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## Investigating the Views and Attitudes of Community Pharmacists in Abu Dhabi towards Extending Their Practice Roles

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### Research Article

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#### ABSTRACT

**Objective:** To investigate the views and attitudes of community pharmacists in Abu Dhabi (AD) towards extending their practice roles. The aims were to review and critically appraise the literature on the current and extended roles of community pharmacists in AD and the rest of the world; to establish the current roles being practiced by community pharmacists in AD, their preferences for extension of their current roles and attempts taken by them in relation to this; to identify the perceived advantages, disadvantages, barriers, and facilitators to role extension in AD community pharmacists' opinion. This information was then used to make recommendations for future research and the further extension of community pharmacists' roles in AD.

**Setting:** Abu Dhabi, United Arab Emirates (UAE).

**Key findings:** The response rate was 20% (137/685). Selling and counselling on OTC drugs and counselling on prescribed medications were practiced most frequently by community pharmacists in AD. The current roles infrequently practiced by community pharmacists in AD are public health promotion and reporting of adverse drug reactions, interactions, and prescribing errors. More than 90% of respondents supported or strongly supported further extension of community pharmacist role in AD. Respondents were very interested in the minor ailment scheme/service (41.6%), reviewing and monitoring prescribing guidelines (38.7%), and supporting carers of patients with chronic disease (38%). Qualitative data showed interest in extending counselling roles and public health promotion. Respondents strongly agreed that advantages to community pharmacists' role extension include increased confidence and job satisfaction (56.2%), easier and faster access to healthcare (48.2%), and safer treatment for patients (46%); disadvantages include increased workload on community pharmacists and a tense relationship with physicians.

Important barriers to role extension include lack of space and facilities, incentives, and time to participate in training/educational programs. Necessary facilitators to role extension include making the costs of training/educational programs more affordable and providing financial rewards to community pharmacists practicing extended roles.

**Conclusion:** There is a strong support from community pharmacists in AD to extend their roles due to the perceived advantages of this. They expressed more interest in certain roles. However, community pharmacists in AD realize that there may be disadvantages to their

role extension and that there are certain barriers that must first be considered and addressed in order for role extension to occur. Several facilitators were agreed on or suggested to encourage role extension in AD. Health authorities could use this information to plan future changes in community pharmacists' roles in AD.

## INTRODUCTION

Professionalism is described as 'a political struggle to have access to and control of a unique body of specialist knowledge and to protect territory in the labor market in order to secure higher income and more control over working conditions'. Decades ago, community pharmacists exclusively practiced certain roles like compounding, selling, and dispensing medications. This gave them specialization and autonomy as healthcare professionals.

However, rapid advances in technology, research, and education, the changing cultural and socioeconomic status of many populations throughout the world, and the escalating needs and requirements of patients has caused many changes which eventually led to the loss of specialization of pharmacists in these roles. In an attempt to adapt to the changes occurring and to the growing needs of patients and to maximize the utilization of community pharmacists' unique structured knowledge of a drug's safety profile, (side effects, interactions and contraindications), <sup>[1-3]</sup>, drug efficacy, patients' preferences, and drug selection, the practice of new roles was introduced to the community pharmacy profession <sup>[4-7]</sup>.

These new roles shifted the community pharmacy practice from a product oriented to a patient oriented one. Several studies have demonstrated that extending community pharmacists' roles could result in many benefits for patients including: improve in the quality of care, a decrease in general practitioner workload, and a reduction in the long-term healthcare costs <sup>[8,9]</sup>. In their opinion, potential benefits to community pharmacists include improvements in their professional status and job satisfaction and in the way they are paid <sup>[10-13]</sup>. However, possible disadvantages from community pharmacists' role extension could be increased workload and the development of a tense relationship between pharmacists and physicians.

