3.1 Quantitative research

Quantitative research refers to “research which deals with quantities and relationships between attributes; it involves the collection and analysis of highly structured data in the positive tradition” (Bowling, 2010). Quantitative research is suitable when there is established knowledge about the subject; this allows the use of standardised data collection strategies such as survey questionnaire. The aim of the research is either to test a hypothesis or to identify prevalence (Bowling, 2010).

#### 3.1.1 Data collection tool in quantitative research: Surveys

The survey is defined as “method of collection information, from a sample of the population of interest, usually by personal interviews (face to face or telephone), postal or other self-completion questionnaire methods, or diaries” (Bowling, 2010). There are different types of surveys.

### 3.1.1.1 Descriptive surveys

Descriptive surveys are used to study a certain phenomenon (events, behaviour, attitudes) in the population under study (Bowling, 2010). They are called descriptive because the researchers identify and collect some descriptive measures about the population of interest. They are also called cross-sectional, because data is gathered from the population of interest at a single point in time. Participants are required to recall past events, feelings, behaviour, and thus these surveys are also known as retrospective (Bowling, 2010).

Retrospective, cross-sectional studies are commonly used in social sciences such as psychology, sociology, and economics to research certain social phenomena and to measure the prevalence of disease in epidemiology (Bowling, 2010).

The main disadvantage of this survey methodology is the potential recall bias which might result from recall selectivity. In addition, descriptive surveys cannot establish causality, i.e. the direction of association (cause and effect); they can only be used to highlight the statistical association between variables (Bowling, 2010).

### 3.1.1.2 Analytical surveys

Analytical surveys aim to study the causal link between variables. They are also known as longitudinal surveys because they are conducted at more than one point in time. If seasonal influences are possible, the data collection should be carried out over the year.

Prospective longitudinal survey refers to “an analytical survey that takes place over the forward passage of time (prospectively) with more than one period of data collection (longitudinal). It tends to be either panel (follow up with the same population) or trend (different samples at each data collection period) in design” (Bowling, 2010).

This survey method is popular in social science and epidemiology, to investigate causes of diseases or to investigate cause and effect relationships (Bowling, 2010).

This survey technique is particularly useful when studying the impacts of applying certain interventions when investigating trends in behaviours or attitudes (Bowling, 2010).

Measuring change using this survey method provides more precise data than the data obtained by a series of cross-sectional surveys (Bowling, 2010).

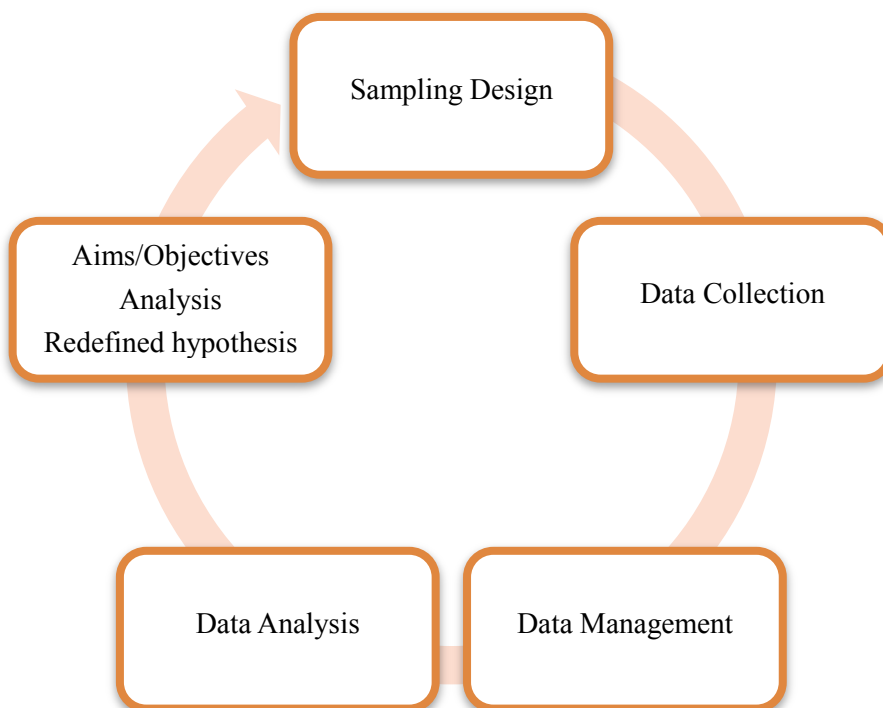
### 3.1.2 Data collection tool in the current quantitative study

A descriptive survey was used in the quantitative study of pharmacy workforce in GCC nations. The questionnaire was previously used and validated by the FIP. The study design is explained in detail in Chapter 4.

### 3.2 Qualitative research

Qualitative research is defined as “primarily an inductive process of organizing data into categories and identifying patterns (relationships) among categories” (Creswell, 1994).

Figure 3.1 illustrates the process of the qualitative research process.



**Figure 3.1 The iterative qualitative research process**

### **3.2.1 Qualitative research designs**

#### **3.2.1.1 Case study design**

Crabtree and Miller (1992) stated that, “In a case study, a single person, program, event, process, institution, , social group, and phenomenon are investigated within a specified time frame using a combination of appropriate data collection.” Case study design is often used in business, law, and medicine fields. The case is studied onsite within the natural context. The data collection process is interactive; the researcher and people under the study are involved; data is collected primarily by fieldwork, but secondary data collection is usually considered.

#### **3.2.1.2 Ethnographic Research Strategy**

Ethnography has been described as “an analytical description of social scenes and groups that recreate for the reader the shared beliefs, practices, artefacts, folk knowledge, and behaviours of those people” (Crabtree and Miller, 1992). Great emphasis is given to the relationship between culture and behaviour.

The researcher is either an observer or a participant observer. Data interpretation occurs as data is being collected. Patterns are identified by comparing new data to old data. The data collection process continues until subjects’ reality, and perceptions is reached (Crabtree and Miller, 1992).

#### **3.2.1.3 Phenomenological Research**

Phenomenology seeks to understand peoples’ perspectives as they experience and understand an event, relationship, programme, or emotion (Leedy, 1997). The phenomenon being studied interests the researcher significantly. When a phenomenon of interest is decided upon, the researcher engages with it to the same extent as participants.



#### **3.2.1.4 Grounded Theory Research Strategy**

“Using naturalistic iterative data collection and relationship analysis processes, researchers derive, from the data, the theory as the expected outcome of the inquiry”. The theory is developed by iterative processes of data collection and analysis (Strauss and Corbin, 1994).

#### **3.2.1.5 Historical Research**

Historical research depends on records, diaries, oral histories, photographs, and other artefacts to describe, analyse, and explain past events or philosophies (Leedy, 1997). The records and artefacts included are related to the research questions. Inductive and logical reasoning are key in historical research (Creswell, 1994).

#### **3.2.1.6 Thematic Analysis**

This research strategy focuses on specific themes or patterns of experiences or behaviour drawn directly from interview transcripts (Leininger, 1985). The themes that emerge from participants’ interviews are grouped together in sub-themes to structure a comprehensive photograph of their shared opinion or experiences (Tucket, 2005). This research method is widely used in the literature.

#### **3.2.17 Framework analysis**

This research design is deductive form of qualitative analysis (Ritchie and Spencer, 1994). It is often used for applied or policy research where the objectives of the investigations are pre-determined. It provides methodical and observed stages to the analysis process, so it is very clear about the steps by which the outcomes have been achieved from the data. This method of analysis has been successfully used on numerous occasions.

The two methods differ in the way ideas are interpreted from data. Framework analysis predefines themes a priori before the data scrutiny (inductive style analysis) whereas Thematic analysis only allow themes to emerge from the data.

### 3.3 Sampling

Sampling in qualitative research is different from that in quantitative research in several aspects. Table 3.1 summarises the main differences between sampling in qualitative and quantitative research. The following sections discuss types of probability sampling and non-probability sampling.

**Table 3.1 Sampling in quantitative and qualitative research**

<b>Qualitative sampling</b>	<b>Quantitative sampling</b>
In depth on relatively small samples	Larger samples
Purposefully selected	Randomly selected
Theory development that takes into account local conditions	Representative of larger population
Main concern is information-richness	Main concern is representativeness

#### 3.3.1 Probability sampling

The following subsections explain types of probability sampling

##### 3.3.1.1 Simple random sampling

This sampling technique includes the random selection of the required sample number from a list of the population (Robson, 1994; Smith, 2010). Sampling methods used include lottery method, random number tables, or a computer (Robson, 1994). This method gives equal chance to all individuals to be selected (Robson, 1994; Smith, 2010).

### **3.3.1.2 Systemic sampling**

This sampling method requires a random starting point to be chosen in the sampling frame, then every (n)th person to be chosen. For example, if a sample of 50 is needed from a population of 2,000 then every 14<sup>th</sup> subject is included. Random selection of a number between 1 and 40 would be required to start off the sequence (Robson, 1994). A complete list of the population is required for both simple random sample and systematic sampling; however, obtaining the list is often challenging (Robson, 1994).

### **3.3.1.3 Stratified random sample**

This sampling methodology involves dividing the population into subgroups or STRATA. The subgroups share certain characteristics (Robson, 1994; Smith, 2010). Random sampling is then used within the subgroups. Proportionate sampling is usually necessary, where the number of groups selected for the sample reflects the relative numbers in the whole population. Disproportionate sampling is useful to represent rare species (Robson, 1994; Smith, 2010).

### **3.3.1.4 Cluster sampling**

This sampling tool involves dividing the population into clusters, each of which includes participants having certain characteristics (Robson, 1994). This approach is particularly helpful for population spread over a wide geographical area. The area is divided into several locations and random sampling is applied to these locations.

### **3.3.2 Non-probability sampling**

In contrast to probability sampling, where there is a possibility to specify the probability that any subject will be included in the sample, it is not possible to do so in non-probability sampling. Non-probability sampling is often opted for in small-scale surveys where generalisation of the findings is not intended. It could also be used for piloting a survey before random sampling (Robson, 1994). The following sections explain types of non-probability sampling

### **3.3.2.1 Quota sampling**

Quota sampling is used to represent the population under study, usually participants with different socioeconomic characteristics including age and gender (Robson, 1994; Smith, 2010). The researcher might claim that the results represent a wider population because of the sampling technique used. However, this sampling approach is not random, and could result in bias (Robson, 1994; Smith, 2010).

### **3.3.2.2 Convenience sampling**

This sampling technique is considered the most commonly used and least satisfactory method of sampling (Robson, 1994). It involves choosing the nearest, most convenient people to participate in the research. This sampling strategy is used for sample surveys and fieldwork, especially for case studies with a participant observer (Robson, 1994).

### **3.3.2.3 Propulsive sampling**

The concept of selection in this technique is the researcher's evaluation as to typicality or interest: the researcher chooses the sample to justify certain needs in a study (Robson, 1994).

### **3.3.2.4 Snowball sampling**

In this sampling method, the researcher identifies and recruits a member of the targeted population, and then the identified individual helps in recruiting other participants. This approach is particularly useful in cases where identifying a certain population is difficult, the population is of limited accessibility, or there is a small population (Robson, 1994; Smith, 2010). Selection bias could be justified if this method was the only available approach to explore a research question (Smith, 2010).

### 3.3.2.5 Sampling method at the current study

A purposive sample was selected to recruit participants for the qualitative study (Chapter 5). Random sampling was rejected because participants needed to be deliberately selected due to certain characteristics (which are described in Chapter 5). A convenience sample was not selected as participants' accessibility was not an important factor in generating the sample. Snowball sampling was also used to enlarge the initial purposive sample to be interviewed in order to make it more representative.

### 3.4 Data collection tools in qualitative research

The following sections explain data collection tools.

#### 3.4.1 Observation

Observation has two fundamentally different approaches; participant observation, which is a qualitative technique originated by anthropologists and structured observation which is a qualitative method used in various fields. The main advantages and disadvantages of observation approach are shown in Table 3.2.

**Table 3.2 Advantages and disadvantages of observation (Robson, 1994)**

Advantages	Disadvantages
<b>Directness</b>	It might affect the situation under study
<b>Concentration on non-linguistic aspects</b>	Time-consuming
<b>Information obtained contrasts with data obtained by other approaches</b>	Condensed field experience based on observation requires time commitment (years)
<b>It is considered the best tool for understanding real life in the real world</b>	Planning observation schedule might reduce actual observation time
<b>Lack of artificiality</b>	There might be ethical issues

##### 3.4.1.1 Participant observation

The observer acts as a part of the observed group, which means not only having a physical presence but also learning about the group's social conventions and habits, and adapting their language and non-verbal communication (Robson, 1994). The observer could be either a complete participant or participant as observer.

##### 3.4.1.2 The complete participant

The observer conceals being an observer; s/he acts as normally as possible and tries to become a member of the observed team. This style of observation is becoming a rare

approach due to the ethical objections it raises, and the observer perspective as a research tool could be overtaken by the new role adopted: becoming a member of the observed group (Robson, 1994; Smith, 2010).

### 3.4.1.3 The participant as observer

The observed group are aware of the role of observer. The observer then tries to build close relationships with the group. The observer could obtain information not only through observation but also by asking about different aspects of the subject being researched. Having an observing and participating role could lead to disruption of the observation process compared to complete participation (Robson, 1994, Smith, 2010).

### 3.4.2 Interviews

The interview is a conversation with a purpose (Robson, 1994). It is initiated by the interviewer for the specific purpose of obtaining research-relevant information. (Robson, 1994). Table 3.3 summarises the advantages and disadvantages of interviewing as a data collection tool. The following subsections describe the different interview types.

**Table 3.3 Advantages and disadvantages of interview style compared to observation (Robson, 1994).**

Advantages	Disadvantages
<b>Fixable and adaptable</b>	Time-consuming
<b>Shortcut in seeking answers when compared to observation</b>	In some disciplines, it seems difficult to obtain co-operation from potential interviewees
<b>Possibility of modifying one’s line of enquiry, to follow-up interesting responses which cannot be achieved with questionnaire</b>	Analysis requires note-taking, taping requires whole or partial transcribing, both of which require time and effort

### 3.4.2.1 Structured interviews

This involves reading pre-set questions to interviewees and recording their responses (Smith, 2010). Achieving the aim of structured interviews is dependent on preparatory work (Robson, 1994). Responses are often circled during the interview; open-ended questions usually have a set of pre-categorised responses. The interviewer is responsible for choosing where a response lies. Interviews could also be recorded for coding immediately afterwards (Robson, 1994).

### 3.4.2.2 Semi-structured interviews

In semi-structured interviews, there is a list of topics for respondents to talk about with great freedom in the sequence, flexibility with wording, time and attention allocated to each topic (Robson, 1994). This interviewing style is the most commonly used technique (Smith, 2010). The semi-structured interview schedule is shown in Figure 3.2.



**Figure 3.2 Semi-structured interview schedule guide (Smith, 2010)**

### 3.4.2.3 Focused interviews

Focused interviews or the so-called non-directive interviews are controlled by the interviewees (Robson, 1994). Focused interviews give interviewees a great chance to express their views and feelings, without the interviewer losing control of directing the conversation (Robson, 1994).



#### **3.4.2.4 Group interviews**

This approach is similar to one-to-one interviews. It is run by a facilitator who follows an interview guide (Smith, 2010). It is widely employed in market research to find out customers' views on new products (Robson, 1994). It is considered helpful in certain cases, such as studying an established group. However, it has some drawbacks including failing to gather every individual's opinions, particularly when some participants dominate the conversation (Robson, 1994).

#### **3.4.2.5 Telephone interviews**

Although face-to-face interviews are seen as the norm, telephone interviews have several advantages such as higher response rates, less time-consuming, require fewer resources, and are particularly useful when the population is geographically dispersed (Smith, 2010; Robson, 1994).

On the other hand, telephone interviews cannot necessarily provide a private atmosphere without distractions, there is a lack of non-verbal communication, and it is difficult to build a rapport with participants (Smith, 2010; Robson, 1994).

#### **3.4.2.6 Data collection tool at the current study:**

A one-on-one semi-structured interview approach was used for data collection. The one-on-one interview approach was chosen because the interview guide contained some sensitive topics (such as participants' perspectives on their relationships with colleagues and supervisors) which would not have been appropriate to ask in a group interview. The semi-structured approach was selected to address the pre-identified research objectives and specific data was needed but spontaneous responses were also sought to explore perceptions. A telephone interview was chosen because the researcher was based in the UK and the participants are geographically dispersed, i.e. from different regions of Saudi Arabia and Kuwait.

### 3.4.3 Interview content

Interviews which are pre-structured to a greater or lesser extent consist of a set of items (often questions). Alternative subsequent questions are prepared depending on participants' answers. Probes and prompts or suggestions are also provided during the interviews (Smith, 2010; Robson, 1994). Probes are defined as "devices to get the interviewee to expand on a response when you intuit that she or he has more to give" (Robson, 1994). Prompts are a set of possible answers suggested to the interviewees (Robson, 1994).

### 3.4.4 The sequence of questions

The interview sequence is summarised in Figure 3.3.

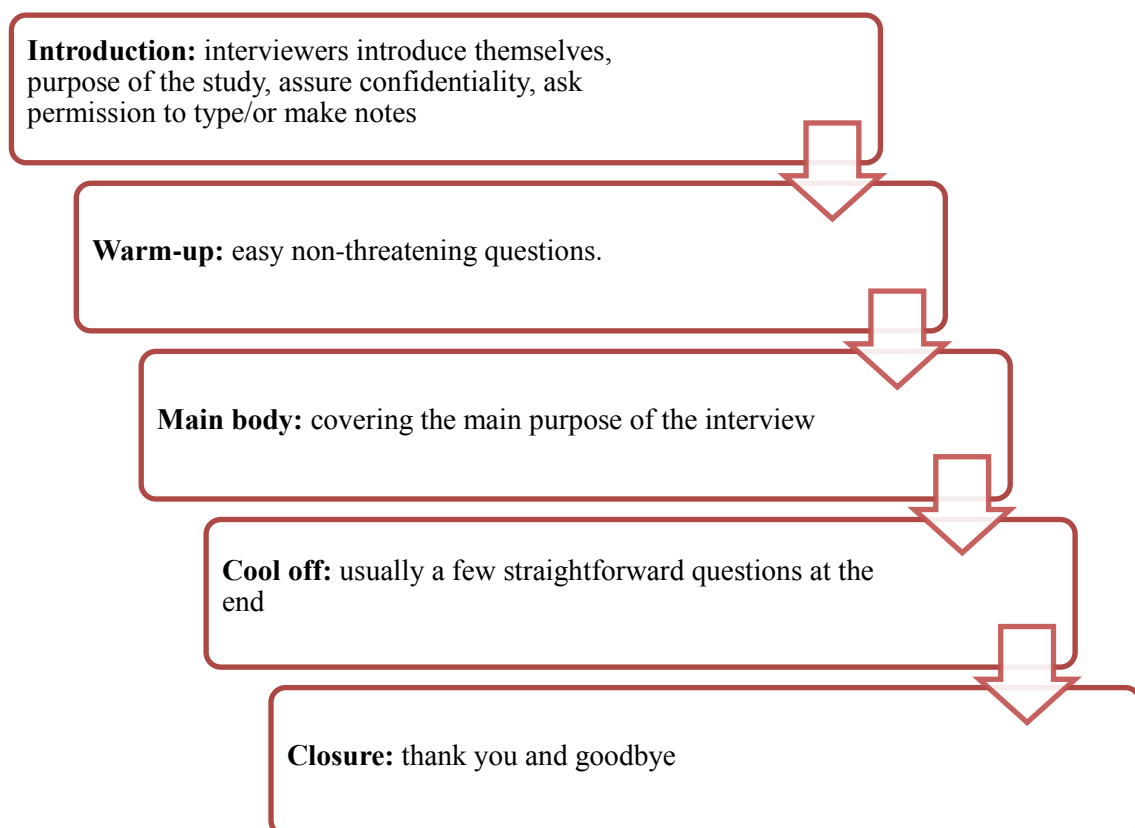
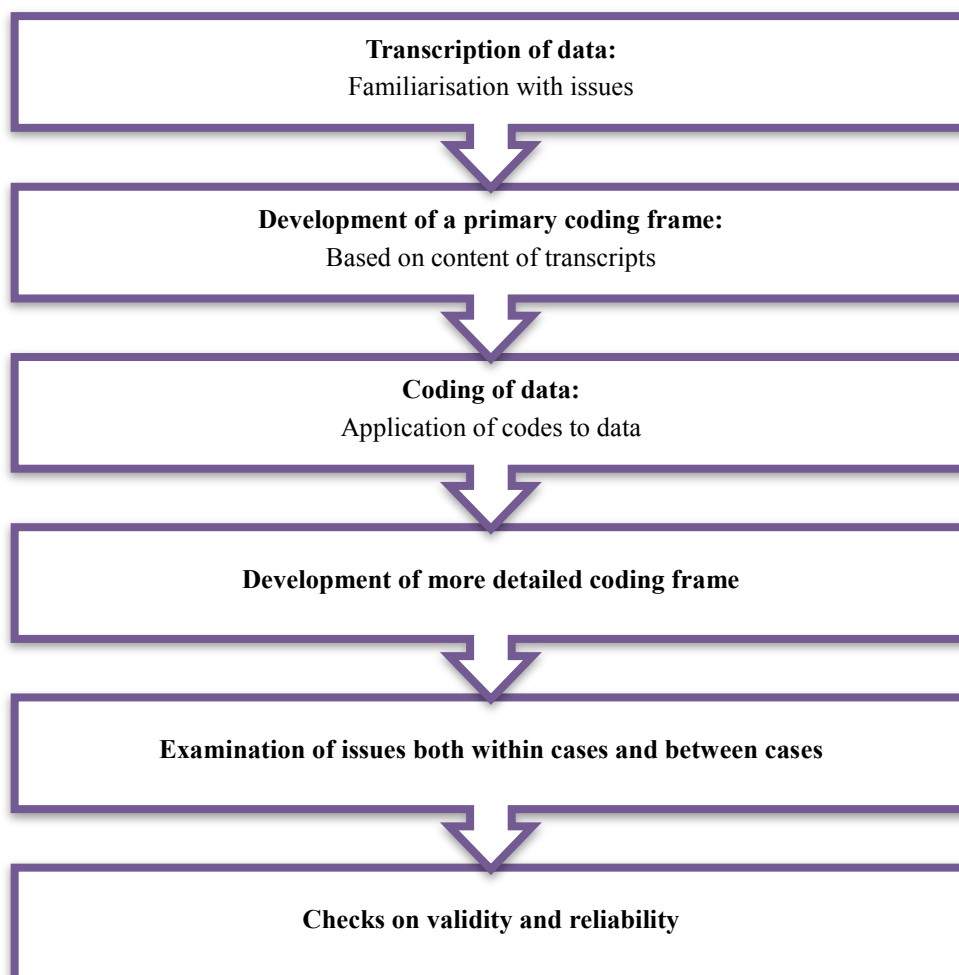


Figure 3.3 The Sequence of Interviews (Robson, 1994)

## 3.5 Data analysis

Grounded theory or framework styles are the most widely used approaches to analyse qualitative data (Smith, 2010; Robson, 1994). The grounded theory stems from empirical research. Data analysis is based on themes and ideas generated rather than using pre-determined frameworks for analysis (Smith, 2010; Robson, 1994). The identified themes and explanations of the phenomenon are explored in their natural settings. Constant comparison is usually employed. The theory is developed through repeated data collection, processing, and analysis (Smith, 2010; Robson, 1994). If a study project has particular goals, purely grounded theory is not appropriate; such research questions provide frameworks for data collection and analysis (Smith, 2010; Robson, 1994).

A deductive style draws on pre-identified theories, ideas which structure frameworks to guide the analysis (Smith, 2010). Figure 3.4 shows the steps required for data analysis.



**Figure 3.4 The Steps for Data Analysis**

### 3.5.1 Data Coding

Coding styles comprise include open and axial coding. They are used to identify conceptual and descriptive categories and determine the relationship between them (Robson, 1994).

Open coding is defined as “the analytical process through which concepts are identified and their properties and dimensions discovered in data” (Smith, 2010). It includes identifying a thematic framework which covers all the topics raised by participants. Identification of the main themes from within the data and organisation into a framework might result in the primary coding structure (Smith, 2010).

Axial coding is used to explore the relationships between categories. Axial coding refers to the “process of relating categories to their subcategories, termed axial because coding occurs around the axis of a category, linking categories at the level of properties and dimensions” (Robson, 1994).

Detailed examination of the data is performed after identification of the principal themes. This might result in the development of a separate coding structure for data relating to each principal theme. Themes might be subdivided, with different codes used to distinguish specific situational factors or types of explanation provided by the respondents. The coding structure might help to build the capacity to cross-link issues, situational factors or explanations (Smith, 2010).

### 3.5.2 Constant comparison

As analysis proceeds, the coding frame evolves. It helps to organise the data regarding examination, interpretation and analysis. As the analysis continues, new questions and hypotheses might be developed requiring continual formulation and reformulation of the hypothesis (Smith, 2010). It might also result in further levels of coding to enable identifying and indexing of the relevant materials (Smith, 2010). Constant comparison enables the coding frame and analysis to represent the full diversity of perspectives in the dataset. It ensures that the hypothesis and theories are continually tested and redefined (Smith, 2010).

It also emphasises the differences between data with the same original code to help in theory building.

Coding and analysis are usually iterative and interactive. After coding frames are modified or new codes are developed, the revised coding frame is applied systemically to all the cases. This could require recording of all the data and appraisal or reappraisal of the data.

The qualitative analysis does not present numbers or frequencies of phenomena. It does not aim to create generalisable findings of a population or settings being studied (Smith, 2010). It aims at studying the impact of certain situations and beliefs on some behaviours or events (Creswell, 1994).

### 3.6 Reliability and validity of the Research

Qualitative research quality is determined differently from that of quantitative research. Lincoln and Guba (1985) suggested four criteria for measuring the quality of qualitative research, which are credibility, transferability, dependability and confirmability. Some researchers indicated that these are just a renaming of the traditional quantitative criteria, which are reliability (dependability), internal validity (credibility), external validity (transferability) and objectivity (confirmability/neutrality).

Validity in qualitative research was defined as the accuracy of the findings (Creswell, 2003) and the completeness of data as viewed by the researcher or the participants (Robson, 2002). According to Kirk and Miller (1986), reliability is about the consistency and stability of results repeatedly generated using the same research methodology at different times, while reliability in quantitative research refers to the use of standardised tools and instruments and the generalisability of findings to other settings. Robson (2002) added that generalisability is not the ultimate objective in qualitative research and the researcher himself or herself acts as a tool to collect and analyse collected data. However, Merriam (1998) suggested that a full explanation of participants' perceptions permits readers to decide whether specific findings which are limited to a certain context can be generalised to their own contexts.

Therefore, according to Robson (2002), thoroughness of data collection is the key measure of reliability in qualitative research. Creswell (2003) also suggested that the author should be authentic and honest, and take extra care during all the research stages, be it with data collection or interpretation and analysis, and show that collecting data from multi-sources, using data triangulation to avoid researcher's or participants' bias (Robson, 2002), evaluating consistency and justifying the identified themes, as well as pre-testing the research tools, are all effective techniques to increase the reliability, validity and objectivity (Yin, 1994) of a piece of qualitative research.

### **3.6.1 Credibility in the current study**

The researcher who conducted the interviews has previously conducted a qualitative study and also attended courses on qualitative research and analysis methods.

Credibility was also ensured by having two independent expert researchers verifying coding structures. Results and conclusions were discussed with the research team.

After conducted and analysing the interviews, four participants (two from each country) agreed that the conclusions reached represented their views on Job satisfaction, services development and professional development.

### **3.7 Study design in the current qualitative study**

A thematic design was found to be the most appropriate approach to the current study. A snowball sampling technique was chosen to recruit participants. Data was collected through semi-structured interviews. The analysis was carried out through constant comparison. The study design is explained in more detail in Chapter 5.

## **Chapter 4 – Quantitative Study of the Pharmacy Workforce in the GCC Countries**

This chapter provides the findings of the quantitative study of the pharmacy workforce in the GCC countries.

Section 4.1 explains the study design

Section 4.2 presents the analysis method and the study findings

Section 4.3 discusses the findings and highlights the study limitations

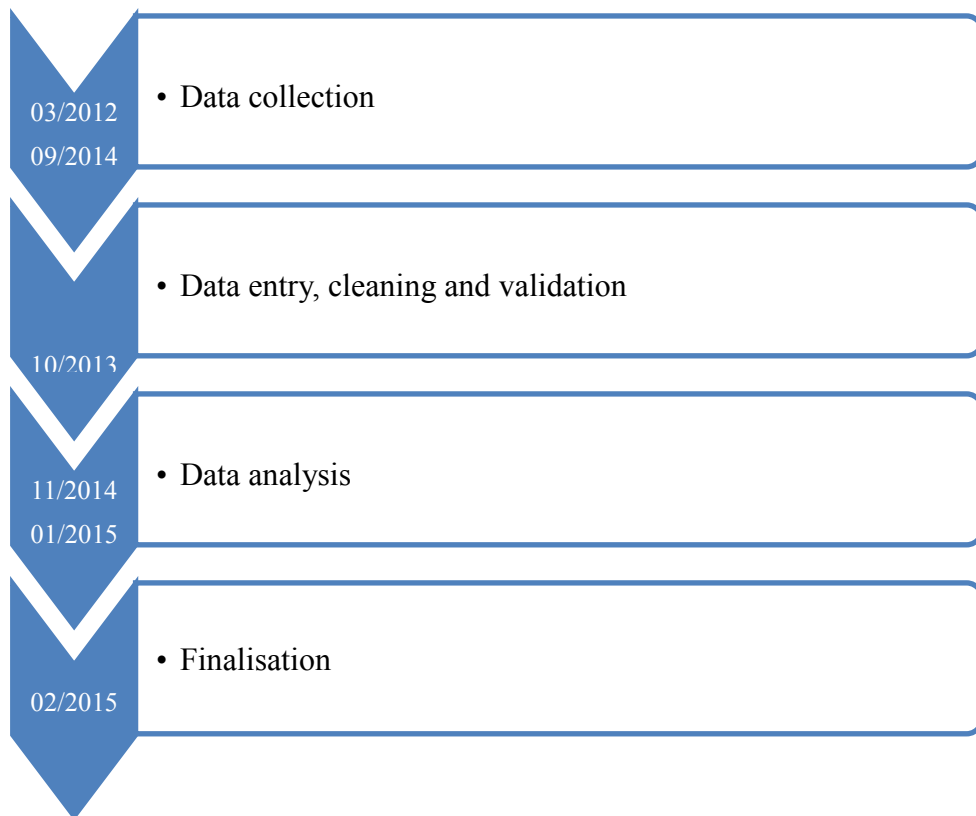
### **4.1 Study design**

Data on the pharmacy workforce was collected from the GCC countries, namely: Bahrain, Kuwait, Oman, Saudi Arabia, Qatar, and the UAE.

There has been rapid development in pharmacy education in the Gulf region. Significant changes in pharmacy practice have been happening and can be summarised in the following points: establishment of new pharmacy schools, increase in the number of pharmacy graduates who have started to replace expatriates, and the introduction of the clinical pharmacy concept into practice. Only Kuwait and Saudi Arabia were represented in the FIP workforce reports for 2009 and 2012 respectively; this suggests limited information about the changes and development in pharmacy human resources.



Figure 4.1 shows the research timeline.



**Figure 4.1: The Research Timeline**

#### 4.1.1 Questionnaire Development and Content

The questionnaire was developed by The International Pharmaceutical Federation Education Initiatives (FIP*Ed*) Working Group on Pharmaceutical Sector Human Resources. It was available in Arabic, English, French, and Spanish. The English version and the Arabic versions were used to collect data from the GCC region (Appendix 1.2). All the participant countries completed the English version of the questionnaire.

The questionnaire was divided into five sections: section one gathered information about the number of pharmacies in different sectors, and about pharmacy-related policies such as ownership and licensing. It also provided data regarding pharmacy workforce (pharmacists and pharmaceutical technicians and assistants), including the total number, number of licensed workforce, gender proportions, and workforce distribution.

Section two collected data on pharmacy education such as the number of pharmacy schools, the number of training institutions, accreditation requirements, the length of full-time education course for pharmacists and pharmaceutical technicians, and the length of internship for pharmacists and pharmacy technicians. Numbers of pharmacy and pharmacy technician graduates were also included.

Section three gathered information about pharmacy workforce planning and regulation. Details on the availability of a national strategic plan for pharmaceutical human resources and the requirements of obtaining and maintaining a licence for both pharmacists and pharmacy technicians were also collected. In addition, it collected information about pharmacy continuing education, national Good Pharmacy Guidelines, and code of conduct governing the professional behaviour of pharmacists and pharmacy technicians.

Section four collected information about competency frameworks for pharmacists and pharmacy technicians. It also gathered data on performance indicators for practice standards intended for pharmacists and pharmacy technicians.

Section five gathered information on national pharmacy workforce contracts.

#### **4.1.2 Data collection and entry and validation**

Data was collected for just under two years, from November 2012 to September 2014, from six participating countries, namely Bahrain, Kuwait, Oman, Saudi Arabia, Qatar, and the UAE.

The data collection process in the current study differs from FIP; i.e. the FIPed team emailed a word version of the questionnaire to the contacts available on their database. The questionnaires were completed and returned via email. In the current study, the researcher identified contacts in organisations which were more likely to have access to the required data in each of the six countries. The researcher delivered a hard copy of the questionnaire to the Bahrain, Saudi Arabian and UAE Ministries of Health and Education bodies. The Kuwait, Oman and Qatar questionnaires were completed and returned by email. The emails used for collecting data and reminder emails as well details of all the contacts who

completed the questionnaires, and which organisation provided which information, is available in Appendix 2.

Face validation was established by the FIPEd who have experience and expertise in the pharmacy workforce field. Translation of the Questionnaire into French, Spanish, and Arabic was assured by back translation and the terms used were reviewed and edited by the research team.

The basic target was country level extraction of data based on a minimum data set so classical methodology could not be used. The questionnaire is not attitudinal or individualistic, so validity translates into the quality of data. Validity is triangulated from different sources.

Data sheets were collated and combined into a single Excel spreadsheet before being cleaned and prepared for analysis in SPSS version 20 for Windows. The accuracy of the data entry was checked by randomly selecting 20% of the cases and each variable was crosschecked with the access database to ensure that the error rate was within the acceptable limits. To ensure robustness of the results, a probability level of  $p \leq 0.05$  was used throughout the analysis.

#### **4.1.3 Analysis method**

For the comparative analysis, data from the 2012 FIP Global Pharmacy Workforce Report was used. In the published report, a total of 90 countries and territories were included; however, as 10 were from the Pacific Islands and because of the low relative frequencies, these nations were aggregated into a single area, Pacific Island Countries (PIC). Therefore, a total of 80 cases were included in the analysis.

Countries were categorised by WHO region categorisation (the African, the American, the Eastern Mediterranean, the European, the South East Asian, and the Western Pacific). The WHO routinely uses regional comparisons when describing healthcare professions. There is wide variance within regions in terms of the pharmaceutical workforce. However, outliers were identified before conducting the analysis to avoid misrepresentation of the regions,

which were not homogenous. The six GCC countries – Bahrain, Kuwait, Saudi Arabia, Oman, Qatar, and the UAE – are members of the Eastern Mediterranean region, according to the WHO categorisation. However, to answer the research questions and to highlight the differences between the GCC region and other Eastern Mediterranean countries, GCC nations were considered as a separate WHO region in the analysis. It is worth mentioning that Saudi Arabia was previously included in the 2012 report, but more recent data was obtained after the report had been published, and was used in the analysis of this study. Saudi Arabia was removed from the Eastern Mediterranean region and was added to the GCC region before conducting the analysis. Table 4.1 shows the respondent countries categorised by WHO regions.

**Table 4.1 Respondent frequencies by WHO region**

WHO region	Number of countries included in the analysis
Africa	20
Americas	9
Eastern Mediterranean	5
Europe	27
GCC	6
South East Asia	6
Western Pacific	22
<b>Total</b>	<b>95</b>

Descriptive statistics were used to highlight the differences between GCC countries. Bar charts and frequency tables were used to summarise the collected data. Inferential statistics were used to draw conclusions. The non-parametric Mann-Whitney test was used to carry out comparisons between WHO regions and the GCC region for all the variables under study. Regression analysis was used to test the strength and the directions of relationships between variables. Data was analysed using SPSS version 20 for Windows.

## 4.2 Results

### 4.2.1 Comparison between the GCC region and other WHO regions

These study findings will be presented according to the WHO conceptual framework: availability, accessibility, acceptability, and quality.

#### 4.2.1.1 Availability

**Availability** is defined as functioning public health and healthcare facilities, goods and services, as well as programmes in sufficient quantity (WHO, 2007).

Availability of workforce is defined as the sufficient supply and stock of health workers, with the relevant competencies and skill mix that correspond to the health needs of the population (WHO, 2014).

The above definitions of the concept 'availability' will be adopted to describe the pharmacy discipline globally.

'Availability' in pharmacy is a broad term. In this context, availability of pharmaceutical human resources depends on sufficient production and stock of workers, with the required competencies and skill mix that correspond to the population's health needs. Availability also includes sufficient pharmaceutical care facilities, pharmaceutical services, and pharmacy education programmes.

Multiple factors seem to influence the availability of a pharmaceutical workforce. These factors include the capacity of pharmacy education institutions, the rate of production of pharmacy graduates, the mobility of pharmacy workers, and gender distribution of the workforce.

#### **Availability Factors**

Pearson Correlation tests were carried out to study the relationship between availability factors (the density of pharmacy schools, rate of production of graduates, and workforce mobility) and the density of pharmacy workforce.

Availability factors were then compared between the GCC region and other WHO regions using a Mann-Whitney test.

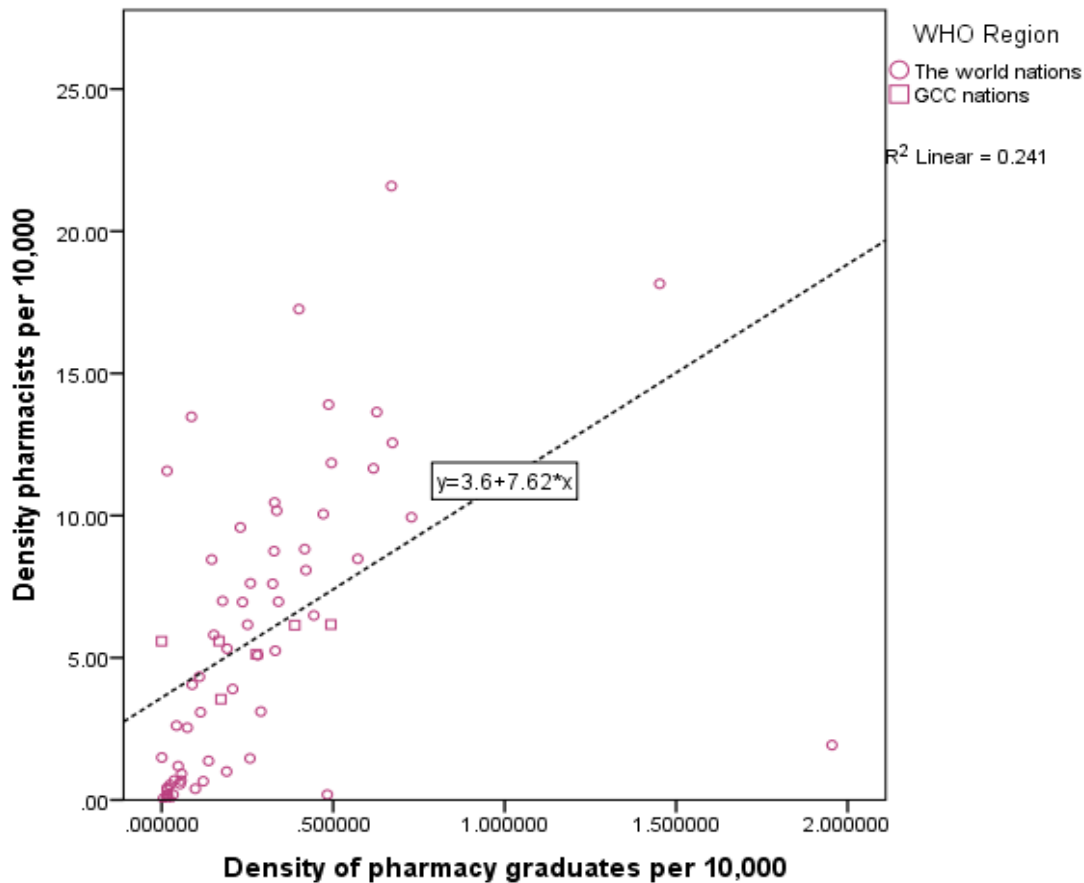
## **6. The density of pharmacy schools and the rate of production of graduates**

- a.** Regression analysis shows the relationship between the density of pharmacy graduates per 10,000 population and the density of pharmacists per 10,000 population

The density of pharmacy graduates per 10,000 and the density of pharmacists per 10,000 were strongly correlated,  $r$  (df, 64) = 0.491,  $p$  =0.001. The number of countries included,  $n$ = 66 countries (df=  $n-2$ ).

The scatter plot presented below (Figure 4.2) shows the association between the density of pharmacists per 10,000 population and the density of pharmacy graduates per 10,000 population for the overall sample. The correlation was 0.491 ( $p$ = 0.001). Therefore, the density of pharmacists tends to increase as the density of pharmacy graduates increases. Moreover, the regression line further indicates that the variance in graduate numbers explains 24.1% of the variance of the density of pharmacists. So, although there is an association between graduate numbers and pharmacists density, there are other unexplained factors accounting for the majority of the (unexplained) variance. Others factors such as attrition rates, non-practicing, career breaks and data errors in workforce numbers may be at play. It should also be recognised that workforce data and planning have a long history of inexactitude.

Albania, Malta, Jordan, Costa Rica, Ethiopia and Nigeria were considered outliers and were excluded from the analysis.



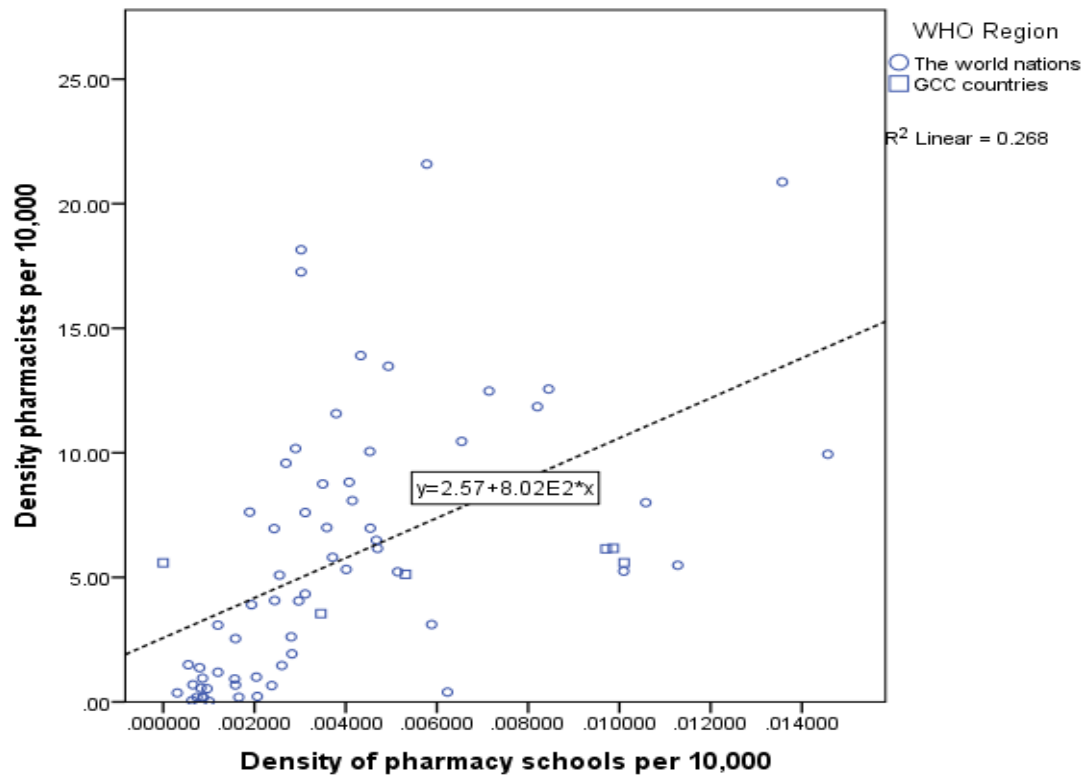
**Figure 4.2 Correlation between the density of pharmacy graduates per 10,000 population and the density of pharmacists per 10,000 population.**

**b.** Regression analysis shows the relationship between the density of pharmacy schools per 10,000 population and the density of pharmacists per 10,000

The density of pharmacy schools per 10,000 population and the density of pharmacists per 10,000 were strongly correlated,  $r(df, 67) = 0.518, P=0.000, (n=69)$ .