Extending community pharmacists' roles started with the introduction of the concept of pharmaceutical care. Pharmaceutical care is defined as the 'responsible provision of drug therapy for the purpose of achieving definite outcomes that improve a patient's quality of life' <sup>[14]</sup>. Consequently, community pharmacists' roles, in many countries, were extended to include disease state management, medicines use reviews (MURs), <sup>[1]</sup> health assessment, monitoring, and screening, chronic disease management <sup>[7,15]</sup>, repeat dispensing <sup>[7]</sup>, minor ailments management schemes <sup>[7]</sup>, public health promotion and awareness (smoking cessation, sexual health) <sup>[7,16]</sup>, review and monitoring of prescribing guidelines, and development of schemes to promote the safe use of medicines in pregnancy and breastfeeding <sup>[16]</sup>.

## BACKGROUND

### The international experience

One of the countries that took strong initiatives to extend community pharmacists' roles is the United Kingdom (UK). Pharmaceutical organizations have been involved in campaigns for 'reprofessionalisation' of pharmacists- redefining their role to go beyond dispensing <sup>[14,6]</sup>. In Scotland, a new community pharmacy contract was implemented in 2005 allowing community pharmacists to present patients with more services via the Minor Ailment Service (MAS), the Chronic Medication Service, the Acute Medication Service, and the Pharmaceutical Public Health Service <sup>[4,6]</sup>.

The MAS is a service provided by community pharmacists to assist patients in self-care for minor ailments <sup>[4]</sup>. Paudyal et al. <sup>[17,18]</sup>, have defined these terms by referring to the World Health Organization's (WHO) definition of self-care: what people do for themselves to establish and maintain health, and to prevent and deal with illnesses; and the Royal Pharmaceutical Society of Great Britain's (RPSGB) definition of minor ailments: self-limiting conditions requiring little or no medical intervention, such as cough, cold, and indigestion.

The UK divided services provided by community pharmacists into essential, enhanced, and advanced <sup>[18]</sup>. One example of an 'essential service' is repeat dispensing of chronic medication prescriptions <sup>[1]</sup>. 'Enhanced services' include minor ailments prescribing and involvement in smoking cessation programs <sup>[19]</sup>. 'Advanced services' include the MURs; a service provided to patients to review their use and understanding of their medications thereby improving their knowledge of their medications. It also involves a check performed by pharmacists to identify, discuss, and resolve poor or ineffective use of medicines. In addition to that, the pharmacist identifies side effects and drug interactions that may influence patient compliance and therefore affect the clinical and cost effectiveness of the prescribed medicines <sup>[1]</sup>.

Even though the reclassification of medicines has restricted the supply of many medicines by pharmacists without a prescription, it has also allowed some prescription only medications (POMs) to be supplied only by pharmacists as a pharmacy medicine (PM). For example, medications for acute minor illnesses have been reclassified from POMs to PMs; similarly medications

for more serious long-term illnesses- like Simvastatin (prevention of coronary events) and Sumatriptan (migraine treatment) and medications for treating irritable bowel syndrome, chlamydia, and arthritis, have been reclassified to PMs <sup>[1,2,17]</sup>.

Patient Group Directions (PGDs) have also been introduced to allow pharmacists to supply certain POMs without a prescription within strict protocols according to local requirements or to supply medicines for indications not covered by the marketing authorizations for other available over-the-counter-OTC medicines <sup>[2,17]</sup>. In New Zealand, the pharmaceutical society launched the Ten Year vision for Pharmacists in 2004, <sup>[20]</sup> which called for pharmacists to practice enhanced cognitive pharmaceutical services (CPS). Enhanced CPS is 'professional services provided by pharmacist, using their skills and knowledge to take an active role in contributing to patient health through effective interaction with both patients and other health professionals' <sup>[21]</sup>.

In the USA, pharmacists now practice 'new' roles like administering immunizations, point-of-care testing (diagnostic testing performed at or near the site of patient care for the screening and monitoring of diseases), prescribing (initiate, adjust or discontinue) and managing medications for the treatment of diseases like dyslipidemia, congestive heart failure, coronary artery disease, diabetes, asthma, hypertension and end-stage renal disease; ordering, interpreting and monitoring laboratory tests, formulating clinical assessments and developing therapeutic plans, providing care coordination and other health services for wellness and prevention of disease, and providing health maintenance information and education. In addition to that, pharmacists in the USA can choose to obtain extra accreditation to become specialized; examples of pharmacist specialties include nutrition support pharmacist, oncology pharmacist, psychiatric pharmacist, ambulatory care pharmacist, diabetes educator, advanced diabetes management, infection control professional, professional in healthcare quality, professional in healthcare information and management systems, and chronic care professional <sup>[22]</sup>.