The scatter plot presented below (Figure 4.3) shows the association between the density of pharmacists per 10,000 population and the density of pharmacy schools per 10,000 population for the overall sample. The correlation was 0.518 ( $p=0.0001$ ). Therefore, the density of pharmacists tends to increase as the density of pharmacy schools increases. Moreover, the regression line further indicates that the variance in pharmacy school numbers explains 26.8% of the variance of the number of pharmacists.

Grenada was considered an outlier and was excluded from the analysis.



**Figure 4.3 Correlation between the density of pharmacy schools per 10,000 population and the density of pharmacists per 10,000 population**

- c. Comparison of the density of pharmacy schools per 10,000 and the rate of production of pharmacy graduates in the GCC region and other WHO regions using Mann–Whitney test



**Table 4.2 Comparison of the density of pharmacy graduates per 10,000 population in the GCC region and other WHO regions using Mann–Whitney test**

Region	Median	U	z	p	r	Interquartile Range
GCC	0.007					0.289
African	0.0009	14	-2.309	0.02*	-0.516	0.034
American	0.004	14	-0.641	0.589	-0.185	0.438
Eastern Mediterranean	0.002	4	-1.706	0.114	-0.539	1.802
Western Pacific	0.002	17	-1.608	0.122	-0.094	0.328
SE Asian	0.006	14	-0.183	0.931	-0.055	0.000017
European	0.009	45	-1.292	0.212	-0.239	0.267
Albania, Malta, Jordan, Costa Rica, Ethiopia and Nigeria were considered outliers and were excluded from the analysis.						
U= test statistic, z is z score, * significant at $p=0.05$ , ** significant at $p= 0.01$ , r is the effect size						

**Table 4.3 Comparison of the density of pharmacy school per 10,000 population in the GCC region and other WHO regions using Mann–Whitney test.**

Region	Median	U	z	p	r	Interquartile Range
GCC	0.224					0.007
African	0.024	13	-2.280	0.022*	-0.523	0.001
American	0.335	13	-0.365	0.792	-.11	0.004
Eastern Mediterranean	0.754	10	-0.426	0.762	-.134	0.002
Western Pacific	0.228	33	-0.281	0.820	-0.066	0.003
SE Asian	0.290	6	-0.0001	1	-0.00003	0.007
European	0.280	22	-0.278	0.821	-0.053	0.003
Cameroon, Grenada, Jordan, Iceland, Malta and Albania were considered outliers and were excluded from the analysis.						

The Mann-Whitney tests reported in the tables above show that the capacity of pharmacy schools and the rate of production of pharmacy graduates in the GCC region were significantly higher than in the African region  $p=0.02$ . However, there was no statistically significant difference between the GCC region and other WHO regions. The capacity of pharmacy schools and the rate of production of graduates in the GCC region indicate that the supply of pharmacists in the region is comparable to the other regions. Figures 4.2 and 4.3 show the density of pharmacy graduates per 10,000 population by WHO regions and the density of pharmacy schools per 10,000 population respectively.

**d. Regression analysis shows the relationship between the density of pharmacy technician graduates per 10,000 population and the density of pharmacy technicians per 10,000 population**

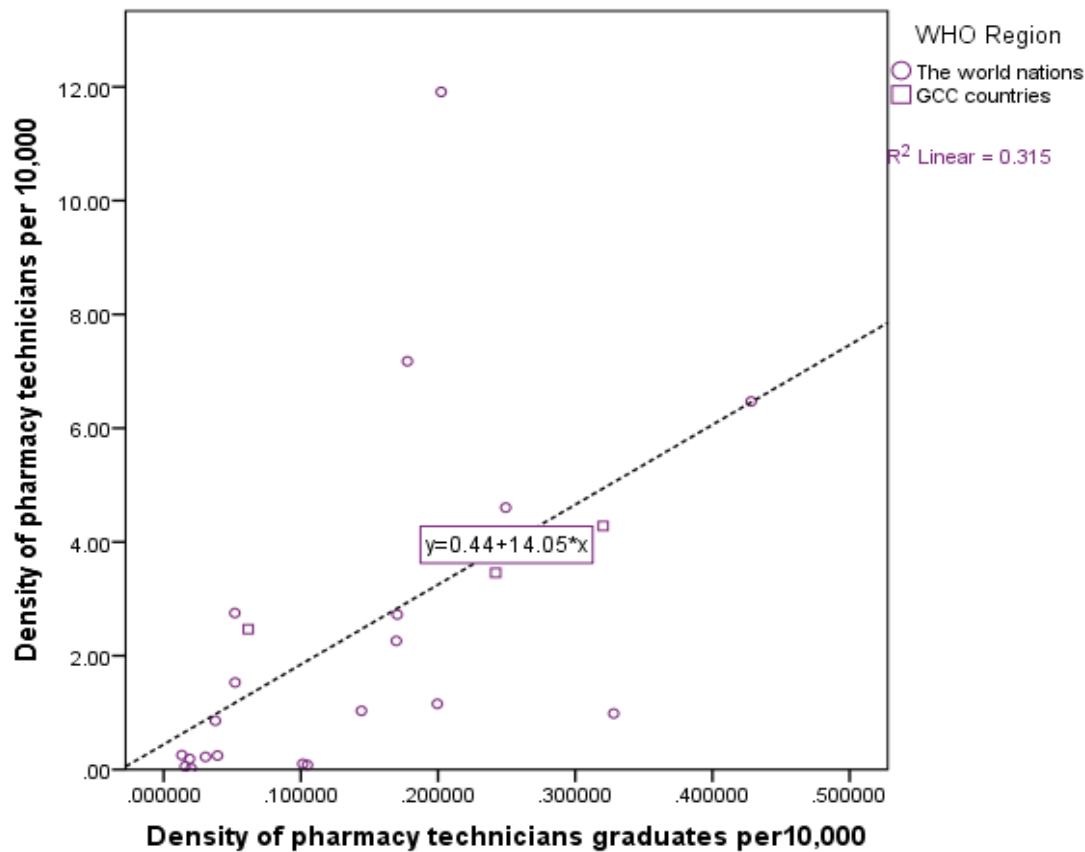
There was strong correlation between the density of pharmacy technician graduates per 10,000 population and the density of pharmacy technicians per 10,000 population  $r$  (df, 21) = -

0.561,  $P= 0.005$

( $n=23$ )

The scatter plot below (Figure 4.4) shows the association between the density of pharmacy technician graduates per 10,000 population and the density of pharmacy technicians per 10,000 population for the overall sample. The correlation was 0.561 ( $p=0.005$ ). Therefore, the density of pharmacy technicians tends to increase as the density of pharmacy technician graduates increases. Moreover, the regression line further indicates that the variance in pharmacy school numbers explains 31.5% of the variance of the number of pharmacists.

Ethiopia, Zambia, Hungary, Lithuania and Bahrain were considered outliers and were excluded from the analysis.



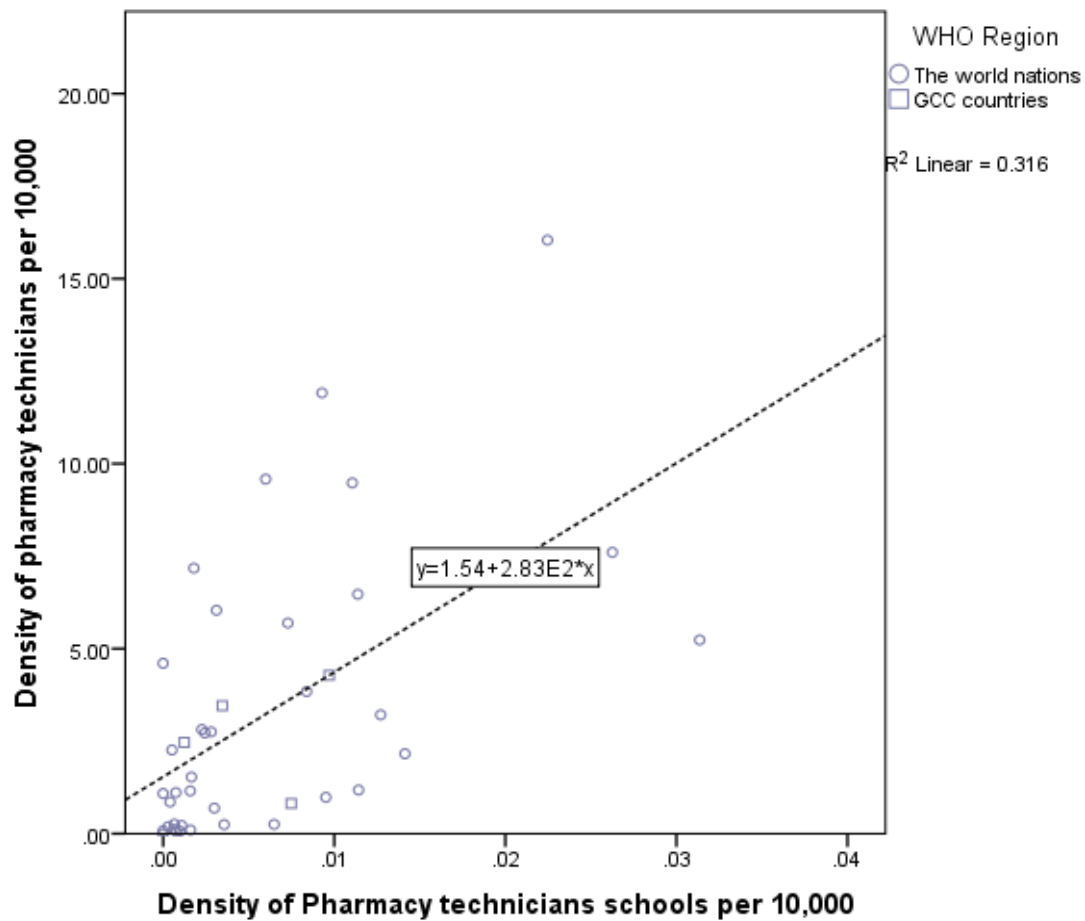
**Figure 4.4 Correlations between the density of pharmacy technician graduates per 10, 000 population and the density of pharmacy technicians per 10,000 population**

- e. Regression analysis shows the relationship between the density of pharmacy technician training schools per 10,000 population and the density of pharmacy technicians per 10,000 population.

There was a strong correlation between the density of pharmacy technician training schools per 10,000 and the density of pharmacy technicians per 10,000  $r (df, 39) = 0.563, P = 0.0001$ ,  $(n = 41)$ .

The scatter plot presented below (Figure 4.5) shows the association between the density of pharmacy technician training schools per 10,000 and the density of pharmacy technicians per 10,000 for the overall sample. The correlation was  $0.563 (p = 0.0001)$ . Therefore, the density of pharmacy technicians tends to increase as the density of pharmacy technician training schools increases. Moreover, the regression line further indicates that the variance in pharmacy technician training school numbers explains 31.6% of the variance of the number of pharmacy technicians.

Kenya and Guinea were considered outliers and were excluded from the analysis.



**Figure 4.5 Correlation between the density of pharmacy technician training schools per 10,000 population and the density of pharmacy technicians per 10,000 population.**

- f. Comparison of the density of pharmacy technician training schools per 10,000 and the rate of production of pharmacy technician graduates in the GCC region and other WHO regions using Mann–Whitney test.

**Table 4.4 Comparison of the density of pharmacy technician graduates per 10,000 population in the GCC region and other WHO regions using Mann–Whitney test.**

Region	Median	U	z	p	r	Interquartile Range
<b>GCC</b>	0.168					0.230
<b>African</b>	0.037	6	-1.852	0.076	-0.513	0.1033
<b>American</b>						
<b>Eastern Mediterranean</b>	0.091	2	-0.926	0.533	-0.392	0.000017
<b>Western Pacific</b>	0.078	6	-0.577	0.686	-0.204	4.252
<b>SE Asian</b>	2.161	0.0001	-2.121	0.057	-0.801	0.00001
<b>European</b>	0.210	9	-0.640	0.610	-0.202	0.118
<b>Ethiopia, Zambia, Hungary, Lithuania and Bahrain were considered outliers and were excluded from the analysis.</b>						

**Table 4.5 Comparison of the density of pharmacy technician training schools per 10,000 population in the GCC region and other WHO regions using Mann–Whitney test.**

Region	Median	U	z	p	r	Interquartile Range
<b>GCC</b>	0.0053					0.01
<b>African</b>	0.0010	4	-2.809	0.003**	-0.662	0.0009
<b>American</b>	0.0089	6	-0.447	0.786	-0.141	0.00001
<b>Eastern Mediterranean</b>	0.0092	7	-0.735	0.556	-0.245	0.01
<b>Western Pacific</b>	0.0052	18	-0.293	0.883	-0.092	0.01
<b>SE Asian</b>	0.0059	10	-0.0001	1	3.3×10 <sup>-5</sup>	0.01
<b>European</b>	0.0111	30	-0.89	0.395	0.189	0.02
<b>Kenya and Guinea were considered outliers and were excluded from the analysis.</b>						

The Mann-Whitney tests in the tables above show that the density of pharmacy technician training schools in the GCC region was significantly higher than in the African region  $p=0.003$ . However, there was no statistically significant difference between the GCC region and other WHO regions in both the density of schools and the density of graduates. The density of pharmacy technician training schools and the rate of production of graduates in the GCC region indicates that the supply of pharmacy technicians in the region is comparable to the other regions. Even if the availability factors did not differ significantly between regions, demand factors such as disease burden, demographic and epidemiology profiles varied widely between regions, so local health needs should be considered.

**Table 4.6 Comparison of the density of foreign pharmacists per 10,000 population in the GCC region and other WHO regions using Mann–Whitney test.**

Region	Median	U	z	p	r	Interquartile Range
<b>GCC</b>	0.291					0.016
<b>African</b>	0.001	10	-0.198	0.923	-0.054	0.016
<b>American</b>	0.002	3	-0.492	0.8	-0.2	0.013
<b>Eastern Mediterranean</b>	0.141	3	-0.0001	1	-4.4×10 <sup>-5</sup>	0.00001
<b>Western Pacific</b>	0.032	6	-0.298	0.889	-0.099	0.089
<b>SE Asian</b>	0.0001	3	-0.492	0.8	-0.2	0.025
<b>European</b>	0.073	7	0.0001	1	-3.3×10 <sup>-5</sup>	0.080
<b>Ireland was considered an outlier and was excluded from the analysis.</b>						

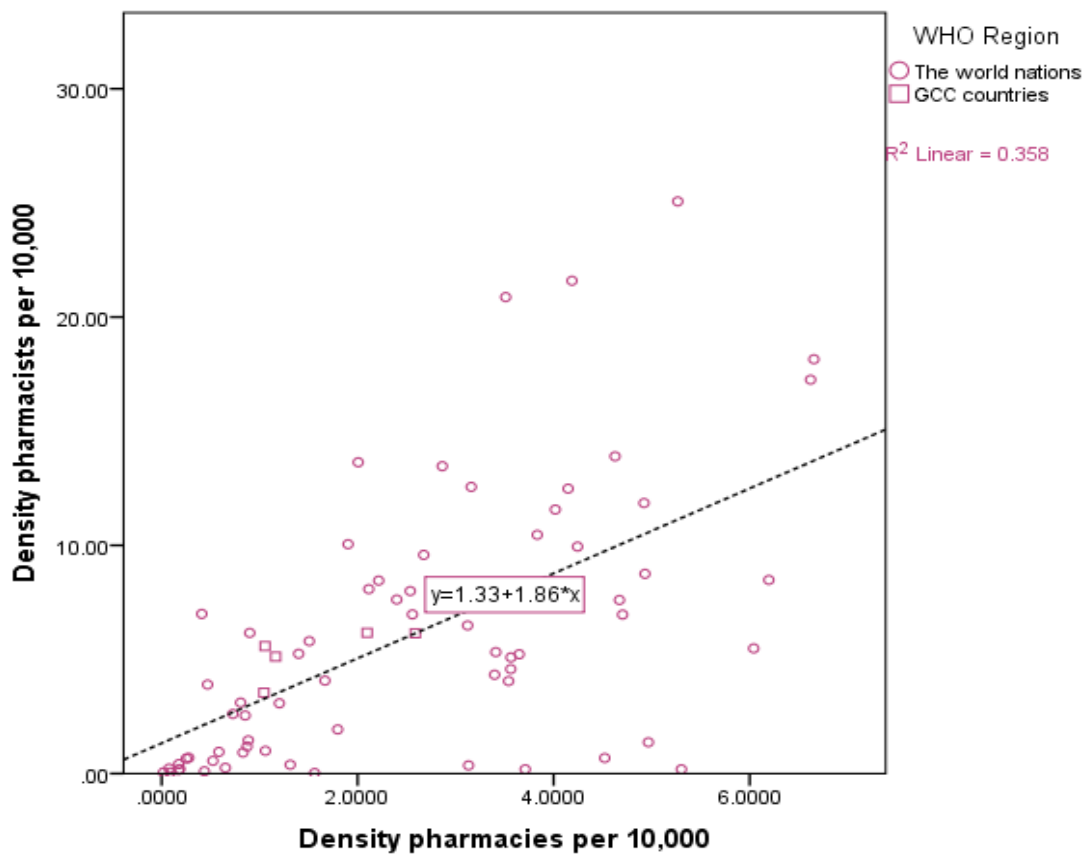
The density of foreign pharmacists per 10,000 population in the GCC region was significantly higher than in the African region. However, it did not differ significantly from all other WHO regions. Data from the GCC was based on only two countries, Oman and Saudi Arabia, out of six, which might have affected the findings. The African region has pushing factors such as poverty, unemployment, and poor infrastructure which make the region less appealing for both home and foreign pharmacists.



**g. Regression analysis between the density of pharmacists per 10,000 population and the density of pharmacies per 10,000 population**

There was a positive correlation between the density of pharmacists per 10,000 population and the density of pharmacies per 10,000 population  $r$  (df, 70) =0.589  $P$ =0001, (n=72).

The scatter plot presented below (Figure 4.6) shows the association between the density of pharmacies per 10,000 population and the density of pharmacists per 10,000 populations for all the countries. The overall correlation was 0.589 ( $p$ =0.0001). Countries with higher densities of pharmacies tend to have higher densities of pharmacists. The density of pharmaceutical facilities helps to determine the density of the required pharmacy workforce. Figure 4.8 shows the correlation between the density of pharmacists per 10,000 and the density of pharmacies per 10,000 population.

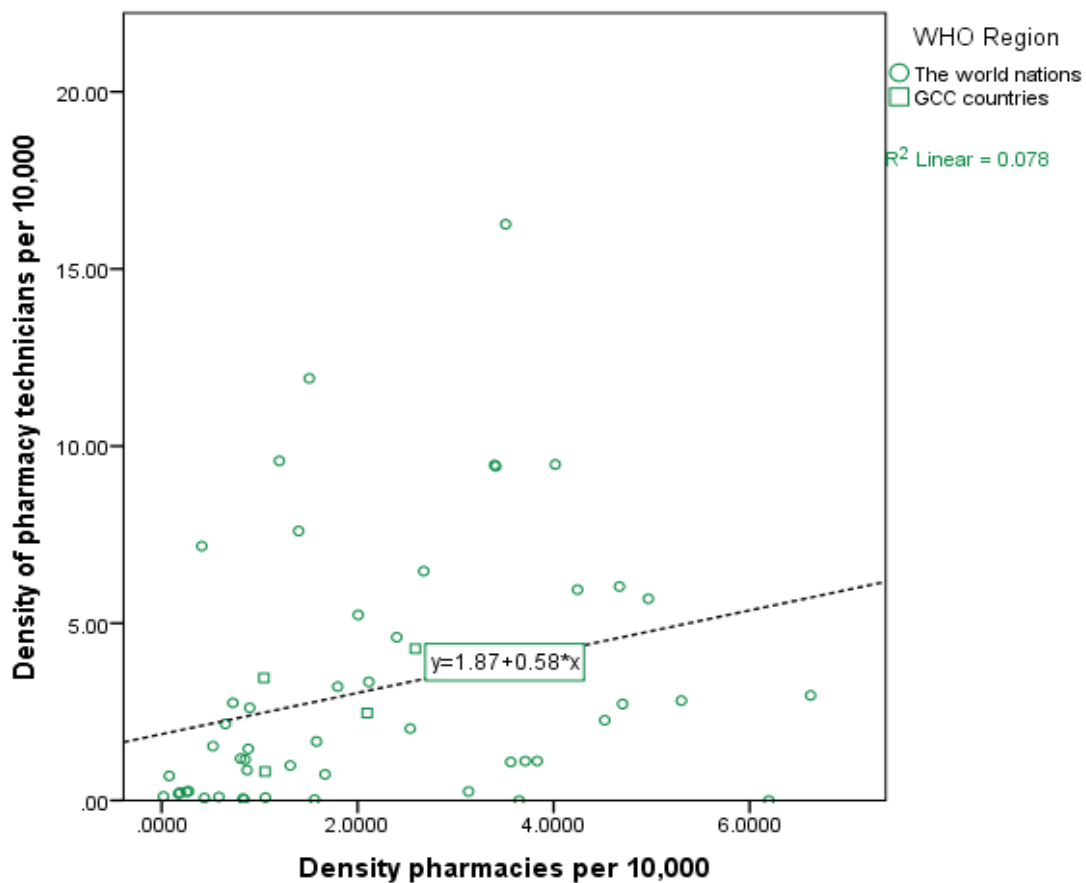


**Figure 4.6 Correlation between the density of pharmacists per 10,000 population and the density of pharmacies per 10,000 population**

**h. Regression analysis between the between the density of pharmacy technicians per 10,000 population and the density of pharmacies per 10,000 population**

There was a positive correlation between the density of pharmacy technicians per 10,000 population and the density of pharmacies per 10,000 population  $r$  (df, 53) = 0.279  $P=0.039$ , (n=55).

The scatter plot presented below (Figure 4.7) shows the association between the density of pharmacy technicians per 10,000 population and the density of pharmacists per 10,000 populations for all the countries. The overall correlation was 0.279 ( $p=0.039$ ). Countries with higher densities of pharmacies tend to have higher densities of pharmacy technicians. The density of pharmaceutical facilities helps to determine the required density of pharmacy technicians. Figure 4.9 shows correlation between the density of pharmacy technicians per 10,000 and the density of pharmacies per 10,000 populations



**Figure 4.7 Correlation between the density of pharmacy technicians per 10,000 population and the density of pharmacies per 10,000 population**

- i. Comparison of the density of pharmacists per 10,000 population in the GCC region and other WHO regions using Mann–Whitney test

**Table 4.7 Comparison of the density of pharmacists per 10,000 population in the GCC region and other WHO regions using Mann–Whitney test.**

Region	Median	U	z	p	r	Interquartile Range
<b>GCC</b>	5.588					1
<b>African</b>	0.220	0.0001	-3.274	0.0001**	-0.732	1
<b>American</b>	8.240	9	-1.095	0.329	-0.033	4
<b>Eastern Mediterranean</b>	1.930	10	-0.522	0.679	-0.165	19
<b>Western Pacific</b>	3.505	24	-0.632	0.574	-0.1532	10
<b>SE Asian</b>	2.230	6	-1.643	0.126	-0.495	7
<b>European</b>	7.610	35	1.611	0.115	-0.289	5
<b>South Africa, Malta, and Kuwait were considered outliers and were excluded from the analysis.</b>						

The density of pharmacists per 10,000 population in the GCC countries is significantly higher than in the African region  $p=0.0001$ , but it does not differ from all the other regions.

- j. Regression analysis between the density of pharmacy technicians per 10,000 population in the GCC region and other WHO regions using Mann–Whitney test.**

**Table 4.8 Comparison of the density of pharmacy technicians per 10,000 population in the GCC region and other WHO regions using Mann–Whitney test.**

Region	Median	U	z	p	r	Interquartile Range
<b>GCC</b>	2.962					3
<b>African</b>	0.222	5	-2.5	0.009**	-0.57	1
<b>American</b>	1.662	7	-0.1326	0.230	-0.399	2
<b>Eastern Mediterranean</b>	2.735	7	-0.773	0.886	-0.273	12
<b>Western Pacific</b>	2.516	11	-0.396	0.461	-0.114	2
<b>SE Asian</b>	1.572	4	-1.155	0.343	-0.408	2
<b>European</b>	5.992	14	-1.783	0.066*	-0.398	6
<b>Vietnam and USA were considered outliers and were excluded from the analysis.</b>						

**k. Comparison of the density of pharmacies per 10,000 population in the GCC region and other WHO regions using Mann–Whitney test**

**Table 4.9 Comparison of the density of pharmacies per 10,000 population in the GCC region and other WHO regions using Mann–Whitney test.**

	Median	U	z	p	r	Interquartile Range
<b>GCC</b>	1.163					1
<b>African</b>	0.358	3	-3.055	0.001**	-0.666	1
<b>American</b>	3.038	3	-1.715	0.111	-0.571	2
<b>Eastern Mediterranean</b>	3.320	2	-1.96	0.063	-0.653	2
<b>Western Pacific</b>	0.978	20	-0.612	0.594	-0.159	4
<b>SE Asian</b>	2.907	9	-1.095	0.329	-0.330	4
<b>European</b>	3.158	22	-2.361	0.016**	-0.417	2
<b>Egypt, Grenada, Mauritius and Zambia were considered outliers and were excluded from the analysis.</b>						

The density of pharmacies in the GCC was significantly higher than in the African region  $p=0.001$  but significantly lower than in the European region  $p=0.016$ . The density of pharmacies in the GCC did not differ significantly from the other regions.

The following factors determine availability of pharmacy workforce: the numbers of pharmacy education institutions, the rate of production of graduates, and the mobility of the workforce. The GCC region was significantly higher than the African region in all the

factors but did not differ significantly from other WHO regions. The density of pharmacies in the GCC region was significantly higher than in the African region and significantly lower than in the European region. Availability of pharmacy workforce (pharmacists and pharmacy technicians) was significantly higher in the GCC region compared to the African region. However, it did not differ significantly from all other WHO regions.

#### 4.2.1.2 Accessibility

Accessibility: the equitable access to health workers, in terms of travel time and transport, opening hours and corresponding workforce attendance, whether the infrastructure is disability-friendly, referral mechanisms and the direct and indirect cost of services, both formal and informal (WHO, 2014)

Accessibility: Health facilities, goods and services accessible to everyone, within the jurisdiction of the state party. Accessibility has four overlapping dimensions: non-discrimination, physical accessibility, economic accessibility (affordability), and information accessibility (WHO, 2007).

The above definitions of the concept 'accessibility' will be adopted to describe the pharmacy discipline globally.

In this context, accessibility is defined as the equitable access to pharmacy workforce (pharmacist and pharmacy technicians). It also involves access to pharmaceutical facilities in terms of travel time, transport, opening hours, and corresponding workforce attendance, whether the infrastructure is disability-friendly, the referral mechanisms, and the direct and indirect cost of services, both formal and informal, as well as access to pharmacy education institutions in terms of location and affordability.

The scope of this research is limited to country-level data; it was not designed to cover in-depth country case studies. For that reason, physical (urban/rural areas) and economical accessibility to pharmacy education initiations and accessibility to pharmaceutical facilities will not be discussed.

Community pharmacies are considered the most accessible pharmacy healthcare facilities. For that reason, a comparison of the density of community pharmacies per 10,000 population will be used as a factor to measure accessibility in pharmacy.

A Mann-Whitney test was used to compare the density of community pharmacies in the GCC region and other WHO regions.

**Comparison of the density of community pharmacies per 10,000 population in the GCC region and other WHO regions using Mann–Whitney test.**

**Table 4.10 Comparison of the density of community pharmacies per 10,000 population in the GCC region and other WHO regions using Mann–Whitney test.**

Region	Median	U	z	p	r	Interquartile Range
GCC	1.328					1.118
African	0.277	10	-2.871	0.002**	-0.598	0.511
American	2.287	5	-2.082	0.041*	-0.06	1.513
Eastern Mediterranean	3.317	3	-2.191	0.03*	-0.66	3.014
Western Pacific	0.699	26	-0.937	0.35	-0.22	1.640
SE Asian	0.748	7	-0.516	0.714	-0.172	0.00001
European	2.538	25	-2.559	0.008**	-0.452	1.844

The density of community pharmacies in the GCC region per 10,000 population was significantly higher than in the African region  $p=0.002$  and was significantly lower than in the American  $p=0.041$ , the Eastern Mediterranean  $p=0.03$ , and the European regions  $p=0.008$ . The density of community pharmacies is affected by several factors: pharmacy ownership laws, limitations on the number of pharmacies an individual can own, licensing requirements, and other economic factors. The qualitative part of this research suggested



the following: first, in the GCC region, medicines are provided free of charge for citizens and are usually collected from hospital pharmacies or primary healthcare centre pharmacies, which makes them more accessible. Second, the public perception of community pharmacies as 'supermarkets' is probably the reasons behind these findings. However, using only a single factor to assess accessibility in pharmacy is not an accurate measure.

#### 4.2.1.3 Acceptability

Acceptability is defined as "The characteristics, and ability of the workforce to treat everyone with dignity create trust and enable or promote demand for service" (WHO, 2014).

Acceptability: All health facilities, goods and services must be respectful of medical ethics and culturally appropriate, as well as sensitive to gender and life-cycle requirements (WHO, 2007).

The definitions above of the concept 'acceptability' will be adopted to describe pharmacy discipline globally.

In this context, acceptability in relation to the pharmacy profession means that all pharmaceutical facilities, medicines, and pharmaceutical services must be respectful of medical ethics and culturally appropriate, as well as sensitive to gender and life-cycle requirements.

In this research, the focus will be on measuring the acceptability of the pharmacy workforce. An acceptable workforce is culturally aware, socially accountable, sensitive to gender requirements, speaks the language of the country, and understands local health needs. For that reason, home pharmacists/local graduates would be more acceptable than foreign pharmacists. In some cultures, female patients prefer female health workers to than male ones, as suggested by WHO (2014).

Factors affecting the acceptability of pharmacy workforce are the density of female pharmacists, the density of home pharmacists, and the availability of a code of conduct

governing pharmacists' professional behaviour.

A Mann-Whitney test was used to compare factors affecting the acceptability of the pharmacy workforce and the density of female pharmacists in the GCC region and other WHO regions.

#### a. The density of female pharmacists per 10,000 population

**Table 4.11 Comparison of the density of female pharmacists per 10,000 population in the GCC region and other WHO regions using Mann–Whitney test.**

Region	Median	U	z	p	r	Interquartile Range
<b>GCC</b>	2.443					0.00001
<b>African</b>	0.055	0.0001	-3.242	0.0001**	-0.743	0.2465
<b>American</b>	5.593	1	-2.402	0.016*	-0.759	2.379
<b>Eastern Mediterranean</b>	0.626	5	-1.225	0.286	-0.408	8.389
<b>Western Pacific</b>	1.937	24	-1.22	0.953	-0.031	7.403
<b>SE Asian</b>	0.096	0.0001	-2.236	0.036*	-0.790	0.00001
<b>European</b>	6.440	17	-2.249	0.013*	-0.459	3.917
<b>South Africa, Malta, UAE and Kuwait were considered outliers and were excluded from the analysis.</b>						

Comparing gender distribution in pharmacy in different regions of the globe is complicated because of cultural influences. In developed countries, a higher proportion of females in the workforce was found to be associated with more part-time work patterns and career breaks,

as suggested in the literature. However, in lower-income countries, female workers are more acceptable than their male counterparts. The GCC region had a lower density of female pharmacists than both the American  $p=0.016$  and the European  $p= 0.013$  regions, but this was higher than for both the African  $p= 0.0001$  and the SE Asian  $p= 0.036$  regions. However, the density of total pharmacists (males and females) in the GCC region did not differ significantly from the American, the European, or the SE Asian regions. The reasons for the difference in the density of female pharmacists are more likely to be influenced by cultural and social factors, as well as personal preferences. The pharmacy profession is more attractive to women pharmacists in the American and the European regions than in the GCC regions. Additionally, it is less attractive to female pharmacists in the African and the SE Asian regions than in the GCC region.

**b. The density of newly registered foreign pharmacists per 10,000 population to the density of home pharmacists per 10,000 population in the GCC region and other WHO regions**

**Table 4.12 Comparison of the density of foreign pharmacists to the density of home pharmacists per 10,000 population in the GCC region and other WHO regions**

Region	Median of the density of home pharmacists/10,000	Median of the density of foreign pharmacists newly registered in the last year/10,000
GCC	5.573	0.291
African	0.188	0.001
American	5.230	0.002
Eastern Mediterranean	1.930	0.141
Western Pacific	3.414	0.032
SE Asian	2.21300600	0.0001

European	7.600	0.073
----------	-------	-------

### c. Code of conduct governing professional behaviour for pharmacists

Fourteen out of the 16 African countries included, 87.5% (n=14), had a code of conduct governing the professional behaviour of pharmacists. In the American region, 77.8% (n=7) out of the (n=9) respondent countries had a code of conduct, whilst this was 60% (n=30) out of (n=5) Eastern Mediterranean countries, 72.7% (n=8) out of a total of (n=11) Western Pacific countries. In the SE Asian region (n=5), 80% (n=4) had a code of conduct. The European region (n=26) had the highest percentage with 92.3% (n=24). In contrast, only 66.7% (n=4) out of the (n=6) GCC countries had a code of conduct. The GCC region had the second lowest availability of code of conduct after the Eastern Mediterranean region, indicating the need for more attention to be paid to providing pharmaceutical services with ethical and professional standards of behaviour to follow.

Acceptability in pharmacy was measured by comparing two factors, the density of female pharmacists per 10,000 population and the availability of a code of conduct. Although the density of female pharmacists in the GCC region is lower than in the European and the American regions, the density of total pharmacists was comparable. The GCC region had sufficient numbers of female workers to meet the cultural needs of some of the female citizens who prefer to deal with females in the health workforce. The code of conduct, however, needs more attention paid to it, as most GCC countries lack one in their pharmacy practice laws.

#### 4.2.1.4 Quality

Quality – the competencies, skills, knowledge and behaviour of the health worker as assessed according to professional norms and as perceived by users (WHO, 2014).

Quality: Health facilities, goods and services must be scientifically and medically appropriate

and of good quality (WHO, 2007).

The above definitions of the concept “quality” will be adopted to describe pharmacy discipline globally.

Quality in this context is defined as the competencies, skills, knowledge and behaviour of pharmacy workforce as assessed according to professional norms and as perceived by users. It is also ensuring that pharmaceutical facilities and pharmaceutical services are scientifically and medically appropriate and of good quality.

The quality of pharmacy services provided is determined by the quality of the pharmacy workforce, pharmacy education, and pharmaceutical facilities. pharmacy workforce quality is reflected by having national good pharmacy practice guidelines, performance indicators for practice standards, relicensing, and continuous education. Pharmaceutical facilities quality is assured by licensing of these facilities. Pharmacy education quality is assured by accreditation of pharmacy education institutions and curriculum review.

## **1. The quality of the pharmacy workforce**

### **a. National Good Pharmacy Practice Guidelines (GPP)**

FIP defines GPP as “the practice of pharmacy that responds to the needs of the people who use the pharmacists’ services to provide optimal, evidence-based care. To support this practice, it is essential that there be an established national framework of quality standards and guidelines” (WHO, 2011).

The results showed that 62.5% (n=10) of respondent African countries (n=16) had national Good Pharmacy Practice Guidelines whilst this was 66.7% (n=6) out of (n=9) countries in the American region, 63.6% (n=7) out of (n=11) Western Pacific countries, 83.3% (n=5) of the total respondent countries in the SE Asian region (n=6), and 72% (n=18) out of (n=25) European countries. Only 40% (n=2) out of (n=5) Eastern Mediterranean countries had

national Good Pharmacy Practice Guidelines. . In the GCC region (n=6), 83.3 (n=5) had these guidelines.

#### **b. Mandatory Continuous Professional Education (CPD)**

FIP defines CPD as “as the responsibility of individual pharmacists for systematic maintenance, development and broadening of knowledge, skills and attitudes, to ensure continuing competence as a professional, throughout their careers” (Dyke and Gidman, 2008).

The results indicated that 53.3% (n=8) of the respondent African countries (n=15) had Mandatory CPD. Only 25% (n=2) out of (n=8) countries in the American region had Mandatory CPD, and this was similar at 20% (n=1) out of (n=5) for the Eastern Mediterranean countries. CPD was mandatory in 72.7% (n=8) out of (n=11) Western Pacific countries, and in 50% (n=3) of the total respondent countries in the SE Asian region (n=6). In the GCC region, it was (n=6) 66.7% (n=4), and (n=18) out of 69.2% (n=26) of the European countries had Mandatory Continuous Professional Education.

#### **c. Performance indicator**

The performance indicator is defined as “A measure of performance against specified criteria or standard” (FIP, 2012).

Only 20% (n=4) of the participant African countries (n=25) had a performance indicator intended for pharmacists, whilst this was 50% (n=4) out of (n=8) American countries. None of the Eastern Mediterranean countries (n=5) had a performance indicator intended for pharmacists, whilst this was available in 40% (n=4) of the participant Western Pacific Countries (n=10), 20% (n=1) of the participant SE Asian Countries (n=5), 32% (n=8) out of (n=25) European countries and 66.7% (n=4) out of (n=6) GCC countries.

#### **d. Pharmacist licensing**

It was a legal requirement for pharmacists to be licensed in 93.8% (n=5) of the participant

African nations (n=8). In the American region, 87.5% (n=7) of the participant countries, (n=8) had legal requirements for pharmacists to be licensed. It was also required in 80% (n=4) of the participant countries from the Eastern Mediterranean region (n=5) and in 84.6% (n=4) of the participant countries from the European region (n=26). All participant countries from the GCC, the SE Asian, and the Western Pacific regions had legal requirements for pharmacists to be licensed.

## **2. Quality of pharmaceutical facilities**

### **a. Licensing for public pharmacies**

Public sector pharmacies were required to be licensed in 58.8% (n=10) of the participant African countries (n=17), whilst this was 87.5% (n=7) out of (n=8) respondent countries in the American region and 80% (n=4) out of (n=5) respondent countries in the Eastern Mediterranean region. In the SE Asian region (n=6) and the Western Pacific region (n=11), 66.7% (n=4) and 63.6% (n=7) of the respondent nations had a legal provision requiring public sector pharmacies to be licensed respectively. This was 68.2% (n=15) out of (n=22) European countries and 66.7% (n=4) out of (n=6) GCC countries.

### **b. Licensing for private pharmacies**

The results showed that 83.3% (n=15) of the respondent African countries (n=18) had legal requirements for private pharmacies to be licensed, whilst this was 87.5% (n=7) out of (n=8) countries in the American region. Similarly, 80% (n=4) out of (n=5) Eastern Mediterranean countries had legal requirements for private pharmacies to be licensed. Licensing of private pharmacies was required in 72.7% (n=8) out of (n=11) Western Pacific countries and 66.7% (n=8) of the total respondent countries in the SE Asian region (n=6). In the European region, (n=21) out of (n=26) countries 80.8% required licensing for private pharmacies. All GCC countries (n=6) had legal requirements for private pharmacies to be licensed.

## **3. Quality of pharmacy education institutions**

### **a. Accreditation of pharmacy schools**

Pharmacy schools were required to be accredited in 85.5% (n=12) of the participant African countries (n=14), 87.5% (n=7) out of (n=8) respondent countries in the American region and 100% (n=8) of the respondent countries in the Eastern Mediterranean region. In the SE Asian region (n=6) and Western Pacific region (n=11), 100% (n=6) and 81.8% (n=9) of the respondent nations had accreditation requirements for pharmacy schools, respectively, whilst this was 88.5% (n=23) out of (n=26) European countries and 75% (n=3) out of (n=4) GCC countries.

### **b. Curriculum review**

The results showed that all the Eastern Mediterranean countries (100%) required a regular review of the pharmacy curriculum, while this was 69.2% (n=9) of the respondent African countries (n=13) and 37.5% (n=3) out of (n=8) countries in the American region. Regular review of the pharmacy curriculum was required in 63.6% (n=7) out of (n=11) Western Pacific countries, 60% (n=3) of the total respondent countries in the SE Asian region (n=5) and 64% (n=16) out of (n=25) European countries. Similarly, 60% (n=3) out of (n=5) GCC countries required a regular review of the pharmacy curriculum.

The quality of pharmacy was measured by comparing the quality of the pharmacy workforce, the quality of pharmaceutical facilities, and the quality of pharmacy education. The quality of the pharmacy workforce was measured by comparing the availability of four factors, which are national good pharmacy practice guidelines, performance indicators for practice standards, relicensing, and continuous professional development. The quality of the pharmaceutical facilities was measured by comparing the licensing requirements for these facilities. Pharmacy education quality was measured by comparing the requirement for accreditation of pharmacy education institutions and pharmacy curriculum review. The GCC region was better than other regions in some aspects and needed some improvements in others.

The quality of pharmacy in the GCC region can be summarised in the following way: 83.3% of GCC countries had good pharmacy practice guidelines, 66.7% of them had mandatory cpd



and 66.7% of them had performance indicators intended for pharmacists. All GCC countries required pharmacists to be licensed, whilst 66.7% of them required public sector pharmacists to be licensed, and all of them had legal requirements for private pharmacies to be licensed. In addition, 75% of GCC countries had accreditation requirements for pharmacy schools and 60% of them required regular review of pharmacy schools' curriculum.

## 4.2.2 Comparison between GCC countries

The same WHO framework – availability, accessibility, acceptability, and quality –was used to descriptively compare the pharmacy profession within the GCC region, i.e. country-level comparison.

### 4.2.2.1 Availability in GCC countries

#### Availability factors

#### 1. The density of pharmacy schools and the rate of production of graduates in the GCC region

##### The density of pharmacy schools per 10,000 population in the GCC region

Table 4.13 shows the number and the type of pharmacy schools in the GCC region. There was a total of 42 pharmacy schools in the GCC region, and they were all accredited. Bahrain was the only country in the region which had no university-based pharmacy school. This indicates that Bahraini nationals obtain their pharmacy degree from outside Bahrain, and the country relies on international pharmacists. Two countries had a single pharmacy school each (Kuwait and Qatar). Oman reported three pharmacy schools, the UAE reported eight and Saudi Arabia reported 29. Figure 4.8 shows the density of pharmacy schools in the GCC countries. Saudi Arabia had the highest density, 0.01 schools per 10,000 population, and Kuwait had the lowest the density with 0.0034 schools per 10,000 population, with sample mean being mean=0.0076.

**Table 4.13 Number and type of pharmacy schools in GCC nations**

Country	Total	Total accredited	Accredited Public	Accredited Private for profit	Accredited Private Not for Profit
Kuwait	1	1	1	0	0
Saudi Arabia	29	29	21	8	0
Oman	3	3	1	2	0
Qatar	1	1	1	0	0
UAE	8	8	2	6	0
Bahrain had no pharmacy schools					

**The density of pharmacy graduates per 10,000 population in the GCC region**

Table 4.14 shows the density of pharmacy graduates per 10,000 population in the GCC countries. The UAE had the highest density and Saudi Arabia had the lowest density. Sample mean =0.299 and SD =0.141.

Table 4.14 shows a comparison of the density of pharmacy schools per 10,000 population and the density of pharmacy graduates per 10,000 population in the GCC countries. Saudi Arabia had the highest the density of pharmacy schools per 10,000 population and the lowest density of pharmacy graduates per 10,000 population, indicating that its pharmacy schools were not producing as many pharmacists as those in the other countries. It also indicates that class size was likely to be the smallest in the region.

Oman, Saudi and UAE had almost the same density of pharmacy schools. However, the UAE had the highest density of graduates, followed by Oman and Saudi Arabia. This could be because 75% of pharmacy schools in the UAE and 66.6% of pharmacy schools in Oman are private for profit while only 38% of pharmacy schools in Saudi Arabia are privately owned. As GCC countries provide free pharmacy education in public schools, there is a limit on the number of students they take. However, for financial profit, private schools are more likely to have larger class size and produce more graduates.

Although Qatar had the second lowest density of pharmacy schools, it had the third highest density of pharmacy graduates, which indicates proper utilisation of the only pharmacy school in the country.

**Table 4.14 Comparison of the density of pharmacy schools per 10,000 population and the density of pharmacy graduates per 10,000 population in GCC countries**

Country	The density of pharmacy schools per 10,000	The density of pharmacy graduates per 10,000
Bahrain	0	0
Kuwait	0.003	0.172
Oman	0.009	0.388
Qatar	0.005	0.276
Saudi Arabia	0.010	0.167
UAE	0.010	0.493

## **2.Comparison between the density of pharmacy graduates per 10,000 and the density of pharmacists per 10,000 in the GCC region**

Table 4.15 shows a comparison between the density of pharmacy graduates per 10,000 and the density of pharmacists per 10,000 in the GCC region. When excluding Saudi Arabia and Bahrain, the pattern shows that, as the density of pharmacy graduates increases, the density of pharmacists also increases. Bahrain does not follow the pattern probably because of the lack of an entry-level pharmacy education programme within the country. Most of the pharmacists are either Bahraini-citizens who obtained their degrees from outside the country or expatriates. In Saudi Arabia, the density of pharmacists per 10,000 was almost the same as in the UAE, Oman and Bahrain, although it had the lowest density of pharmacy graduates and the highest density of pharmacy schools. Saudi Arabia is the largest country in the region. As a strategy to ensure that pharmacy graduates remain in and serve the areas from where they have graduated, most of the newly opened pharmacy schools were in rural areas. In other words, having a high number of schools and a low number of graduates was to ensure equitable distribution of the pharmacy workforce rather than increasing its numbers.

**Table 4.15 Comparisons between the density of pharmacy graduates per 10,000 population and the density of pharmacists per 10,000 population in the GCC region**

Country	The density of pharmacy graduates per 10,000	The density of pharmacists per 10,000
Bahrain	0	5.58
Kuwait	0.172	3.54
Oman	0.388	6.15
Qatar	0.276	5.12
Saudi Arabia	0.167	5.59
UAE	0.493	6.17

### 3. The density of pharmacy technician training schools and the rate of production of pharmacy technicians graduates in the GCC region

a. The density of pharmacy technician training schools per 10,000 population in the GCC region.

**Table 4.16 Number and type of pharmacy technician training schools in GCC nations**

Country	Total	Total accredited	Accredited Public	Accredited Private for profit	Accredited Private Not for Profit
Bahrain	1	1	1	0	0
Kuwait	1	1	1	0	0
Oman	3	3	2	1	0
Qatar	1	1	0	1	0
UAE	1	1	0	1	0
<b>Data from Saudi Arabia is missing</b>					

Table 4.17 shows the density of pharmacy technician graduates per 10,000 population in the GCC countries. Bahrain had the highest density and UAE had the lowest density. Sample mean =0.56 and SD =0.0032. Whilst Bahrain had the highest density of pharmacy technician

graduates in the GCC region, it also had the lowest density of pharmacy graduates. Data from Saudi Arabia is missing.

Table also 4.17 shows comparison of the density of pharmacy technician graduates per 10,000 population and the density of pharmacy schools per 10,000 population in the GCC region. Bahrain had the second highest density of pharmacy technician training schools and by far the highest density of pharmacy technician graduates, indicating proper utilisation of the only training school to produce the highest possible number of graduates. Bahrain’s production of a high density of pharmacy technician graduates was probably to compensate for the low density of pharmacy graduates. Oman had triple the density of training schools as Kuwait but produced almost the same number of graduates, which indicates that Oman was not making as good a use of its education institutions as Kuwait was of its. UAE and Qatar had the lowest densities of both pharmacy technician schools and graduates per 10,000 population.

**Table 4.17 Comparison of the density of pharmacy technician schools per 10,000 and the density of pharmacy technician graduates per 10,000 population in GCC countries.**

Country	The density of pharmacy technician schools per 10,000	The density of pharmacy technician graduates per 10,000
Bahrain	0.007	2.088
Kuwait	0.003	0.242
Oman	0.009	0.320
Qatar	0.005	0.095
UAE	0.001	0.061
<b>Data from Saudi Arabia is missing</b>		

#### **4. Migration (mobility of pharmacy workforce)**

Data on workforce migration in the Gulf region is limited; only Saudi Arabia and Oman were able to provide information on the number of newly registered foreign pharmacists. Saudi

Arabia suggested that there were no newly registered pharmacists in 2013, following the (Saudisation of the profession') strategy of the profession. Lack of data on workforce mobility in the other nations probably indicates an inadequate monitoring of workforce flow in the region.

## **5. The pharmacist density**

Figure shows a comparison of the pharmacist density per 10,000 population in the GCC region. The lowest was 3.5 (Kuwait), and the highest was 6.17 (UAE), with the mean being 5.36 pharmacists/10,000 population and SD= 0.79. The figure shows the density of pharmacists per country per 10,000 population. WHO recommends one pharmacist/ 2000 population, which is equivalent to five pharmacists per 10,000 population. All GCC countries except Kuwait met the WHO standards for minimum number of pharmacists.

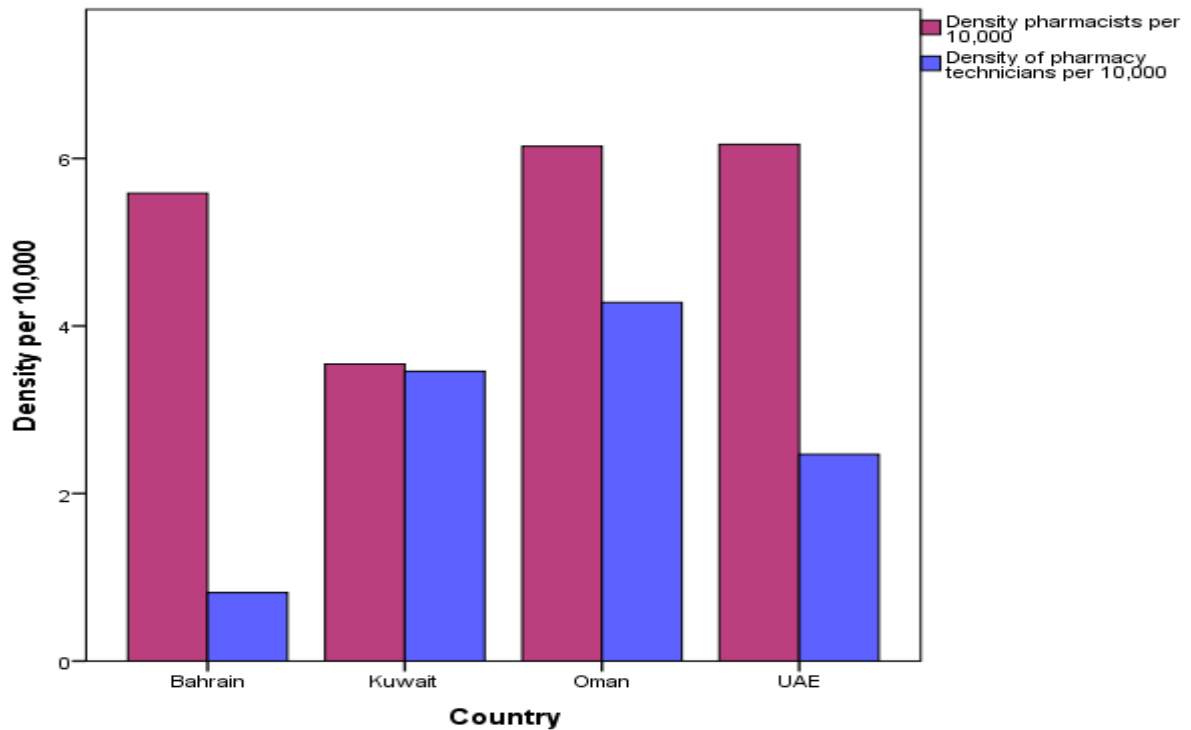
## **6. The density of pharmacy technicians in the GCC countries**

The density of pharmacy support workforce in the GCC region is summarised in Figure 4.7. Data available from four countries indicates that Oman had the highest density of pharmacy technicians (2.47) and Bahrain had the lowest (0.82) with mean being 2.7 pharmacy technicians/10,000 population and SD= 1.5. Although Bahrain produced the highest density of pharmacy technician graduates in 2014 , it still had the lowest density.

Comparison of the density of pharmacists and the density of pharmacy technicians per 10,000 population in GCC region

Figure 4.7 shows a comparison between the density of pharmacists and the density of pharmacy technicians per 10,000 population in the GCC countries. In Oman and UAE, the density of pharmacists was almost double the density of pharmacy technicians, allowing pharmacists more time to perform more patient-oriented pharmaceutical services rather than performing traditional tasks such as dispensing. It also suggests that pharmacy services provided by the pharmacy support workforce are under pharmacists' supervision. On the other hand, the low density of pharmacy technicians in Bahrain is likely to require

pharmacists to perform pharmacy technicians' jobs. In Kuwait, the densities are almost the same, which resulted in a lack of clear job description and job titles: both pharmacists and pharmacy technicians carry out the same tasks, as suggested by the participants in the qualitative part of this research. Additionally, the lack of a well-established clinical pharmacy career path in Kuwait is justified by the low density of pharmacists.

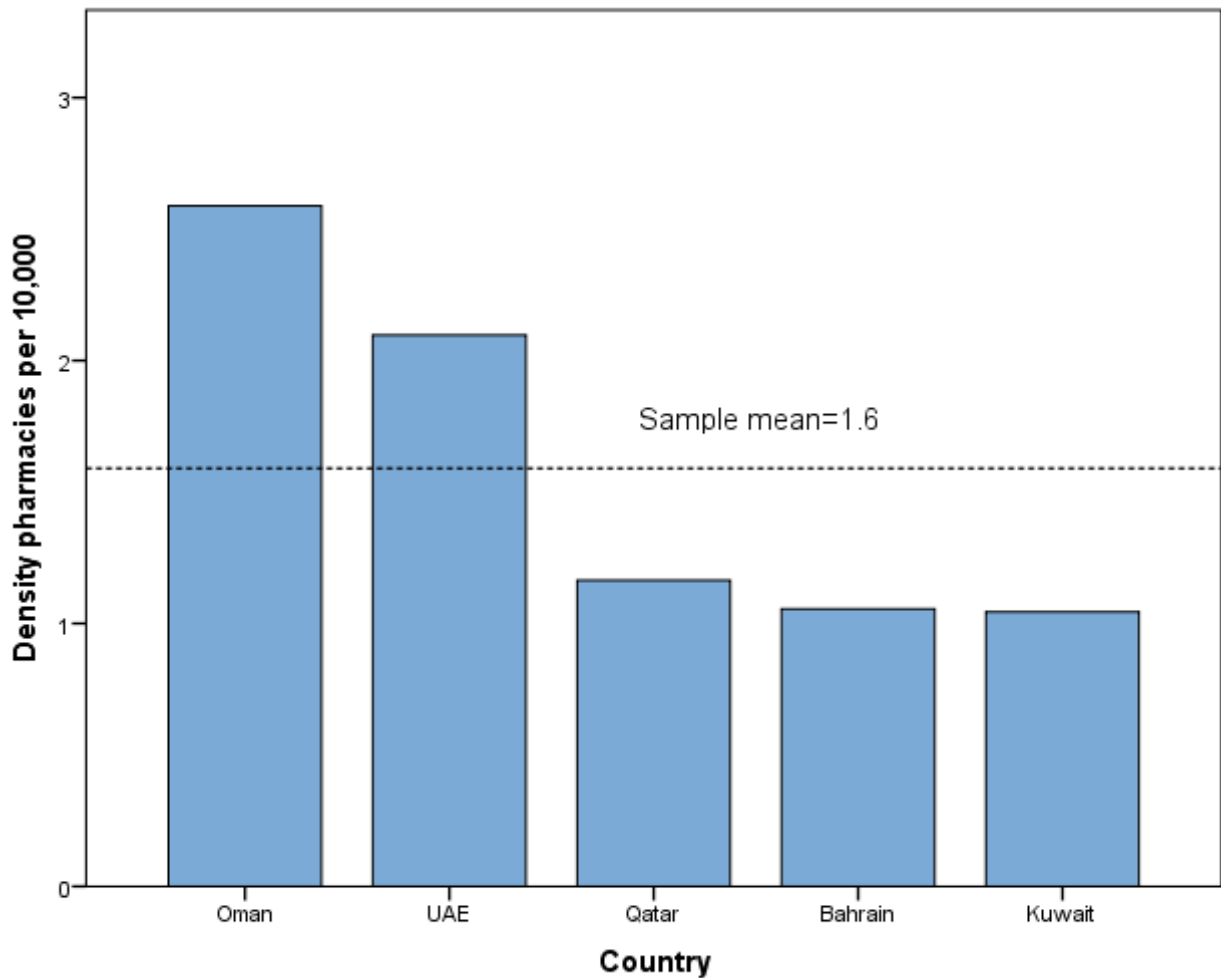


**Figure 4.7 Comparison of the density of pharmacists and the density of pharmacy technicians per 10,000 population in the GCC region**

### 7. The density of pharmacies

The density of pharmacies in the GCC countries is shown in Figure 4.8. Oman had the highest the density with 2.6 pharmacies per 10,000 population and Kuwait had the lowest density with 1.04 pharmacies per 10,000 population. Mean of the sample= 1.6 and SD =0.710. Figure 4.17 shows the density of pharmacies per 10,000 population in the GCC countries.





\*Data from Saudi Arabia is missing

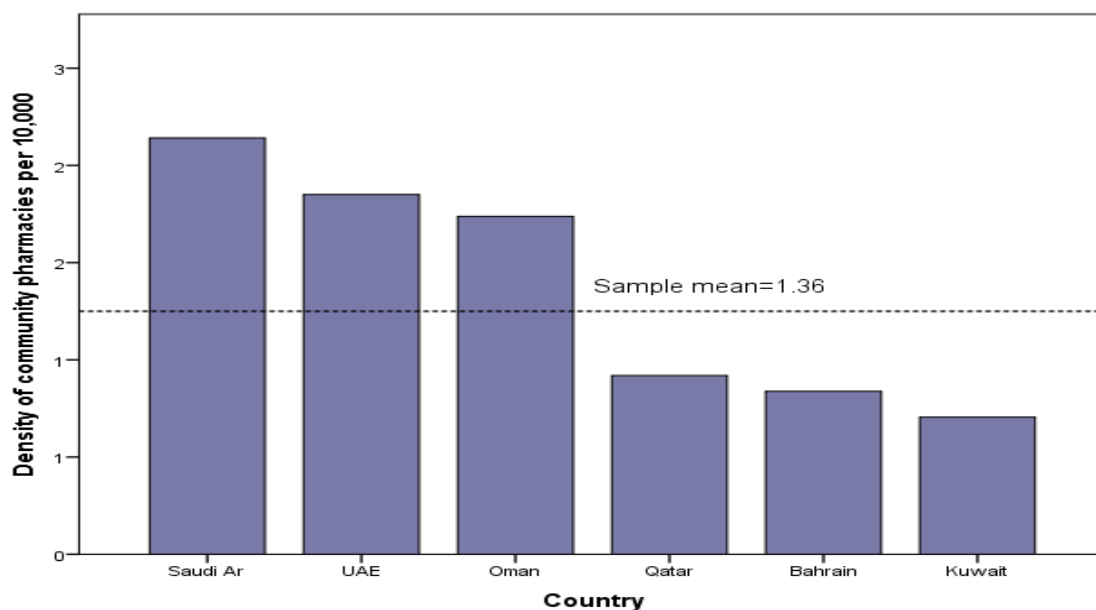
**Figure 4.8 The density of pharmacies in all sectors per 10,000 population in GCC countries**

Describing the availability of pharmacy in GCC countries is complicated. Stating that a certain country had better availability than another would not be reliable. Some countries had a higher density of schools and lower density of graduates, but that did not affect the overall density of the workforce. Other countries had a higher density of pharmacy technicians and lower density of pharmacists. Each country is a unique case. Optimising the availability should be carried out based on the availability factors in each country. However, since the religious, cultural, social, and economic factors are similar in all the six countries, pharmacy stakeholders and regulatory bodies could enhance pharmacy availability in their country by adopting pharmacy laws from neighbouring nations.

#### 4.2.2.2 Accessibility in GCC countries

## Community pharmacies

Figure 4.9 shows the density of community pharmacies in the GCC countries. Community pharmacies are considered the most accessible pharmacy healthcare facilities. For that reason, a comparison of the density of community pharmacies per 10,000 population will be used as a factor to measure pharmacy accessibility. Saudi Arabia had the highest density of community pharmacies, and Kuwait had the lowest density. Limitations on the number of pharmacies an individual can own might have affected the density. For example, the maximum number of pharmacies an individual can own in Bahrain and Kuwait was one, whilst in Saudi Arabia it was 30. There was no limit in Oman, Qatar or the UAE.



**Figure 4.9 The density of community pharmacies per 10,000 population in GCC countries**

Accessibility of pharmacies in the GCC countries was measured by comparing the density of community pharmacies. Kuwait had the lowest accessibility, and Saudi Arabia had the highest accessibility.

### 4.2.2.3 Acceptability in the GCC countries

#### 1. Gender distribution

The proportion of workforce gender mix shows increased ratios of males in the profession; this is now an average of 45.2% (range 42.1% to 50%). Participation of females in the workforce is affected by historical, religious and social factors. However, there were sufficient numbers of female pharmacists in the region to meet the local society needs, i.e. female patients prefer to deal with female healthcare professionals. Table 4.18 shows gender distribution in the GCC countries.

**Table 4.18 Gender distribution of pharmacists in the GCC countries**

Country	No. of female pharmacists	No. of male pharmacists	% of female pharmacists
Kuwait	450	575	43.9
Oman	800	1099	42.12
Qatar	434	530	45.02
Saudi Arabia	7015	8575	44.99
UAE	2500	2500	50

#### 2. Codes of conduct

The codes are available in all GCC countries except Kuwait and Qatar.

Acceptability was measured by comparing the density of female pharmacists and availability of a code of conduct. The density of female pharmacists was comparable in all the six countries. All the GCC countries had a code of conduct, except Kuwait and Qatar. To ensure that patients are treated ethically, Kuwait and Qatar need to develop or adopt codes of conduct.

### 4.2.2.4 Quality in the GCC countries

#### 1. Pharmacy workforce quality

The quality of a pharmacy workforce is multifactorial. Kuwait was the only nation that did

not meet most of the criteria. Pharmacy workforce quality in the GCC region is summarised in the Table 4.19.

**Table 4.19 Pharmacy workforce quality in the GCC region**

Factor	Country	Bahrain	Kuwait	Oman	Qatar	Saudi Arabia	UAE
<b>National Good Pharmacy Practice Guidelines (GPP)</b>		Yes	No	Yes	Yes	Yes	Yes
<b>Mandatory Continuous Professional Education CPD</b>		No	No	Yes	Yes	Yes	Yes
<b>Performance indicator</b>		Yes	No	No	Yes	Yes	Yes
<b>Licensing for pharmacists</b>		Yes	Yes	Yes	Yes	Yes	Yes
<b>Competency Framework</b>		Yes	Yes	Being developed	Yes	Yes	Yes

## 2. The quality of pharmaceutical facilities

Table 4.20 shows the quality of pharmaceutical facilities. All GCC countries required a licence for private and public pharmacies, except Kuwait, which did not require a licence for public pharmacies. To ensure appropriate supervision of pharmacy services was provided, pharmacy ownership was restricted to pharmacists in Bahrain, Kuwait and Saudi Arabia but unrestricted in Qatar, Oman and the UAE. However, in the latter three countries it had to be run by a registered pharmacist.

**Table 4.20 The quality of pharmaceutical facilities**

Factor	Country	Bahrain	Kuwait	Oman	Qatar	Saudi Arabia	UAE
Licensing for public pharmacies		Yes	No	No	Yes	Yes	Yes
Licensing for private pharmacies		Yes	Yes	Yes	Yes	Yes	Yes

### 3.The Quality of pharmacy education institutions

Oman, Qatar and Saudi Arabia had an accreditation system for pharmacy schools. Having a local accreditation system for pharmacy education is essential to meet the specific local needs of a nation. Pharmacy curriculum was reviewed locally in all countries except Kuwait and Oman. Reviewing the curriculum is important to standardise pharmacy education across a country.

Workforce quality was comparable in all the countries except Kuwait, which did not meet most of the workforce quality standards, i.e. it lacked GPP guidelines, mandatory CPD, and performance indicator. The quality of pharmaceutical facilities was measured by the availability of legal requirements for pharmacies to be licensed. All the GCC countries had legal requirements for private pharmacies to be licensed and all of them, except for Kuwait and Oman, also had a legal requirement for public pharmacies to be licensed. The quality of pharmacy education was measured by assessing the availability of accreditation system for pharmacy schools and the requirement for the pharmacy curriculum to be reviewed. All of the GCC countries had an accreditation system, except Kuwait, and all of them required regular review of the curriculum, except Kuwait and Oman.

### 4.3 Main outcomes and discussion

The main outcomes of this study have been presented using the WHO framework (availability, accessibility acceptability, and quality) to compare the GCC region with other

WHO regions.

Availability of a pharmacy workforce was determined by the following factors: numbers of pharmacy education institutions, the rate of production of graduates, and mobility of the workforce. The GCC region was significantly higher than the African region in all the factors but did not differ significantly from other WHO regions. The density of pharmacies in the GCC region was also significantly higher than in the African region and significantly lower than in European region. Availability of a pharmacy workforce (pharmacists and pharmacy technicians) was significantly higher in the GCC region compared to the African region. However, it did not differ significantly from all other WHO regions.

Availability of pharmacy in GCC countries is multifactorial. Some countries had a higher density of schools and lower density of graduates, but that did not affect the overall workforce density. Other nations had a higher density of pharmacy technicians and lower density of pharmacists. Each country had unique measures. Optimising the availability should be carried out based on the supply and demand factors in each country.

Accessibility was measured by comparing the density of community pharmacies because community pharmacies are considered the most accessible pharmacy healthcare facility. The density of community pharmacies in the GCC region was significantly higher than in the African region, but it was significantly lower than in the American, the Eastern Mediterranean, and the European regions. The qualitative part of this research suggested the following: first, in the GCC region, medicines are provided free of charge for citizens and are usually collected from hospital pharmacies or primary healthcare centre pharmacies, which makes them more accessible. Second, the public perception of community pharmacies as 'supermarkets' is probably the reasons behind these findings. However, using only a single factor to assess accessibility in pharmacy is not an accurate measure.

Accessibility in the GCC region was measured by comparing of the density of community pharmacies. Saudi Arabia had the highest density of pharmacies, and Kuwait had the lowest density. Limitations on the number of pharmacies an individual can own might have affected the density. The limit on the number of pharmacies was one in Bahrain and Kuwait and 30 in Saudi Arabia. There was no limit in Oman, Qatar or the UAE.

Acceptability was measured by comparing two factors, the density of female pharmacists and the availability of a code of conduct. Although the density of female pharmacists in the GCC region was lower than in the European and the American regions, the density of total pharmacists was comparable. The GCC region had sufficient numbers of female workers to meet the cultural needs of the region. The code of conduct, however, needs more attention paid to it, as some of the GCC countries lacked one.

Acceptability in the GCC region was studied by comparing the density of female pharmacists and availability of a code of conduct. The density of female pharmacists was comparable in all six countries, and they all had a code of conduct, except Kuwait and Qatar.

The quality of pharmacy services provided was determined by assessing the quality of the pharmacy workforce, pharmacy education, and pharmaceutical facilities. Pharmacy workforce quality is reflected by having national Good Pharmacy Practice Guidelines, performance indicators for practice standards, relicensing, and Continuing Professional Development. The quality of pharmaceutical facilities was assessed by the requirement for licensing of these facilities. Pharmacy education quality was measured by the requirement for accreditation of pharmacy education institutions and curriculum review.

The quality of pharmacy services in the GCC region can be summarised in the following way: 83.3% GCC countries had Good Pharmacy Practice Guidelines, 66.7% of them had mandatory Continuous Professional development and performance indicator intended for pharmacists. All GCC countries required pharmacists to be licensed, whilst 66.7% of them required public sector pharmacists to be licensed, and all of them had legal requirements for private pharmacies to be licensed. It was also found that 75% of the GCC countries had accreditation requirements for pharmacy schools, and 60% of them required regular review of pharmacy schools' curriculum.

Workforce quality is comparable in all the countries except Kuwait, which did not meet most of the workforce quality criteria. The quality of pharmaceutical facilities was measured by comparing the availability of legal requirements for pharmacies to be licensed. All of the GCC nations had legal requirements for private pharmacies to be licensed, and all of them had a legal requirement for public pharmacies to be licensed, except Kuwait and Oman. The

quality of pharmacy education was measured by the availability of an accreditation system for pharmacy schools and curriculum review. All of the GCC countries had an accreditation system, except Kuwait, and all of them required regular review of the curriculum, except Kuwait and Oman.

#### **4.4 Bias and limitation**

The number of the participant countries varied between WHO regions. Low response rates from some regions including SE Asia and Eastern Mediterranean might have resulted in an inaccurate representation of these regions. Low response rates meant that it was not justifiable to conduct certain statistical tests, and descriptive analysis was used instead. The survey was lengthy and required information to be obtained from several organisations including Ministries of Health, education bodies, and pharmacy regulatory bodies, which might have been a reason for the low responses. Efforts were made to ensure that the data was obtained from multiple sources. However, some countries' data was only available from a single authority.



## Chapter 5 – Pharmacy Workforce Work Attitudes, Job Satisfaction, And Services Development In Kuwait And Saudi Arabia

This chapter discusses the qualitative study ‘pharmacy workforce work attitudes, job satisfaction and services development in Kuwait and Saudi Arabia’.

Section 5.1 provides background about Kuwait and Saudi Arabia and their healthcare systems.

Section 5.2 identifies the current knowledge about work attitudes and job satisfaction in pharmacy.

Section 5.3 presents the current study design.

Section 5.4 reports the results (domains and themes extracted from interviews).

Section 5.5 provides discussion of the findings and limitations.

Section 5.6 summarises and concludes the chapter.

### **This research sought to address the following objectives in Kuwait and Saudi Arabia:**

- To examine the effects of workload, relationships with co-workers, supervisors and other healthcare professionals on job satisfaction.
- To evaluate pharmacists’ satisfaction with their earnings.
- To find out the linkages between job satisfaction and turnover intentions.
- To explore pharmacists’ perspectives towards pharmacy policies regarding education and training, professional development, and services development.

### **5.1 Background on Kuwait and Saudi Arabia**

#### **5.1.1 Saudi Arabia**

The Kingdom of Saudi Arabia has a total land area of 2,150,000 square kilometres (830,000 square miles), covering almost 80% of the Arabian Peninsula (MOFA, 2011). Located in the southwest corner of Asia, the Kingdom is at the crossroads of Asia, Europe, and Africa. It is surrounded by Yemen and Oman to the south, by the Red Sea to the west, Jordan, Iraq and Kuwait to the north and the Arabian Gulf and the UAE and Qatar to the east. The population was 25.4 million in 2009. Inhabitants of Saudi origins form 72.9% of the population, which

comprises 50.1% males and 49.9% females. Foreigners form 27.1% of the population. The main spoken language is Arabic (MOFA, 2011).

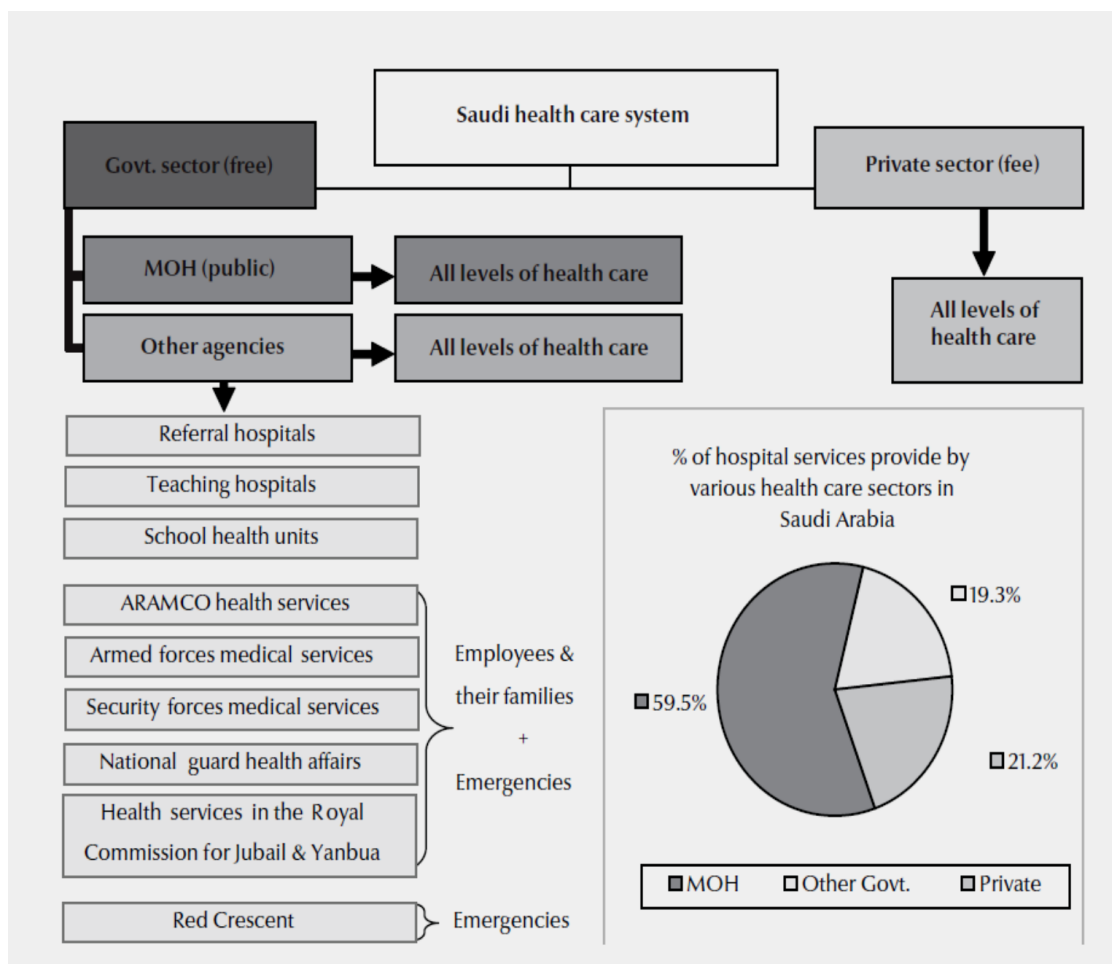
### 5.1.2 Healthcare system in Saudi Arabia

The main government agency that provides prevention, treatment and rehabilitation of Saudi people is the Ministry of Health (MOH). It has a network of healthcare centres that provide primary care throughout the country. A referral system is adopted to provide treatment for every member of the society from general practice level to more advanced specialist services. The MOH plays a major role in setting healthcare rules and regulations, managing, financing, and planning the healthcare system. It is also responsible for supervising the private healthcare sector. The Ministry of Defence and Aviation (MODA), the Ministry of Interior (MOI) and the Saudi Arabian National Guard (SANG) provide care only for the armed forces and national guards. Figure 5.1 shows the current structure of healthcare sectors in Saudi Arabia.

University hospitals provide opportunities for medical, nursing and pharmacy students to train locally. The hospitals also provide training and education courses for other healthcare professionals (MOH, 2009). Tables 5.1 and 5.2 show hospitals and beds in all health sectors and health resources indicators per 10,000 respectively.

Emergency services including those for accidents or during pre-hospital stages are provided mainly by the Saudi Red Crescent Society, which is considered to be the major agency providing health services at Mecca and Medina for pilgrims during Hajj and Umrah (MOH, 2009).

In 2009, the Saudi Ministry of Health (MOH) budget was 29.5 million SR, which equals 6.2% of the total governmental budget, and the expenditure per capita was 1200 SR (MOH, 2009). Healthcare and medication are free for all citizens (MOH, 2009). Figures 5.2 and 5.3 summarise the Saudi MOH vision and mission, and the main challenges facing the MOH.



**Figure 5.1 Current structures of healthcare sectors in Saudi Arabia (Almalki et al., 2001).**

**Table 5.1 Hospitals and Beds in All Health Sectors (MOH, 2009)**

Sector	Number of hospitals	Number of beds
<b>Ministry of Health</b>	244	33,277
<b>Other agencies</b>	39	10,822
<b>Private</b>	125	11,833
<b>Total</b>	408	55,932

**Table 5.2 Health Resources Indicators per 10,000 population (MOH, 2009)**

<b>Indicator</b>	<b>Rates /10,000</b>
Physicians	24.3
Dentists	3.4
Pharmacists	5.5
Nurses	48
Allied health personnel	25
Hospital beds	21.4
Health Centres	0.77
Governmental hospital beds	16.7
Private hospital beds	4.72

### 5.1.3 Kuwait

Kuwait is located in the Middle East, with borders with Saudi Arabia and Iraq. It has a total land area of 17,818 km<sup>2</sup> (WHO, 2011). It is a constitutional monarchy with an acting elected parliament. The population in Kuwait was 3,328 million in 2008, according to the Kuwaiti government census (WHO, 2011). Kuwaiti nationals form 31% of the population. Kuwaiti non-nationals and immigrants make up the rest of the population, while foreigners are mainly from India, Pakistan, and the Philippines (Department of Health, 2001). Arabic is the dominant spoken language, whilst English is the second predominant language, which is spoken and understood by almost all the population (Department of Health, 2001).

### 5.1.4 Healthcare system in Kuwait

Healthcare is provided in both the public and private sectors. Healthcare is delivered at primary, secondary and tertiary levels by the MOH. Kuwait is divided into six governorates: Hawaii, Al-Asima, Mubarak Al-Kabeer, Al-Ahmadi, Al-Jahrah, and Al-Farwaniya. Each governorate has some primary healthcare and Polyclinics, with a total of 74 healthcare centres (Department of Health, 2001). Secondary healthcare is delivered through six regional hospitals and nine specialised hospitals. Inhabitants of a specific health governorate can only be referred to their corresponding hospital. All the population have access to healthcare. Healthcare is free for Kuwaiti nationals at all levels. Non-nationals are charged a small price to receive healthcare and treatment (Department of Health, 2001).

**Table 5.3 Comparison between health status indicators of Saudi Arabia and Kuwait (WHO,2012)**

<b>Indicator</b>	<b>Saudi Arabia</b>	<b>Kuwait</b>
<b>Estimated population</b>	25,373,512	2,794,706
<b>Crude birth rate</b>	23.7	15.0
<b>Crude Death rate</b>	3.9	1.6
<b>Infants Mortality Rate per 1000 live births</b>	17.4	9.1
<b>Pop. Growth Rate (%)</b>	2.2	9.3
<b>% Population below 15 years</b>	32.0	19.6
<b>% Population 65 years and over</b>	2.8	1.6
<b>Total Fertility rate/woman</b>	3.0	1.7
<b>Life expectancy at birth: Male/Female</b>	72.5/74.7	77.5/77.9

## **5.2 Background on global pharmacy workforce attitudes and job satisfaction**

### **5.2.1 Workload in pharmacy**

Competence is considered a major determinant of healthcare personnel performance. However, other factors also influence their performance. Evidence shows that those factors are either system-related or individual-related. Individual-related influences include physical and mental health, and relationships with colleagues, patients, and family. Examples of system-related factors are the atmosphere of the workplace, time limitations, workload, work guidelines, policies and regulations, and patients' expectations. Personal characteristics

including age, gender, and personality also influence professionals' performance (Schafheutle et al., 2011). Evidence has suggested that male professionals more frequently face disciplinary action for their performance when compared to their female colleagues. Professionals from ethnic minority groups have been reported to be more disciplined (Schafheutle et al., 2011).

A great deal of research has been conducted to identify the impact of workload on pharmacists. Community pharmacy and hospital pharmacy are the main sectors that have been investigated. Qualitative and quantitative methodologies or a combination of both were utilised to collect the data. The term workload can be defined as the "degree to which work demands are high" (Carvajal, 2008).

A study was conducted to investigate the relationship between workload and dispensing errors in hospital pharmacy. Types and frequencies of dispensing errors in a UK hospital pharmacy were identified and reported. Pharmacists who made those errors reported that high workload and other environmental factors, e.g. distractions and interruptions, decreased their ability to identify the errors (Adnan Beso, 2005). Another hospital-based study found that pharmacists are less likely to detect prescribing errors when they check a large number of patient charts (Holden et al., 2010).

A study in UK community pharmacies suggested that workload has increased in this sector as a result of the increasing demand for pharmaceutical services. Ageing population, increase in prescribed medicines, and medical advancement in addition to the ongoing role expansion of the community pharmacy had all led to an escalating workload (Gidman, 2011). This paper also indicated that a busy, multi-tasking environment and pharmacists rushing to deliver services increase the risk of making errors.

A meta-analysis was conducted to identify workload in retail pharmacies in the UK. The main findings indicated that pharmacists perceived that their workload was increasing. This high workload was associated with job-related stress and dissatisfaction (Lea et al., 2012).

A similar study was carried out in Turkey. The results were measured through three Maslach Burnout Inventory Subscales (emotional exhaustion-EE, depersonalisation-D, and personal

accomplishment-PA). It was found that 1.2% of the pharmacists had a high level of EE, 0.8 of them had a high level of D, and 72% were reported to have a high level of inefficacy. The research concluded that burnout levels were related to pharmacist age, marital status, work experience, work commitment, job stress, workload, and job satisfaction (Calgan et al., 2011).

In Hungary, a study showed that emotional exhaustion and depersonalisation were higher among healthcare workers compared to other countries including the USA and Switzerland. Emotional exhaustion ( $P < 0.001$ ) was the main cause of job dissatisfaction. Education level was inversely related to job satisfaction ( $p < 0.05$ ). Conflict played a significant role in emotional exhaustion ( $p < 0.001$ ) and depersonalisation scores ( $p < 0.001$ ) (Piko, 2006).

Gaither and Nadkarni (2012) suggested that, in hospital pharmacy settings, high-demand/unpleasant encounters between pharmacists and other healthcare personnel had a negative impact on organisational commitment and a positive impact on the frequency and the intensity of emotional exhaustion. Frequency and intensity of personal accomplishments were positively related to low-demand/pleasant encounters. Low-demand/unpleasant encounters had significant negative effects on professional commitment, job satisfaction, and frequency and intensity of emotional exhaustion. Additionally, high-demand/pleasant encounters were also related to frequency and intensity of emotional exhaustion.

A recent study reported that pharmacists and pharmacy technicians need high-level internal and external demand for dispensing medicines. External demands such as perceived pressure to deliver services quickly, interruptions, and divided attention had negative effects on medication safety and staff well-being, while internal demands including attention and concentration were not strongly linked with medication errors and adverse drug reactions. Internal demands were found to increase job satisfaction (Holden et al., 2010).



### 5.2.2 Job satisfaction and turnover intentions

Future work plans including retention and turnover have become important recently. Healthcare professionals leaving or staying with their current employers have major impacts on staffing shortages, quality of healthcare provided, and the profit an institution makes. In the USA, an estimation of the cost incurred by staff secondary to turnover could range between \$20,000 (best-case scenario) to \$88,000 (worst-case scenario). This amount of money is the sum of lost productivity and the cost of hiring and training new employees (Gaither et al., 2007).

The relationships between pharmacist work-related attitudes such as career commitment, organisational commitment and level of turnover intentions and job stress as well as job satisfaction have been investigated in several studies. Career commitment refers to “the strength of one’s motivation to work in a chosen career role”, whilst organisational commitment can be defined as “an employee’s emotional attachment to, identification with and involvement in the organisation” (Gaither et al., 2008). Job satisfaction is “the degree of personal gratification one receives from one’s work” (Lau et al., 2011) or the pleasure and feeling of accomplishment employees derive from performing their jobs well” (Kerschen et al., 2006). Job turnover intention is defined as “the likelihood of leaving one’s employer” (Gaither et al., 2008). Job turnover relates to “a decision to leave one job for another” (Seston et al., 2009) Job stress refers to “the negative psychological response to job demands in the workplace” (Gaither and Nadkarni, 2012).

Several papers have indicated that pharmacists in various pharmacy settings experience job stress (Kerschen et al., 2006). Job stress is often associated with negative impacts on pharmacists including job dissatisfaction, decreased career commitment, burnout, and job turnover (Gaither and Nadkarni, 2012).

Seston et al. (2009) identified various major factors affecting staff intentions to leave their job. Demographic characteristics such as age, gender, and education level are believed to influence employees’ decision to stay in or leave their work. Job satisfaction also affects whether or not employees intend to quit their job. Lastly, work environmental factors such as salary, relationships with their colleagues, etc., are also important.

In the UK, a study found that, in general, pharmacists were satisfied with their work. However, male pharmacists were less satisfied when compared to female counterparts. Pharmacists working in retail pharmacies were the least satisfied among pharmacists in different sectors. Pharmacists, regardless of their demographics, working in all sectors ranked remuneration as the least satisfying aspect of their job. This study concluded that only a limited number of pharmacists who had intentions to leave the profession appeared to do so, indicating that intentions might not be an accurate measure for actual actions (Seston et al., 2009).

Similarly, researchers from the United States found that 62.7% of the pharmacists studied were satisfied with their work; 68% reported job stress and role overload and 48% reported work-home conflicts. Comparing the mean scale score of each work attitude with the findings of the 2004 National Workforce Survey using the same questionnaire indicated an increase of the mean scale score to some degree. Role ambiguity increased by 6%, role conflict by 12%, role overload by 15%, job stress by 18% and work-home conflict by 18%. Consequently, job satisfaction dropped by 7% (Mott et al., 2004). Male pharmacists suggested a higher role of ambiguity, the role of conflict, and were less satisfied with their job compared to women (Mott et al., 2004).