### **Community pharmacy in the Middle East**

The community pharmacy practice in most of the countries in the Middle East is very similar to that of the United Arab Emirates (UAE), where pharmaceutical care and 'extended' roles are still not practiced optimally or not practiced at all <sup>[23,24]</sup>. However, some of these countries, especially the UAE, have taken initiatives to allow and prepare community pharmacists to practice 'extended' roles <sup>[25]</sup>.

Hasan et al. have conducted many researches related to the community pharmacy profession in the UAE <sup>[25,26]</sup>. Due to the importance of their work, a short summary of the methodology used by them and possible limitations should be introduced (this is not a comprehensive critical appraisal of their work). Their first study investigated the community pharmacists' workforce characteristics and the perceived barriers to practicing professional (enhanced) services <sup>[25]</sup>. Their second paper presented information collected from their first study about the type and frequency of services currently provided in community pharmacies in the UAE, <sup>[25]</sup>. In their latest study, they developed, validated, and then used a tool to assess patient (public in all the emirates) satisfaction with current community pharmacy services <sup>[26]</sup>.

In their first and second studies, questionnaires were administered by hand to community pharmacies, in all seven emirates of UAE. Collecting information from such a diverse population may have allowed results to be generalizable; however, they did not take into account the diversity in healthcare systems in each of the seven emirates which may have needed further investigations. Calculating the sample size was based on the number of community pharmacies (not the number of community pharmacists). After sample size calculation, pharmacies were chosen by systematic random sampling; then one pharmacist from each pharmacy was chosen to respond. How or on what basis this pharmacist was chosen was not made clear. Nevertheless, if the pharmacist was chosen based on convenience/availability in the pharmacy at time of administration, then generalization of results may be questioned <sup>[27]</sup>.

Questionnaires were administered by Sharjah University in Sharjah Emirate (UAE) undergraduate students. In the studies some of the 'enhanced' services investigated- like adverse drug reaction and medication errors identification and reporting and counseling in an open area- are actually 'essential' services to be provided by all community pharmacists in Abu Dhabi <sup>[28,29]</sup> that's why the provision of these services may be different in Abu Dhabi from the rest of the emirates, and further research on the provision of these services particularly in Abu Dhabi would have been necessary.

In their latest study investigating public views of community pharmacist services, the authors used a new tool to measure satisfaction which still needs further validation. The sample was chosen according to convenience. Even though random sampling in this case was difficult <sup>[27]</sup> the researchers realized that generalizability of results should be approached cautiously <sup>[26]</sup>. Questionnaires were also delivered by hand but via research assistants. Qualitative methods of data collection were not used in any of the three researches. The investigators were the first in the UAE to investigate these subjects using survey methods. They covered the topic of community pharmacy services from different perspectives (community pharmacists and the public), therefore, are leading researchers on this topic in the UAE. Calculations of sample size and justification for the choice of the questionnaire administration method were explained well. Presentation and discussion of results was comprehensive and unbiased.

### **Community pharmacy in Abu Dhabi**

Abu Dhabi (AD) is the capital of the UAE. The UAE consists of seven emirates (AD, Dubai, Fujairah, Umm al-Quwain, Ras al-Khaimah, Ajman, and Sharjah) whose healthcare systems differ from each other noticeably. The community of Abu Dhabi consists

of local/national Emirati citizens (16.5% of the population) and expatriates (people not holding the UAE citizenship- non UAE nationals- but residents in the UAE) from different countries such as Arab, Indian and other Asian countries, UK, United States of America (USA) and many Europeans <sup>[25]</sup>. Health services, provided by private or government facilities, and medications dispensed to expatriates are paid for by insurance companies. All types of insurance schemes must cover payment for basic healthcare services and medications prescribed by doctors. However, the range of payment coverage is 20% to 100% by each insurance scheme differs.