Another study in the USA focused on pharmacy faculties. The target was 4228 faculties whose email addresses were obtained from the American Association of Colleges of Pharmacy. The response rate was 21.7%. The staff were found to be slightly satisfied with their job. They felt most satisfied with teaching issues and least satisfied with the range of postgraduate programmes available and funding for scholarships (Desselle and Conklin, 2010).

Job satisfaction and career satisfaction levels of Australian hospital pharmacy staff were evaluated in another study. Out of the 350 surveys sent out, 188 responses were received. The findings indicated that the mean score of job satisfaction was 3.62  $\pm$  0.77, significantly higher than career satisfaction, which was 3.38  $\pm$  0.85. Factors including gender, education level, job title, size and location of the hospital were not significantly correlated to

professional satisfaction. Skill or ability utilisation and recognition were key determinants of job satisfaction (Liu and White, 2011).

In Lebanon, a random sample of 229 pharmacists (47.1% of the registered pharmacists' population) were interviewed; 20% of them reported difficulties in finding a job, whilst 96.1% believed that there were limited opportunities in the pharmaceutical sector. More than half of the pharmacists (60.3%) were satisfied with their jobs financially, and almost half of them were psychologically satisfied. Physical satisfaction was lowest among medical representatives (12.9%), followed by hospital pharmacists (30%), and then community pharmacists (41.9%). Male pharmacists were less psychologically satisfied than females (Salameh and Hamdan, 2007).

In Jordan, healthcare professionals including dentists, pharmacists and physicians completed a General Health Questionnaire (GHQ). Highest levels of stress were reported by doctors (33%), then dentists (32%) and then pharmacists (25%). Higher proportions of female healthcare personnel (33%) had GHQ scores of >3 compared to 23% of men. The major stress factors were uncooperative patients (69%), heavy workloads (39%) and long working hours 36% (Boran et al., 2012).

Twenty-three percent of the registered pharmacists in Qatar completed a survey on professional satisfaction; 42% of the participants were working in hospital settings, 36% in the community, 10% in public clinics, and 12% in other settings. Almost half of the respondents were professionally satisfied. Pharmacists working in public clinics had the highest satisfaction levels among all the settings while hospital pharmacists reported the lowest satisfaction levels; 44% and 46% of the community pharmacists and pharmacists in other settings were professionally satisfied, respectively. More than half of the participants suggested that improving the role of the pharmacist with wider opportunities for professional development is the key for more professional satisfaction, while 46% of them recommended increasing staff numbers, workload, and remuneration (El Hajj et al., 2009).

The first survey conducted to evaluate the quality of life and job satisfaction of pharmacists working in community pharmacies in Tehran (capital of Iran) reported the following: 62% of the participants were running their own business; 78% of them were physically and

psychologically satisfied. Only 11% of the respondents were financially satisfied, and 49% were relaxed in their workplace. There was no correlation between satisfaction and gender or ownership of the workplace. Financial satisfaction was negatively correlated with age ( $p \leq 0.001$ ) and years of experience ( $p < 0.05$ ). Male pharmacists worked longer hours compared to female pharmacists ( $p < 0.01$ ), and owners compared to non-owners ( $p < 0.05$ ) (Majd et al., 2012).

A study on job satisfaction of Japanese hospital pharmacists reported that demographic characteristics including age and sex were not linked to satisfaction. Higher academic degree and job title enhanced job satisfaction,  $P < 0.012$  and  $P < 0.001$ , respectively. Practising pharmaceutical care and involvement in administrative activities were more associated with job satisfaction than were other activities,  $P < 0.001$ . Satisfaction was positively related to the number and length of clinical activities pharmacists performed,  $P < 0.001$  (Kawabata et al., 1998).

An assessment of satisfaction levels of pharmacists working in hospital and community settings in Northern Ireland revealed that 60% of hospital pharmacists were satisfied with their jobs compared to 57% of the community pharmacists. The two groups of respondents found disruptions, high workload, and limited staffing the most stressful features of their job (McCann et al., 2009b).

Previous research from different countries around the globe including Australia, Iran, Japan, Jordan, Lebanon, Northern Ireland, Qatar, Taiwan, the UK and the USA has shown that pharmacists' professional satisfaction levels vary widely. Studies from Lebanon (Salameh and Hamdan, 2007), Qatar (El Hajj et al., 2009), the UK (Hassell et al., 2007) and the USA (Mott et al., 2004) included pharmacists working in different settings – hospital and academia. Others focused on community pharmacy, including ones in Northern Ireland (McCann et al., 2009a) and Iran (Majd et al., 2012), whilst those in Japan (Kawabata et al., 1998), Jordan (Boran et al., 2012)

Some of these studies used previously validated survey questionnaires to collect the data while others developed and validated the questionnaires themselves. Researchers targeted

pharmacists in various sectors and used different methodologies to collect the data, which makes it challenging to draw a conclusion about global job satisfaction.

Other stressor factors such as the role of ambiguity, the role of conflict, and work-home conflict have also been found to be linked with job satisfaction and turnover intentions (Mott et al., 2004).

Gaither et al. (2008) conducted a study in which they developed a new model to provide a better understanding of the effects of various stressors on psychological work-related outcomes. Organisational factors including work overload, role conflict, and finding a new job with more appealing interpersonal characteristics had a major impact on job satisfaction. Interpersonal characteristics also had a strong effect on job satisfaction and organisational commitment. Job turnover intentions and career commitment were directly affected by homework conflicts. Job turnover intentions were also found to be directly related to job satisfaction and organisational commitment.

### **5.2.3 Strategies to improve job satisfaction**

Practising clinical pharmacy with more involvement in patient-oriented care has been found to increase job satisfaction among hospital pharmacists (Kerschen et al., 2006). In Hong Kong, similar outcomes were revealed by hospital pharmacists: Younger pharmacists with higher qualifications suggested that shifting work balance towards more clinical practice rather than drug distribution would increase their job and career satisfaction (Lau et al., 2011).

Perceived utilisation of skills and adequate staffing had a significant positive impact on job satisfaction. Pharmacists with degrees higher than a bachelor's degree in pharmacy had more job satisfaction than pharmacists with just a bachelor's degree. Pharmacists working in management positions, working in institutions, older pharmacists perceived that they utilised their skills to a greater extent compared to pharmacists working as general staff, working in ambulatory care, and who were younger (Cox and Fitzpatrick, 1999).

Postgraduate training was shown to increase job satisfaction in both hospital and community pharmacists in the USA: 45% of the pharmacists who obtained postgraduate training reported that they were highly satisfied with their employment compared to 32.7% of pharmacists with no training,  $P < 0.001$ .

Effective communication between healthcare personnel is also a crucial factor for enhancing job satisfaction and reducing turnover intentions. An example of this is the collaborative physician-nurse relationship, which has been found to provide better patient outcomes and to be associated with nurses' more positive perceptions of the quality of care provided (Kerschen et al., 2006). A summary of the studies used in designing the study and the interview guide is available in appendix 5. Appendix 6 shows how the literature influenced the structure of part II the qualitative study.

### 5.3 Study design

Kuwait and Saudi Arabia were selected for this part of the study based on the findings of Part I. Saudi Arabia has a major influence over developing pharmacy education as it has the highest density of pharmacy education institutions in the region. This is because there is a requirement for pharmacy schools to be accredited and the curriculum to be reviewed. Also, it met all the criteria required for pharmacy workforce quality, including the availability of a code of conduct governing the professional behaviour of pharmacists, the availability of national good pharmacy practice guidelines, mandatory continuous professional development, availability of performance indicators, licensing for pharmacists and the availability of a competency framework.

On the other hand, Kuwait had the lowest density of pharmacy schools, it lacked an accreditation system for these schools and the curriculum was not required to be reviewed. Workforce quality measures were lowest in the region as it lacked a code of conduct governing the professional behaviour of pharmacists, national good pharmacy practice guidelines, mandatory continuous professional development and the availability of a performance indicator. Therefore, the purpose of this study is to provide further understanding of a current profile of pharmacists' work attitudes and services development in the two countries. The researcher is a qualified Saudi pharmacist who has an interest in

understanding job satisfaction and services development in both countries. In addition, the researcher has established connections with pharmacists in both countries.

A qualitative design was chosen in the form of one-to-one semi-structured telephone interviews. The qualitative study design was found appropriate to address this study's objectives which could not be addressed by quantitative methods. The difficulties in collecting data for Part I also influenced the choice of the qualitative method as the response rate would have been too low to provide representative findings. The hospital pharmacy sector was selected because it is the most developed sector (Kheir and Fahey, 2011). Also, it is more accessible by the public because medications are provided free of charge and are collected from hospital and primary healthcare centre pharmacies (Kheir and Fahey, 2011). Specific data about some sensitive topics was required as well as spontaneous responses; therefore, one-to-one semi-structured interviews were thought to be the most appropriate technique for gathering the data. For example, questions about relationships with supervisors, colleagues and other healthcare professionals, as well as questions regarding promotions and bonuses, would not have been suitable in a focus group. Telephone interviews were selected because of accessibility as the researcher was based in the UK and to ensure the variability of the sample by recruiting pharmacists from different regions in the two countries. The semi-structured interview schedule was developed and reviewed by the research team.

Interview questions were developed based on job satisfaction aspects investigated in section 5.2 of this chapter (Appendix 5). More questions were added to elaborate on other specific aspects of job satisfaction. The interview guide consisted of the number of questions divided into three sections which seemed to address the study objectives: the first section asked about job satisfaction, financial aspects of the job; the second section investigated workload and relationships with co-workers; and the third section investigated turnover intentions and pharmaceutical workforce development (Appendix 6).

Ethics committee approval for this study was not required, as suggested by the UCL Ethics Committee.

### 5.3.1 Recruitment

A sample of 30 hospital pharmacists was identified through a snowball sampling technique. A consent letter was emailed to the participants (Appendix 7). A total of 30 pharmacists were included in the study. Participants' job titles varied from chief pharmacist to junior pharmacist. Respondents were working in different public and private hospitals in different regions of the Kingdom of Saudi Arabia and Kuwait.

### 5.3.2 Participants

A total of 30 participants (15 from Saudi Arabia and 15 from Kuwait) were selected. The recommended number of participants differs according to the study design; in grounded theory the recommended number is between 20-30 participants with the minimum acceptable number being 15 participants (Robson, 1994). Purposive sampling (snowball sampling technique) was approached by selecting a study population to include hospital pharmacists working in different hospitals and holding different positions.

The first round of participants were identified and based on their recommendations more participants were recruited. Sample-size calculation was not undertaken for this study as it was qualitative in nature; however, the sampling (iterative in nature) was guided by the achievement of data saturation - that is, when new data fitted into the categories already devised - after which recruitment stopped. Data saturation was reached by subject number 15 in both countries.

### 5.3.3 Piloting

The interview was piloted on two hospital pharmacists. The first interview lasted for 15 minutes. The interviewee felt that the questions covered most aspects of job satisfaction including work environment, a financial feature of the job, skill and knowledge utilisation, and job and career turnover intentions. However, the participant suggested the following: adding questions about strategies to improve satisfaction at the local, organisational or national level, and asking about how recognition of pharmacy profession by public and other healthcare professionals affects job satisfaction and if there are any methods to increase appreciation of the pharmacy profession.



The second interview lasted for about 20 minutes. The participant suggested asking about the most dissatisfying aspect of the job; if the pharmacist was planning to leave the current employer, what the core reason was; and what the government should do to enhance job satisfaction.

The suggested questions met the study objectives and were added to the original interview guide before the study was conducted. The pilot interviews were included in the final analysis.

#### **5.3.4 Interviews**

The study findings only represent the population under the study within the particular settings. Participants were aware of the structure and content of the interviews. They were also informed that their interviews were anonymised, using K1-K15 for the Kuwaitis and S1-S15 for Saudis. Interviews lasted on average for 35 minutes, and were conducted in the Arabic language. They were carried out between June and December 2013.

#### **5.3.5 Analysis (thematic analysis)**

The interviews were tape recorded and transcribed verbatim and translated into English. A thematic analysis approach was used to analyse the data. Open coding was used to identify a thematic framework that covers the main issues raised by respondents. The primary coding frames were developed. The primary codes (themes) were applied to the data. More detailed thematic frames (axial coding) were developed. The issues that emerged were examined both within cases and between cases. The findings were presented in form of quotations from the participants' perspectives. After responses to questions had been analysed and coded to identify key themes, other members of the research team read and analysed a selection of transcripts, in the main part to challenge, check and verify the coding and analysis completed by the main researcher. The team discussed emerging themes at regular meetings during the interviewing process.

### 5.3.6 Translation

To ensure the quality of the translation, 20% (n=6) of the interview scripts were double-checked by another English-Arabic bilingual researcher at the UCL School of Pharmacy. The researcher suggested that the translation was accurate. However, some of the original meaning might have been lost because of the difficulty in translating colloquial Arabic language

### 5.3.7 Credibility

The credibility of findings is linked to the credibility of the data source, the participants. Steps were taken to verify the background of the interviewees to ensure that they have some knowledge about pharmacy services and pharmacy workforce development. In targeting opinion, hospital pharmacists from different hospitals (government and private) working in different departments were recruited for the first round of interviews followed by snowball sampling using their recommendations, and so a credible set of participants was ensured.

Credibility was also ensured by having two independent expert researchers verifying the coding structures. Results and conclusions were discussed with participants and researchers.

After the interviews had been conducted and analysed, four participants (two from each country) agreed that the conclusions reached represented their views on job satisfaction, service development and professional development.

The researcher who conducted the interviews has previously conducted a qualitative study and also attended courses on qualitative research and analysis methods.

## 5.4 Results

**Table 5.4 Sample demographics Kuwait participants (n=15, 50%)**

Subject	Gender	Position	Education
K 1	M	hospital pharmacist in MOH hospital (outpatient pharmacy)	In the UK, University of East Anglia.
K 2	F	hospital pharmacist in MOH paediatric hospital (Surgical and paediatric outpatient pharmacy)	In Kuwait, Kuwait University
K 3	F	hospital pharmacist in MOH, tertiary care centre, specialised in skin diseases (dermatology outpatient pharmacy)	In the UK, Liverpool John Moores University
K 4	F	hospital pharmacist in MOH secondary hospital	In Kuwait, Kuwait University
K 5	F	hospital pharmacist in MOH secondary hospital	In the UK, UCL
K6	F	hospital pharmacist in a primary care clinic	In Kuwait, Kuwait University
K7	F	hospital pharmacist in MOH secondary hospital	in the UK, Aberdeen University
K8	F	hospital pharmacist in MOH secondary Hospital (Surgical and paediatric outpatient pharmacy)	In Kuwait, Kuwait University
K9	F	hospital pharmacist in Kuwait petroleum hospital (Non-formulary drugs)	In Kuwait, Kuwait University
K10	F	hospital pharmacist in MOH hospital (dermatology outpatient pharmacy)	In Kuwait, Kuwait University
K11	F	hospital pharmacist in MOH hospital (dermatology outpatient pharmacy)	In Egypt
K 12	M	hospital pharmacist in MOH hospital (outpatient pharmacy)	In the UK, Liverpool John Moores University
K 13	F	hospital pharmacist in MOH hospital (inpatient pharmacy)	In Kuwait, Kuwait University
K 14	F	hospital pharmacist in MOH hospital (TPN pharmacist)	In Saudi Arabia, King Saud University
K15	F	hospital pharmacist in Kuwait petroleum hospital (senior pharmacist, the head of the outpatient pharmacy)	In Saudi Arabia, King Saud University

**Table 5.5 Sample demographics of Saudi participants (n=15, 50%)**

Subject	Gender	Position	Education
S1	F	hospital pharmacist in MOH hospital (outpatient pharmacy)	In Saudi Arabia, King Saud University
S2	F	hospital pharmacist in MOH hospital ( IV room pharmacy)	In Saudi Arabia, King Saud University
S3	F	hospital pharmacist in MOH teaching hospital (outpatient pharmacy)	In Saudi Arabia, King Saud University
S4	F	hospital pharmacist in a private hospital (inpatient pharmacy)	In Jordan
S5	F	hospital pharmacist in a private hospital (inpatient pharmacy)	In Jordan
S6	M	hospital pharmacist in the medical city (the head of the outpatient pharmacy)	Australia
S7	F	hospital pharmacist in primary care centre (outpatient pharmacy)	In Saudi Arabia, King Saud University
S8	F	hospital pharmacist in a military hospital (assistant director of the pharmacy)	In Saudi Arabia
S9	F	hospital pharmacist in the medical city (both inpatient and outpatient pharmacy)	In Saudi Arabia, King Saud University
S10	M	hospital pharmacist in MOH hospital (both inpatient and outpatient pharmacy)	In Australia
S11	F	hospital pharmacist in a private hospital	In Saudi Arabia, King Saud University
S12	F	hospital pharmacist in MOH teaching hospital (outpatient pharmacy)	In Saudi Arabia, King Saud University
S13	F	hospital pharmacist in MOH hospital (inpatient pharmacy)	In Saudi Arabia, King Saud University
S14	F	hospital pharmacist in MOH teaching hospital (outpatient pharmacy)	In Saudi Arabia, King Saud University
S15	F	hospital pharmacist in a private hospital	In Saudi Arabia, King Saud University

Tables 5.4 and 5.5 summarise the sample demographics followed by a full description of the main analysis codes.

The following tables 5.6 and 5.7 summarises the interviews themes

**Table 5.6 Key themes extracted from the interviews**

Theme	Description	Country
Workload	High workload, shortage of staff, shortage of staff during holiday seasons.	Kuwait, Saudi Arabia
Relationship with colleagues	Most of the pharmacists had a positive working environment. They received support and encouragement from their colleagues, which improved their performance and job satisfaction.	Kuwait, Saudi Arabia
Relationship with supervisor	Supervisors are supportive and encouraging.	Kuwait, Saudi Arabia
Relationship with other healthcare professionals	Other healthcare professionals have positive views on pharmacy profession.	Kuwait, Saudi Arabia
Other healthcare professionals' perspective on the pharmacy profession	Almost half of the pharmacists thought that healthcare professionals have positive views on pharmacy profession. The other half believed that they have negative views.	Kuwait, Saudi Arabia
The impact of healthcare professionals' views on pharmacists	Most of the pharmacist had neutral to disappointing feelings towards negative views on pharmacy.	Kuwait, Saudi Arabia
Public views on pharmacy	Half of the pharmacists believed that people are unaware of the pharmacists' roles and perceive them as a dispenser. However, recently, people, especially younger generations, have started to appreciate the profession.	Kuwait, Saudi Arabia
The impact of practicing clinical pharmacy on job satisfaction	Although clinical pharmacy is not yet officially implemented in Kuwait, some pharmacists had made an effort to practise it and felt satisfied.	Kuwait, Saudi Arabia
Salary	Most of the pharmacists were happy with their earnings. Just a few of them believed that their salary was not high enough.	Kuwait, Saudi Arabia
Promotions	Some of the pharmacists thought that promotions and allowances were given unfairly. Almost all pharmacists believed that promotions were	Kuwait, Saudi

	limited, and the pharmacy career ladder was fixed.	Arabia
Leaving the job	Pharmacists had different views on leaving their jobs. Some of them did not intend to leave their jobs because there were no better options. Some of them would leave their current jobs to join a hospital where clinical pharmacy is practised. Others wanted to leave to enter academia or research. Most of the Saudi pharmacists with intentions to leave their jobs were planning to study for another degree to or to work for drug companies. Workload and lack of chances for professional development are the main reasons for pharmacists to leave their jobs.	Kuwait, Saudi Arabia
Professional development	Most of the pharmacists stated that there were some opportunities for professional development, but they were not part of a national strategic plan for workforce development.	Kuwait, Saudi Arabia
Staying in the same job for life	Almost half of the pharmacists thought that the idea of spending the rest of their lives in their current jobs was boring and depressing.	Kuwait, Saudi Arabia
Clinical pharmacy practice	Most of the Kuwaiti participants stated that clinical pharmacy is not officially implemented in Kuwait. However, there are some personal efforts to practise it. In Saudi Arabia, clinical pharmacy is not practised widely.	Kuwait, Saudi Arabia
Barriers preventing clinical pharmacy implementation	Some pharmacists felt that the limited number of clinical pharmacists was considered one of the biggest obstacles to implementing clinical pharmacy	Kuwait, Saudi Arabia
Factors that support clinical pharmacy	At a local level, clinical pharmacy was felt to be supported by having a chief pharmacist who appreciated it and encouraged its practice. At a national level, the factor was felt to be postgraduate scholarship opportunities for young pharmacists to study clinical pharmacy.	Kuwait, Saudi Arabia
Changes needed	Most of the respondents suggested one or more of the following factors: financial incentives, professional development opportunities, more staff, clear job description, and clearer strategic plans for pharmaceutical workforce development.	Kuwait, Saudi Arabia

**Table 5.7 Key themes that emerged from the interviews**

Theme	Description	Country
Cultural values and pharmacy practice	Cultural values including a woman working late at night or working in the pharmaceutical industry are not widely acceptable in the Gulf.	Kuwait, Saudi Arabia
Nationalities and work performance	Non-Gulf nationals tend to work harder than nationals.	Kuwait, Saudi Arabia
Age difference and relationship with colleagues	Having colleagues and co-workers of similar age has a positive impact on their relationships.	Kuwait
Gender and working averment	Working with colleagues of the same sex enhances communication and vice versa.	Kuwait, Saudi Arabia
Conflicts with colleagues	Conflicts between staff have negative effects on work performance.	Kuwait, Saudi Arabia
Overworked pharmacists	Pharmacists believed that their supervisors were making them work too much or for too long.	Saudi Arabia
Passive supervisor	Supervisors lack the power and the authority to be held responsible for actions and work of their staff.	Kuwait, Saudi Arabia
Changing the society's view on pharmacy	Pharmacists are responsible for changing public and other healthcare providers' views on the profession. They also should be aware of the rules and responsibilities.	Kuwait, Saudi Arabia
Salary and workload in hospitals and primary care centres	Some Saudi pharmacists who work in hospitals believed that their salary was not fair because they worked longer shifts or the workload was higher than in primary care centres.	Saudi Arabia
Comparison between pharmacists' and doctors' salaries	Few pharmacists believed that their salaries were much lower in comparison to doctors.'	Kuwait, Saudi Arabia
Salary and allowances	Few Kuwaiti pharmacists mentioned that the salary is made up of allowances so when pharmacists retire the basic salary is not that much.	Kuwait
Further education and promotions	Some Kuwaiti pharmacists stated that achieving a postgraduate degree in pharmacy does not offer any opportunities for promotion or a change to their job title.	Kuwait
Young pharmacists' professional development	Few pharmacists felt that their management was insecure and did not support development of younger pharmacists	Kuwait, Saudi Arabia
Pharmacy education system and choosing pharmacy profession	Some of the Saudi pharmacists who were educated outside the Gulf region would choose pharmacy again if they were to obtain their degree from abroad.	Saudi Arabia
Two different undergraduate pharmacy degrees in Saudi Arabia	Few Saudi pharmacists stated that the having clinical pharmacists alongside hospital pharmacists created competition and an unhealthy working environment.	Kuwait, Saudi Arabia
Supervisors' characteristics	Supervisors should provide support and encouragement to their employees.	Kuwait, Saudi Arabia

## **Interview themes**

### **Workload**

The code workload describes the amount of work compared to the number of employees during regular times and holiday seasons. Most of the pharmacists thought that there was a shortage of staff. Others thought that there were enough staff except during holiday times.

#### **K5**

*“The number of staff was OK. I think we were nine pharmacists, and we would see 600 to 700 patients every day.”*

#### **K7**

*“The number of staff is OK... but it is getting busier because the number of patients is increasing... so even if they hire more staff there will always be a shortage... the load is too much in summer and Ramadan.”*

#### **K3**

*“The number of staff varies with time, e.g. in holidays seasons...In general, we do not have a sufficient number of staff. We have many patients, and sometimes we stand at the window dispensing for three hours without a break.”*

#### **K4**

*“The number of pharmacists compared to the amount of work is small... we do not have enough staff, and we need more...we are understaffed.”*

#### **S11**

*“Number of staff is enough but during night shifts there is only one pharmacist... like in the IV room there is only one person. Sometimes there is only one pharmacist and one tech, so the workload is high...”*



**S12**

*“The number of clinics in the hospital increased last year so did the number of patients... So we are currently under too much pressure...the workload is three times the number of staff... I feel stressed, and I’ve started to think of changing my job.”*

**S14**

*“Number of staff.... sometimes it is OK, but sometimes we are short of staff... so the workload gets really high... it changes.... we have enough employees but the distribution of staff between the pharmacies isn’t ideal ... for example, in the inpatient pharmacy they always have more staff than they need while other pharmacies are short of staff”*

**S4**

*“The amount of work is too much. The workload is too much.”*

**Cultural values influencing pharmacy practice**

Certain cultural values have played a role in forming pharmacy practice. Cultural values including a woman working late at night or working in the pharmaceutical industry are not widely acceptable in the Gulf. A few female pharmacists felt that their male colleagues were considerate because they were happy to work all the night shifts. A couple of Saudi female pharmacists mentioned that working in drug companies is culturally unacceptable.

**S1**

*“Pharmacy gives a wide variety of jobs. However, for Saudi females, it is very hard to work in the pharmaceutical industry, i.e. pharmaceutical companies.”*

**S2**

*“Male pharmacists were OK with female pharmacists not doing night shifts because the hospital is in a rough area and the type of patients who come during the night... so, considering the safety of their female colleagues, they were happy to do all the night shifts.”*

**S4**

*“Because I am a Saudi female he did not make me do evening shifts.”*

**S15**

*“One of the male pharmacists loved the night shift, and he was happy to do it all the time.”*

**K8**

*“There are some guys who would take the night shifts because they just don’t want the girls to stay late at night. It is safer for them to do mornings.”*

### **Nationalities and work performance**

Work performance differs between nationals and international staff. There is still a great reliance on international pharmacists in the Gulf. However, the “Saudisation” and “Kuwaitisation” programmes which aimed to replace expatriate by nationals had somehow affected pharmacy practice. In other words, nationals are guaranteed to keep their jobs no matter how they perform. On the other hand, foreign pharmacists need to prove themselves to keep their positions. A few respondents stated that non-nationals tended to work harder than nationals.

**K1**

*“It is a bit different with foreigners...there is always some tension ...as Kuwaiti pharmacists leave work earlier, at 1:30 pm, than the rest would leave, at 2:30... I did not want them to feel that I’m the national who gets to do whatever he wants, so I used to stay till 2:30.”*

**S15**

*“But I remember some of the non-Saudi female pharmacists complaining about the possibility of doing night shifts while Saudi female pharmacists won’t be doing it.”*

**S4**

*“The employees are Arab [non-Saud], so they were happy to do too many tasks and take many responsibilities, compared to the Saudi staff.”*

**S10**

*“Our supervisor is an Egyptian lady, and she decides the rota...it wasn’t fair because the older staff do only mornings... it was all done by newer staff and non-nationals, especially staff from the Philippines... and they do more shifts than the new Saudi staff.”*

### **Working environment relationship with colleagues**

This code describes pharmacists’ relationships with their co-workers and how it affects their performance and job satisfaction. Most of the pharmacists had a positive working environment. They received support and encouragement from their colleagues, which improved their performance and job satisfaction. However, a few of the Kuwaiti pharmacists found that friendship with colleagues had a negative effect on work performance.

**K4**

*“We as a group, help and support each other... so yes, having a good relationship with my colleagues has a positive influence on my performance.”*

**K9**

*“My relationship with my colleagues is really good.”*

**K11**

*“My relationship with my colleagues is good... it does affect my performance... because we have a good relationship. Work is fun and time goes fast... we help each other and we understand each other.”*

*“I have a very good relationship with my colleagues; they are like brothers to me. We support one another because we work together for eight hours every day... so we chat, we laugh ...we play we work ... we help each other.”*

**K3**

*“It doesn’t affect my performance that much, but, because we’re friends, it is hard to criticise them. For example, when they take a long break... they might get sensitive. If we weren’t*

*friends, they would accept my criticism and comments. They wouldn't take it personally, and it wouldn't be a sensitive issue."*

**K7**

*"So my relationship with them was professional then, when we became friends, they started to be jealous... although they are techs... That's why I decided to leave the hospital."*

**S5**

*"My colleagues were brilliant. My relationship with them was good. I didn't have much contact with them. I'm not a very sociable person, so I don't open up easily. I think I'm there only to work."*

**S7**

*"My relationship with my colleagues is really good... me personally... it does not affect my performance..."*

### **Age difference and relationship with colleagues**

This code describes the effects of an age gap in the workplace. A few Kuwaiti pharmacists found that having colleagues and co-workers of a similar age had a positive impact on their relationships

**K2**

*"We got very close...they're only two years older than me... we have a very good relationship."*

**K4**

*"My relationship with my co-workers is good because we're in the same age group... two years older or younger than I am... and we spend a lot of time together from 7:30 to 2."*

**K3**

*“My relationship with my colleagues is good ... casual because we are in the same age group... we’ve known each other for a long time.”*

### **Gender and working environment**

This code describes gender effects on relationships between colleagues. A few pharmacists suggested that working with colleagues of the same sex enhanced communication and vice versa.

#### **K2**

*“My relationship with my colleagues is good...That’s why I decided to work in the paediatrics because we are all girls... and two international men... we have a good atmosphere... we go out together...”*

#### **K6**

*“My relationship with my colleagues is good because we graduated from the same school and we are all girls.”*

#### **K1**

*“In the Skin department ...it’s considered a feminine area, so I couldn’t make a good relationship with them.”*

#### **S4**

*“When I started working at King Fahad Teaching Hospital most of the pharmacists were Saudi females, so there was a sense of belonging to the place.”*

#### **S3**

*“My relationship with my colleagues is excellent. With my male colleagues it is really good but limited to work, but with my female colleagues it is not only during work.”*

## **Conflicts with colleagues**

This code describes the impact of conflicts between pharmacists on work performance.

Some of the pharmacists believed that conflicts between staff had a negative effect on work performance. Others stated that, even if it did not affect their performance negatively, it demotivated them.

### **K1**

*“Yes, it affects our performance because we are at work for eight hours. We spend more time at work than at home... if we don’t work as a team, we will feel stressed, and we will not be excited to come to work.”*

### **S3**

*“Yes, it does affect my performance massively. Like when you ask the clinical pharmacists, they don’t usually cooperate because they don’t want to take the responsibility for the suggestions they give. No one does. There was no partnership or teamwork. Everyone works on his own.”*

### **S14**

*“It does not affect my performance; I’ll do my work anyway... but if the relationship isn’t good... I would be forcing myself to go to work... well, I still do my work, but I’m not happy to do it ...”*

### **S10**

*“But if it was bad I don’t feel like coming to work or doing the work, and I just want to go home... yeah, it is a very important factor.”*

## **Relationship with supervisor**

This code describes the effects of the relationship with supervisors on job satisfaction. Most of the pharmacists found their supervisors supportive and encouraging.

### **K2**

*“My supervisor is nice ...I am lucky...because I hear about other supervisors and how bad they are... [our] workload is high, but because we support each other we don't feel it. I can't think of anything that she isn't good at... she has great management skills... she assigns us to do certain tasks so we're clear on what to do.”*

### **K4**

*“My relationship with my supervisor is good because he is a sociable person... he always listens to what we have to say, and we exchange opinions... we communicate very well with him.”*

### **K5**

*“We were lucky to have such a leader... he used to fight for us... he was very helpful... he supported us... he was assertive and punctual, so he sets a good example to younger techs.”*

### **S3**

*“He was supportive and understanding; he did not make me do evening shifts.”*

### **S7**

*“My relationship with my supervisor is good... his positive points: I would say that if you do your job properly and ask for anything, he would do it for you...”*

## **Overworked pharmacists**

This code describes how some supervisors make their employees work too much or for too long. A few Saudi pharmacists believed that their supervisors were overworking them.

**S2**

*“Because they give me too much work... more than what I can handle. My colleagues tell me they assign me to do these tasks because they know I am hardworking and loyal, but still I’m not sure if it is really because they trust me or because they just need someone to do the work... I don’t know.”*

**S3**

*“She has been a supervisor for two years now. She has made so many changes to the rules without considering whom her decisions might affect. As long as she gets the work done she doesn’t really care. We are working with the minimum number of staff to get the new system she implemented working.”*

**S13**

*“Working in the store is the most exhausting job ever... I was doing the work of three people... It was too much work... sometimes I don’t complete work within working hours so carry it home with me”*

**Passive supervisor**

This code describes dealing with a supervisor who has a passive managerial style with no clear line of authority. A few pharmacists stated that their supervisors lack the power and the authority to be held responsible for actions and work of their staff. This is especially true with non-indigenous supervisors.

**K8**

*“There are some girls who don’t really do the work they are supposed to do. The supervisor says he doesn’t trust them to do the work and doesn’t delegate any responsibilities to them, so we end up doing their work, which is so not fair.”*

**K3**

*“She is not assertive enough, so sometimes everybody leaves and we are left with only a few pharmacists. She is too nice, which is also a problem.”*



**K12**

*“For example, sometimes he does what he was told to do by the hospital chief executive even if he believes that is not the best thing to do...”*

**K7**

*“He has so many responsibilities... the fact that he is not Kuwaiti – he is Egyptian – makes him passive... he doesn’t have much authority... Kuwaiti girls don’t have much respect for him.”*

**K1**

*“She always has troubles with Kuwaiti pharmacists [she is a foreigner]; when they see the workload and how bad the pharmacy is, they start arguing with her because they have to work from 7 to 2.”*

**S2**

*“But sometimes he is too nice, to the point where he loses control... he cannot say no if someone wanted to go on holiday at a busy time or take a day off... the staff need to be controlled.”*

**S6**

*“But he has his favourite colleagues [other pharmacies’ department supervisors]... he agrees to all their suggestions without taking our needs into consideration.”*

**S8**

*“He is nice... but he is too nice, to the point where he keeps some of the non-Saudi staff working at the hospital although they are a bit older, 47- 49, and they are old school ... they don’t keep up to date... they aren’t willing to learn.”*

## **Relationship with other healthcare professionals**

This code describes pharmacists' views on their relationships with other healthcare providers. Almost half of the pharmacists thought that other healthcare professionals have positive views on the pharmacy profession. A few pharmacists from Kuwait believed that younger doctors appreciated pharmacy more than older doctors.

### **K9**

*"Other healthcare professionals in my hospital respect pharmacy... it does affect my job satisfaction."*

### **K12**

*"I feel that doctors [have] recently started to show some support and appreciation... everyone knows their role ...their views are much better when you compare it to five years ago...we don't deal with nurses that much."*

### **K7**

*"Well, some of the doctors are nice ... they would take our advice and they are open to our suggestions."*

### **S15**

*"They respect pharmacists and accept their suggestions and ask them questions and trust them; in most of the wards they believe in them."*

### **S6**

*"When I started working as the head of the pharmacy, I started teaching pharmacists and things changed since doctors now appreciate us more... doctors now see that we have a role."*

### **S12**

*"Doctors are different... there are some who listen and take our advice."*

**K1**

*“Younger doctors were really excited to have me around... because you know you’re saving their time... you double-check doses... so you’re helping them out. You’re not delaying their work.”*

**K2**

*“Doctors are supportive of pharmacists... they accept our interventions... but there are still some old-school Egyptian doctors who are hard to convince...”*

**K9**

*“Doctors, especially the old generations... they didn’t use to accept any suggestions from pharmacists... younger generations are much better, especially because the pharmacy school is relatively new in Kuwait... now pharmacy is more appreciated and respected as a profession because of the new graduates.”*

### **Other healthcare professionals’ perspectives on the pharmacy profession**

This code describes what the pharmacists think the other healthcare professionals’ beliefs about the pharmacy career. Almost half of the pharmacists thought that healthcare professionals have positive views on the pharmacy profession. The other half believed that they have negative views. Some of the doctors were felt to consider pharmacists a threat, to not respect them, or to not accept their interventions.

**K6**

*“Some of the older doctors make medicine-related decisions based on experience rather [than] the guidelines. These doctors always see pharmacists as a threat.”*

**K8**

*“Other healthcare professional views on pharmacy as a career is [that it is] not as good as it should be.”*

**K3**

*“Other healthcare professionals don’t know the role of the pharmacist, and they don’t trust us that much... they think we dispense medicines without counselling, and even if I find an error they don’t take my recommendation...”*

**S1**

*“Doctors don’t really appreciate what we do... not all of them but most of them ...some of them judge us based on how fast we dispense.”*

**S12**

*“And some say ‘Who are you? What are you saying?’”*

**S4**

*“Doctors don’t hold pharmacists in a high regard.”*

### **The impact of healthcare professionals’ views on pharmacists**

This code describes the how pharmacists feel about doctors’ negative opinions of the pharmacy profession. Most of the pharmacist had neutral to disappointing feelings towards these negative views of pharmacy

**K3**

*“How do I feel?... I get angry because you see errors, and they won’t correct them... they won’t listen... yes, it does affect me. I just think, ‘Why did I study pharmacy if no one is going to listen to what I have to say?’ There is no point of pharmacy as a career if I can’t make a difference.”*

**K7**

*“It makes me hate the whole system in this country which doesn’t appreciate pharmacy... doctors got all their rights... It doesn’t make me hate my job... I feel happy dealing with doctors who understand the role of the pharmacist.”*

**K2**

*"I just do my work and if they accept my interventions, then fine; if they don't, then its OK, I've done my job."*

**S2**

*"It makes me upset... pharmacists always make complaints against doctors."*

**S1**

*"It is annoying when someone disrespects you."*

**Public views on pharmacy**

This code describes what the pharmacists think the public views on pharmacy. Half of the pharmacists believed that people are unaware of the pharmacists' roles and perceive them as merely a dispenser. However, recently, people, especially younger generations, have started to appreciate the profession.

**K4**

*"The public don't trust pharmacists, and they don't know anything about their capabilities and their knowledge. They do not know the role of the pharmacist ...they don't trust pharmacists. They say, 'Just give me the medicine, and I'll ask the doctor about it.'"*

**K6**

*"The problem in our society is the way they perceive doctors 'as the top' and all other healthcare professionals aren't that important."*

**K13**

*“The majority of the patients see us as cashiers in shops.... it is like you only dispense... even if I counsel them they would say, ‘But the doctor told me so’, and so.. .even if the doctor is old school and doesn’t know what he is talking about... I feel very disappointed.”*

**S5**

*“People in the Middle East see the pharmacist as a dispenser and drug supplier.”*

**S10**

*“Most of the patients don’t want to listen to the pharmacist’s counselling... very few of them would be interested and ask about their medicines...”*

**K2**

*“Patients are now more aware of the pharmacist roles, and they trust us... I feel OK because there are people who appreciate what we do... but there are always two sides to a coin “*

**K13**

*“But on the other hand, younger patients – they trust us... they know the role of the pharmacist...”*

**K3**

*“People who appreciate pharmacy make me proud; they make me feel like I’m doing something valuable because they listen to my counselling, and they make me feel worthwhile.”*

**S7**

*“I think we now have more educated people who value pharmacy.”*

## Changing the society's view on pharmacy

This code describes whether it is the pharmacist's responsibility to change the negative views on the pharmacy career. A few respondents raised the point that pharmacists are responsible for changing public and other healthcare providers' views on the profession. They also should be aware of the rules and responsibilities of the pharmacy career.

### K4

*"But I don't blame them for that, I blame the pharmacists themselves... because they don't know their roles and responsibilities... the job description is not very clear... at the moment, there is a lot of development in the pharmacy field ... 50 years ago the pharmacist was a dispenser, but now the role of the pharmacist has expanded so we need to fill up this gap... so we as pharmacists need to be responsible for gaining other healthcare professionals' trust...so they respect us more. We could do campaigns to educate people."*

### K6

*"I think everyone is entitled to their opinion, but I don't blame them. It is the pharmacists' fault that other healthcare professionals don't know our roles, so they are [un]aware of our abilities."*

### K5

*"People who don't value pharmacy make me demotivated... but then it is the pharmacists' responsibility to change their perspectives on the pharmacy profession... simply by the information they give and the way they deal with people."*

### S5

*"Pharmacists should play a part in changing the public's view about pharmacy. I feel I have to change their views, and I have to get more involved. I have got all the knowledge... if I just dispense medicines without counselling, it is like working in a shop."*

### S6

*"People don't appreciate pharmacy much... but I think it is the pharmacist's fault."*

**S2**

*“There is a group of enthusiastic young pharmacists who [have] started a campaign to educate people about pharmacy, certain diseases, how to take medicines... I might join them soon...”*

**The impact of practising clinical pharmacy on job satisfaction**

This code describes the effects of clinical pharmacy practice on job satisfaction. Although clinical pharmacy is not yet officially implemented in Kuwait, some pharmacists had made an effort to practise it and felt satisfied.

**K9**

*“Clinical pharmacy practice improves my job satisfaction a lot.”*

**K3**

*“When I do clinical pharmacy tasks it improves my job satisfaction because I’m putting my education to use. The problem is I work in a skin clinic, so I can’t use all the knowledge I have.”*

**K2**

*“Any intervention I do makes me feel happy, and it does improve my job satisfaction... when I suggest changing a dose, for example, and they accept my intervention I feel happy...”*

**S11**

*“Doing clinical tasks is different from dispensing... there is a huge difference... it helps you gain knowledge – unlike dispensing, which is repetitive... it also gives some work experience, which increases your chances of getting a new job if you wanted to...”*



## **Salary**

This code describes the feelings of pharmacists about their monthly earnings. Most of the pharmacists were happy with their earnings. Just a few of them believed that their salary was not high enough.

### **K10**

*"Salary is OK... excellent."*

### **K13**

*"Salary is not an issue... we get 1600 dinar while doctors start with 1800 ... which is not a big difference ..., so money-wise is good... Pharmacists who work in primary care hospitals get an extra 50 KD, which is fair."*

### **K12**

*"My salary is more than enough... all pharmacists working for the Ministry of Health get the same salary."*

### **S2**

*"My salary is more than enough... Pharmacists' salary is one of the highest in the country."*

### **S3**

*"My salary is not too bad... it is enough...just enough... it is very good, actually."*

### **S10**

*"The salary is good."*

### **S14**

*"All pharmacists in government hospitals get the same salary, which is fair... If you work in a hospital, the workload might be higher, but there are more employees compared to primary care clinics."*

**S4**

*“My salary was really bad. At the beginning, I found it OK because I was excited about getting a new job. You do many tasks for that salary. In the government hospitals, there are more staff [so] the work isn’t that much.”*

**S6**

*“The salary is really bad... pharmacists used to get 14,000 to 15,000 SR. I’m totally unhappy with the payment.”*

### **Salary and workload in hospitals and primary care centres**

This code shows how pharmacists feel about receiving the same salary bearing in mind the difference in the workload between hospitals and primary care centres. Some Saudi pharmacists in hospitals believed that their salaries were not fair because they worked longer shifts or they felt that the workload was higher than in primary care centres.

**S1**

*“Salary is different; pharmacists working in hospitals receive [higher] salaries than us [working in primary care]; it depends on the job title.”*

**S7**

*“The salary is not fair... primary care is different... the workload is too much in hospitals and they do shifts, and we get almost the same salary.”*

**S9**

*“The salary isn’t good... the workload is too much in big hospitals like the National Guard Hospital and King Fahad Medical City compared to other hospitals such as King Khaled Eye Specialist Hospital ... they used to pay much more but after the changes the government has made... pharmacists in different hospital get the same salary.... so it isn’t fair. I work for nine hours, and I get 12,000. It is not worth it ... because you’re responsible for patients’ lives... it is really a stressful and demanding job”*

## **Comparison between pharmacists' and doctors' salaries**

This code show pharmacists' views on their salaries compared to doctors. A few pharmacists believed that their salaries were much lower in comparison to doctors'.