For UAE nationals, healthcare services and medications are paid for by the National Health Insurance Company-Thiga and Daman. The Department of Finance, Government of Abu Dhabi, is responsible for the financial reconciliation of all healthcare services offered to UAE nationals and paid for by Thiga-Daman <sup>[29]</sup>. In Abu Dhabi, the Health Authority of Abu Dhabi (HAAD) and the Ministry of Health (MOH) are responsible for regulating the healthcare system. In Dubai, the Dubai Health Authority (DHA) and the MOH regulate the healthcare system; the rest of the emirates are regulated by the MOH alone. The government healthcare facilities in Abu Dhabi are managed by Abu Dhabi Health Services Company (SEHA). Community pharmacies are all privately owned; they are either small independently-owned shops, chain franchised shops, or pharmacies belonging to hospitals or medical centres <sup>[25]</sup>.

Pharmacies in the UAE are open for 7 days per week with an average working day of 13 h. Most community pharmacists (80%) work 6 days per week for 8-10 h per day <sup>[25]</sup>. Most community pharmacists are initially qualified from India, Egypt, the UAE, Philippines, and Jordan <sup>[25]</sup>. For a pharmacist to practice in Abu Dhabi, a licensing exam must be passed first. The license can only be renewed every year after attendance of a certain number of continuing medical education (CME) hours. This was put as a requirement to improve and maintain the competency of community pharmacists and to ensure all community pharmacists in Abu Dhabi have the same skills and standards of practice (this is important to overcome the diversity in their learning backgrounds) <sup>[4,30]</sup>.

### **Pharmacy and pharmacist regulatory affairs**

The pharmacy profession and practice in Abu Dhabi is governed by the UAE Federal Law No.4 and by circulars regularly released by HAAD and the MOH. The law states that community pharmacy owners must be UAE citizens without specification that they should be pharmacists. A recent study has shown that 70% of community pharmacies were owned by non-pharmacists <sup>[31]</sup>.

The UAE law defines the pharmacy profession as the preparation, composition, manufacturing, packing, selling, or distribution of any medicine or pharmaceutical preparation for the protection or treatment of humans or animals from diseases. According to the law, pharmacists were not allowed to supply any medicine or pharmaceutical preparation without a prescription (all medicines were classified as POM or controlled drugs) <sup>[9]</sup> or practice any medical or nursing works, except for works related to first aid (United Arab Emirates Federal Law no.4). Since 2005, many changes have been implemented to the community pharmacy profession in Abu Dhabi. One of these changes was the reclassification of several medicines from POM to pharmacist only medicines (PH-OM), over the counter pharmacy medicines (OTC-P) and medicines sold in pharmacy and non-pharmacy outlets medicines (OTC-G) <sup>[15]</sup>.

In Abu Dhabi unlike the other emirates, there are regular 'surprise' inspections on the practice of community pharmacists. As a result, all rules are strictly followed. For example, in some emirates oral contraceptives and antibiotics (POMs) can sometimes be sold by the pharmacist without a prescription- an act that would rarely happen in Abu Dhabi. A recent document was released by HAAD which clearly outlined the professional competencies and roles of pharmacists for the first time. It highlighted the importance of pharmaceutical care and encouraged its practice (**Appendix II**). Abu Dhabi. Health Authority of Abu Dhabi <sup>[7]</sup>, Abu Dhabi <sup>[6]</sup>. Several studies have discussed the practice of community pharmacy in the UAE, but not in Abu Dhabi specifically.

These studies have shown that around three-quarters of the pharmacies in the UAE dispense fewer than 100 prescriptions (75%) and respond to fewer than 100 requests for OTC medicines (69%) per day <sup>[31]</sup>. Specialized compounding for prescriptions occurs in 32% of community pharmacies <sup>[32]</sup> Dispensing is mostly carried out by a pharmacy technician/assistant, under the supervision of a pharmacist, to allow pharmacists to fulfill administrative and managerial roles <sup>[33]</sup>. Such roles include monitoring and reviewing controlled drugs prescriptions, double checking prescriptions for dispensing errors, dealing with insurance companies' approvals and rejections, keeping track of stock and expiry, etc. In some cases, a pharmacist may be officially employed to manage a pharmacy but may be physically absent from it for hours or on certain days of the week <sup>[31]</sup>.

Studies have also shown that most community pharmacists in the UAE only counsel patients regarding the dosage and frequency of use of the medications they are purchasing; they occasionally check for and advise on adverse reactions and drug interactions, and usually only when asked by the patient <sup>[33]</sup>. Results of a survey questionnaire distributed to community pharmacists in the UAE showed that 29% of the respondents always offered patient information leaflets or other written or printed material and 33% always used small precautionary labels (for example take with food, don't drive, etc.) when counseling patients. Counseling in an open area was always provided by 28% of community pharmacists in the UAE, while private counseling in a designated closed area was always provided by 11% <sup>[32]</sup>. These were all considered by the researcher as 'enhanced professional' roles.

The most recent study done by Hasan et al. <sup>[34]</sup> used a newly validated tool to assess patient satisfaction with community pharmacy services in the UAE. Results showed that members of the public were not satisfied with the counseling services; a small

percentage rated 'very good' or 'excellent' for the explanation they receive about their medication (41%), the information provided about side effects of medications (16%) and the interest shown by community pharmacists to help them make best use of their medication (30%). Community pharmacists have limited immediate access to up-to-date resources like the British National Formulary (BNF) <sup>[32]</sup>. The turnover rate of pharmacists in the community pharmacy sector is high. Researchers have suggested this may affect continuous care delivery to patients <sup>[31]</sup>. The community pharmacy services provided in the UAE were considered by some researchers as 'traditional or product-focused with minimal or negligible pharmaceutical care provided' <sup>[34]</sup>.

### **Health authority of Abu Dhabi (HAAD)'s initiatives**

In 2010, HAAD surveyed community pharmacists, using an online questionnaire, on their preferences towards extending their counseling roles. They were asked questions on their: demographic information, current practice, current pharmacy layout, perspectives on future pharmacy licensing requirements, Support for reimbursement of additional services they provide, interest in extending their counseling roles for the management of different health conditions (hypertension, diabetes, hyperlipidemia, asthma, others), and their opinion of the greatest challenge facing the extension of their counseling roles (See **Appendix 1**-section 6 for full survey questionnaire).

The results of this survey were not published but the researcher was able to obtain excerpts of it through personal communication with HAAD employees. Following this survey, several programs have been developed to prepare community pharmacists to undertake these extended counseling roles. Examples of such programs include the Pharmacist Asthma Educator Program, the Diabetes Management Educator Program, and the American Pharmacist Association Immunization course for pharmacists, and the Smoking Cessation Training <sup>[20,13,14,16]</sup>.

In addition to that, HAAD redefined the scope of pharmacist roles to include some extended/enhanced roles such as: screening, point of care testing and adult vaccination services, medicines use management, and counseling patients on preventive health and life style management strategies <sup>[13]</sup>. HAAD's mission is to ensure reliable excellence in healthcare. It has put clear plans to achieve this; these include increasing focus on public health matters, developing and monitoring evidence-based clinical policies, training health professionals to comply with international standards to deliver world-class quality care, amongst others <sup>[17]</sup>. HAAD has implemented part of its plans by extending the range of services provided by community pharmacists to match some of those provided by community pharmacists throughout the world. There is a wider recognition that pharmacists are indispensable in monitoring drug therapy, medication reconciliation, and providing responsible pharmaceutical care <sup>[35]</sup>. Before making further plans to extend community pharmacists' roles, and to ensure the success of these plans, it is important to establish the views of community pharmacists in Abu Dhabi on practicing extended roles and to gain understanding and information on what pharmacists see as preferred change strategies or facilitators to change <sup>[36]</sup>.