### **K5**

*"My salary is OK ... however, compared to doctors' and dentists' it isn't OK... they get paid a lot more ... it isn't fair."*

### **K7**

*"My salary is enough, but isn't fair because doctors get double. There are many other allowances which are given to doctors while they study aboard, but none is given to pharmacists..."*

### **S1**

*"Hope someday someone from the Ministry of Health supports pharmacists to get their rights... to get the same salary as doctors... I think patients go to different clinics to see different doctors but at the end they all come back to us... we are responsible for all these patients' medications."*

### **S2**

*"We get the second highest salary after doctors... so it is fair."*

## **Salary and allowances**

This code describes how pharmacists in Kuwait feel about the fact that the salary is divided into allowances which will be deducted after retirement. A few Kuwaiti pharmacists mentioned that the salary is made up of allowances so when pharmacists retire the basic salary is not very much.

### **K2**

*“The salary is OK... the salary is made up of allowances so when we retire the basic salary won't be enough. We got some new allowances recently, which is good... like for using computers... there are many...”*

**K11**

*“We get some allowances ... the basic salary is not that good... it is made up of allowances.”*

**K3**

*“It can be better... it is fair, but the problem is... the salary is divided into allowances which are taken away after retirement, so we are left with only one-fifth of the whole salary, which is not fair.”*

**Promotions**

This code shows pharmacists' feelings towards promotion policies. Some of the pharmacists thought that promotions and allowances were unfairly allocated.

**K4**

*“We have an allowance for the best employees but, at the moment, anyone could get it. The head of the department decides who gets it, but he does not give it based on the performance; it is given based on who you are and how close you are to your supervisor. I got once; it is a really nice feeling to be appreciated... it is not about the money.”*

**K6**

*“My previous supervisor used to divide it between all of us... No, I don't think it was fair. Sometimes 'thank you' is enough, but money is always good. There are some people who work really hard and do overtime.”*

**K13**

*“But the problem was my previous supervisor ... he used to give all pharmacists 'excellent' in their evaluation regardless of their performance... so there was no motivation.”*

**S1**

*“For example... it is not like if you work hard, you get promoted... there are many young pharmacists with no experience whatsoever – they get promoted while the older pharmacists who have much more work experience don’t.”*

This code shows pharmacists’ feelings towards promotion policies. Almost all pharmacists believed that promotions are limited, and the pharmacy career ladder is fixed.

**K2**

*“No chances for promotions... it is a fixed career ladder... so your job title changes based on the number of years you’ve been working for... but you will be doing the same job.”*

**K13**

*“There are no promotions ... if you get a degree in clinical pharmacy, you will still be doing the same job.”*

**S11**

*“Promotion chances are limited... you might be in charge of a certain department, but you still get the same salary.”*

**S12**

*“For me, I’m single... so my job is my life ... I want to do more. I want to be given an opportunity to reach out for more chances... especially because we work in a teaching hospital... Dammam University... but, no, there is nothing.”*

**S5**

*“When working in a hospital, there is hardly any promotion. Promotions are more if you’re working for a university.”*

**Further education and promotions**

This code describes the opportunities a postgraduate degree in pharmacy provides in Kuwait. Some Kuwaiti pharmacists stated that achieving a postgraduate degree in pharmacy does not offer the opportunity for any promotion or change to the job title.

#### **K4**

*“Now I’m doing a master’s, but the increase in my salary won’t be worth it. I’m doing the masters because I was bored and I needed some change. I needed to break the routine. It was a chance for a change, at least for a year.”*

#### **K8**

*“They [management]...send pharmacists to do clinical pharmacy courses, but we don’t have a clinical pharmacy, so they send them just to show that they are actually doing something.”*

#### **K3**

*“For example, I now have a master’s in clinical pharmacy, but there is no difference between me and any other pharmacist who has only a bachelor’s degree. The salary and the job description are the same; I would be in my same place.”*

### **Leaving the job**

This code describes pharmacists’ intentions to leave their current jobs. Pharmacists had different views on this aspect. Some of them did not intend to leave their jobs because there were not any better options. Some of them stated that they would leave their current jobs to join a hospital where clinical pharmacy is practised. Others wanted to leave to enter academia or carry out research. Most of the Saudi pharmacists who had intentions to leave their job were planning to study for a postgraduate degree in pharmacy or to work for drug companies. Workload and lack of chances for professional development were the main reasons for pharmacists to leave their jobs.

#### **K6**

*“No, because we don’t have many options in Kuwait; it is either a hospital or primary care centres. We have only one drug company.”*

**K1**

*"I want to work in a place where clinical pharmacy is implemented.... I'm doing some research now.... I'm planning to get a job at Kuwait Research Centre."*

**S2**

*"Yes, ever since I started this job and I wanted to leave... I got a scholarship, but then I thought I would stay and work for a while, get some work experience and save some money."*

**S12**

*"I see myself working in a different place... would like to go to work for a drug company..."*

**S7**

*"I decided to work in a primary care hospital, so I could apply for a scholarship to do a master's... because it is much easier to get it when you work in a primary care centre... I worked only for a year there."*

**S12**

*"The reason I wanted to leave is because there is no chance for development... there is no promotion ... unlike drug companies."*

**S4**

*"But staying there without any hope of promotions or increments or any professional development was not motivating to stay in that job."*

### **Professional development**

This code describes the professional development opportunities available. Most of the pharmacists stated that there were some opportunities for professional development, but they were not part of a national strategic plan for workforce development.

**K2**

*“The Ministry of Health doesn’t contribute to pharmacists’ professional development. There is not enough support for development... the Pharmaceutical Association gives some chances to attend international conferences.”*

**K6**

*“There is support. They send students to do a master’s here in the UK and to other countries. The challenge is when we go back, will we have the chance to practise? We also have the pharmaceutical society; they arrange fully paid trips to conferences. I went to the FIP Conference in Amsterdam last year.”*

**K7**

*“There are some chances for going to international conferences, but I have not been selected to attend any... it is something you do for yourself... but you don’t really have time to organise these things.”*

**K11**

*“There are chances for studies, but it is not a part of a strategic plan... and it won’t make a huge difference to the salary... and when you get a degree, you’ll still be doing the same job.”*

**S11**

*“I did not get any support for professional development... we worked like machines... there was no appreciation or increments... even if you do something useful... they either won’t acknowledge it, or they might take the credit... “*

**S7**

*“My biggest motive is that you have a chance to attend an international conference... yes, I went to London for a statistics course at UCL... it was a four-day course... very useful because we did not get to learn much about research as undergrads, so it was good. Moreover, also, they paid all course fees and paid all the trip expenses...”*



**S8**

*"I attended one .... so on paper you can attend three each year, but [in reality] you won't be able to attend more than one... for pharmacists, if there are enough staff who can cover them, then they will get permission to attend but for me as the pharmacy chief there is only one person who can take the responsibility, so it is more difficult in my situation... so we need to organise everything in advance."*

### **Younger pharmacists' professional development**

This code describes pharmacists' views on how senior pharmacists feel about their professional development. A few pharmacists felt that their management was insecure and did not support the development of younger pharmacists.

**K3**

*"Especially the older pharmacists, they don't want any changes. They should accept that it is better for us as pharmacists to expand our roles... they might be threatened because they don't have the skills or the knowledge clinical pharmacists have and also they are afraid of losing their positions."*

**S13**

*"They want us to remain as dispensers while they develop themselves... they want everything for themselves..."*

**S14**

*"One of the young pharmacists tried to get a postgraduate degree, but they didn't support her... I think because they were intimidated by her... they don't want anyone to be better than them... because most of them have only a first degree in pharmacy..."*

**S5**

*"My relationship with my supervisor was OK, but when he knew I was going to leave the job to get a postgraduate degree, I think I threatened him ... you know these Saudi mentalities."*

*When he knew I was coming to the UK, he was so angry. Then [he] started criticising the UK education system.”*

### **Staying in the same job**

**This code describes how pharmacists felt about the possibility of staying in the same job. Almost half of the pharmacists thought that the idea of spending the rest of their lives in their current jobs was boring and depressing.**

#### **K6**

*“Sometimes I feel depressed when I think about spending the rest of my life in this job. When I see the older pharmacists, I’ve been working here for four years; one of them has been working for 15 years. In Kuwait it doesn’t matter how many years you’ve worked, you will be doing the same job. We don’t have specialties or postgraduate diplomas.”*

#### **K11**

*“I would be depressed to stay in this job for the rest of my life...”*

#### **K7**

*“No, I can’t stay in this job for the rest of my life.”*

#### **S5**

*“I can’t even think of staying in that job for the rest of my life, God forbid. However, if I had to stay I would try my best to leave.”*

#### **S7**

*“I can’t stay at this job. I would feel worthless....”*

#### **S11**

*“Wouldn’t be happy to spend the rest of my life at this job... will be frustrated.”*

## **Clinical pharmacy practice**

This code describes the clinical pharmacy current policies. Most of the Kuwaiti participants stated that clinical pharmacy is not officially implemented in Kuwait. However, there are some personal efforts to practise it. In Saudi Arabia, clinical pharmacy is not practised widely.

### **K6**

*“There is no clinical pharmacy in Kuwait. We started ward pharmacy in our hospital. The system is against it because pharmacy in Kuwait is relatively new. All the rules and regulations are not clear. My supervisor was very supportive we got their approval to start ward pharmacy.”*

### **K13**

*“Officially we don’t have clinical pharmacy... however, there have been talks between the University and the Pharmaceutical Society to implement it.”*

### **K2**

*“There is only one clinical pharmacist... she attends doctors’ meetings and ward rounds... and she is the supervisor as well, which is too much work ... she covers two wards.”*

### **S11**

*“Clinical pharmacy is at its early stages, and clinical pharmacists are newly qualified, but they are trying their best.”*

### **S13**

*“There is only one clinical pharmacist ... however, she doesn’t work as a clinical pharmacist... she works as a DI pharmacist... I think they need more.”*

**S15**

*“There are four clinical pharmacists... they are fresh graduates, so they are still learning but I think they are doing good.”*

### **Two different undergraduate pharmacy degrees in Saudi Arabia**

This code describes the effects of having pharmacy graduates from two different undergraduate degrees (a bachelor’s degree in pharmaceutical science and a PharmD degree) such as King Saud University. The difference between the two degrees is that PharmD students are required to complete one year residency program. A few Saudi pharmacists stated that having clinical pharmacists alongside hospital pharmacists creates competition and an unhealthy working environment.

**S15**

*“I think because we were all young and competitive... some of us had a Pharm D from Jordan and others, including myself, had a bachelor’s degree in pharmaceutical sciences... some of the Pharm D holders worked as hospital pharmacists and a few only worked as clinical pharmacists... which created some competition between them... and also sometimes they made us feel like our degree was useless, although I believe we were as good as them.”*

**S6**

*“Clinical pharmacists think that all other pharmacists know nothing about pharmacy, and they should just stick around in the pharmacy... I think having clinical pharmacy alongside the bachelor-degree holders creates tension and competition between students... ‘I know better than you’ ... it is a kind of arrogance that we don’t want to have... I think each one has their role... it really depends on the person... a clinical pharmacist could be on the ward with doctors doing nothing... and a pharmacist in the store might be working much harder.”*

**S13**

*“We would love to do counselling.... but only the clinical pharmacist and the chief pharmacist’s assistant are allowed to do it... they are the ones who give lectures... they don’t want us to learn or to develop professionally. They just want us to dispense.”*

## **Barriers preventing clinical pharmacy implementation**

This code shows the barriers to implementing clinical pharmacy. Some pharmacists considered that the limited number of clinical pharmacists was one of the biggest obstacles to implementing clinical pharmacy

### **K4**

*“The main obstacle is not having enough staff. There some clinical pharmacists who are motivated to go to the wards but there aren’t enough staff to cover the work in the pharmacy.”*

### **K9**

*“They want to implement ward pharmacy in my hospital... they hired pharmacists, but they still need more... they are planning to open a drug information centre...we are opening a new hospital in 2015.”*

### **K13**

*“Some of the pharmacists used to go to the wards and check prescriptions before they were sent down to the pharmacy, but because of the high workload they stopped... the problem now is that we aren’t only understaffed, but also the capacity of the hospital is small; we need a new hospital.”*

### **S2**

*“The head of the inpatient pharmacy has an MSc in clinical pharmacy, but she is the only one there. Because of that she couldn’t cover all the wards, I think.”*

### **S9**

*“Clinical pharmacy is well established, but we don’t have enough staff... they are doing their best... they can’t cover all the wards.”*

**S14**

*“Clinical pharmacy is OK; there are three clinical pharmacists... there was only one last year, so it was hard for her to do all the work.”*

### **Challenges facing clinical pharmacy**

This code explains the main challenges facing clinical pharmacy. A few pharmacists suggested that the main obstacles that hinder the implementation of clinical pharmacy are the healthcare system, ‘old-school’ doctors and pharmacists.

**K2**

*“The department itself.. it doesn’t support clinical pharmacy... and the older pharmacists don’t support it... some of the doctors are against clinical pharmacy.”*

**K9**

*“Clinical pharmacy is not yet implemented... money isn’t a problem... the problem is with bosses who are scared of people taking over their positions.”*

**K12**

*“The main reason for not having clinical pharmacy is that the leaders aren’t excited about establishing it... there is no job description.”*

**S5**

*“What makes it difficult to implement is some doctors have old mentalities; they don’t like anyone to interfere with their work.”*

**S6**

*“We don’t have a clinical pharmacy in my workplace. The main barrier I think is the Ministry of Health...”*

**S12**

*“The main obstacle was doctors as they don’t appreciate the role of the pharmacist, and patients as well – they trust doctors more than pharmacists... yeah, most of the society is like this.”*

**Factors supporting clinical pharmacy**

This code describes the factors that support practising clinical pharmacy at local and national levels. Pharmacists suggested different factors that support clinical pharmacy: at a local level, having a chief pharmacist who appreciated it and encouraged its practice; and at a national level, postgraduate scholarship opportunities for young pharmacists to study clinical pharmacy.

**K2**

*“My current supervisor has made so many changes... she’s got a nice personality and [has] managed to persuade the pharmacy chief to implement clinical pharmacy.... I’ve heard that the Ministry of Health will officially establish a clinical pharmacy department soon.”*

**K3**

*“Many young pharmacists are now here in the UK doing a master’s in clinical pharmacy, hoping to change the situation... it is only a one-year course, so it is not that hard to be a clinical pharmacist.”*

**K5**

*“They have sent pharmacists to do a master’s in clinical pharmacy, and there is a plan to start a clinical pharmacy programme at Kuwait University.”*

**S11**

*“What supported having a clinical pharmacy there is a chief pharmacist who is a clinical pharmacist ... he is a US graduate, so he encouraged young pharmacists to do clinical pharmacy, and also he organised some clinical rotations as a part of the training.”*

**S5**

*“Doctors need someone to consult and make sure they haven’t made any errors.”*

### **Changes needed**

This code describes the changes pharmacists suggested as a way to improve job satisfaction. Most of the respondents suggested one or more of the following factors: financial incentives, professional development opportunities, more staff, clear job description, and clearer strategic plans for pharmaceutical workforce development.

**K4**

*“Some allowances would also help.”*

**K1**

*“Increase in the salaries... It would make a difference.”*

**S9**

*“Salaries should be higher... more staff... if you’re financially happy, then [you] will feel that all the work you do is fair.”*

**S15**

*“Better salaries and allowances.”*

**K2**

*“We need a clear job description, so each one of us knows what they are supposed to do.”*

**K6**

*“We need more clear rules and regulations. We need some rules to force pharmacists to do CE and maybe revalidation of the licence. It is free – my licence is that I’m a pharmacist, and I work in a governmental hospital, so I cannot work in any private [hospital].”*



**S8**

*“Education... we need more education opportunities... some of the consultants haven’t attended any international conferences.”*

**S4**

*“I would suggest offering training programmes like a clinical placement for a few months to get some ideas about pharmacy practice in the developed world.”*

**K2**

*“Promotions should be based on performance, not on years of experience.... “*

### **Pharmaceutical policies**

A few pharmacists suggested highlighted the need for some changes in Pharmaceutical policies

**K10**

*“There must be collaboration and connections between the Ministry and the University. At the moment, they aren’t working as a team... they [the university] teach them so much clinical stuff as if they were doctors ... they should teach them about the local needs of the society.”*

**K12**

*“We need to have enough clinical pharmacists... hospital staff need to be prepared to accommodate clinical pharmacy.”*

**K3**

*“The thing is the pharmacy department in the Ministry of Health and the Pharmaceutical Society don’t try to make any changes compared to the doctors’ society. It is an official organisation... they are supposed to make sure our voices are heard, but most of them work in the private sector, so they should not focus only on changing the regulation related to the private sector.”*

**S10**

*“The leaders should be doing their job properly... if your employee isn’t happy, then they wouldn’t give what they got. The Ministry of Health should have regular visits... get feedback from patients.”*

**S5**

*“The rules and regulations in Saudi Arabia are not very clear when it comes to qualifications. The Canadian Board then is equivalent to a master’s or PhD, which is not fair. The allowances are not clear. There are no guidelines. The problem is they don’t change anything... it is the same since forever.*

**S4**

*“The Ministry of Health could adopt some of the rules and regulation of other ministries of health.”*

**Supervisors’ characteristics**

This code describes characteristics supervisors should have and the importance of support and encouragement they provide to their employees.

**K9**

*“The way to improve is to be fair with everyone, and for them to believe that they can’t stay in their jobs forever – we need new blood... we need to work as a team.”*

**K13**

*“So, if there is no appreciation, why would I give more than I can?... Why would I bother to try and improve the profession?... Appreciation is crucial.”*

**K15**

*“We need a clear vision and a clear mission for the future.... as an organisation ... we should have our own.”*

**S3**

*“The government should have a set of standards for the supervisors in terms of capability, personality and so on.”*

### **Pharmacy degree in Kuwait**

**This code describes that some pharmacists in Kuwait ‘rent’ their degrees to private pharmacies and get paid without the need to work.**

**K1**

*“Other pharmacists have their plan ... finish the mandatory work for the government for five years, then they rent their degrees. In Kuwait, only Kuwaiti pharmacists are allowed to own a pharmacy ... so companies who want to open pharmacies need to find a Kuwaiti pharmacist. At the same time, they don’t want that pharmacist to be actually working there, so the way they do it... they find a pharmacist and give him the same salary he used to get while working for the government... so they stay at home... they, however, need to do some paperwork every now and again... if they are using your name it is your responsibility to follow up... it used to be two years... but now it is five years... no, it is not legal. After opening Kuwait University, we had loads of pharmacy graduates... and they all have to work for the government, so degree-renting prices went really high.”*

**K3**

*“Many pharmacists are leaving the profession. They work for two years only... there are not many pharmacists working for the government because they are not appreciated... some of the pharmacists leave their jobs and rent their degrees to someone to open a community pharmacy. They get a salary at the end of the month... it is a shame.”*

**K6**

*“We have a law that pharmacists should work for the government for five years – it used to be two. Then I could rent my degree, and I get the same salary plus an allowance to support private work.”*

**K9**

*“Most of the first two batches of graduates rented their degrees because they felt they didn’t have the power to make any changes.”*

**K10**

*“To open a pharmacy in Kuwait, you need a licence, and each pharmacist can own only one pharmacy. The money you get out of renting your licence is more than the salary... this why some pharmacists prefer to stay at home and get the money at the end of each month instead of working for it. It is disappointing... I could stay at home and get more money... but I want to work.”*

**K14**

*“There aren’t many pharmacists in Kuwait... many pharmacists rent their licence and stay at home... the pharmacist himself is the problem.”*

## **5.5 Main findings and discussion**

The outcome of this study shows that pharmacists’ relationships with their colleagues, supervisors and other healthcare professionals are influenced by cultural, social, and religious factors. Supervisors’ nationalities were also found to influence their perceived respect and authority, i.e. non-indigenous senior pharmacists tend to have less authority than their national counterparts. Age and gender were also found to influence communication between pharmacists. Co-workers of the same sex and similar age had better interactions. Participants indicated that having a positive working environment where they communicate effectively with their colleagues, supervisors and other healthcare professionals enhanced their job satisfaction. On the other hand, high workload and working shifts negatively affected their job satisfaction.

Pharmacists were mainly satisfied with their earnings, but some of the hospital pharmacists thought they were underpaid when compared to pharmacists working in primary healthcare centres, doctors, and dentists.

A crucial issue with pharmacy policies was under-representation of the pharmacy profession as a key body in the policy dialogue. The Ministry of Health, which is the main regulatory body for healthcare services, lacks pharmacy stakeholders who would be representative of the profession. This has resulted in a mismatch between the efforts made by education and practice authorities to enhance the profession, limited opportunities for advanced or senior career positions, and unclear job description (particularly in Kuwait). The pharmacy profession is not yet seen to have a role in the policymaking process, and is not regarded as being as well-established as other healthcare professions such as medicine and dentistry.

It was indicated that the main barrier to practising clinical pharmacy in Kuwait was that the stakeholders in the Ministry of Health had not yet seen its importance. On the other hand, Saudi pharmacists found that the main obstacle was the inadequate number of clinical pharmacists. Attempts to reform or change the pharmaceutical sector in Kuwait were found to be met with resistance. The barriers towards pharmacy workforce development are due to the perceptions of some senior pharmacists and physicians that this will result in their role being 'taken over'. The perceived threat to power was identified to be a barrier to implementing certain pharmaceutical policies.

Pharmacists suggested some strategies to help with decision-making blockages, including: adopting pharmaceutical policies from more developed countries, reforming the perceived threat, making sure that pharmacists' voices are heard, and their professional development needs are met, and better representation of the pharmacy public sector in the Ministry of Health.

A few consequences of the present pharmaceutical policies were raised by participants, such as intention to leave the public sector for drug companies, academia and research, as well as hospitals where the clinical pharmacy is practised, or to pursue further education – this latter factor was observed in Saudi Arabia in particular. Higher attrition rates were also mentioned, especially among female pharmacists in Kuwait, who rented their degrees to private companies. Most of the pharmacists who did not intend to leave their current jobs believed that there were no better job opportunities available.

At an institutional level, respondents raised some issues including work overload, lack of

appreciation from other health professionals and the public, unfair bonuses and promotions, poor financial incentives, and lack of a clear job description.

## 5.6 Limitations

The main limitation of this study is that it includes only two countries out of the six GCC countries. However, the findings in these case studies could be generalised to the other neighbouring GCC nations, i.e. Bahrain, Oman, Qatar and UAE, because these countries share similar economic, socio-political, cultural, and religious backgrounds.

Furthermore, the target population was limited to hospital pharmacists, so other pharmacy sectors such as community, regulatory, and academia were not investigated. Efforts were made to ensure that translation was accurate by double-checking the transcripts by another Arabic-English speaker, but the colloquial language used when conducting the interviews means that some of the meaning might have been lost. A snowball sampling technique was utilised to recruit participants, which might have limited the sample's variety. Almost all the participants were female; this was influenced by cultural and social factors which prevented male pharmacists from participating in a study conducted by a female researcher.

## Chapter 6 – Discussion of the Main Findings

This chapter discusses the main findings of this research project.

Section 6.1 provides a description of the pharmacy profession at regional level, comparing the GCC region with other WHO regions.

Section 6.2 provides a description of the pharmacy profession at a country level (GCC countries).

Section 6.3 concludes this chapter.

Section 6.4 gives some recommendations.

### 6.1 Description of the pharmacy profession in the GCC region in comparison to other WHO regions (regional level)

Chapter 4 provided the quantitative study of the pharmacy workforce in the GCC region. This study addressed the principal research objective (Chapter 2, 2.1), regarding exploring comparisons in the pharmacy profession in the GCC region with other WHO regions in relation to availability, accessibility, acceptability, and quality. It also addressed the second objective (Chapter 2, 2.1), regarding the analysis of the composition and capacity of the pharmacy workforce and pharmacy education in the Gulf countries using the conceptual framework (availability, accessibility, acceptability, and quality).

To address the objectives above, Chapter 4 was divided into two main sections: section 4.2.1, which provides regional comparisons regarding availability, accessibility, and acceptability of pharmacy in different WHO regions, and section 4.2.2, which provides country-level comparisons using the same conceptual framework to describe pharmacy in the six Gulf nations, namely Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the UAE.

Stage 1 comprised a cross-sectional questionnaire to gather information regarding pharmacy workforce, pharmacy healthcare facilities, pharmacy education, pharmacy laws, and pharmacy workforce planning and regulation. The FIP Global Pharmacy Workforce questionnaire was used to collect data from the six GCC countries.

For the comparative analysis in stage 2, data from the 2012 FIP Global Pharmacy Workforce Report was used. Countries were categorised by WHO region classification into African, American, Eastern Mediterranean, European, South East Asian, and Western Pacific. The six GCC countries – Bahrain, Kuwait, Saudi Arabia, Oman, Qatar, and the UAE – were considered as a separate region (GCC region).

In stage 3, the gathered data was classified to fit with the WHO conceptual framework (availability, accessibility, acceptability, and quality). Statistical tests including correlation coefficient, Mann-Whitney test, and descriptive tests were conducted to explore comparisons in the pharmacy profession in the GCC region with other WHO regions. Hence, the first objective of the research was achieved.

### **Availability**

Availability in pharmacy was measured by comparing the following factors: the capacity of pharmacy education institutions, the rate of production of pharmacy graduates, the mobility of the pharmacy workforce, the density of the pharmacy workforce, and the density of pharmaceutical facilities.

Chapter 4 section 4.2.1.1 of this research showed that the GCC region had significantly higher densities than the African region in all availability factors (i.e. the density of pharmacy schools, the density of pharmacy graduates, and the density of pharmacy technician schools). It also showed that that the GCC region had a higher density of pharmaceutical facilities than the African region and lower density than the European region. The density of the pharmacy workforce (i.e. the density of pharmacists and the density of pharmacy technicians) in the GCC region was significantly higher than in the African region.

Availability of competent and appropriately skilled health workers is critical to achieving universal health coverage (WHO, 2013). It is essential that health professionals are available in adequate numbers and are distributed proportionately to the population in order to provide health services corresponding to the local health needs (WHO, 2013).



Findings regarding pharmacy schools and pharmacy graduates in the GCC region indicated that the region can produce sufficient numbers of pharmacy personnel to serve their communities. It is also clear that the African region does not have the capacity to school and graduate sufficient numbers of pharmacy workforce to meet the region's health demands.

Similarly, the WHO indicated that the rate of production of new professional health workers in the countries of sub-Saharan Africa, as in many other low- and middle-income countries, is too low to improve the ratio between workforce and population (WHO, 2013).

The GCC region has been able to supply adequate numbers of pharmaceutical human resources through the increasing numbers of pharmacy education institutions. However, it is necessary to monitor and review both capacity and output of the educational institutions. By drawing ongoing evaluation of oversupply or undersupply of the active pharmacy cadres, pharmacy schools' capacity can be altered to control the rate of production of pharmacy workforce, and new training programmes can be established.

Several actions could be implemented to overcome the undersupply of pharmacy workforce in the African region, such as changing the class size and the opening of new institutions (WHO, 2006). However, in-depth evaluation of the regions' ability to accommodate these changes is needed. The WHO also suggested that increasing the number of healthcare personnel can be achieved through retaining students through to graduation (WHO, 2006). Students are not completing courses because of low academic achievements, financial constraints, and other personal circumstances such as health issues and housing problems. These students should be offered help to cope with these difficulties (WHO, 2006).

In the African region, gains can be obtained without training more health workers, by reducing attrition to other sectors or other countries.

Another factor that affects availability is the migration of the pharmacy workforce. Chapter 4 (Figure 4.7 and Figure 4.8) suggests that the density of foreign pharmacists tends to be higher in regions that have higher densities of both home pharmacists and pharmacy graduates. This is because these regions have the pull factors that attract non-indigenous pharmacy workers. Migration is affected by some factors, such as the region's economy,

more than others, such as disease burden. Hence, although the African region has the highest disease burden, it has the lowest density of pharmacy workforce.

Data on healthcare workforce migration to the GCC region was limited. In this research project, only Oman and Saudi Arabia were able to provide information about the numbers of newly registered foreign pharmacists. The literature suggested that there is a great reliance on non-indigenous health workforce including pharmacists, but exact figures are not available. The GCC region, as suggested in the previous sections, has increased the numbers of pharmacy schools and pharmacy graduates who have helped in renationalisation of the profession.

Managing migration of health workers means finding the balance between the individual's freedom to choose where to work and controlling excessive losses that result from internal migration (from rural to urban) and international migration (from developing to developed countries) (WHO, 2006).

Migration of health workers could be planned in some regions, such as migration to the Eastern Mediterranean region, and unplanned in others, such as migration from the African region (WHO, 2013).

The African region is a low-income region where pushing factors such as political and social instability, poor living conditions and poor working conditions predominate (Wuliji et al., 2009; Kuehn, 2007). Hence, the insufficient pharmacy workforce in the African region is exacerbated by migration, which is considered a major retention issue in the region.

Controlling migration in the African region could be used as a strategy to increase the numbers of pharmacy health personnel or at least to prevent exacerbation of their loss.

### **Accessibility**

Community pharmacies are considered the most accessible pharmacy healthcare facility. For that reason, comparison of the density of community pharmacies were used as a factor to measure accessibility of pharmacy services.

Chapter 4 section 4.2.1.2 of this research indicates that the density of community pharmacies in the GCC region was significantly higher than in the African region and was significantly lower than in the American, the Eastern Mediterranean, and the European regions.

The low density of community pharmacies in the GCC region is a result of the fact that the community pharmacy is not considered a secondary healthcare facility (Kheir and Fahey, 2011). For example, in Qatar, there are limited opportunities to improve community pharmacy settings because most of the public hospitals dispense medicines to their patients. Furthermore, financial incentives are limited and the salaries offered are not competitive (Kheir and Fahey, 2011).

Similarly, in Saudi Arabia, most of the pharmacy graduates work in hospital settings. Both clinical and hospital pharmacy are well developed and offer competitive remuneration. On the other hand, community pharmacy is not seen as a healthcare facility by the public (Al-Wazaify et al., 2004). Consequently, most of the community pharmacies are run by non-Saudi pharmacy personnel (Kheir et al., 2008).

Community pharmacy in the GCC region is not as developed as in other WHO regions. In addition, the public's views on community pharmacy play a major role in its development (Kheir et al., 2008).

### **Acceptability in pharmacy**

Acceptability in pharmacy was assessed by comparing the density of female pharmacists, the density of home pharmacists, and the availability of a code of conduct governing professional behaviour for pharmacists.

Comparing gender distribution in pharmacy in various regions of the globe is complicated as it is highly influenced by cultural differences. In the developed world, higher proportions of the female workforce were found to be associated with more part-time work patterns and career breaks. However, in the developing countries, the female workforce is more acceptable to patients than male staff. The GCC region had a lower density of female

pharmacists than the American and the European regions and a higher density than the African and the SE Asian regions, but the density of the total number of pharmacists in the GCC region did not differ significantly from the American, the European, or the SE Asian regions.

The flexible working hours and career breaks that the pharmacy profession offers for the female workforce in the American and the European regions could be the reason behind the findings.

Participation of women in the workforce in the Middle Eastern countries is limited, according to the International Labour (ILO, 2013). In 2012, the participation rate was as low as 19%, and their unemployment rate was 19.3%, which was twice the rate for men.

The unemployment rate was as high as 70% in certain countries, the Gulf nations in particular (ILO, 2013). Additionally, education does not guarantee that women will be employed, as women with tertiary education account for more than 40% of all unemployed women in Saudi Arabia and women with either secondary or tertiary education make up to 50% of unemployed women in all Gulf countries (Baldwin-Edwards, 2011). The low participation and employment rates of females in the labour market are evidence of the disadvantages for women in the workforce in the Middle East.

In some countries, gender segregation in public spaces, as well as limitations for women to take up particular jobs or make certain educational choices, restrict their employment opportunities (ILO, 2013).

In some Gulf countries, women were found to be graduating at a rate approaching double that of men (Girgis, 2002). However, limited numbers of females are employed and they are often passed over for employment in favour for less competent male workers. Women are also seen as 'emotional beings' better suited for home and family (Maben et al., 2010).

Chapter 4 section 4.2.1.1 suggests that the densities of pharmacy education institutions and pharmacy graduates in GCC countries did not differ from other regions. However, the density of female pharmacists was higher in some regions, indicating that some of the female

graduates do not enter the labour market after graduation, as suggested by Girgis (2002). This also supports the fact that there are some social and cultural factors and traditions that prevent women from participating in the workforce. Paradoxically, in some societies in low-income countries as well as in Gulf countries, female patients prefer to deal with female health professionals.

The majority of health workers worldwide are women (WHO, 2011). Increasing participation of female pharmacists in the workforce in the GCC, the African and the SE Asian regions can be achieved by the following: ensuring their safety, and allowing more flexible working patterns that consider family needs.

It is essential for health professionals to understand and respond to the specific health needs of the communities they serve (WHO, 2013). Healthcare professionals who are representative of the societies they serve in terms of their background, language, ethnicity, other social attributes and demographic factors are more likely to be aware of the local health needs. They are also more accessible and able to understand different clients and populations (WHO, 2013).

Chapter 4 section 4.2.1.3 indicates that there is no difference in the density of the newly registered foreign pharmacists between the GCC region and other WHO regions. However, data on the ratio of home/foreign pharmacists is not available.

It is suggested by the ILO (2013) that GCC countries struggle to provide sufficient employment opportunities to their local people. Furthermore, jobs available in the private sector are taken up to a large extent by expatriates, either because locals are not willing to work in particular occupations, or because they lack the skills and the competencies required for these jobs. Additionally, private sector companies have shown a preference to employ non-nationals because of the probability of flexible work arrangements and wage differentials.

Particularly within smaller GCC nations, this high demand for foreign employees has pushed total employment up to a multiple of the national working-age population. For example, in Qatar the foreign workforce is 14 times larger than that of the national one, with a

substantially smaller risk of unemployment as work and resident permits for foreigners in most GCC countries are linked to the work contract with the hiring company (ILO, 2013).

Increasing the proportions of indigenous health workforce may result in several benefits including: better understanding of the culture, and increased number of staff who speak Arabic, as currently not many do so and the majority speak English as a second language (Aldossary et al., 2003). The GCC governments could decrease the unemployment rate among nationals by controlling migration of health workforce from other countries and by setting a limit on the numbers of non-indigenous staff in the private sector.

Having codes of conduct governing professional behaviour for pharmacists is essential as they define the social norms, rules and regulations of acceptable practice for pharmacists.

The research found that 66.7% of GCC countries had a code of conduct governing professional behaviour for pharmacists compared to 87.5% of the African region, 77.8% of the American region, 60% of the Eastern Mediterranean region, 72.7% of the Western Pacific region, 80% of the SE Asian region and 92.3% of the European region.

These findings indicate the need for the pharmacy regulatory bodies in the GCC region to set codes of conduct to ensure that pharmaceutical services are provided with ethical and professional behaviour. It is also essential to build trust between healthcare providers and their clients to increase services demand. Codes of conduct which are culturally appropriate could be developed or adapted from neighbouring countries.

### **Quality in Pharmacy**

To ensure that pharmacy services provided are of a high quality, quality assurance measures are necessary. These quality measures can be categorised into pharmacy workforce quality measures, pharmacy education quality measures, and pharmaceutical facilities quality measures. Pharmacy workforce quality is reflected by having national Good Pharmacy Practice Guidelines, Performance Indicators for Practice Standards, relicensing, and CPD. Pharmaceutical facilities quality is assured by licensing of these facilities. Pharmacy

education quality is assured by accreditation of pharmacy education institutions and curriculum review.

### **Pharmacy Workforce Quality**

Producing sufficient numbers of health workers alone is not sufficient to transform a population's health. Health professionals with the right competencies are needed to respond to the evolving health needs (WHO, 2011).

Quality of pharmacy workforce was measured by comparing the availability of national Good Pharmacy Practice guidelines, mandatory CPD, performance indicators, and licensing for pharmacists

A comparison of the availability of national Good Pharmacy Practice Guidelines was conducted between the regions. Chapter 4 section 4.2.1.4 shows that 83.3% of GCC countries had National Good Pharmacy Practice guidelines for pharmaceutical human resources compared to 62.5% of the African region, 66.7% of the American region, 40% of the Eastern Mediterranean region, 63.6% of the Western Pacific region, 80.3% of the SE Asian region, and 72% of the European region.

That could be translated as the GCC region has an established national framework of quality standards and guidelines. It also means that the pharmaceutical services provided are optimal and based on evidence. Although the GCC region has implemented national Good Pharmacy Practice guidelines, it is not clear that they are being enforced.

It has been suggested that scaling-up education and training is a crucial feature of the strategies to strengthen the health workforce. However, much of the effectiveness of these strategies will be lost if they are not combined with policies to retain the graduates, and to provide them with working conditions that will allow them to use their knowledge and skills effectively (WHO, 2011).

A comparison of the availability of mandatory CPD was conducted between the regions. Mandatory CPD in the GCC region (66.7%) was comparable to some regions such as the

European region (69.2%) and of the Western Pacific countries (72.7%). However, it was behind in the other regions: the African (53.3%), the American (25%), the SE Asian (50%), and the Eastern Mediterranean (25%).

CPD refers to educational activities conducted after graduation to maintain, improve and adapt the knowledge, skills, attitudes and practices of health professionals so that they can continue to provide health services safely and effectively (WHO, 2013).

A health workforce needs to keep up to date with the evolving health needs, policies, knowledge, and technologies. The rapid development of technology and treatment methods, as well as changing population demographics, and disease burden require members of a workforce to update their knowledge and skills throughout their career (WHO, 2006). Hence, the African, the American, the SE Asian, and the Eastern Mediterranean regions need to develop a strategy or a system to ensure that their pharmacy workforce continues to develop professionally.

CPD and in-service training should be provided by health professional education and training institutions. CDP should aim to update health professionals about the evolving health-care needs of their communities (WHO, 2013)

A comparison of the availability of performance indicator was conducted between the regions. Chapter 4 section 4.2.1.4 indicates that the performance indicator is widely available in the GCC region, which represents 66.7%, compared to 20% of the African region, 50% of the American region, none of the Eastern Mediterranean region, 40% of the Western Pacific region, 20% of the SE Asian region, and 32% of the European region.

Having a performance measure in which pharmacists' practice is compared to certain criteria or standards is critical. It guides employees to self-evaluate and reflect on their performance and constantly improve it. It also ensures that the services they provide meet the quality standards. However, it seems that such a performance indicator is not widely available globally. Preference indicators should be developed or adapted to ensure that pharmacy workforce self-evaluate and continually improve their performance.



A comparison of the requirement for pharmacists to be licensed was conducted between the regions. All GCC countries require pharmacists to have a licence, and this was similar for all the other WHO regions: 93.8% of the African region, 87.5% of the American region, 20% of the Eastern Mediterranean region, 72.7% of the Western Pacific region, 50% of the SE Asian region and 69.2% of the European region.

Licensing is critical in health professions. If there were no minimum qualification requirements to enter the health labour market, patients would be exposed to an incapable health workforce and individuals would be able to misrepresent themselves as qualified healthcare professionals. Additionally, an unrestricted market would not respond to the needs of the poorer class of the population, or to health service needs that are not financially attractive, such as primary care, public health or diseases that are more common among the poor (WHO, 2013).

The pharmaceutical services provided in regions where pharmacists are not required to obtain a license to practice pharmacy, such as most of the Eastern Mediterranean nations, are suboptimal and are not monitored. Furthermore, the public is exposed to an incompetent pharmacy workforce.

### **Quality of Pharmaceutical Facilities**

The quality of pharmaceutical facilities was measured by comparing the requirements for licensing public and private pharmacies.

Chapter 4 section 4.2.1.4 shows that 100% of the GCC region requires licensing of private pharmacies compared to 83.3% of the African region, 87.5% of the American region, 80% of the Eastern Mediterranean region, 72.7% of the Western Pacific region, 66.7% of the SE Asian region and 80% of the European region.

Licensing for public pharmacies in the GCC region is comparable to the other regions: 66.7% of the GCC region requires public pharmacies to be licensed compared to 58.8% of the African region, 87.5% of the American region, 80% of the Eastern Mediterranean region,

63.6% of the Western Pacific region, 66.7% of the SE Asian region and 68.2% of the European region.

Licensing of pharmacies is necessary to ensure that the facility meets the standards required for registration or renewal. Additionally, in order to monitor medicine supply by controlling prescribed medicines, it is essential to ensure that pharmacies are run by qualified pharmacists to safeguard public health.

### **Quality of Pharmacy Education**

The quality of pharmacy education was measured by comparing the requirement for accreditation for pharmacy schools and curriculum review in different regions.

A comparison of the availability of an accreditation system for pharmacy schools was conducted between the regions. This was found to be 75% in the GCC region, which was slightly lower than the other WHO regions: 85.5% in the African region, 87.5% in the American region, 100% in the Eastern Mediterranean and SE Asian regions, 81.8% in the Western Pacific region,, and 88.5% in the European region.

Accreditation is an important mechanism for assessing institutional performance as well as obtaining public trust. However, education regulatory mechanisms such as accreditation are rarely standardised, and are often poor and inconsistently applied, especially in the case of private sector institutions (WHO, 2011).

Policies that regulate the establishment of schools and programmes should ensure that the rules for doing so do not inhibit the growth of the supply of education opportunities. Students in the same career should receive an education of the same standards, but standardised education should allow space for creativity and innovation (WHO, 2013).

Policymakers in the GCC region should pay more attention to implementing a standardised accreditation system to control pharmacy education, without restricting opportunities for innovation. Utilising the rapidly growing private sector pharmacy institutions, especially in Saudi Arabia and the UAE, is critical.

A comparison of the requirements for regular review of pharmacy schools' curriculum was conducted between the regions. It was found that 60% of the GCC region required the pharmacy curriculum to be reviewed. Other regions were similar: for the African region, it was 69.2%, the Western Pacific, 63.6% the SE Asian, 60%, and the European, 64%. The Eastern Mediterranean had the highest percentage with 100%, and the American region was the lowest with 37%.

Health needs are different in different regions. For example, the African region has the highest disease burden for communicable diseases while other more developed countries have a higher disease burden for non-communicable diseases. For that reason, local health needs should be considered when designing and reviewing healthcare disciplines' curricula. The curriculum should include a set of core competencies, which should be structured to equip healthcare professionals with the knowledge and the skills they need to meet the local health needs.

Pharmaceutical human resources are required to expand continuously over time, be accountable for populations' changing health needs, demographic, epidemiological profile, expectations, disease burden, healthcare system, health expenditure, stock, and flows of the workforce.

Policymakers should implement positive planning approaches considering long-term objectives and needs in the workforce, health systems, and education and training.

## 6.2 Description of the pharmacy profession in GCC countries (country level)

### **Availability**

Availability of pharmacy in the GCC region was measured by comparing the numbers of pharmacy schools and the rate of production of pharmacy graduates. There was a total of 42 pharmacy schools in the GCC region, and they were all accredited. Bahrain was the only country in the region that lacked a university-based pharmacy school. This indicates that Bahraini nationals obtain their pharmacy degree from outside Bahrain and highlights the reliance on international pharmacists. Two countries had a single pharmacy school (Kuwait

and Qatar). Oman reported three pharmacy schools, the UAE reported eight and Saudi Arabia reported 29.

Pharmacy education in Gulf region is relatively new. The only school in Kuwait was established in 1997, Qatar's only pharmacy school was established in 2007(Matowee et al., 2003). The UAE opened its first pharmacy school in 1992 (Kheir et al., 2008).