## **METHODOLOGY**

The methods used were carefully designed to meet the research's objectives.

### **Literature search**

An extensive literature search was conducted to review, critically appraise, and extract information from the literature on the following topics:

- The most appropriate study design, mode of data collection and administration, questionnaire design, suitable critical appraisal tools, analysis methods, etc. to achieve the other objectives of this research
- the current 'essential' and 'extended' roles and possible future roles of community pharmacists in AD and the rest of the world
- The perceived advantages and disadvantages and barriers and facilitators to community pharmacist role extension from varying perspectives (community pharmacists, GPs, public) in different parts of the world

Exclusion and inclusion criteria used in search <sup>[37]</sup>:

- Articles in all languages were sought: no Arabic publications were found. If the language used was unknown to the researcher and no translated version was available, the article was excluded.
- Articles published within 2000-2013: The topic of the research is to investigate the expanding roles of community pharmacists in AD. The thesis will also refer to this role expansion in other parts of the world in relation to AD. Community pharmacist role expansion is an on-going process, therefore the latest articles are the ones most likely to give an idea of role expansion that has occurred and is occurring.
- Articles to which the researcher did not have access to the full text were excluded.
- Types of research included: qualitative, quantitative, systemic reviews, discrete choice experiments
- Type of material sought: journal articles, books, web pages, legal material, newspaper articles

- Material (from web pages, journals, books, etc.) that did not meet the required standards for citation according to the critical appraisal tools used by the researcher (ex: Crowe critical appraisal tool, RGU recommendations for critical appraisal of web pages) were excluded<sup>[37-40]</sup>. Since there is no 'golden' tool recommended for any specific type of research<sup>[41]</sup>, the researcher chose these tools mainly according to recommendations from RGU. In **Appendix 1** are examples of a few of the critical appraisal tools used by the researcher and two examples of critical appraisals conducted by the researcher and assessed by the researcher's tutor. This was done as a practice before searching the literature in order to ensure that the researcher has the appropriate critical appraisal skills.

- Articles presenting the different views and attitudes of community pharmacists towards role expansion in AD and other parts of the world were included- all points of view were discussed without any bias towards a certain perspective or opinion.

Articles that were irrelevant or discussing the following topics were excluded:

- Role of community pharmacists in prescribing- this was excluded because after discussion with the researcher's University tutor and AD mentor it was decided that exploring the views and attitudes of community pharmacists regarding prescribing should come as a second step after this study due to the more complex nature of the prescribing role

- Roles of community pharmacists in methadone supervision, emergency hormonal contraception: these extended roles are not likely to be practiced here (for cultural and religious reasons)

## SAMPLING

A list of the names and contact information (postal addresses, email addresses, telephone/mobile numbers) of all *licensed pharmacists* in AD, which is publicly available, was obtained from HAAD.

The list included outpatient pharmacists, community pharmacists, drug store employees, and inpatient pharmacists- whether they were owners, partners, or employees. Only community pharmacists were taken into account making the total number of the population under study six hundred and ninety. Since this number is manageable, all community pharmacists in AD were included in this survey. Those community pharmacists that helped in the design of the questionnaire in the pre-pilot stage (n=5) were excluded from this survey- making the number of community pharmacists surveyed six hundred and eighty five.

### Data collection

In order to investigate the views and attitudes of community pharmacists in AD towards extending their practice roles, a cross-sectional survey questionnaire (**Appendix 1**) was designed and administered by post and email to *all community pharmacists* in AD between March and June 2012. The envelopes were addressed to each community pharmacist by name via their personal or working place address. The researcher was the only one involved in the data collection process; i.e. the researcher personally sent out all emails and delivered all questionnaires to the post office from which they were distributed to the whole sample population.

#### ➤ Data collection tool- questionnaire

The questionnaire was carefully designed and piloted by the researcher based on previous similar studies<sup>[42]</sup> and resources recommended mainly by RGU<sup>[28,43-45]</sup>. Guidance from the supervisor was sought regularly. The questionnaire was sent in English.