Saudi Arabia had the highest density of pharmacy schools per 10,000 (0.010) and the lowest density of pharmacy graduates per 10,000 (0.16), indicating that its pharmacy schools were not producing as many pharmacists as those of the other countries. It also indicates that class size was the smallest in the region. Class size varies widely in Saudi Arabia depending on the geographical location of the university. King Saud University, which is located in the capital, Riyadh, recruits on average 150 students. Other, smaller universities, which are located in rural areas (such as Jazan University) recruit a smaller number of students, i.e. on average 50 students. Saudi Arabia is the largest country in the region, with a population of 27,345,986 and most of the newly opened pharmacy schools are in rural areas. The government implemented this strategy to increase the supply of pharmacy graduates to these underserved areas by recruiting local students. Producing the lowest number of graduates in the region was to prevent an oversupply of pharmacists.

Oman, Saudi Arabia and the UAE had almost the same density of pharmacy schools. However, the UAE had the highest density of graduates, followed by Oman, and Saudi Arabia. This could be because most of the pharmacy schools in the UAE and Oman are private for profit ones, while most of them are public in Saudi Arabia. Pharmacy education in the GCC countries' public schools is provided free, so there is a limit on the number of students they recruit. On the other hand, private schools are more likely to have larger class sizes and produce more graduates for financial profit.

Qatar showed proper utilisation of the only pharmacy school in the country by producing the third highest density of pharmacy graduates although it had the second lowest density of pharmacy schools.

When excluding Saudi Arabia and Bahrain, the density of pharmacy graduates increases and the density of pharmacists increases. Bahrain does not follow the pattern probably because of the lack of a pharmacy school within the country. Most of the pharmacists are either Bahraini-citizens who obtained their degrees from outside the country or expatriates. The lack of an entry-level pharmacy education programme in Bahrain will probably make the pharmacist supply unsustainable in the long run.

Bahrain showed proper utilisation of its only pharmacy training school (pharmacy technician training school) to produce the highest possible number of graduates, although it had the second highest density of pharmacy technician training schools. The highest density of pharmacy technician graduates in Bahrain is likely to balance out the low density of pharmacy graduates.

Oman had triple the density of training schools as Kuwait but produced almost the same number of graduates, which indicates that Oman was not making as good a use of its education institutions as Kuwait. The UAE and Qatar had the lowest densities of both pharmacy technician schools and graduates.

Another factor that affects availability is migration of the pharmacy workforce. However, data on workforce migration in the Gulf region is limited; only Saudi Arabia and Oman were able to provide information on the number of newly registered foreign pharmacists. Saudi Arabia suggested that there were no newly registered pharmacists in 2013, following the Saudisation of the profession. Oman, on the other hand, indicated that 180 non-indigenous pharmacists had joined the workforce. Lack of data on workforce mobility in the other nations probably indicates inadequate monitoring of workforce flow in the region.

The fact that most of the pharmacy schools in the region were opened recently indicates that there had previously been a great reliance on a non-indigenous pharmacy workforce, especially in Bahrain, which has no pharmacy schools, and Qatar, whose first pharmacy graduates entered the workforce in 2012 (Kheir and Fahey, 2011). Pharmacists practising in the UAE are from different countries, so their education and training backgrounds vary widely (Abu-Gharbieh et al., 2010). A study on the community pharmacy workforce in the

UAE reported that 35% of the pharmacists were Indians and 15% of them Egyptians (Maben et al., 2010)

In general, for the last three decades, GCC countries have been dependent on healthcare professionals from other countries such as the Philippines, India, and other Middle Eastern countries including Egypt, Lebanon, and Sudan (Maben et al., 2010).

The comparison of the proportion of pharmacy workforce to technician workforce revealed that, in Oman and the UAE, the density of pharmacists was almost double the density of pharmacy technicians. A higher proportion of pharmacists allows them more time to perform more pharmaceutical care services rather than performing the usual tasks such as dispensing. It also indicates that pharmacists are available in sufficient numbers to supervise pharmacy technicians.

On the other hand, Bahrain's low density of pharmacy technicians was likely to require pharmacists to be involved in traditional pharmacy tasks to cover for the lack of technicians. In Kuwait, densities are almost the same, which has resulted in the lack of clear job descriptions and job titles, where both pharmacists and pharmacy technicians do the same tasks, as suggested in a qualitative study of this research. In addition, the lack of a well-established clinical pharmacy in Kuwait limited job opportunities.

### **Accessibility**

Accessibility was measured by comparing the density of community pharmacies, considering that they are the most accessible healthcare facilities. The density of community pharmacies was lowest in Kuwait and highest in Saudi Arabia. This finding was explained in the qualitative part of this research (Chapter 5), which indicated the following: firstly, patients collect their medicines free of charge from hospital or primary healthcare centre pharmacies, making them more affordable and physically accessible. Secondly, the community pharmacy is perceived as a 'supermarket' by the public. However, younger generations appreciate pharmacies more, which might help in expanding the role of community pharmacies in the region. It might also change home pharmacists' negative perceptions about working in a community pharmacy.

Pharmacy ownership is a factor that influences accessibility to community pharmacies in GCC countries. Pharmacy ownership in Kuwait is restricted to Kuwaiti pharmacists, while it is unrestricted in Qatar, the UAE, and Oman. In Saudi Arabia, it is unrestricted to pharmacists in underserved rural areas. The limitation on the number of pharmacies an individual can own is another important factor. The limit is one pharmacy in Bahrain and Kuwait, and 30 in Saudi Arabia, whilst it is unlimited in Oman, Qatar and the UAE.

Participants in the qualitative study stated that some of the Kuwaiti pharmacists “rent their degrees” to non-pharmacists for them to be able to obtain a licence to open a pharmacy. This indicates that the law restricting pharmacy ownership to Kuwaiti pharmacists is not well implemented.

In other countries, pharmacy ownership is not restricted to pharmacists, but it has to be run by a registered pharmacist. Restricting pharmacy ownership to pharmacists could be advantageous in countries where community pharmacy is well-established and respected as it might widen the range of pharmacy career pathways. However, in this context, restricting it to pharmacists will probably provide similar outcomes to Kuwait.

### **Acceptability**

Acceptability in GCC countries was measured by comparing density of female pharmacists, home pharmacists, and availability of codes of conduct.

The density of female pharmacists did not differ widely between GCC countries. There was an average of 45.2% (range 42.1% to 50%) of female staff in the workforce.

These findings indicate the pharmacy profession in the GCC region is probably different from other professions in terms of participation of females in the workforce.

Historical, social, and religious factors have all been found to contribute to the limited participation of female staff in the workforce (Maben et al., 2010).

Chapter 5 supported this finding, as some of the participants suggested that there were some gender barriers to communication between staff. Interviewees of both sexes stated

that dealing with colleagues of the same sex enhanced their communication. In addition, some cultural and social factors seemed to influence pharmacy practice. These values discouraged females from working in hospital pharmacy where they have to work night shifts not only this, but also it prevented them from working in the pharmaceutical industry.

Participants from Kuwait indicated that more female pharmacists are leaving the workforce after finishing their five years of compulsory work for the government. Most of these pharmacists rent their degrees to international private companies, so that they can open a community pharmacy. Pharmacy policies limit pharmacy ownership to Kuwaiti citizens and limit the number of pharmacies an individual can own to one.

Another factor affecting acceptability in pharmacy was the density of foreign pharmacists. Although only Oman and Saudi Arabia were able to provide data on numbers of newly registered foreign pharmacists, it has been suggested that there is a great reliance on international pharmacy workers in GCC countries. For instance, most of the pharmacy faculty staff in Kuwait University are non-indigenous, from North America and Europe (Matowee et al., 2003). Similarly, KSU in Saudi Arabia has staff from different countries (Al-Wazaify et al., 2006). In 2008, only 11% of the practising pharmacists in Saudi Arabia were Saudi citizens (Kheir et al., 2008). In the UAE, only 4.1% of the pharmacists were citizens (Dameh, 2009). Qatar's practising pharmacists are mainly expatriates, and most of them are Egyptians, Indians, and Jordanians (Kheir and Fahey, 2011).

Governments in the Gulf region have implemented some strategies to increase the number of indigenous health workers. For instance, Saudi Arabia is aiming for 'Saudisation' or re-nationalisation of pharmacy (Kheir et al., 2008). Chapter 4 shows that the number of newly registered foreign pharmacists did not increase between 2013 and 2014. In addition, the number of pharmacy schools soared from 18 in 2005 to 29 in 2014.

Chapter 5 supported the fact that having home pharmacists holding senior positions was necessary to ensure a better understanding of the culture and better communication with the staff. However, some of the interviewees discussed how home pharmacists did not have much respect for their non-national supervisors. Additionally, some of the participants



mentioned that they communicated more effectively with other home pharmacists compared to their expatriate colleagues.

Participants indicated that there was still a great reliance on non-home pharmacists in the Gulf. However, the 'Saudisation' and 'Kuwaitisation' programmes which aim to replace expatriates with home pharmacists have somehow negatively influenced pharmacy practice. In other words, nationals are guaranteed to keep their jobs irrespective of their performance while non-indigenous pharmacists need to prove themselves to keep their jobs. As a result, expatriates tend to work harder than nationals to be able to keep their jobs, as suggested by some of the interviewees.

Availability of codes of conduct governing professional behaviour for pharmacists was also used as a factor in comparing acceptability in pharmacy in the region. Qatar and Kuwait are the only two countries that lack codes of conduct. This indicates the need to develop or adopt codes of conduct from neighbouring countries.

Chapter 5 showed some examples of what can result if a country lacks a code of conduct, including the following: home pharmacists did not hold their non-indigenous supervisors in high regard as nationals; some of the supervisors were not fair with their employees (especially non-indigenous staff) in terms of giving promotions and bonuses and scheduling work shifts; and some of the senior pharmacists did not support younger pharmacists with professional development.

## **Quality**

### **Quality of Pharmacy workforce**

The quality of the pharmacy workforce is multifactorial. It was measured by comparing the availability of national Good Pharmacy Practice guidelines, mandatory CPD, performance indicators, competency frameworks, and licensing for pharmacists

Chapter 4 Table 4.21 shows that Kuwait is the only nation that did not meet most of the criteria, i.e. the lack of GPP guidelines, mandatory CPD, and performance indicator.

Pharmacy in GCC countries is relatively new. It was suggested in the qualitative part of this study, Chapter 5, that pharmacy in Kuwait is far behind where it should be. The lack of CPD is a result of poor collaboration between Kuwait University, the main education institution, and the Ministry of Health. Even though some professional development opportunities were available for pharmacists, the lack of a national strategic plan for professional development minimised their benefits.

Participants also indicated that stakeholders in the Ministry of Health were mostly medical doctors and dentists with very few stakeholders from the pharmacy field, resulting in weak representation for pharmacy. These stakeholders are mainly concerned with making changes towards developing medicine and dentistry. Participants also discussed the lack of performance indicators. The absence of a job description in Kuwait allowed pharmacy technicians and pharmacists to do the same job. Additionally, a lack of Good Pharmacy Practice Guidelines was highlighted by participants as one of the struggles they faced, as they lacked an established national framework of quality standards and guidelines.

The other countries were comparable in terms of quality of pharmacy workforce.

### **Quality of pharmaceutical facilities**

The quality of pharmaceutical facilities was measured by comparing the requirements for licensing public and private pharmacies.

Chapter 4 Table 4.22 shows that all GCC countries require private pharmacies to be licensed. In addition, all of them require public pharmacies to be licensed, except Oman and Kuwait.

There are some pharmacy ownership regulations in the GCC region which aim not only at ensuring a sufficient supply of medicines but also at providing pharmaceutical services safely under professional supervision. For example, in Saudi Arabia opening a pharmacy is restricted to Saudi-citizen pharmacists, except in underserved rural areas to ensure access to pharmaceutical services. However, pharmacies still have to be run by qualified pharmacists. These regulations allow governments to improve access to pharmacies in rural areas without affecting the quality of services provided.

Public pharmacy licensing is not required in Oman and Kuwait as these facilities are established and controlled by the MOH.

### **Quality of Pharmacy Education**

The quality of pharmacy education was measured by comparing the requirements for accreditation for pharmacy schools and curriculum review in the region.

Chapter 4 Table 4.22 indicates that all pharmacy schools in the GCC countries are accredited except Kuwait.

A national accreditation system is implemented to ensure that pharmacy education meets the standards set by higher education authorities. Some pharmacy schools such as Qatar University, the only school of pharmacy in the country, had obtained international accreditation, e.g. from the Canadian Council for Accreditation of Pharmacy Programs (CCAPP). It also has an accredited PharmD program, and an accredited Continuing Professional Pharmacy Development Program (CPPD). The CPPD is accredited by both the SCH (National) and the American Council of Pharmaceutical Education (ACPE), International. All UAE pharmacy schools are accredited nationally by the Commission for Academic Accreditation. Dubai Women's College of the UAE Higher Colleges of Technology is the only pharmacy school that has obtained CCAPP Accreditation. All pharmacy schools in Saudi Arabia are accredited by the Ministry of Higher Education; some of the well-established universities such as KSU have obtained CCAPP Accreditation. Pharmacy schools in Oman are all accredited by the Omani Ministry of Higher Education.

There has been a rapid expansion of the private sector in pharmacy education, especially in the UAE and Oman, where six out of eight and two out of three pharmacy schools were private respectively. GCC governments should benefit from utilising private pharmacy institutions and continuously monitor their performance to ensure that their education quality is comparable to that of public institutions.

Obtaining international accreditation, such as CCAPP, was probably to attract more students to join the course. In some cases, such as King Saud University, obtaining international

accreditation was to ensure that pharmacy graduates who opted to pursue further education outside Saudi Arabia would have an accredited qualification, since at present not many pharmacy schools in Saudi Arabia offer postgraduate degrees in pharmacy.

It is crucial that accreditation is established in Kuwait to ensure that students receive a standard of education that produces skilled and competent graduates.

The pharmacy curriculum is regularly reviewed in all GCC countries except Kuwait and Oman. Curriculum review is essential to provide standardised pharmacy education across the country. This is particularly important in countries that have pharmacy schools that are geographically scattered, such as Saudi Arabia and the UAE.

Regular review of the curriculum is also crucial to keep education up to date with the evolving healthcare systems, and local health needs.

It is essential to implement a system to review the pharmacy curriculum in Kuwait and Oman.

Chapter 5 suggested that having two entry-level pharmacy degrees in Saudi Arabia, a bachelor's degree in pharmaceutical science and a PharmD degree, created an unhealthy and competitive working environment. In addition, Saudi pharmacists who had obtained their pharmacy degrees from outside Saudi Arabia suggested that pharmacy education in their home country was far behind compared to the developed countries.

### **6.3 Qualitative comparative study of services development and job satisfaction in Kuwait and Saudi Arabia**

The qualitative study on pharmacy workforce in Kuwait and Saudi Arabia addressed the research objectives (Chapter 2, 2.2) regarding the effects of workload, relationships with co-workers, supervisors, and other healthcare professionals on job satisfaction, and evaluation of pharmacists' satisfaction with their earnings. This identified the linkages between job satisfaction and turnover intentions, thus exploring pharmacists' perspectives towards pharmacy policies regarding education and training, professional development, and services development.

In order to address the objectives above, Chapter 5 was divided into two sections. The first (5.1) provides background about Kuwait and Saudi Arabia and their healthcare systems. It also identifies the current knowledge about work attitudes and job satisfaction in pharmacy globally. The second (5.3) summarises the findings of the semi-structured interviews with pharmacists from Kuwait and Saudi Arabia.

Stage 1, the literature review, comprised a literature search on job satisfaction in pharmacy in different settings in different countries.

In stage 2, semi-structured interviews with hospital pharmacists from Kuwait and Saudi Arabia were conducted.

Stage 3 comprised an analysis of the interviews (theme development): the interviews with hospital pharmacists from Kuwait and Saudi Arabia were analysed using thematic framework analysis. Themes were extracted from the interviews and were supported with participants' quotes. The themes were summarised to show comparisons between the two countries. Participants' education, background and job positions were also summarised.

The interviewees' opinions and perspectives regarding the study objectives were obtained, analysed, discussed and presented. Hence, this study aim was achieved

The pharmacy profession is an under-represented profession in both Kuwait and Saudi Arabia. Participants suggested that their needs were poorly expressed in policymaking discussions. The slow and insufficient development of the pharmacy workforce was linked to not clearly defined roles and unsubtle professional boundaries between pharmacists and pharmacy technicians, especially in Kuwait, and the lack of reliable workforce data. Financial constraints were not raised as one of the main constraints; the lack of a specific strategic workforce development plan for the pharmacy profession was the main concern. Poor representation of the pharmacy public sector in the pharmaceutical society, which is the official representative of the pharmacy profession in the Ministry of Health, was also raised, as the stakeholders are usually concerned with changing the private sector policies to serve their personal business (in Kuwait). Unstructured individual professional development opportunities are offered, but the limited job positions available after obtaining certain

degrees was alerting concerning issue.

The opening of a pharmacy school in Kuwait in 1996 and the exponential increase in the number of pharmacy schools in Saudi Arabia has resulted in an increase in the numbers of home pharmacists. Public perception of pharmacists in Kuwait had changed after national pharmacists entered the labour market, since up until then the only Kuwaiti pharmacy personnel available were pharmacy technicians. Additionally, having pharmacy schools with medical schools on the same campus resulted in changing younger doctors' perceptions towards pharmacy, as this strengthened their relationships with and trust of pharmacists. In Saudi Arabia, the increase in the pharmacist workforce led to the professional role expanding beyond dispensing.

Cultural, social, and religious factors seemed to influence pharmacists' relationships with co-workers and other healthcare professionals. Participants suggested that older foreign pharmacists had less power and authority than nationals. They also suggested that having colleagues who are nationals of similar age and the same sex enhanced their interactions. Effective communication between pharmacists and their supervisors, co-workers, and other healthcare professionals increased their job satisfaction.

An important issue which had not been solved was the under-representation of the pharmacy profession as a stakeholder in the policy dialogue. Some of the interviewees raised their concern about the absence of pharmacy stakeholders in the Ministry of Health, which is the main health authority in both countries. This resulted in a mismatch between the efforts made by education and practice authorities to enhance the profession, limited advanced or senior career positions, and unclear job description (in Kuwait). The pharmacy profession is not yet seen to have a role in the policymaking process, and is regarded as not as well-developed as other healthcare professions like medicine and dentistry.

It was suggested that the main barrier to practising clinical pharmacy in Kuwait was that the stakeholders in the Ministry of Health had not yet been convinced of its importance. On the other hand, Saudi pharmacists indicated that the main struggle was the inadequate number of clinical pharmacists. Attempts to reform or change the pharmaceutical sector in Kuwait were found to be met with resistance. The barriers towards pharmacy workforce

development are a result of some senior pharmacists and physicians perceiving that their roles will be 'taken over'. The perceived threat to power was identified as an obstacle to implementing certain pharmaceutical policies.

Strategies to help with decision-making blockages were also suggested including: adopting pharmaceutical policies from developed countries, reforming the perceived threat, making sure that pharmacists' voices are heard and their professional development needs are met, and better representation of the pharmacy public sector in the Ministry of Health.

Some consequences of the current pharmaceutical policies were raised by interviewees, such as intention to leave the pharmacy public sector for drug companies, academia and research, hospitals where the clinical pharmacy is practised or to pursue further education, particularly in Saudi Arabia. Higher attrition rates were also mentioned, especially among female pharmacists in Kuwait who rented their degrees for private companies. Most of the pharmacists who did not intend to leave their current jobs were convinced of the lack of better job opportunities.

Another important issue was the tension between home pharmacists and foreign pharmacists. This tension was created due to the fact that expatriate pharmacists come from different backgrounds, different cultures, some speak different languages, and they have been educated and trained according to different standards. The work ethic of non-home pharmacists, as well as a fear of losing their jobs due to the renationalisation of the profession policy being implemented in both Kuwait and Saudi Arabia, were probably the reasons why these pharmacists worked harder than nationals. These factors had a negative influence on the attitude of some of the supervisors towards non-home pharmacists. For example, they were assigned to do night shifts and work longer hours than nationals. As a result, some of the home pharmacists believed that their expatriate colleagues should be "working for them".

At the institutional level, interviewees raised a number of issues including work overload, lack of appreciation from other health professionals and the public, unfair bonuses and promotions, poor financial incentives, and lack of a clear job description.

#### 6.4 Conclusion

A top-down approach was used in describing the pharmacy profession in the GCC countries. The GCC region was first compared to other WHO regions in relation to availability, accessibility, acceptability, and quality. The region was comparable to the other regions in most of the aspects. However, the main differences were found to be influenced by cultural and social factors such as the public's perceptions of community pharmacies, and participation of females in the workforce. Countries within the GCC region were then compared using the same conceptual framework. Although the GCC nations share similar regulations in various fields, the study found that each country has its own strengths and weakness. An in-depth qualitative analysis of pharmacy workforce issues in Kuwait and Saudi Arabia was conducted for further understanding of the effects of certain policies in the pharmacy profession. The two countries shared most of the challenges, but services development in Kuwait was behind that in Saudi Arabia.

#### 5.6 Key messages

This research revealed that the health regulatory organisations within the GCC region have responded to the changes in the demand factors, which include: the evolving role of the pharmacist, changes in disease profile towards non-communicable lifestyle diseases and long-term conditions, changes in the population demographics, i.e. aging of the population and increased growth rate.

The following strategies are being implemented: increases in the number of pharmacy schools in the region, with a more equitable distribution of these schools in larger countries such as Saudi Arabia and the UAE and ensuring equitable distribution of the pharmacy workforce in rural/urban areas. Encouraging the participation of the private sector in pharmacy education, particularly in Oman, Saudi Arabia and the UAE; this has resulted in increased numbers of pharmacy graduates.



Renationalisation of the profession by replacing expatriates with local nationals. This has resulted in a more sustainable workforce which is culturally aware, socially accountable, speaks the language of the region and is educated and trained according to the same standards. However, workforce monitoring is necessary to avoid moving to oversupply of pharmacists who cannot be employed within the pharmacy workforce.

Pharmacy education regulatory bodies also responded to the global trends in pharmacy education, i.e. moving towards more patient-centred pharmaceutical care. This was achieved by adopting pharm D programmes in some schools to be the first degree in pharmacy. The quality of pharmacy education programmes is ensured by implementing national accreditation systems for pharmacy education as well as obtaining international accreditation (CCAPP).

This study also found that there are still some areas which need further investigation; for example, the composition and capacity of the pharmacy technician workforce. Also, most of the Gulf countries suggested that there is still a great reliance on the non-indigenous pharmacy workforce. However, the data obtained does not indicate accurate figures.

Considering these two important workforce components, pharmacy technicians and expatriate pharmacy workforce, is essential for effective pharmacy workforce planning. Ensuring the future balance between supply and demand is equally important. To achieve this, data needs to be collated to identify learning needs and gaps in the existing workforce.

Another major gap in our knowledge concerns the profile of the community pharmacy workforce. The qualitative study indicated that the non-indigenous pharmacy workforce mainly runs community pharmacy in the region. Also, the public perceptions, the poor financial incentives and the high workload do not encourage home pharmacists to join this sector. However, with the shift towards renationalisation of the profession in the region, home pharmacists need to be educated and trained to be able to serve the community pharmacy sector.

Regular, more detailed profiling of the pharmacy workforce is an essential step towards achieving effective pharmacy workforce planning.

Other countries could benefit from this study by following the same methodology in obtaining country level data. The weaknesses and the strengths of the composition and the capacity of the pharmacy workforce and pharmacy education could be identified. Strategies for tackling workforce issues and responding to local health needs could be adopted.

## 6.7 Recommendations

1. Availability of pharmacy workforce in the GCC region was sufficient to provide pharmaceutical services under supervision. However, availability or the density of pharmacies was lower than in other regions, indicating the need for more pharmaceutical facilities to expand the range of pharmaceutical services provided.
2. Accessibility or the density of community pharmacies in the GCC region was lower than in some of the other regions. The pharmacy regulatory bodies might need to invest more in developing community pharmacy to make it a reliable secondary healthcare facility. Pharmacists should assume responsibility for changing the public's views on community pharmacy.
3. Analysis of the acceptability or the density of the indigenous pharmacy workforce in the GCC region showed that there is still a great reliance on non-national labour. Data on workforce flow in the GCC region was limited, indicating the need for monitoring pharmacy workforce migration to the region and continuing the efforts to re-nationalise the profession.
4. The quality of pharmacy education in the GCC region was measured by two factors, accreditation of pharmacy schools and curriculum review. The education bodies in the Gulf need to ensure that the pharmacy curriculum is regularly reviewed to keep up to date with the evolving health needs of their communities.
5. The main challenge in Bahrain seemed to be the lack of an entry-level pharmacy education course, which might affect the sustainability of pharmacist production in the long run. Opening a pharmacy school has been discussed by the key education bodies. However, speeding up the process should be considered.

6. Kuwait was the only country that did not meet most of the quality of workforce criteria, i.e. there were no National Good Pharmacy Practice Guidelines, mandatory CPD, or performance indicators. In addition, the lack of a clear job description has contributed to hospital pharmacists' negative views on pharmacy practice in Kuwait. The pharmacy regulatory bodies in Kuwait need to implement some regulations to ensure that the pharmacy profession is as represented and respected as other healthcare professions. Furthermore, the quality of pharmacy education in Kuwait needs to be evaluated and developed by having a national accreditation system for pharmacy schools as well as regularly reviewing the pharmacy school curriculum.

7. In Oman and the UAE, the main issue of concern was the high numbers of private pharmacy schools in the countries, which produced the highest numbers of pharmacy graduates and higher numbers of pharmacists in the region. Although these pharmacy schools are accredited and their curricula are regularly reviewed (in the UAE), the rate of production of graduates should be monitored to avoid an oversupply of pharmacists.

8. Qatar and Saudi Arabia did not seem to have obvious issues with their pharmacy workforce. However, the lack of data on the numbers of pharmacy technicians in both countries and the lack of data on numbers of pharmacy technician graduates in Saudi Arabia make drawing conclusions about the pharmacy support workforce challenging.

## Chapter 7 – Conclusion

### 7.1 Introduction

The purpose of this doctoral work was to explore the following objectives:

1. To compare the pharmacy profession in the GCC region with other WHO regions in relation to availability, accessibility, acceptability, and quality.
2. To analyse the composition and the capacity of the pharmacy workforce and pharmacy education in the Gulf countries.
3. To examine the effects of workload, and relationships with co-workers, supervisors and other healthcare professionals on hospital pharmacists' job satisfaction.
4. To evaluate pharmacists' satisfaction with their earnings.
5. To find out the linkages between job satisfaction and turnover intentions.
6. To explore pharmacists' perspectives towards pharmacy policies regarding education and training, professional development, and services development.

To address these objectives, two studies were conducted, firstly, using a quantitative study on pharmacy workforce in the GCC countries and, secondly, through a qualitative study of pharmacy workers' work attitudes, job satisfaction, and services development in Kuwait and Saudi Arabia.

The quantitative study of pharmacy workforce in the GCC region was conducted to provide comparisons between the GCC region and other WHO regions in relation to availability, accessibility, acceptability, and quality (research question 1). Countries within the GCC region were then compared using the same conceptual framework (research question 2). For further understanding of the policies that influence work attitudes, job satisfaction and services development, the qualitative study in Kuwait and Saudi Arabia was conducted (research questions 3, 4, 5, and 6).

## 7.2 Limitations

In the pharmacy workforce study, the number of participant nations varied between WHO regions. Some regions, including the SE Asian and Eastern Mediterranean regions, reported low response rates, which might have led to an inaccurate representation of these regions. In addition, low response rates when collecting the data meant that that it was not possible to use certain statistical test and descriptive analysis was used instead. The questionnaire was lengthy and required data to be collected from several authorities such as Ministries of Health, education bodies, and pharmacy regulatory bodies, which might have been a reason for the low responses. Efforts were made to obtain data from multiple sources. However, some countries' data was only available from a single authority.

The limitation of the qualitative study in Kuwait and Saudi Arabia was mainly because it included only two countries out of the six GCC countries. However, the findings in these case studies could be generalised to the other GCC countries, i.e. Bahrain, Oman, Qatar and the UAE, because all the Gulf countries share similar economic, socio-political, cultural, and religious backgrounds.

The target population was limited to hospital pharmacists, so perceptions of pharmacists in other sectors were not included. Efforts were made to ensure that translation was accurate by asking another Arabic-English speaker to double-check the transcripts but, due to the colloquial language used in conducting the interviews, some of the meaning might have been lost. A snowball sampling method was used to recruit pharmacists, which might have limited the variety of participants.

## 7.3 Research methods

In the GCC workforce study (research questions 1 and 2), data was gathered from six participant countries: Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the UAE.

For the comparative analysis, data from the 2012 FIP Global Pharmacy Workforce Report was used. The total number of cases included in the analysis was 80 countries.

The WHO region categorisation was used: the African, the American, the Eastern

Mediterranean, the European, the South East Asian, and the Western Pacific. The six GCC were considered as a separate WHO region in the analysis, although they are members of the Eastern Mediterranean region.

Descriptive statistics were used to highlight the differences between GCC countries. Bar charts and frequency tables were used to summarise the collected data. Inferential statistics were used to draw conclusions. The non-parametric test, Mann-Whitney test, was used to carry out comparisons between WHO regions and the GCC region for all the variables under study. The correlation coefficient was used to test the strength and the directions of relationships between variables.

Kuwait and Saudi Arabia were selected for the qualitative study. A qualitative design was chosen in the form of one-to-one semi-structured telephone interviews.

Interviews were transcribed and translated into English. A thematic framework analysis approach was used to analyse the data. Open coding was used to identify a thematic framework that covers the main issues raised by respondents. The primary coding frames were developed. The primary codes (themes) were applied to the data. More detailed thematic frames (axial coding) were developed. The issues that emerged were examined both within cases and between cases. The findings were presented in the form of quotations from participants' perspectives. The conclusion was reached by two independent researchers who agreed on the interpretation of the findings.

#### **7.4 Key findings**

The WHO framework (availability, accessibility acceptability, and quality) was used to compare the GCC region with other WHO regions.

The following factors measured the availability of pharmacy workforce: the density of pharmacy education institutions, the production rate of graduates, and mobility of the workforce. The GCC region was significantly higher than the African region in all the factors but did not differ significantly from other WHO regions. The density of pharmacies in the GCC region was significantly higher than in the African region and significantly lower than in

the European region. Availability of pharmacy workforce (pharmacists and pharmacy technicians) was significantly higher in the GCC region compared to the African region but did not differ significantly from all the other regions.

Availability of pharmacy in GCC countries is multifactorial. Some countries reported a higher density of schools and a lower density of graduates, but that the overall workforce density was not affected. Other nations had a higher density of pharmacy technicians and lower density of pharmacists. Each country was a unique case. Availability could be optimised by optimising supply and demand factors in each country.

Accessibility was determined by comparing the density of community pharmacies. The density of community pharmacies in the GCC region was significantly higher than in the African region, but it was significantly lower than in the American, the Eastern Mediterranean, and the European regions.

Accessibility in the GCC region was measured by comparing the density of community pharmacies. Saudi Arabia had the highest density of pharmacies, and Kuwait had the lowest density. Limitation on the number of pharmacies an individual can own might have been one of the factors that affected the density. The limit on the number of pharmacies an individual can own was one in Bahrain and Kuwait and 30 in Saudi Arabia. There was no limit in Oman, Qatar and the UAE

Acceptability was measured by comparing two factors, the density of female pharmacists and availability of a code of conduct. Although the density of female pharmacists in the GCC region was lower than in the European and the American regions, the density of total pharmacists was comparable. Two GCC countries lacked a code of conduct governing professional behaviour for pharmacists.

The quality of pharmacy services provided was determined by assessing the quality of pharmacy workforce, pharmacy education, and pharmaceutical facilities. Pharmacy workforce quality is reflected by having national Good Pharmacy Practice Guidelines, performance indicators for practice standards, relicensing, and Continuous Professional Development. The requirement assessed the quality of pharmaceutical facilities for licensing

of these facilities. Pharmacy education quality was measured by the requirement for accreditation of pharmacy education institutions and curriculum review.

The quality of pharmacy in the GCC region can be summarised in the following way: 83.3% of GCC countries had Good Pharmacy Practice Guidelines, 66.7% of them had mandatory CPD and performance indicators intended for pharmacists. All GCC countries required pharmacists to be licensed: 66.7% of them required public sector pharmacists to be licensed, and all of them had legal requirements for private pharmacies to be licensed. Seventy-five percent of the GCC countries had accreditation requirements for pharmacy schools, and 60% of them required regular review of pharmacy schools' curricula.

Workforce quality is comparable in all the countries except Kuwait, which did not meet most of the workforce quality criteria. The quality of pharmaceutical facilities was measured by comparing the availability of legal requirements for pharmacies to be licensed. All of the GCC nations had legal requirements for private pharmacies to be licensed, and all of them had a legal requirement for public pharmacies to be licensed except Kuwait and Oman. The quality of pharmacy education was measured by the availability of an accreditation system for pharmacy schools and curriculum review. All of GCC countries had an accreditation system, except Kuwait, and all of them required regular review of the curriculum, except Kuwait and Oman.

In the Kuwait and Saudi Arabia case studies, the main concern participants raised was the under-representation of the profession. Pharmacists' needs were not delivered to the policymakers, which negatively affected services development. Furthermore, the lack of a clear job description (especially in Kuwait) contributed to unsubtle professional boundaries between pharmacists and pharmacy support workforce. Strategic workforce development plans for the pharmacy profession were also lacking. However, unstructured individual professional development opportunities are available, although these professional development opportunities, such as obtaining a postgraduate degree, might not lead to changes in the job description. Pharmacists did not raise financial constraints as a barrier to professional development, and they were, on the whole, satisfied with their earnings.

Pharmacists' communication with their colleagues and other healthcare professionals



seemed to be influenced by cultural, social, and religious factors. Non-national supervisors seemed to have less power and authority than nationals. In addition, working with colleagues who were nationals of similar age and the same sex resulted in better communication and job satisfaction.

The opening of a pharmacy school in Kuwait in 1996 and the exponential increase in the number of pharmacy schools in Saudi Arabia resulted in an increase in the numbers of home pharmacists. Public perception of pharmacists in Kuwait had changed after national pharmacists entered the labour market. Additionally, having pharmacy schools and medical schools on the same campus contributed to doctors' positive perceptions towards pharmacy. Effective communication between doctors and pharmacists had a positive impact on pharmacists' job satisfaction.

Some of the unsatisfied hospital pharmacists had intentions to leave their current jobs for the pharmaceutical industry or academia.

Clinical pharmacy was not practised widely in either country. It was suggested that the main barrier to practising clinical pharmacy in Kuwait was stakeholders' resistance. In Saudi Arabia, participants suggested that the main struggle was the insufficient numbers of clinical pharmacists. The barriers towards pharmacy workforce development are a result of some senior pharmacists and physicians perceiving that their roles are being 'taken over'. The perceived threat to power was identified as an obstacle to implementing certain pharmaceutical policies.

Several consequences of the current pharmaceutical policies were raised by the participants, such as intention to leave the pharmacy public sector for drug companies, academia and research, hospitals where the clinical pharmacy is practised or to pursue further education, particularly in Saudi Arabia. Higher attrition rates were found, especially among female pharmacists in Kuwait who rented their degrees for private companies. Most of the pharmacists who did not intend to leave their current jobs were convinced of the lack of better job opportunities.

At the institutional level, pharmacists felt that work overload, lack of appreciation from

other health professionals and the public, poor financial incentives, and lack of a clear job description had a negative impact on their job satisfaction.

### 7.5 Future research

Another study that could be developed would be to investigate further services development in other GCC countries, which would provide comparisons with the current study. In addition, the target population should include policymakers, to understand better the barriers and the issues raised by pharmacists. Pharmacists in other sectors such as community pharmacy, academia, and the pharmaceutical industry could be also investigated to provide the whole picture about the pharmacy workforce in the region.

One of the areas that needs further evaluation is workforce mobility. In this study, only Oman and Saudi Arabia were able to provide data on pharmacy workforce migration. However, the literature suggests that there is a great reliance on the international pharmacy workforce (Maben et al., 2010). In addition, the opening of pharmacy schools and increased number of graduates together with the newly implemented policies which aim at renationalising the profession indicate that there is a need for monitoring of workforce supply and workforce migration.

## References

- Abualrub, R. F. & Alghamdi, M. G. 2012. The impact of leadership styles on nurses' satisfaction and intention to stay among Saudi nurses. *Journal of Nursing Management*, 20, 668-678.
- Abu-Gharbieh, E., Fahmy, S., Bazigha, A., Abduelkarem, A. & Basheti, I. 2010. Attitudes and Perceptions of Healthcare Providers and Medical Students Towards Clinical Pharmacy Services in the United Arab Emirates. *Tropical Journal of Pharmaceutical Research*, 9.
- Adepu, R. & Shariff, A. 2010. Development, Validation and Implementation of Continuous Professional Development Programmes for Community Pharmacists. *Indian Journal of Pharmaceutical Sciences*, 72, 557-563.
- Adnan Beso, B. D. F. A. N. B. 2005. The frequency and potential causes of dispensing errors in a hospital pharmacy. *Pharmacy World & Science*, 27, 182-190.
- Al-Arifi, M. N. 2012. Patients' perception, views and satisfaction with pharmacists' role as healthcare provider in a community pharmacy setting at Riyadh, Saudi Arabia. *Saudi Pharmaceutical Journal*, 20, 323-330.
- Al-Arifi, M. N., Al-Dhuwaili, A. A., Gubara, O. A., Hussain A. Al-Omar, Al-Sultan, M. S. & Saeed, R. I. M. 2007. Pharmacists' Understanding And Attitudes Towards Pharmaceutical Care In Saudi Arabia. *Saudi Pharmaceutical Journal*, 15.
- Aldossary, A., While, A. & Barriball, A. 2003. Healthcare and nursing in Saudi Arabia. *International Nursing Review*, 55.
- Al-Dossary, R., Vail, J. & Macfarlane, F. 2012. Job satisfaction of nurses in a Saudi Arabian university teaching hospital: a cross-sectional study. *International Nursing Review*, 59, 424-430.
- Al-Ghamdi, M. S. 2001. CONTINUING PHARMACEUTICAL EDUCATION FOR COMMUNITY PHARMACISTS IN THE EASTERN PROVINCE OF SAUDI ARABIA. *Journal of Family & Community Medicine*, 8(3), 45-52.
- Al-Haidari, K. M. & Al-Jazairi, A. S. 2010. Establishment of a national pharmacy practices residency program in Saudi Arabia. *American Journal of Health-System Pharmacy*, 67, 1467-70.
- Al-Mohamadi, A., Badr, A., Bin Mahfouz, L., Samargandi, D., & Al Ahdal, A. (2013). Dispensing medications without prescription at Saudi community pharmacy: Extent and perception. *Saudi Pharmaceutical Journal : SPJ*, 21(1), 13-18. <http://doi.org/10.1016/j.jsps.2011.11.003>

Alsultan, M. S., Khurshid, F., Mayet, A. Y., & Al-jedai Ahmed H. (2012). Hospital pharmacy practice in Saudi Arabia: Dispensing and administration in the Riyadh region. *Saudi Pharmaceutical Journal : SPJ*, 20(4), 307–315. <http://doi.org/10.1016/j.jsps.2012.05.003>.

Al-Wazaify, M., Matowe, L., Albsoul-Younes, A. & Al-Omran, O. 2006. Pharmacy Education in Jordan, Saudi Arabia, and Kuwait. *American Journal of Pharmaceutical Education*, 70. *American Journal of Health-System Pharmacy*, 56, 1733-7.

Anderson, C. 2013. 2013 FIP Ed Global Education Report. In Bruno, A. (ed) *Education Trends, Innovations, and Transformations- Case Studies*. The Netherlands: International Pharmaceutical Federation.

Anderson, C., Bates, I., Beck, D., Brock, T. P., Futter, B., Mercer, H., Rouse, M., Whitmarsh, S., Asiri, Y. A. 2011. Emerging frontiers of pharmacy education in Saudi Arabia: The metamorphosis in the last fifty years. *Saudi Pharmaceutical Journal : SPJ*, 19(1), 1–8. <http://doi.org/10.1016/j.jsps.2010.10.006>

Bahrain Ministry Of Health 2010. *Human Resources – Ministry of Health*.

Baldwin-Edwards, M. 2011. *Labour immigration and labour markets in the GCC countries: National patterns and trends* (London, LSE Kuwait Programme on Development).

Bates, I. & Bruno, A. 2012. 2012 FIP Global Pharmacy Workforce Report. In: GAL, D. (ed.) *Global Pharmacy Workforce Description* The Netherlands: International Pharmaceutical Federation.

Bates, I. & Jones, C. 2012. 2012 FIP Global Pharmacy Workforce Report. In: GAL, D. (ed.) *Case Study: Great Britain* The Netherlands: International Pharmaceutical Federation.

Boran, A. Shawaheen, M. Khader, Y. Amarin, Z. & Rice., V. H. 2012. Work-related stress among health professionals in northern Jordan. *Occupational Medicine*, 62, 145-147.

Bowling A 2010. *Research Methods in Health*, Berkshire, Open University Press.

Boyko, W., Yurkowski, P., Ivey, M., Armitstead, J. & Roberts, B. 1997. Pharmacist influence on economic and morbidity outcomes in a tertiary care teaching hospital. *American Society of Health-System Pharmacists*, 54.

Bradley & Osman. 2012. 2012 FIP Global Pharmacy Workforce Report. In: GAL, D. (ed.) *Case Study: Great Britain* The Netherlands: International Pharmaceutical Federation.

Bremberg, E., Hising, C., Nylén, U., Ehrsson, H. & Eksborg, S. 2006. An evaluation of pharmacist contribution to an oncology ward in a Swedish hospital. *Journal of Oncology Pharmacy Practice*, 12, 75.

Calgan, Z., Aslan, D. & Yegenoglu, S. 2011. Community pharmacists' burnout levels and related factors: an example from Turkey. *International Journal of Clinical Pharmacy*, 33, 92-100.

Canada, 2011 [Online], Canadian Institution for Health System Information [Accessed January 15th, 2013].

Canadian Institution for Health System Information. 2011. Pharmacists in Carvajal, P. C. H. A. M. J. 2008. Application of Rasch rating scale model to the analysis of job satisfaction among practicing pharmacists. *Journal of the American Pharmacists Association*, 48.

Chan, X. & Wuliji, T. 2006. Global pharmacy migration report 2006. Portugal.

Chankova, S., Muchiri, S. & Kombe, G. 2009. Health workforce attrition in the public sector in Kenya: a look at the reasons. *Human Resources for Health*, 7.

Chen, L., Evans, T., Anand, S., Boufford, J. I., Brown, H., Chowdhury, M., Cueto, M., Dare, L., Dussault, G., Elzinga, G., Fee, E., Habte, D., Hanvor- Avongchai, P., Jacobs, M., Kurowski, C., Michael, S., Pablos-Mendez, A., Sewankambo, N., SoliMANO, G., Stilwell, B., De Waal, A. & Wibulpolpra- Sert, S. 2004. Human resources for health: overcoming the crisis. *The Lancet*, 364.

Chew, L. Seng, W. Teng, C. Leng, L: GAL, D. (ed.) Case Study: Singapore The Netherlands: International Pharmaceutical Federation.

Central Intelligence Agency (CIA). (2012). Literary rate from World Fact Book Definition of Literacy: age 15 and over can read and write. Available: <https://www.cia.gov/library/publications/the-world-factbook/geos/ba.html>. Last accessed 14/11/2012.

Cox, E. R. & Fitzpatrick, V. 1999. Pharmacists' job satisfaction and perceived utilization of skills

Crabtree, B. & Miller, W. 1992. *Doing Qualitative Research* London, SAGA publications.

Creswell, J. W. 1994. *Research designs: Qualitative and quantitative approaches*, Thousand Oaks, CA

Creswell, J.W. (2002) *Educational research: Planning, conducting, and evaluating quantitative and qualitative research*. Upper Saddle River, NJ: Pearson Education.

Dajani, S. 2007. A taste of pharmacy in Saudi Arabia. *The Pharmaceutical Journal*, 278, 587-588.

Dameh, M. 2009. Pharmacy in the United Arab Emirates. *Southern Med Review*, 2(1), 15–18.

De Bittner, M. R. & Zaghab, R. W. 2011. Improving the lives of patients with chronic diseases: pharmacists as a solution. *J Healthcare Poor Underserved*, 22, 429-36.

Deefort, C. 2009. To educate or not to educate: The impact of migration perspectives in the

medical sector. EQUIPPED. Lille: University de Lille.

Department of Health, S. S. A. P. S. 2001. Comprehensive Review of the Pharmacy Workforce Final Report.

Desselle, S. P. & Conklin, M. H. 2010. Predictors of pharmacy faculty work satisfaction. *Currents in Pharmacy Teaching and Learning*, 2, 20-30.

Dotson, B. 2011. Women as authors in the pharmacy literature: 1989-2009. *Am J Health Syst Pharm*, 68, 1736-9.

Dyke J & Gidman W. 2008. Can CPD guarantee fitness to practise? *The Pharmaceutical Journal*, 82, 48.

El Hajj, M. Ai-Zaidan, Mb. Kheir & N. Jewesson, P. 2009. Professional satisfaction in a Middle East country: pharmacist opinions in Qatar.

El Hajj, M. S., Salem, S., & Mansoor, H. 2011. Public's attitudes towards community pharmacy in Qatar: a pilot study. *Patient Preference and Adherence*, 5, 405-422.  
<http://doi.org/10.2147/PPA.S22117>

Fertleman, M., Barnett, N. & Patel, T. 2005. Improving medication management for patients: the effect of a pharmacist on post-admission ward rounds. *Qual Saf Healthcare*, 14, 207-11.

Gaither, A., Nadkarni, A., Mott, D., Schommer, J., Doucette, W., Kreling, D. & Pedersen, C. 2007. Should I Stay Or Should I Go? The Influence Of individual and al factors on pharmacists' future work plans. *Journal of American Pharmacists Association*, 47.

Gaither, C. A. & Nadkarni, A. 2012. Interpersonal interactions, job demands and work-related outcomes in pharmacy. *Int J Pharm Pract*, 20, 80-9.

Gaither, C. A., Kahaleh, A. A., Doucette, W. R., Mott, D. A., Pederson, C. A. & Schommer, J. C. 2008. A modified model of pharmacists' job stress: The role of al, extra-role, and individual factors on work-related outcomes. *Research in Social and Administrative Pharmacy*, 4, 231-243.

Gidman, W. 2011. Increasing community pharmacy workloads in England: causes and consequences. *International Journal of Clinical Pharmacy*, 33, 512-520.

Gidman, W. K., Hassell, K., Day, J. And Payne, K. 2007. Does community pharmacy offer women family-friendly working conditions and equal opportunities? The accounts of female community pharmacists over the age of 30. *International Journal of Pharmacy Practice*, 15, 53-59.

Girgis, M. 2002. Would Nationals and Asians Replace Arab Workers in GCC? The Egyptian centre for economic studies.

Ghosh, B. 2009. Health workforce development planning in the Sultanate of Oman: a case

study. *Human Resources for Health*, 7, 47. <http://doi.org/10.1186/1478-4491-7-47>

Hamoudi, N. M., Shirwaikar, A. A., Ali, H. S., & Al Ayoubi, E. I. 2011. Pharmaceutical Consultation in UAE Community Pharmacies. *Indian Journal of Pharmaceutical Sciences*, 73(4), 404–408. <http://doi.org/10.4103/0250-474X.95621>

Hasan, S. 2009. Continuing education needs assessment of pharmacists in the United Arab Emirates. *Pharmacy World & Science*, 31, 670–676.

Hasan, S., Sulieman, H., Chapman, C. & Kong, K. S. A. D. C. M. 2011. Community pharmacy in the United Arab Emirates: characteristics and workforce issues. *International Journal of pharmacy practices* 19.

Hassell, K. & Eden, M. 2006. Workforce update — joiners, leavers, and practising and non-practising pharmacists on the 2005 Register. *Pharmaceutical Journal*, 276.

Hassell, K. 2006. Destination, future intentions and views on the practice of British-based pharmacists 5 and ten years after qualifying. *Pharm World Sci*, 28, 116-22.

Hassell, K. GFC Register Analysis 2011. Manchester: Centre for Pharmacy Workforce Studies School of Pharmacy University of Manchester, 2012.

Hassell, K., Seston, E. & Shann, P. 2007. Measuring job satisfaction of UK pharmacists: a pilot study. *International Journal of Pharmacy Practice*, 15, 259-264.

Hawthorne, N. & Anderson, C. 2009. The global pharmacy workforce: a systematic review of the literature. *Hum Resour Health*, 7, 48.

Health Workforce Australia (2014) Australia's Health Workforce Series Pharmacists in Focus, Australia: Health Workforce Australia.

Holden, R. J., Patel, N. R., Scanlon, M. C., Shalaby, T. M., Arnold, J. M. & Karsh, B.-T. 2010. Effects of mental demands during dispensing on perceived medication safety and employee well-being: A study of workload in pediatric hospital pharmacies. *Research in Social and Administrative Pharmacy*, 6, 293-306.

HRSA, B.-. 2000. A Study of the Supply and Demand for Pharmacists [Online].HRSA available: <http://bhpr.hrsa.gov/healthworkforce/reports/pharmaciststudy.pdf> [accessed on 19 Aug. 2014]

ILO, International Labour Organisation. 2013. Global Employment Trends 2013. Geneva. ILO.

International Pharmaceutical Federation (FIP).2012. 2012 FIP Global Pharmacy Workforce Report. The Hague, the Netherlands. FIP.

Johnson, B.R. (1997) 'Examining the validity structure of qualitative research', *Education*, 118 (3): pp. 282-292.

Joint FIP/WHO guidelines on good pharmacy practice: standards for quality of pharmacy services. WHO Technical Report Series, No. 961, 2011. Geneva: World Health , 2011.

Kawabata, A., Etsuko Murakami, Masahiro Iwaki, Taro Ogiso, Shigeo Suzuki, Masahiko Mishima, Mitsutaka Takada & Kakehi, K. 1998. The importance of clinical activities to job satisfaction in Japanese pharmacists. *American Journal of Health-System Pharmacy*, 55, 360-3.

Kerschen, A. M., Armstrong, E. P. & Hillman, T. N. 2006. Job Satisfaction Among Staff, Clinical, and Integrated Hospital Pharmacists. *Journal of Pharmacy Practice*, 19, 306-312.

Kheir, N. & Fahey, M. 2011. Pharmacy practice in Qatar: challenges and opportunities. *South Med Rev*, 4, 92-6.

Kheir, N., Zaidan, M., Younes, H., El Hajj, M., Wilbur, K. & Jewesson, P. 2008. International Pharmacy Education Supplement Pharmacy Education and Practice in 13 Middle Eastern Countries. *American Journal of Pharmaceutical Education*, 72.

Kirk, J. and Miller, M.L. (1986) *Reliability and validity in qualitative research*. Beverly Hills: Sage Publications.

Kuehn, B. M. 2007. Global Shortage of Health Workers, Brain Drain Stress Developing Countries. *The Journal of the American Medical Association*, 298.

Lau, W. M., Pang, J. & Chui, W. 2011. Job satisfaction and the association with involvement in clinical activities among hospital pharmacists in Hong Kong. *Int J Pharm Pract*, 19, 253-63.

Lea, V. M., Corlett, S. A. & Rodgers, R. M. 2012. Workload and its impact on community pharmacists' job satisfaction and stress: a review of the literature. *Int J Pharm Pract*, 20, 259-71.

Lee, C. Liou, W. & Hsieh, S. 2009. Job satisfaction among hospital pharmacists in Taiwan. *The value in Health*, 12.

Leedy, P. D. 1997. *Practical research: planning and design* Upper Saddle River, NJ, Prentice-Hall, Inc.

Leininger, M.M. (1985) *Ethnography and ethnonursing: Models and modes of qualitative data analysis*. In Leininger, M.M. (Ed) *Qualitative research methods in nursing*, 33-72, Orlando, FL: Grune & Statton.

Lincoln, Y.S. and Guba, E.G. (1985) *Naturalistic Inquiry*. Newbury Park, CA: Sage Publications.

Liu, C. S. & White, L. 2011. Key determinants of hospital pharmacy staff's job satisfaction. *Re-*



search in *Social and Administrative Pharmacy*, 7, 51-63.

Livingston, M. 2012. Education Commission risks summary from 2012.

Maben, J., Al-Throwing, K., West, E. & Rafferty, A. M. 2010. Uneven development: comparing the indigenous healthcare workforce in Saudi Arabia, Bahrain and Oman. *Int J Nursing Stud*, 47, 392-6.

Majd, M., Hashemian, F., Sisi, F. Y., Jalalb, M. & Majd, Z. 2012. The quality of Life and Job Satisfaction of Dispensing Pharmacists Practicing in Tehran Private-sector Pharmacies. *Iranian Journal of Pharmaceutical Research*, 11, 1039-1044.

Marriott, J. L., Nation, R. L., Roller, L., Costelloe, M., Galbraith, K., Stewart, P., & Charman, W. N. (2008). Pharmacy Education in the Context of Australian Practice. *American Journal of Pharmaceutical Education*, 72(6), 131.

Massey, D., Arango, J., Graeme, H., Kouaouci, A., Pellegrino, A. & Taylo, R. E. 1993. Theories of International Migration: A Review and Appraisal. *Population and Development Review*, 19.

Matowee, L., Al-Shaimma, A., Al-Kandery & Bihzad, S. 2003. Pharmacy In Kuwait. *Am J Health-Syst Pharm*, 60.

Matshotyana, K. 2009. Job Satisfaction Of Public Sector Pharmacists In The Nelson Mandela Metropole.

Mccann, L., Adair, C. G. & Hughes, C. M. 2009a. An exploration of work-related stress in Northern Ireland community pharmacy: a qualitative study. *International Journal of Pharmacy Practice*, 17, 261-27.

Mccann, L., Hughes, C. M., Adair, C. G. & Cardwell, C. 2009b. Assessing job satisfaction and stress among pharmacists in Northern Ireland. *Pharmacy World & Science* 31, 188-194.

Mcree, T. 2002. Pharmacy Staffing: A Silent But Critical Concern.

Mabena, J., Al-Thowinib, K., Westc,E., Rafferty,A. 2010. Uneven development: Comparing the indigenous healthcare workforce in Saudi Arabia, Bahrain and Oman. *International Journal of Nursing Studies*.47,3, 392–396

Merriam, S.B. (1998) *Qualitative Research and Case Study Applications in Education*. Revised and Expanded from "Case Study Research in Education", San Francisco, CA: Jossey-Bass Publishers.

Mott, D. A., Doucette, W. R., Caroline A. Gaither, Craig A. Pedersen & Schommer, J. C. 2004. Pharmacists' Attitudes Toward Worklife: Results From a National Survey of Pharmacists. *Journal of the American Pharmacists Association*, 44.

Myers, C. 2011. Opportunities and challenges related to pharmacy technicians in supporting optimal pharmacy practice models in health systems. *American Society of Health-System Pharmacists*, 68, 1128.

O'Neill, J. L. & Gaither, C. A. 2007. Investigating the relationship between the practices of pharmaceutical care, construed external image, self-identification, and job turnover intention of community pharmacists. *Res Social Adm Pharm*, 3, 438-63.

Padiyara, R. S. & Komperda, K. E. 2010. Effect of postgraduate training on job and career satisfaction among health-system pharmacists. *American Journal of Health-System Pharmacy*, 67, 1093-100.

Pedersen, C., Schneider, P. & Scheckehoff, D. 2011. ASHP national survey of pharmacy practice in hospital settings: Prescribing and transcribing—2010. *American Society of Health-System Pharmacists*, 68.

Pharmaceutical Group of The European Union, P. 2002. Green Paper – On the European Workforce for Health.

Piko, B. F. 2006. Burnout, role conflict, job satisfaction and psychosocial health among Hungarian healthcare staff: A questionnaire survey. *International Journal of Nursing Studies*, 43, 311-318.

Potter, H., Hassell, K. & Noyce, P. R. 2013. Pharmacists' and pharmacy technicians' views on a process of revalidation of pharmacy professionals in Great Britain. *Research in Social and Administrative Pharmacy*, 9, 142-154.

Ritchie, J. Spencer, L. (1994) Qualitative data analysis for applied policy research. In: Bryman, A., Burgess, R. Editors, *Analysing Qualitative Data*, Routledge, London (1994), 173-194.

Robson, C. 1994. *Real World Research*, Oxford, Blackwell

Robson, C. (2002) *Real world research: A resource for social scientists and practitioner-researchers*. 2nd ed. Oxford, UK: Blackwell.

Population Reference Bureau (PRB). (2012). Population. Available: <http://www.prb.org/DataFinder/Topic/Rankings.aspx?ind=14>. Last accessed 31/10/2012

Salameh, P. & Hamdan, I. 2007. Pharmacy manpower in Lebanon: An exploratory look at work-related satisfaction. *Research in Social and Administrative Pharmacy*, 3, 336-350.

Saravia, N. G. & Miranda, J. F. 2004. Plumbing the brain drain. *Bulletin of World Health Organisation* 82.

Sayed, G. & Al-Shehrb, M. 2012. A matter of degrees: The introduction of clinical doctorates to the Saudi higher education system and a comparative prospective from the American model. *Medical teacher*, 34.

Schafheutle, E. I. & Hassell, K. 2009. Internationally trained pharmacists in Great Britain: what do registration data tell us about their recruitment? *Hum Resour Health*, 7, 51.

Schafheutle, E. I., Hassell, K. & Noyce, P. R. 2013. Ensuring continuing fitness to practice in the pharmacy workforce: Understanding the challenges of revalidation. *Research in Social and Administrative Pharmacy*, 9, 199-214.

Schafheutle, E. I., Seston, E. M. & Hassell, K. 2011. Factors influencing pharmacist performance: a review of the peer-reviewed literature. *Health Policy*, 102, 178-92.

Seston, E., Hassell, K., Ferguson, J. & Hann, M. 2009. Exploring the relationship between pharmacists' job satisfaction, intention to quit the profession and actual quitting. *Research in Social and Administrative Pharmacy*, 5, 121-132.

Smith, F. 2010. *Conducting Your Pharmacy Practice Research Project*, London, Pharmaceutical Press.

Strauss, A. & Corbin, J. 1994. *Handbook of qualitative research*, Thousand Oaks, CA, Sage.

The National Pharmacy Workforce 2003. A Study of the Demand and Supply of Pharmacists, 2000 - 2010. 1-6.

The Society Of Hospital Pharmacists Of Australia, S. 2007. Strategies to improve the retention and recruitment of Australia's Hospital Pharmacy Workforce as part of the National Workforce Action Plan.

The World Bank. 2012. Data. Available: <http://data.worldbank.org/indicator>. Last accessed 14/11/2012.

Tucket, A.G. (2005) Applying thematic analysis theory to practice : a researcher's experience. *Contemporary Nuresse*,19, 75-87.

WHO, World Health Organisation. 2011. NCD Country Profiles, Kuwait [Online], WHO. [Accessed January 12th, 2013].

WHO, World Health Organisation. 2012. NCD Country Profiles, Saudi Arabia [Online], WHO. [Accessed January 11th, 2012].

WHO, World Health Organisation. 2011b. Transformative Scale up Health Professional Education- An Effort to Increase the Numbers of Health Professionals and to Strengthen Their Impact on Production Population Health. Geneva: health system and services (HSS/ HRH), WHO.

WHO, World Health Organisation. 2013. Transformation And Scaling Up Health Professionals' Education And Training, Geneva, WHO.

WHO, World Health Organisation. 2014. A Universal Truth: No Health without a Workforce. Geneva, WHO.

WHO, World Health Organisation. 2006. Working Together For Health. Geneva, WHO.

WHO, World Health Organisation. 2007. The Right to Health [Online]. WHO. [Accessed April 12th, 2014].

Wilbur, K., Beniles, A. & Hammuda, A. 2012. Physician perceptions of pharmacist roles in primary care setting in Qatar. *Global Health*, 8, 12.

Wilbur, K., Salam, S. E. & Mohammadi, E. 2010. Patient perceptions of pharmacist roles in guiding self-medication of over-the-counter therapy in Qatar. *Patient Preference and Adherence*, 4.

Wilbur, K. 2010. Continuing professional pharmacy development needs assessment of Qatar pharmacists. *International Journal of Pharmacy Practice*. 18: 236–241.

Williss, S. P., Hassell K, 2006. Who will be tomorrow's pharmacists and why did they study pharmacy? *Pharmaceutical journal*, 277.

Wuliji, T. 2009. 2009 FIP Global Pharmacy Workforce Report. In: WULIJI, T. (ed.). The Netherlands: FIP.

Wuliji, T., Carter, S. & Bates, I. 2009. Migration as a form of workforce attrition: a nine-country study of pharmacists. *Hum Resour Health*, 7, 32.

Wuliji, T. & Yonemura, A. 2009. The WHO UNESCO FIP Pharmacy Education Taskforce. *Hum Resour Health*, 7, 45.

Yin, R.K. (1994) *Case study research, design methods*. Thousand Oaks, CA: Sage.

## Appendices

### Appendix 1.1 countries included in the FIP Global pharmacy workforce study

WHO region	Participant countries
The African region	<ol style="list-style-type: none"><li>1. Benin</li><li>2. Burundi</li><li>3. Cameroon Dem. Rep. Congo</li><li>4. Ethiopia</li><li>5. Ghana</li><li>6. Kenya</li><li>7. Malawi</li><li>8. Mali</li><li>9. Mauritius</li><li>10. Nigeria</li><li>11. Guinea</li><li>12. Senegal</li><li>13. Somalia</li><li>14. South Africa</li><li>15. Tanzania</li><li>16. Uganda</li><li>17. Zambia</li><li>18. Zimbabwe</li><li>19. Togo</li></ol>
The American region	<ol style="list-style-type: none"><li>1. Bolivia Canada</li><li>2. Chile</li><li>3. Costa Rica</li><li>4. Cuba</li><li>5. Grenada</li><li>6. Mexico</li><li>7. USA</li><li>8. Uruguay</li></ol>
The Eastern Mediterranean region	<ol style="list-style-type: none"><li>1. Afghanistan</li><li>2. Egypt</li><li>3. Iran</li><li>4. Jordan</li><li>5. Pakistan</li></ol>
The Western Pacific region	<ol style="list-style-type: none"><li>1. Australia</li><li>2. Cambodia</li><li>3. China</li><li>4. Hong Kong</li><li>5. Japan</li><li>6. Malaysia</li><li>7. New Zealand</li><li>8. Philippines</li><li>9. Singapore</li><li>10. Taiwan</li></ol>

	<ul style="list-style-type: none"> <li>11. Vietnam</li> <li>12. PIC</li> </ul>
The South East Asian region	<ul style="list-style-type: none"> <li>1. Bangladesh</li> <li>2. Bhutan</li> <li>3. India</li> <li>4. Nepal</li> <li>5. Korea</li> <li>6. Thailand</li> </ul>
The European region	<ul style="list-style-type: none"> <li>1. Albania</li> <li>2. Belgium</li> <li>3. Bosnia and Herzegovi</li> <li>4. Croatia</li> <li>5. Czech Republic</li> <li>6. Denmark</li> <li>7. Finland</li> <li>8. France</li> <li>9. Germany</li> <li>10. Hungary</li> <li>11. Iceland</li> <li>12. Ireland</li> <li>13. Israel</li> <li>14. Italy</li> <li>15. Lithuania</li> <li>16. Malta</li> <li>17. Norway</li> <li>18. Portugal</li> <li>19. Macedonia</li> <li>20. Moldova</li> <li>21. Romania</li> <li>22. Spain</li> <li>23. Switzerland</li> <li>24. The Netherlands</li> <li>25. Turkey</li> <li>26. Ukraine</li> <li>27. United Kingdom</li> </ul>
The GCC region	<ul style="list-style-type: none"> <li>1. Bahrain</li> <li>2. Kuwait</li> <li>3. Oman</li> <li>4. Qatar</li> <li>5. Saudi Arabia</li> <li>6. UAE</li> </ul>

## Appendix 1.2 FIP Global Pharmacy Workforce Survey 2012

### Introduction

The 2009 Global Pharmacy Workforce Report provided evidence-based data alongside case studies and guidance towards effective pharmacy workforce planning ([www.fip.org/hr](http://www.fip.org/hr)).

This publication followed the 2006 Global Pharmacy Workforce and Migration Report – a Call for Action', a landmark publication of the FIP that provided the first global snapshot of pharmacy workforce trends and made recommendations on required actions to build capacity and strengthen the pharmacy workforce.

To strengthen the evidence base on the pharmacy workforce, FIP is seeking the collaboration of stakeholders to gather updated data on the pharmacy workforce (pharmacists and pharmaceutical technicians and assistants) relating to their description, demographics and planning.

#### Survey objectives:

- To analyse and monitor the status of the pharmacy workforce and pharmacy education at the national level.
- To analyse and present the current status of country-level workforce planning and regulation in the pharmaceutical sector.
- To specifically collect data on competency framework development to inform the draft FIP Global Competency Framework.
- To identify relevant contacts for pharmacy workforce and pharmacy education in FIP Member Organisations.
- To collaborate with the World Health through comparing and sharing data related to the pharmaceutical sector human resources.

Your efforts in contributing data are essential, and we would appreciate as much detail as you are able to provide. FIP is also assembling a network of country contacts for pharmacy workforce, education and regulation. Your assistance in identifying the appropriate contacts is most valued to facilitate the development of further work in these areas.

Please submit the completed survey by email

[Dalia.almaghaslah.11@ucl.ac.uk](mailto:Dalia.almaghaslah.11@ucl.ac.uk)

If your organisation does not have access to the data requested please forward to the appropriate contact and inform [Dalia.almaghaslah.11@ucl.ac.uk](mailto:Dalia.almaghaslah.11@ucl.ac.uk) If you have any queries regarding the content of this questionnaire please contact

Dalia Almaghaslah

Please note that definitions of the specific underlined terms used in the context of this survey are provided by clicking on the question mark icons on the online version of the questionnaire.

Thank you very much for your time and support.



Q1.Country

Q2.Contact completing this questionnaire

Title

First name

Surname

Job title

Organisation/Agency

Email

Website

Phone

Fax

Address

## SECTION 1: COUNTRY INFORMATION

This section gathers basic statistics about pharmacies and the pharmacy workforce (pharmacists and pharmaceutical technicians and assistants) from your country. Please state the year of data in the table. If data is sourced from other contacts and sources, please list them below. If data is not available, please state N/A. If data is estimated, state the data source as 'estimation'. Feel free to clarify any answers you have provided in the 'additional comments' at the end of each section.

Q3.Pharmacies

	Number	Year of data	Data source
Total number of pharmacies			
Total number of licensed pharmacies			
Number of hospital pharmacies/pharmacy departments			

Number of community pharmacies			
Number of pharmacies in primary healthcare facilities			
Number of pharmacies in other settings (Please describe in space below)			

Q4. Pharmacy ownership in my country is (tick one):

<input type="checkbox"/>	Restricted to pharmacists
<input type="checkbox"/>	Restricted to healthcare professionals
<input type="checkbox"/>	Unrestricted
<input type="checkbox"/>	Other - please describe

Q5. Is there a limit on the number of pharmacies an individual or company can own?

<input type="checkbox"/>	No
<input type="checkbox"/>	Yes. Please describe:

Q6. Do legal provisions exist requiring private pharmacies to be licensed?

<input type="checkbox"/>	No
<input type="checkbox"/>	Yes. Please describe:

Q7. Do legal provisions exist requiring public sector pharmacies to be licensed?

<input type="checkbox"/>	No
--------------------------	----

	Yes. Please describe:
--	-----------------------

--

Q8. Do legal provisions require the publication of a list of all licensed pharmaceutical facilities (pharmacies, manufacturers, wholesalers, hospitals, healthcare centres, etc whether public or private)?

	No
	Yes. Please describe:

--

Q9. Pharmacy workforce

	Number	Year of data	Data source
Total number of pharmacists licensed/registered in your country			
Total number of female pharmacists licensed/registered in your country			
Total number of actively practicing and licensed/registered pharmacists			
Total number of actively practicing and licensed/registered female pharmacists			
Total number of newly licensed/registered pharmacists in past year			
Number of newly licensed/registered foreign pharmacists in past year			
Total number of pharmaceutical technicians and assistants			

Total number of newly licensed/registered pharmaceutical technicians and assistants in past year			
--	--	--	--

Q10.Practice distribution (Please note in the data source section whether the data included are estimates)

	Number	Percentage	Year of data	Data sources
Academia and/or research				
Community				
Hospital				
Industry				
Regulatory				
Public Sector				
Other				

Q11.Additional comments on Section 1

## SECTION 2: PHARMACY EDUCATION STATISTICS

This section collects data on the number of pharmacy graduates and the number of training institutions in your country. Please include the most recent data available and state the year of data in the table below. If data is sourced from other contacts and sources, please list them below. If data is not available, please state N/A. Feel free to clarify any answers you have provided in the 'additional comments' box at the end of this Section.

Q12. Graduates

	Number	Year of data	Data sources
Total number of pharmacy graduates (pharmacists)			
Total number of pharmaceutical technician and assistant graduates			

Q13. Are there accreditation requirements for pharmacy schools that educate pharmacists?

<input type="checkbox"/>	No
<input type="checkbox"/>	Yes. Please describe:

Q14. Are there accreditation requirements for pharmacy schools that train pharmaceutical technicians and assistants?

<input type="checkbox"/>	No
<input checked="" type="checkbox"/>	Yes. Please describe:

	Total	Total accredite d	Accredite d Public	Accredite d Private for profit	Accredited Private Not for profit	Year of Data	Data Sources
Number of schools of pharmacy							
Number of pharmaceutical							

technician and assistant training schools							
--	--	--	--	--	--	--	--

Q15.Education and training institutions

Q16.Which authority is responsible for the accreditation of schools of pharmacy in your country?

Authority/agency

Email

Website

Phone

Fax

Address

Q17.Which authority is responsible for the accreditation of pharmaceutical technician and assistant training schools?

Authority/agency

Email

Website

Phone

Fax

Address

Q18.What is the minimum period of undergraduate full-time education for pharmacists (pharmacy school)?

	3 years
--	---------



	4 years
	5 years
	6 years
	Other - please state:

Q19.What is the minimum period of further full-time experiential learning to become licensed/registered as a pharmacist (eg. internship)?

	None
	3 months
	6 months
	1 year
	Other - please state

Q20. Is the Pharmacist Curriculum regularly reviewed at a national level?

	No
	Yes. Please describe:

Q21.What is the minimum period of full-time education for pharmaceutical technicians and assistants (technician/assistant training school)?

	None
	6 months
	1 year
	2 years
	3 years
	Other - please state

--

Q22. What is the minimum period of further full-time experiential learning to become licensed as a pharmaceutical technician or assistant (e.g., internship)?

	None
	3 months
	6 months
	1 year
	Other - please state

Q23. Additional comments on Section 2

--

### SECTION 3: PHARMACY WORKFORCE PLANNING AND REGULATION

This section gathers information on authorities and practices regulating the pharmacy workforce in your country. Feel free to clarify any answers you have provided in the 'additional comments' box at the end of this Section.

Q24. Is there a national strategic plan for pharmaceutical human resources in place in your country? (Eg – as part of a broader Human Resources for Health Plan or as a separate strategic plan)

	No
	Yes. Please describe:

Q25. Request for document – Please include a link or reference for the National pharmaceutical human resources report or strategic plan

--

Q26. Is there a legal requirement for pharmacists to be registered or licensed in your country?

<input type="checkbox"/>	No
<input type="checkbox"/>	Yes

Q27. If yes, which authority is responsible for registering or licensing pharmacists?

Authority/agency

Email

Website

Phone

Fax

Address

Q28.What are the requirements to maintain registration or licensure as a pharmacist in your country?

Q29.Is there a legal requirement for pharmaceutical technicians and assistants to be registered or licensed in your country?

<input type="checkbox"/>	No
<input type="checkbox"/>	Yes

Q30.If yes, which authority is responsible for registering or licensing pharmaceutical technicians and assistants?

Authority/agency

Email

Website

Phone

Fax

Address

--

Q31. What are the requirements to maintain registration or licensure as a pharmaceutical technician or assistant in your country?

--

Q32. Is mandatory continuing education required for pharmacists?

	No
	Yes. Please describe:

Q33. Are there national Good Pharmacy Practice Guidelines published in your country?

	No
	Yes. Please describe:

Q34. Does a code of conduct exist governing the professional behaviour of pharmacists?

	No
	Yes. Please describe:

Q35. Additional comments on Section 3

--

#### **SECTION 4: PHARMACY WORKFORCE COMPETENCY FRAMEWORK**

This section gathers information about existing competency frameworks for pharmacists and pharmacy technicians in your country. For each item in this section, please select the one

most appropriate response. Feel free to clarify any answers you have provided in the 'additional comments' box at the end of this Section.

Q36.Does your country have a Competency Framework for pharmacists?

<input type="checkbox"/>	Yes
<input type="checkbox"/>	No, but we are developing one
<input type="checkbox"/>	No

Q37.If you responded either YES or NO, but we are developing one to the previous question, please tell us how the Competency Framework was developed (choose 1 option) and please describe in space below

<input type="checkbox"/>	We developed the Framework ourselves
<input type="checkbox"/>	We adopted an existing Framework from another source
<input type="checkbox"/>	We revised an existing Framework from another source

Q38.Does your country have a Competency Framework for pharmaceutical technicians and assistants?

<input type="checkbox"/>	Yes
<input type="checkbox"/>	No, but we are developing one
<input type="checkbox"/>	No

Q39.If you responded either YES or NO, but we are developing one to the previous question, please tell us how the Competency Framework was developed (choose 1 option) and please describe in space below.

<input type="checkbox"/>	We developed the Framework ourselves
<input type="checkbox"/>	We adopted an existing Framework from another source
<input type="checkbox"/>	We revised an existing Framework from another source

--

Q40.Does your country have recognised performance indicators for practice standards, intended for pharmacists?

	No
	Yes

Q41.Does your country have recognised performance indicators for practice standards, intended for pharmaceutical technicians and assistants?

	No
	Yes

Q42.Additional comments on Section 4

--

## SECTION 5: COUNTRY CONTACTS

This section gathers national contacts for pharmacy workforce, education, and regulation. Contacts should be knowledgeable on and/or responsible for policy development or implementation of these areas in your country.

Q43.Contact for human resources in pharmacy

Title

--

First name

Surname

Job title

Organisation/Agency

Email

Website

Phone

Fax



Address

Q44.Contact for pharmacy education

Title

First name

Surname

Job title

Organisation/Agency

Email

Website

Phone

Fax

Address

Q45.Contact for pharmacy workforce regulation

Title

First name

Surname

Job title

Organisation/Agency

Email

Website

Phone

Fax

Address

Thank you for completing this survey.

Please submit it via email to [dalia.almaghasalah@ucl.ac.uk](mailto:dalia.almaghasalah@ucl.ac.uk)

## المقدمة

تقرير الموارد البشرية للاتحاد الدولي الفدرالي للصيادلة الصادر في عام 2009 تضمن بيانات قائمة على ادلة وبراهين بالإضافة الى دراسات للموارد البشرية الصيدلانية في بعض الدول واقترح وسائل للوصول الى تخطيط فعال للموارد البشرية الصيدلانية في المستقبل .

التقرير السابق ذكره كان لاحقاً لتقرير الموارد البشرية العاملة في مجال الصيدلة والهجرة والذي نشر في عام 2006 (نداء للتغيير) وهذا التقرير يعتبر من اهم المنشورات التي اصدرتها اف اي بي (الاتحاد الدولي الفدرالي للصيادلة) حيث يعتبر التقرير الأول الذي يسلط الضوء على القوى العاملة في مجال الصيدلة واقترح بعض النصائح والتوصيات لارتقاء الموارد البشرية الصيدلانية وتحسينها.

للحصول على معلومات اكثر دقة بشأن الموارد البشرية الصيدلانية اف اي بي تطلب مساعدة المسؤولين للحصول على احدث البيانات الوصفية والديموغرافية والخطة المستقبلية الخاصة بالصيادلة وفنيي الصيدلة والمساعدين الصيدليين. اف اي بي تسعى لنشر تقرير الموارد البشرية الصيدلانية للعام 2012 وتهدف ان يتضمن التقرير 100 دولة وذلك لتحثفل بذكرها المنوية.

## أهداف التقرير

- تحليل ومراقبة وضع القوى العاملة الصيدلانية والتعليم الصيدلي على مستوى محلي لكل بلد
- تحليل واطهار الوضع الحالي للموارد البشرية الصيدلانية لكل بلد من حيث التخطيط المستقبلي والقوانين الصيدلانية.
- تجميع بيانات عن تنمية اطار الكفاءة لاستخدامها في تقرير اف اي بي الخاص باطار الكفاءة
- التعرف على جهات اتصال في مجال التعليم والتنمية البشرية الصيدلانية من اعضاء منظمة اف اي بي
- التعاون مع منظمة الصحة العالمية عن طريق مقارنة ونشر البيانات المتعلقة بالموارد البشرية الصيدلانية.

نقدر لكم جهودكم في مآ هذا الأستبيان ونرجو تزويدنا باكثر قدر ممكن من المعلومات. اف اي بي تسعى لعمل شبكة من جهات الاتصال التي تعمل في مجال التنمية البشرية والهيئات التنظيمية بالإضافة الى العاملين في المجال الأكاديمي والتعليمي في كل بلد. نشكر لكم مساعدتنا في التعرف على الجهات المسؤولة في بلدكم من اجل القيام بالمزيد من الأبحاث في المستقبل.

الرجاء مآ الأستبيان وارسال على بريد الألكتروني التالي

[education@fip.org](mailto:education@fip.org)

أو اكمل الأستبيان على الرابط التالي

<http://fipglobalpharmacyworkforce2012.questionpro.com/>

بامكانكم ايضا ارساله عن طريق البريد على العنوان التالي:

FIP Global Pharmacy Workforce Questionnaire  
International Pharmaceutical Federation  
PO Box 84200  
2508 AE The Hague  
The Netherlands  
او عن طريق الفاكس

+31 70 302 1999

إذا كانت جهة عملك لا تملك صلاحية الوصول للمعلومات المطلوبة الرجاء ارسال الأستبيان للجهة المختصة واطلاع اندريه برنو منسقة المشروع عن طريق البريد الإلكتروني

[education@fip.org](mailto:education@fip.org)

إذا كانت لديك اي استفسارات بشأن الأستبيان الرجاء مراسلة ديان جال على البريد الإلكتروني

[diane@fip.org](mailto:diane@fip.org) .

شكرا جزيلاً لكم على تعاونكم ودعمكم

FIP Global Pharmacy Workforce Survey 2012. Please contact Andreia Bruno at [education@fip.org](mailto:education@fip.org) if you have any questions regarding this survey.

س1 اسم البلد

س2 معلومات جهة الاتصال

اللقب

الاسم الأول

اسم العائلة

المسمى الوظيفي

جهة العمل

البريد الإلكتروني

FIP Global Pharmacy Workforce Survey 2012. Please contact Andreia Bruno at [education@fip.org](mailto:education@fip.org) if you have any questions regarding this survey.

الموقع الإلكتروني

رقم الهاتف

رقم الفاكس

العنوان

الجزء الأول: معلومات البلد

الجدول ادناه يجمع البيانات الأساسية عن الصيدليات والقوى العاملة في مجال الصيدلية بمن فيهم الصيدلي والفني الصيدلي ومساعد الصيدلي في بلدك. الرجاء ذكر السنة التي تم فيها جمع هذه الأحصاءات. إذا كانت هذه البيانات من شخص أو مصدر آخرين الرجاء ذكرهم. إذا كانت البيانات غير متوفرة الرجاء كتابة غير متوفر. إذا كانت البيانات تقديرية الرجاء كتابة تقديري. إذا كانت هناك أي إضافات أو توضيحات الرجاء كتابتها في المكان المخصص لها في نهاية القسم (معلومات إضافية).

س3 الصيدليات

العدد	السنة التي تم فيها جمع البيانات	مصدر البيانات
مجموع عدد الصيدليات		
مجموع عدد الصيدليات المرخصة		
مجموع عدد الصيدليات المتواجدة داخل المستشفيات		
مجموع عدد الصيدليات الخارجية (خارج المستشفى)		
مجموع عدد الصيدليات في المراكز الصحية الأولية		
مجموع عدد الصيدليات الأخرى الرجاء التوضيح		

FIP Global Pharmacy Workforce Survey 2012. Please contact Andreia Bruno at [education@fip.org](mailto:education@fip.org) if you have any questions regarding this survey.

س 4 من يحق لهم امتلاك صيدلية اختر واحدة

الصيدالفة فقط	<input type="checkbox"/>
جميع موظفو القطاع الصحي	<input type="checkbox"/>
غير مقيد	<input type="checkbox"/>
اخرى الرجاء ذكرها	<input type="checkbox"/>

س 5 هل يوجد حد اقصى لعدد الصيدليات التي يحق لشخص واحد او شركة واحدة امتلاكها

نعم	<input type="checkbox"/>
لا، الرجاء التوضيح	<input type="checkbox"/>

س 6 هل يوجد جهات قانونية تلزم الصيدليات الخاصة بالحصول على ترخيص؟

نعم	<input type="checkbox"/>
لا، الرجاء التوضيح	<input type="checkbox"/>

FIP Global Pharmacy Workforce Survey 2012. Please contact Andreia Bruno at [education@fip.org](mailto:education@fip.org) if you have any questions regarding this survey.

س 7 هل يوجد جهات قانونية تلزم الصيدليات الحكومية بالحصول على ترخيص ؟

نعم	
لا،الرجاء التوضيح	

س 8 هل يوجد جهات قانونية تتطلب نشر قائمة باسماء جميع المنشآت الصيدلانية المرخصة لها بما في ذلك ( الصيدليات, المصانع,تجار الجملة,المستشفيات,المراكز الصحية الخ... بما في ذلك المنشآت الخاصة والعامة)

نعم	
لا،الرجاء التوضيح	

س9 القوى العاملة في مجال الصيدلة

مصدر البيانات	العدد	السنة التي تم فيها جمع البيانات
		عدد الصيادلة المرخص لهم بمزاولة المهنة او المسجلون في بلدك
		عدد الصيادلة الأناث المرخص لهم او المسجلات في بلدك
		عدد الصيادلة المرخص لهم او المسجلون والممارسون للمهنة (على رأس العمل)
		عدد الصيادلة الأناث المرخص لهم او المسجلون والممارسون للمهنة (على رأس العمل)
		عدد الصيادلة الذين حصلو على رخصة ممارسة المهنة أو تم تسجيلهم في العام الماضي
		عدد الصيادلة الأجانب الذين حصلو على رخصة ممارسة المهنة أو تم تسجيلهم في العام الماضي
		مجموع عدد فنيو الصيدلة والمساعدون
		مجموع عدد فنيو الصيدلة والمساعدون الذين حصلو على رخصة ممارسة المهنة أو تم تسجيلهم في العام الماضي

FIP Global Pharmacy Workforce Survey 2012. Please contact Andreia Bruno at [education@fip.org](mailto:education@fip.org) if you have any questions regarding this survey.



س 10 التوزيع الوظيفي

الوظائف الأكاديمية ومراكز الأبحاث	العدد	النسبة المئوية	السنة التي تم فيها جمع البيانات	مصدر البيانات
الصيدليات خارج المستشفى				
الصيدليات داخل المستشفى				
الصيدلة الصناعية				
الهيئات التنظيمية				
القطاع العام				
أخرى				

س 11 معلومات إضافية على الجزء الأول

الجزء الثاني :

هذا الجزء يهتم بعدد خريجي كليات الصيدلة وعدد كليات الصيدلة ومراكز التدريب في بلدك. الرجاء كتابة أحدث البيانات المتوفرة وذكر السنة التي أصدرت فيها في الجدول أدناه. إذا كانت هذه البيانات من شخص أو مصدر آخرين الرجاء ذكرهم. إذا كانت البيانات غير متوفرة الرجاء كتابة غير متوفر. إذا كانت هناك أي إضافات أو توضيحات الرجاء كتابتها في المكان المخصص لها في نهاية القسم (معلومات إضافية).

س 12 الخريجون

العدد	السنة التي أصدرت فيها البيانات	مصدر البيانات
عدد خريجو كلية الصيدلة (صيدلة)		
عدد فنيو الصيدلة والمساعدون		

س 13 هل يوجد متطلبات لاعتماد كليات الصيدلة التي تدرس الصيدلة؟

نعم

لا، الرجاء التوضيح

FIP Global Pharmacy Workforce Survey 2012. Please contact Andreia Bruno at [education@fip.org](mailto:education@fip.org) if you have any questions regarding this survey.

س 14 هل يوجد متطلبات لاعتماد المراكز التي يتم فيها تدريب فنيو الصيدلة والمساعدون ؟

نعم


لا،الرجاء التوضيح

--

س 15 المراكز التعليمية والتدريبية

مصدر البيانات	السنة التي اصدر فيها البيانات	مجموع المنشآت المعتمدة الغير ربحية	مجموع المنشآت المعتمدة الخاصة الربحية	مجموع المنشآت المعتمدة الحكومية	مجموع المنشآت المعتمدة	المجموع	
							عدد كليات الصيدلة
							عدد معاهد الصيدلة ومراكز التدريب

س 16 من هي الجهة او المؤسسة المسؤولة عن اعتماد كليات الصيدلة في بلدك؟

اسم الجهة

--

البريد الإلكتروني

--

الموقع الإلكتروني

--

FIP Global Pharmacy Workforce Survey 2012. Please contact Andreia Bruno at [education@fip.org](mailto:education@fip.org) if you have any questions regarding this survey.

رقم الهاتف

رقم الفاكس

العنوان

س17 من هي الجهة أو المؤسسة المسؤولة عن اعتماد معاهد تدريس فنيو الصيدلة والمساعدون؟

اسم الجهة

البريد الإلكتروني

الموقع الإلكتروني

FIP Global Pharmacy Workforce Survey 2012. Please contact Andreia Bruno at [education@fip.org](mailto:education@fip.org) if you have any questions regarding this survey.

رقم الهاتف

رقم الفاكس

العنوان

س 18 ماهي مدة الدراسة الأدنى للحصول على درجة البكالوريوس بنظام الدوام الكامل في كليات الصيدلة ؟

3 سنوات

4سنوات

5 سنوات

6 سنوات

اخرى الرجاء ذكرها

FIP Global Pharmacy Workforce Survey 2012. Please contact Andreia Bruno at [education@fip.org](mailto:education@fip.org) if you have any questions regarding this survey.

س 19 ماهي مدة التدريب (بنظام الدوام الكامل) المطلوبة للحصول على ترخيص مزاولة المهنة للصيادلة ؟

غير مطلوب

ثلاثة أشهر

ستة أشهر

سنة واحدة

اخرى أنكرها


--

س 20 هل تتم مراجعة المنهج الدراسي بانتظام على مستوى محلي؟

لا

نعم الرجاء التوضيح


س 21 ماهي مدة الدراسة الأدنى للحصول على درجة مساعد او فني صيدلي بنظام الدوام الكامل في معاهد الصيدلة؟

غير مطلوب

ستة أشهر

سنة واحدة

سنتان

3 سنوات

اخرى انكرها


FIP Global Pharmacy Workforce Survey 2012. Please contact Andreia Bruno at [education@fip.org](mailto:education@fip.org) if you have any questions regarding this survey.

س 22 ماهي مدة التدريب (بنظام الدوام الكامل) المطلوبة للحصول على ترخيص مزاوله المهنة لفنيي الصيادلة والمساعدين؟

غير مطلوب	<input type="checkbox"/>
ثلاثة أشهر	<input type="checkbox"/>
سنة أشهر	<input type="checkbox"/>
سنة واحدة	<input type="checkbox"/>
اخرى أذكرها	<input type="checkbox"/>

معلومات اضافية على الجزء الثاني ؟

### الجزء الثالث

#### تخطيط وتنظيم القوى الصيدلية العاملة

هذا الجزء يهتم بالجهات المعنية بسن القوانين الصيدلة وتنظيم القوى العاملة في بلدك. الرجاء كتابة اي تعليقات اضافية في الجزء المخصص لذلك في نهاية هذا القسم.

س 24 هل يوجد هناك خطة استراتيجة للموارد البشرية الصيدلية حاليا في بلدك؟ (سواء كانت هذه الخطة جزء من خطة اوسع للقطاع الصحي عامة او خطة منفصلة خاصة بالصيدلة)

لا	<input type="checkbox"/>
نعم الرجاء التوضيح	<input type="checkbox"/>

س 25 طلب المستند، الرجاء كتابة الرابط الالكتروني او المرجع الذي يوضح التقرير الخاص بالموارد البشرية الصيدلية المحلية او الخطة الاستراتيجية؟

FIP Global Pharmacy Workforce Survey 2012. Please contact Andreia Bruno at [education@fip.org](mailto:education@fip.org) if you have any questions regarding this survey.

س 26 هل يوجد اي متطلبات قانونية للحصول على ترخيص مزاوله المهنة او التسجيل للصيادلة في بلدك؟

لا	<input type="checkbox"/>
نعم	<input type="checkbox"/>

س 27 اذا كانت الاجابة نعم الرجاء ذكر التالي:

اسم الجهة المسؤولة

البريد الإلكتروني

الموقع الإلكتروني

رقم الهاتف

رقم الفاكس

FIP Global Pharmacy Workforce Survey 2012. Please contact Andreia Bruno at [education@fip.org](mailto:education@fip.org) if you have any questions regarding this survey.

العنوان

س 28 ماهي المتطلبات للابقاء على رخصة مزاوله المهنة للصيادلة في بلدك؟

س 29 هل يوجد اي متطلبات قانونية للحصول على رخصة مزاوله المهنة او التسجيل للفنيي الصيدلة او المساعدين في بلدك؟

لا	<input type="checkbox"/>
نعم	<input type="checkbox"/>

س 30 اذا كانت الاجابة نعم الرجاء ذكر الجهة المسؤلة عن اصدار التراخيص او تسجل فنيو الصيدلة والمساعدين في بلدك؟

اسم الجهة

البريد الإلكتروني

الموقع الإلكتروني

FIP Global Pharmacy Workforce Survey 2012. Please contact Andreia Bruno at [education@fip.org](mailto:education@fip.org) if you have any questions regarding this survey.



رقم الهاتف

رقم الفاكس

العنوان

س 31 ماهي متطلبات الإبقاء على رخصة مزاولة المهنة لفنيي الصيدلة والمساعدين في بلدك؟

س 32 هل التعليم المستمر اجباري للصيدلة؟

لا	<input type="checkbox"/>
نعم الرجاء التوضيح	<input type="checkbox"/>

س 33 هل يوجد دليل محلي للممارسة الجيدة للصيدلة ينشر في بلدك؟

لا	<input type="checkbox"/>
نعم الرجاء التوضيح	<input type="checkbox"/>

FIP Global Pharmacy Workforce Survey 2012. Please contact Andreia Bruno at [education@fip.org](mailto:education@fip.org) if you have any questions regarding this survey.

س34 هل يوجد مدونة لقواعد السلوك تحكم السلوكيات المهنية للصيادلة ؟

لا	<input type="checkbox"/>
نعم الرجاء التوضيح	<input type="checkbox"/>

معلومات اضافية على الجزء الثالث؟

--

#### الجزء الرابع

القوى العاملة في مجال الصيدلية واطار الكفاءات

هذا الجزء يهتم باطار الكفاءات الموجود للصيادلة ولغنيو الصيدلة والمساعدون في بلدك. الرجاء اختيار الاجابة الاكثر ملائمة. في حال وجود اي معلومات اضافية الرجاء كتابتها في الجزء المخصص لذلك في نهاية هذا القسم.

س 36 هل يوجد أطار كفاءات للصيادلة؟

نعم	<input type="checkbox"/>
لا يوجد حاليا ولكنه في قيد الانشاء	<input type="checkbox"/>
لا	<input type="checkbox"/>

س 37 اذا كانت اجابة السؤال السابق نعم او لا ولكنه في قيد الانشاء الرجاء توضيح كيف تم انشاء اطار الكفاءات (اجابة واحدة) والرجاء التوضيح اكثر في الأسفل

قمنا بنشاء اطار الكفاءات بانفسنا	<input type="checkbox"/>
قمنا بتبني اطار كفاءات من مصدر اخر	<input type="checkbox"/>
قمنا بتبني وتنقيح اطار كفاءات موجود من مصدر اخر	<input type="checkbox"/>

--

FIP Global Pharmacy Workforce Survey 2012. Please contact Andreia Bruno at [education@fip.org](mailto:education@fip.org) if you have any questions regarding this survey.

س38 هل يوجد أطار كفاءات للفنيي الصيدلة و المساعدين

نعم	<input type="checkbox"/>
لا يوجد حاليا ولكنه في قيد الانشاء	<input type="checkbox"/>
لا	<input type="checkbox"/>

س 39 اذا كانت اجابة السؤال السابق نعم او لا ولكنه في قيد الانشاء الرجاء توضيح كيف تم انشاء اطار الكفاءات (اجابة واحدة) والرجاء التوضيح اكثر في الأسفل

قمنا بنشاء اطار الكفاءات بانفسنا	<input type="checkbox"/>
تبينا اطار كفاءات من مصدر اخر	<input type="checkbox"/>
قمنا بتبني وتنقيح اطار كفاءات موجود من مصدر اخر	<input type="checkbox"/>

--

س40هل يوجد مؤشرات اداء معترف بها لتقييم اداء الصيادلة عن مقارنته بمعايير الممارسة ؟

لا	<input type="checkbox"/>
نعم	<input type="checkbox"/>

س41 هل يوجد مؤشرات اداء معترف بها لتقييم فنيي الصيدلة والمساعدون عن طريق مقارنتها بمعايير الممارسة؟

لا	<input type="checkbox"/>
نعم	<input type="checkbox"/>

الجزء الخامس

هذا الجزء يهتم بجمع معلومات عن اشخاص محلين يعملون في مجال الموارد البشرية الصيدلة و في مجال التعليم وفي مجال التنظيم وسن القوانين الصيدلانية هؤلاء الأشخاص يجب ان يكونوا على قدر كبير من المعرفة او مسؤولون عن سن القوانين وتطبيقها في مجال عملهم.

معلومات لجهة الاتصال في مجال التنمية البشرية الصيدلانية

اللقب

الاسم الأول

اسم العائلة

المسمى الوظيفي

جهة العمل

البريد الإلكتروني

FIP Global Pharmacy Workforce Survey 2012. Please contact Andreia Bruno at [education@fip.org](mailto:education@fip.org) if you have any questions regarding this survey.

الموقع الإلكتروني

رقم الهاتف

رقم الفاكس

العنوان

معلومات جهة اتصال في مجال التعليم

اللقب

الاسم الأول

FIP Global Pharmacy Workforce Survey 2012. Please contact Andreia Bruno at [education@fip.org](mailto:education@fip.org) if you have any questions regarding this survey.

اسم العائلة

المسمى الوظيفي

جهة العمل

البريد الإلكتروني

الموقع الإلكتروني

رقم الهاتف

رقم الفاكس

FIP Global Pharmacy Workforce Survey 2012. Please contact Andreia Bruno at [education@fip.org](mailto:education@fip.org) if you have any questions regarding this survey.

العنوان

معلومات جهة اتصال في الهيئات التنظيمية

اللقب

الاسم الأول

اسم العائلة

المسمى الوظيفي

جهة العمل

FIP Global Pharmacy Workforce Survey 2012. Please contact Andreia Bruno at [education@fip.org](mailto:education@fip.org) if you have any questions regarding this survey.

البريد الإلكتروني

الموقع الإلكتروني

رقم الهاتف

رقم الفاكس

العنوان

شكرا جزيلاً لكم على مآ الأستبيان

الرجاء ارساله للبريد الإلكتروني التالي

[education@fip.org](mailto:education@fip.org)



## Appendix 2.1 list of contacts in GCC countries who filled out the questionnaire

Country	Authority	Contact
<b>Bahrain</b>	<p>National Health Regularity Authority</p> <p>e-mail: <a href="mailto:sana.joudeh@nhra.bh">sana.joudeh@nhra.bh</a> <a href="mailto:roaya.alabbasi@nhra.bh">roaya.alabbasi@nhra.bh</a></p> <p>Tel: +973 17 11 33 33 Fax: +973 39 11 32 73 Website: <a href="http://www.nhra.bh">www.nhra.bh</a> P.O.Box: 11464, Manama, Kingdom of Bahrain</p> <p>College Of Health Science Tel: +973 1728 5910 Address: Alsalmaniya, Manama, Bahrain</p>	<p>-Sana Joudeh (Senior Pharmacist) - Ayda Hajjaj (Allied Health Professions Registrar) - Roaya Al Abbasi (Chief, Pharmaceutical Product Regulation) -</p>
<b>Kuwait</b>	<p>Kuwait Ministry Of Health</p> <p>e-mail: <a href="mailto:Nsm87@hotmail.com">Nsm87@hotmail.com</a></p> <p>Tel: +96599854708</p> <p>Kuwait, yarmouk, block 3, street 1, house 9</p> <p>HSC Health Science Faculty Of Pharmacy Tel:+965 24636909 ,Fax:+965 25342807</p> <p>P. O. Box 24923, Safat 13110 - Kuwait</p>	<p>-Nourah Almadhi - Asma'a AlHaqan</p>

<p><b>Oman</b></p>	<p>-Ministry of Health / Directorate General of Medical Supplies e-mail: <a href="mailto:Babiker.osama@gmail.com">Babiker.osama@gmail.com</a> <a href="mailto:Albalushi.sara@gmail.com">Albalushi.sara@gmail.com</a></p> <p><a href="tel:+968924699973">Tel:+968924699973</a> Fax:+ 96824601953 P O Box 393 Postal code 100 Sultanate of Oman</p> <p>-Sultan Qaboos University Hospital Tel: +968 24147309. Po box 38 PC 134</p>	<p>-Osama Rahmtalla (Senior Pharmacist) - Sara Albulushi -Dr Musatafa Fahmi(Dean of oman pharmacy institute at ministry of health, Oman) - Intisar Al Busaidy (Drug information pharmacist)</p>
<p><b>Qatar</b></p>	<p>-Qatar University, College of Pharmacy. e-mail: <a href="mailto:nadirk@qu.edu.qa">nadirk@qu.edu.qa</a>. Tel: +974-55712701 Fax: +974 403-5551 Website: <a href="http://www.qu.edu.qa/pharmacy">www.qu.edu.qa/pharmacy</a>.</p> <p>Qatar University PO Box 2713 Doha Qatar</p> <p>-College of the North Atlantic Qatar e-mail: <a href="mailto:shirley.carroll@cna-qatar.edu.qa">shirley.carroll@cna-qatar.edu.qa</a>. Website: <a href="http://www.cna-qatar.com">www.cna-qatar.com</a> PO box: 24449, Arab League St, Doha, Qatar</p> <p>-Supreme Council Of Health Website: <a href="http://www.moph.gov.qa">www.moph.gov.qa</a></p>	<p>-Dr.Nadir Kheir (Associate Professor of Pharmacy Practice and Coordinator of the Continuing Professional Pharmacy Development Program )</p> <p>- Shirley Carroll pharmacy technicians course administrator at College of the North Atlantic Qatar</p>

<b>Saudi Arabia</b>	Ministry of Health Saudi Arabia Tel: +966 11 2125555. Website: <a href="http://www.moh.gov.sa">www.moh.gov.sa</a> Riyadh - Postal Code: 11176 Saudi Arabia
<b>UAE</b>	UAE Mistry of Health and prevention      Dr. Ola Ghaleb Al Ahdab(Senior Pharmacist) e-mail: <a href="mailto:ogahmed@eim.ae">ogahmed@eim.ae</a> , <a href="mailto:cs.auh@moh.gov.ae">cs.auh@moh.gov.ae</a> <a href="tel:+97126520500">Tel:+97126520500</a> Fax:+97126317644 Website: <a href="http://www.moh.gov.ae">http://www.moh.gov.ae</a> Abu Dhabi P.O.Box 848 11th Floor, Dusit Thani Hotel, Al Muroor Road

## Appendix 2.2 Sources contacts in each country used to fill out the questionnaire.

	Section 1: country information	Section 2: pharmacy education statistics	Section 3: pharmacy workforce planning and regulation	Section 4: pharmacy workforce competency framework	Section 5: country contacts
Bahrain	National Health Regularity Authority	College of Health since	National Health Regularity Authority	National Health Regularity Authority	National Health Regularity Authority
Kuwait	Kuwait Ministry Of Health	HSC Health Science Faculty Of Pharmacy	Kuwait Ministry Of Health	Kuwait Ministry Of Health	Kuwait Ministry Of Health
Oman	Ministry of Health / Directorate General of Medical Supplies	-Sultan Qaboos University Hospital	Ministry of Health / Directorate General of Medical Supplies	Ministry of Health / Directorate General of Medical Supplies	Ministry of Health / Directorate General of Medical Supplies
Qatar	Qatar University, College of Pharmacy.	-Qatar University, College of Pharmacy. - College of the North Atlantic Qatar	Supreme Council Of Health	Supreme Council Of Health	Supreme Council Of Health
Saudi Arabia	Ministry of Health Saudi Arabia	Ministry of Health Saudi Arabia	Ministry of Health Saudi Arabia	Ministry of Health Saudi Arabia	Ministry of Health Saudi Arabia
UAE	UAE Mistry of Health and prevention	UAE Mistry of Health and prevention	UAE Mistry of Health and prevention	UAE Mistry of Health and prevention	UAE Mistry of Health and prevention

## Template for Workforce Survey | Follow up/reminder

Include a copy of the **word** version of the survey with the email to make it easier for them to complete the survey/send back any data they have (and in the **3 languages** so they can choose what to complete – in drop-box 'survey template folder').

Also if they have inputted a lot of data online or in a word version already then I would say we should send them an excel sheet that has the data they inserted online by saving a copy of the excel data and deleting all other data from the other countries and only sending their own data to them (to reduce their frustration and duplication of work).

Please email the contact from the [education.fiped@gmail.com](mailto:education.fiped@gmail.com) and cc'd me and Diane. This is for the participants who have submitted incomplete surveys and the one's that left only a contact. **Not for the new ones** (we will draft another email template for that purpose).

### For incomplete and only contact information

#### Email Subject: FIP Global Pharmacy Workforce Survey 2012 | Deadline 30th of March 2012

Dear [title. name],

Thank you for accessing the online FIP Global Pharmacy Workforce Survey 2012. We have noted that you started submitting a response but were not able to complete the survey. Your contribution to the data collection for this survey is highly valued. To assist in collecting and submitting the data please find attached a word version of the survey.

Please submit the completed survey to [education@fip.org](mailto:education@fip.org). Any data you have available is useful to share.

If necessary, please also forward the questionnaire to any relevant colleagues/organisations in your country that could provide further data and information.

Thank you very much for your time and effort.

Sincerely,

The Global Pharmacy Workforce Report Working Group:

Ian Bates, Andreia Bruno, and Diane Gal, FIP Education Initiatives Gilles Forte and Helen Tata, WHO Tana Wuliji, University Research Co.

International Pharmaceutical Federation Collaborating Centre (FIP CC) UCL School of Pharmacy University of London

21 Russell Square

London WC1B 5EA

United Kingdom

Email: [education@fip.org](mailto:education@fip.org)

Website: <http://www.fip.org/education>

**For the new one's...**

**Email Subject: FIP Global Pharmacy Workforce Survey 2012 | Deadline 30th of March 2012**

Dear [title, first and last name]

Or

Dear Colleague,

We invite you to support the development of the FIP Global Pharmacy Workforce Report 2012 by completing the Survey on the Pharmacy Workforce or forwarding this email to relevant contacts in your country who would have access to this information.

Human resources for health and the pharmacy workforce are important assets in comprehensive healthcare systems around the world. Through the support of various stakeholders, including FIP member organisations, individuals from pharmacy professional and regulatory bodies, training institutions, Ministries of Health and the World Health two FIP reports on the global pharmacy workforce were published in 2006 and in 2009. The results of this work, which focuses on human resources and pharmacy workforce issues, is that pharmacy workforce research and policy has been better informed and strengthened worldwide. See the full reports online at

[http://www.fip.org/programmesandprojects\\_pharmacyeducationtaskforce\\_humanresources](http://www.fip.org/programmesandprojects_pharmacyeducationtaskforce_humanresources)

The data being collected in the 2012 survey includes information on the distribution of pharmacists and pharmaceutical technicians and assistants by country, gender and practice area, as well as gathers comprehensive information on pharmacy ownership systems, workforce regulation, competency and education. Our goal is to include data from 100 countries to celebrate the 100 years of FIP in 2012.

Your participation is highly valued to provide a better understanding of current pharmacy workforce issues, and will assist in the development of global pharmacy workforce policy recommendations.

The questionnaire is available attached in English, French and Spanish.

Kindly note that the dateline for submission is by the **30<sup>th</sup> of March 2012.**

If you experience technical problems with submitting the survey, please contact Diane Gal via email: [diane@fip.org](mailto:diane@fip.org) and a word version of the survey can be sent to you by email.

Sincerely,

The Global Pharmacy Workforce Report Working Group:

Ian Bates, Andreia Bruno, and Diane Gal, FIP Education Initiatives

Gilles Forte and Helen Tata, WHO

Tana Wuliji, University Research Co.

International Pharmaceutical Federation Collaborating Centre (FIP CC)

UCL School of Pharmacy

University of London

21 Russell Square

London WC1B 5EA

United Kingdom

Email: [education@fip.org](mailto:education@fip.org)

Website: <http://www.fip.org/education>

## Data collection email for GCC countries Current study

Dear Colleague,

We invite you to support the ongoing data collection for the FIP Global Pharmacy Workforce database by completing the Survey on the Pharmacy Workforce or forwarding this email to relevant contacts in your country who would have access to this information.

Human resources for health and the pharmacy workforce are important assets in comprehensive healthcare systems around the world. Through the support of various stakeholders, including FIP member organisations, individuals from pharmacy professional and regulatory bodies, training institutions, Ministries of Health and the World Health two FIP reports on the global pharmacy workforce were published in 2006, 2009 and more recently it will be launch at FIP Centennial congress the 2012 report. The results of this work, which focuses on human resources and pharmacy workforce issues, is that pharmacy workforce research and policy has been better informed and strengthened worldwide. See the full reports online at [http://www.fip.org/files/fip/PharmacyEducation/FIP\\_workforce\\_web.pdf?page=menu\\_resourcesforhealth](http://www.fip.org/files/fip/PharmacyEducation/FIP_workforce_web.pdf?page=menu_resourcesforhealth)

The data being collected in the survey includes information on the distribution of pharmacists and pharmaceutical technicians and assistants by country, gender and practice area, as well as gathers comprehensive information on pharmacy ownership systems, workforce regulation, competency and education.

Your participation is highly valued to provide a better understanding of current pharmacy workforce issues, and will assist in the development of global pharmacy workforce policy recommendations.



### Appendix 3 Saudi Arabia MOH vision and mission (WHO,2012)

**MOH Vision:** The vision of the Ministry of Health is to realise health in its comprehensive concept at all individual, family and community levels, maintaining health in both quantity and quality, and help the elderly and those of special needs by enabling them to accommodate their health situations in coordination with different healthcare providers at both private and public sectors.

**MOH Mission:** The mission of the Ministry of Health is to provide comprehensive and integrative therapeutic, rehabilitative, and supportive healthcare, in line with the Islamic principles and the ethics of health practice. MOH carries out its mission in a way that satisfies the needs of the patients, their families and the community by upgrading health awareness and attaining justice in providing health services, whether in quality or quantity, throughout different parts of the Kingdom. MOH takes care of the status of its employees, provides training, rehabilitates, and rewards them for ensuring the best healthcare provision.

**MOH Vision for 2020:**

1. Attain the best possible quality of healthcare provision for the people of the Kingdom of Saudi Arabia at the levels of equality, efficiency, and ability to afford the financial burden. MOH carries out its mission in a way that satisfies the needs of the citizens by providing them with the best quality of special and general health services that covers all the population.
2. Create one basic structure for formulating health policies, including health insurance services.
3. Adopt a general national health strategy that concentrates on the main burdens of diseases, including transmissible diseases, nutrition, smoking, AIDS, accidents, and injuries.
4. The system must have an adequate and fair methodology for estimating risks and advantages.

## Appendix 4 Challenges facing the MOH

(WHO, 2012)

### Challenges facing the MOH (WHO, 2012)

#### Financing healthcare services:

- Increasing proportion of dependent population, including the elderly. Saudi Arabia is witnessing rapid transition in the pattern of diseases from communicable diseases to expensive non-communicable diseases.
- In the absence of a tax system in Saudi Arabia, health insurance is being seriously considered to meet the increasing demand for acceptable health services.

#### Strengthening the organisation of health services:

- It is evident that the traditional health system is failing to meet emerging needs. There is growing interest in separating the components of healthcare, namely, financing, provision, control and supervision to ensure the best possible outcome for expenditure in the field of health. Health providers other than Ministry of Health are expected to join in this proposed change. There is a need to promote autonomy of major hospitals by introducing a corporate system.

#### Health resources

- There is a need for qualified and well-trained manpower. About four-fifths of doctors and nurses, as well as more than half of the technicians in Saudi Arabia, are non-Saudis. Moreover, a sizeable proportion of Saudis working in the health field are engaged in administrative duties. The shortage in Saudi cadre is further compromised by their concentration in urban areas, which has resulted in a disproportionate distribution of health personnel within Saudi Arabia.

Appendix 5 summery of the studies used to design part II the qualitative study

Study	Country	Sector	Methods/ validity	Influence on the current study
<b>(Adnan Beso, 2005)</b>	UK	Hospital pharmacy- one setting	Quantitative study on pre-scribing errors- interviews for the causes of errors.	The questions- some of the start questions were adopted. The effects of workload on work performance.
<b>(Adnan Beso, 2005)</b>	Jordan	Healthcare professionals in hospitals including pharmacists	Structured questionnaire. General Health Questionnaire.	Interview guide: The effects of demographics on job stress/ gender/ the public view of the profession dealing with patients, job tittle on job satisfaction.
<b>(Gidman, 2011)</b>	UK	Community pharmacy	Qualitative study	-Interview guide: The effects of workload on job satisfaction. -Sampling method based on nature of employment, personal characteristics and geographical location. The sampling technique aimed to provide a diverse range of opinions and experiences. Analysis method :thematic analysis.
<b>(Holden et al., 2010).</b>	USA	Hospital pharmacy	Quantitative study. Previously	Effects of workload on job satisfac-

			validated.	tion and patient safety.
<b>(Gaither and Nadkarni,2012)</b>	USA	Hospital pharmacy	Cross-sectional quantitative study. Previously validated.	Effects of communication/ relationships with colleagues, supervisors and other healthcare professionals on job satisfaction, turnover intentions, organisational commitment and professional commitment.
<b>(Gaither et al., 2008)</b>	USA	Hospital pharmacy	Cross-sectional survey	Interview guide: Career commitment, role overload, turnover intentions. Interpersonal interactions between pharmacist, pharmacist-patient interactions and their effects on job satisfaction.
<b>(Majd et al., 2012)</b>	Iran	Community pharmacy (private sector)	Cross-sectional survey. Previously validated	Interview guide: Income/financial satisfaction, getting due respect from patients, pharmacist-physician relationship quality.
<b>(McCann et al., 2009b)</b>	Northern Ireland	Community pharmacy	Qualitative study, one-to-one semi-structured interviews.	Analysis method: thematic analysis. Data collection through one-to-one semi-structured interviews. Interview questions: workload, dealing with patients.
<b>(Salameh and Hamdan, 2007)</b>	Lebanon	Community pharmacy	Quantitative study	Interview guide: growth/development, financial rewards, promotion, supervision, communication, co-workers, meaningfulness, workload, and work demands.
<b>(Liu and White, 2011)</b>	Australia	Hospital pharmacy	Cross-sectional survey. Previously validated	Sampling method: Collecting data from different hospitals around the country.
<b>(Piko, 2006)</b>	Hungary	Healthcare professionals in-	Questionnaire survey, quanti-	Interview guide: workload, role of

		cluding pharmacists	tative study	conflict.
<b>(Calgan et al., 2011)</b>	Turkey	Community pharmacy	Questionnaire survey, quantitative study	Interview guide: workload.
<b>(Kerschen et al., 2006)</b>	USA	Hospital pharmacy	Questionnaire survey, quantitative study	Interview guide: practicing clinical pharmacy and job satisfaction, professional interaction i.e. colleagues and other healthcare professionals, management, work environment, workload, working hours, shifts, staffing, salary, promotions, management policies, feedback, fringe benefits and their effects on job satisfaction.
<b>(Mott et al., 2004)</b>	USA	Registered pharmacists	Cross-sectional descriptive survey. Previously validated.	Interview guide: role conflict, and role overload.
<b>(Seston et al., 2009).</b>	UK	Registered pharmacists	Cross-sectional descriptive survey. Previously validated.	Interview guide: satisfaction with earnings, the relationship between job satisfaction and turnover intentions.

Appendix 6 how the literature influenced the structure of the part II the qualitative study

Objectives	Interview guide	Study
	<p><b>Start questions</b></p> <ul style="list-style-type: none"><li>-Can you tell me a bit about your education/ work experience?</li> <li>-How long have you been qualified as a pharmacist?</li> <li>-How long have you worked in this hospital?</li> <li>-What is your job description in the pharmacy department (scope of practice)?</li> <li>-How many hours do you usually work? Do you do shifts?</li></ul>	<p>(Adnan Beso, 2005)</p>

<p><b>-To evaluate pharmacists' satisfaction with their earnings.</b></p>	<p><b>Financial satisfaction</b></p> <ul style="list-style-type: none"> <li>- Could you tell me about the national pay scales, who determine salaries?</li>   <li>-How do you feel about your present income? Do you find it adequate and fair?</li>   <li>-Are you aware of the salaries of people holding similar positions in other s? How do you feel about that?</li>   <li>-Could you talk to me about the promotion opportunities at your ? How do you feel about the promotions you had/didn't have for the time you've been working in your current workplace?</li>   <li>-How do you feel about prospects for substantial increases in future earnings?</li>   <li>-Could you tell about any fringe benefits you receive? Are you happy with that?</li>   <li>-Are you financially satisfied with your current pay?</li> </ul>	<p>(Majd et al., 2012), (Seston et al., 2009), (Kerschen et al., 2006)</p>
<p><b>-To examine the effects of workload, relationships with co-workers, supervisors and other healthcare professionals on job satisfaction.</b></p>	<p><b>Working environment</b></p> <ul style="list-style-type: none"> <li>-What do you think of the number of staff compared to the amount of work you have?</li>   <li>- When Scheduling work hours are individual needs taken into account?</li> </ul>	<p>(Holden et al., 2010), (Gaither and Nadkarni,2012), (Seston et al., 2009), (Mott et al., 2004), (Kerschen et al., 2006), (Calgan et al., 2011), (Piko, 2006), (Salameh and Hamdan, 2007), (McCann et al., 2009b), (Majd et al., 2012), Gaither et al., 2008), (Adnan Beso, 2005)</p>

How do you feel you when the shifts don't fit your time?

-How popular work hours are divided among employees?

- How does that affect your relationships with your colleagues?

-How do you feel about the amount of workload? What would do differently to manage the workload?

-Could tell me a bit about your relationships with your co-workers? Do you think that influence your performance?

-Could you talk to me about your relationship with your supervisor? What are the positive and negatives? Do you feel you receive enough support – feedback – encouragement from him/her? Could you give me an example?

**-To find out the linkages between job satisfaction and turnover intentions.**

**Turnover intentions**

(Seston et al., 2009), Gaither et al., 2008), (Gaither and Nadkarni,2012)

-What if any, are the linkages between workload and job satisfaction and turnover intentions?

-Do you see yourself working at different workplaces? If yes, what is the main reason of the idea leaving your job? If No why?

-How do you think of the idea of spending the remainder of your working life in your current job?



	<p>-What do you think of pharmacy as a career? Knowing what you know now, if you had to decide all over again, would you still choose pharmacy? If yes why/ why not?</p> <p>-Would you go into different profession other than pharmacy which paid the same? What would go for and why?</p> <p>-How would you feel if your children were interested in pharmacy, would you encourage them to pursue it as a career?</p>	
	<p><b>Recognition of the profession</b></p> <p>-What are your thoughts on pharmacy recognition and respect by other healthcare personnel? And the public? How does that affect your job satisfaction?</p>	<p>(Majd et al., 2012), (Adnan Beso, 2005)</p>
<p><b>-To explore pharmacists' perspectives towards pharmacy policies regarding education and training, professional development, and services development.</b></p>	<p><b>Professional development</b></p> <p>-Do you feel you have support for your professional development? - Why/Why not?</p> <p>-Do you feel supported with your education and training needs? Why/ Why not?</p> <p>-Could you describe the culture of clinical pharmacy in your environment? What barriers/support do you think are present in your workplace?"</p>	<p>(Salameh and Hamdan, 2007)</p>
	<p><b>Clinical pharmacy practice</b></p> <p>-Does practicing pharmaceutical care (skill utilisation) im-</p>	<p>(Kerschen et al., 2006),</p>

prove your job satisfaction?

-Could you tell me about the tasks where you get to utilise your knowledge at your place of employment?

-Do you feel that is sufficient? How does that affect your overall job satisfaction?

-Do you have opportunities to make use of your skills? Can you give an example? How does that make you feel?

-Could talk to me about the aspect of your job you enjoy the most? Why?

**Sampling method, research design, analysis method**

Qualitative one-to-one semi-structured interviews.

(Gidman, 2011), (McCann et al., 2009b), (Liu and White, 2011)

Sampling method based on nature of employment, personal characteristics and geographical location.

The sampling technique aimed to provide a diverse range of opinions and experiences.

Analysis method: thematic analysis.

## Appendix 7 Interview guide for the qualitative study

### Interview question and prompts

#### Start questions

- Can you tell me a bit about your education/ work experience?
  - How long have you been qualified as a pharmacist?
  - How long have you worked in this hospital?
  - What is your job description in the pharmacy department (scope of practice)?
  - How many hours do you usually work? Do you do shifts?
- a) Are pharmacists in Saudi Arabia satisfied with their working environment?
- What do you think of the number of staff compared to the amount of work you have?
  - When Scheduling work hours are individual needs taken into account? **How do you feel you when the shifts don't fit your time?**
  - How popular work hours are divided among employees? **How does that affect your relationships with your colleagues?**
  - **How do you feel about the amount of workload? What would do differently to manage the workload?**
  - **Could tell me a bit about your relationships with your co-workers? Do you think that influence your performance?**
  - **Could you talk to me about your relationship with your supervisor? What are the positive and negatives? Do you feel you receive enough support – feedback – encouragement from him/her? Could you give me an example?**
  - **What are your thoughts on pharmacy recognition and respect by other healthcare personnel? And the public? How does that affect your job satisfaction?**

b) Could you tell me about the national pay scales, who determine salaries?

1.

- **How do you feel about your present income?** Do you find it adequate and fair?
- Are you aware of the salaries of people holding similar positions in other s? How do you feel about that?

2.

- **Could you talk to me about the promotion opportunities at your ? How do you feel about the promotions you had/didn't have for the time you've been working in your current workplace?**

3.

- **How do you feel about** prospects for substantial increases in future earnings?

4.

- Could you tell about any fringe benefits you receive? Are you happy with that?

5.

- Are you financially satisfied with your current pay?

c) Does practicing pharmaceutical care (skill utilisation) improve your job satisfaction?

6.

- **Could you tell me about the tasks where you get to utilise your knowledge at your place of employment? Do you feel that is sufficient? How does that affect your overall job satisfaction?**

- Do you have opportunities to make use of your skills? Can you give an example? How does that make you feel?

- Could talk to me about the aspect of your job you enjoy the most? Why?

d) What if any, are the linkages between workload and job satisfaction and turnover intentions?

7.

- Do you see yourself working at different workplaces? **If yes, what is the main reason of the idea leaving your job? If No why?**

8.

- How do you think of the idea of spending the remainder of your working life in your current job?

9.

- **What do you think of pharmacy as a career?** Knowing what you know now, if you had to decide all over again, would you still choose pharmacy? If yes why/ why not?

10.

- Would you go into different profession other than pharmacy which paid the same? What would go for and why?

11.

- How would you feel if your children were interested in pharmacy, would you encourage them to pursue it as a career?

#### **E) Professional development**

- Do you feel you have support for your professional development? - Why/Why not?
- Do you feel supported with your education and training needs? Why/ Why not?
- Could you describe the culture of clinical pharmacy in your environment? What barriers/support do you think are present in your workplace?"

#### **F) How to improve job satisfaction?**

**What do you think would improve job satisfaction at organisational and national level?**

**What do you think the government should do to enhance job satisfaction?**

#### **Ending questions**

12. Would you like to add any additional points or stress anything in particular? Thank you very much for helping me and giving up your time.

## **Appendix 8 Pharmacists' work attitudes in Kuwait and Saudi Arabia consent form**

### **Aim**

To date, work satisfaction has not been researched in the pharmacy profession in Kuwait and Saudi Arabia. The purpose of this study is to provide a current profile of pharmacists' job satisfaction.

### **Interview description**

The interview with pharmacists will be recorded and will discuss, physical and financial job satisfaction, the extent to which pharmacists' skills and knowledge are utilised and impact that have on job satisfaction. Workload, relationship with management and co-workers, career commitment, organisational commitment and job turnover intentions will also be discussed. The interview will last for about 30 min but may vary. Interviews could be extended if the interviewees wish. The interview will be in Arabic. The researcher will be responsible for transcribing interviews from the recording and translating them into English.

### **Confidentiality and information security**

Participation in this study is totally voluntary and participants could withdraw at any time without prejudice or negative consequences. Participants' identity information will be kept secure and confidential. This research is done in collaboration with UCL School of Pharmacy, University of London, United Kingdom and will contribute to a Ph.D. thesis and academic publications. The principal researcher and research supervisor will have access to all the data. Information that may potentially identify interviewees will not be published or disclosed outside of the research team of Dalia Almaghaslah, Prof Ian Bates, UCL School of Pharmacy and University of London. Transcripts will be made available to external individuals with the identity of participants kept confidential. The school storage and archives comply with the Data Protection Act for anonymity and confidentiality. Any questions about this research can be directed to the researcher and/or the supervisor.

Researcher:

Dalia Almaghaslah [Dalia.almaghaslah.11@ucl.ac.uk](mailto:Dalia.almaghaslah.11@ucl.ac.uk)

MPhil/Ph.D. Candidate

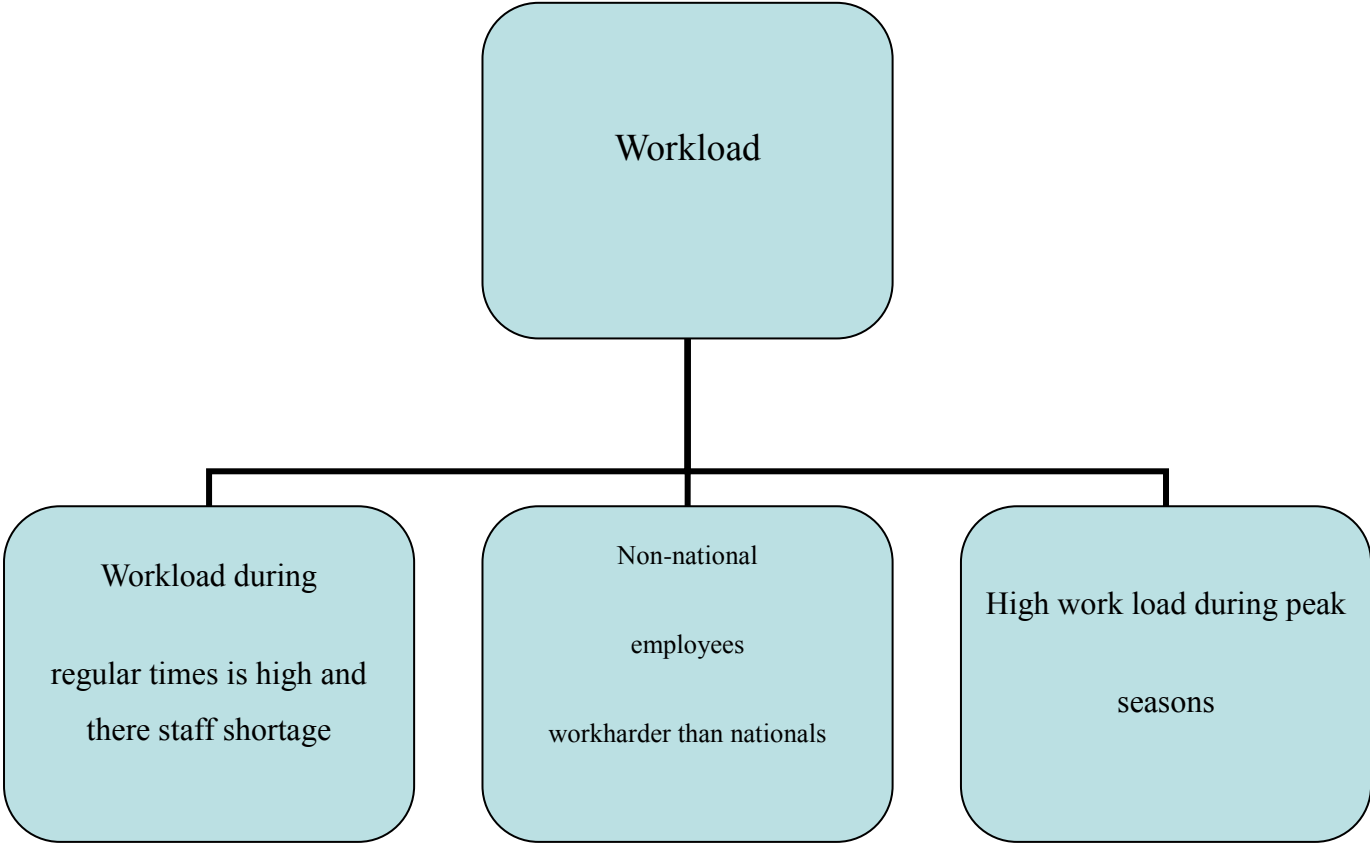
Department of Practice and Policy

UCL School of Pharmacy

Mobile: +447901053898

Supervisors

Appendix 9 an example of the emerged themes (non-nationals pharmacists and workload)





## Expatriate staff tend to work harder than nationals

Kuwait	Saudi Arabia
<p><b>K1</b></p> <p>It is a bit different with foreigners...there is always some tension ...as Kuwaiti pharmacists leave work earlier at 1:30 pm than the rest who leave at 2:30... I didn't want to them to feel that I'm the national who gets to do what he wants so I used to stay till 2:30.</p>	<p><b>S 4</b></p> <p>The employees are Arab (non-Saudi) so they were happy to do too much tasks and take a lot of responsibilities. When I compare myself to the Saudi employee in other hospitals I feel like I have so much work to do I have around 60 patients.</p>
<p><b>K7</b></p> <p>We had a Pakistani pharmacist he is really good he is one of the pharmacist you should stick to if wanted to learn... along with few others ... this guy works from 7 to 2 without a break ....because he is a foreigner.. if we have all Kuwaiti pharmacists then work won't be done because they don't work hard enough</p>	<p><b>S 7</b></p> <p>our supervisor is an Egyptian lady and she decides the rota...it wasn't fair because the older staff don't do shifts... it was all done by newer staff and non nationals especially staff from Philippines... and they do more shifts than the new Saudi staff</p> <p><b>S 10</b></p> <p>One of my colleagues from the Philippines... she is the best... we are 45 pharmacists but she is by far the best... she has been crying for two weeks ... well she has been working at this hospital for 8 years... she got a job offer from another hospital... but the chief pharmacist wouldn't let her leave because he knows that work would be difficult without her</p>
	<p><b>S 15</b></p> <p>Number of staff I think was ok but I remember some of the non-Saudi female pharmacists complaining about the possibility of doing night shifts where Saudi pharmacists won't be doing it... and they say if you're Saudi you get prompted because of their nationality not your performance...</p>

## Appendix 10 summary of presentation and articles

Date	Event/publication	Type	Title
<b>13-14/09/2015</b>	Royal pharmaceutical Society Annual Conference 2015. Birmingham, UK.	Poster presentation.	An evaluation of the Global Pharmacy Workforce Highlighting Pharmacy Human Resource challenges for Countries in the Gulf Cooperation Council.
<b>01/02/2015.</b>	The chartered institute for IT.	Certificate.	European Computer Driving Licence, ECDL.
<b>31/01 -01/02/2015.</b>	The 8th Saudi Students Conference. London, UK.	Poster presentation.	A qualitative comparative study of service development in two Gulf States.
<b>31-08-04/09/2014.</b>	74th FIP World Congress of Pharmacy and Pharmaceutical Sciences 2014. Bangkok, Thailand.	Poster presentation.	A qualitative Comparative Study of Service Development in Two Gulf States.
<b>29/05/ 2014.</b>	The Pharmaceutical Journal	Article.	Inspiration, support and Guinness: what I gained from the FIP world congress.
<b>27/05/2014.</b>	The Higher Education Academy.	Certificate.	Associate fellowship of the Higher Education Academy.
<b>22-24/02/2014.</b>	The 4th pharmaceutical care conference. Muscat, Oman.	Poster presentation.	Pharmacy Workforce in the Gulf Countries.
<b>11/2013</b>	The International Pharmacy Journal	Article.	Developing Leadership in Young Pharmacists.

<b>31/08-05/09/2013.</b>	The FIP Annual Congress 2013. Dublin, Ireland	Poster presentation.	Pharmacy Workforce in the gulf region.
<b>2013</b>	2013 FIPEd Global Education Report	Article.	
<b>3-8/10/2012</b>	World Congress of Pharmacy and Pharmaceutical Sciences 2012. Amsterdam the Netherlands.	Attendance.	
<b>09-10/09/2012</b>	Royal Pharmaceutical Society Annual Conference 2012. Birmingham, UK	Attendance.	
<b>2012-2016</b>	M pharm OSCEs, UCL School of Pharmacy.	Actor /Assessor.	
<b>2012-2016</b>	MSC CIPP OSCEs, UCL School of Pharmacy.	Actor /Assessor.	