Quantitative and qualitative data were collected in the form of a combination of closed and open questions respectively. Close-ended questions were predominant and mostly used the Likert scale to allow representation of frequency distributions and numeric statistical results<sup>[44]</sup>. Open-ended questions were necessary to allow addition of comments to explain responses to closed questions and to give respondents the freedom to express other attitudes and views about various matters (see below).

Questions were designed to collect the necessary information to meet the objectives of this research and to present, analyze, and discuss the following outcomes:

- Demographic information- to present correlations (if any) between demographic factors and other variables such as interest in practice of certain extended roles

- Extent of practice of current roles- gives information on the contribution of community pharmacists to the health care of the public in AD, the level of pharmaceutical care being practiced, and the awareness of community pharmacists in AD of their 'essential' roles and responsibilities (Abu Dhabi. Health Authority of Abu Dhabi 2010b).

- Extended roles that interest community pharmacists in AD the most/least-puts focus on these roles in case of plans for future changes in community pharmacists' roles in AD.

- The extent of involvement of community pharmacists in AD in HAAD's programs for role extension shows the programs that community pharmacists participated most in (shows the type of counseling roles community pharmacists are most interested in) and the reasons/barriers for non-participation

- The kind of attempts taken by community pharmacists in AD to extend their practice roles, if any- shows the personal initiatives taken to extend their practice roles and their enthusiasm towards this.

- The level of support for further community pharmacist role extension
- The most significant advantages and disadvantages to community pharmacist role extension, in community pharmacists' opinion
- Which barriers place the highest threat on community pharmacist role extension in AD, in community pharmacists' opinion
- Which facilitators would be most effective in encouraging role expansion in AD, in community pharmacists' opinion

These outcomes were then used to meet the final objective of this research- to make recommendations for practice and future research.

Most of the current or extended roles included in the questionnaire were explained to make sure the terms used were understood in the same way by all respondents. This was important to reduce data inaccuracies resulting from misunderstanding. Roles were listed randomly in no particular order to reduce bias.

#### ➤ **Administration of the questionnaire**

The questionnaire was sent along with an introductory cover letter and a letter from HAAD encouraging participation (all three are found in **Appendix 1**). Completion of the questionnaire was considered as consent to participate. After one month interval the same documents were sent to the whole sample population (blanket reminder). After another month, data entry and analysis started. The whole process of data collection/administration was done by the researcher only.

#### ➤ **Pre-pilot**

After questionnaire development, it was discussed and reviewed by 5 conveniently selected colleagues who are all community pharmacists. They were asked on the clarity of the questions and instructions, ambiguities, simplicity to understand and solve and navigate through it, the time taken to respond, topic coverage in relation to the objectives of the research- if they think some areas need to be looked into more (require more questioning), if questions are leading (bias?), and if any other modifications are needed.

After that, the questionnaire was discussed comprehensively and in detail with two officials in health authorities of AD- the Ministry of Health (MOH) and the Abu Dhabi Health Services Company (SEHA). Each of the officials had a postgraduate qualification in pharmacy (PhD and MSc respectively), therefore they were able to also comment on questionnaire layout, the way questions were asked, the roles covered in relation to current legislation and in general on certain characteristics of the questionnaire in relation to the type of research being conducted. All modifications suggested were implemented and the questionnaire was refined after discussion with the researcher's supervisor in RGU.

#### ➤ **Pilot**

The questionnaire, cover letter, and HAAD letter were sent by post and email to 10% of the total population (685) = 68 community pharmacists. These were chosen using systematic random sampling by using the nth interval method from the list provided by HAAD<sup>[44]</sup>. Responding was considered as consent to participate.

One blanket reminder was supposed to be sent 2 weeks after the initial mailing; but since no questionnaires were returned by that time, the post office was contacted to double check that envelopes were delivered on time, they clarified that it takes around 5-6 days to sort out the envelopes and distribute them. It takes an equal amount of time for respondents' envelopes to reach the sender. For that reason, the interval between the first and second mailings was extended from 2 to 4 weeks. Since no other problems in responding were evident at that stage, the questionnaire design and mode of administration were not modified further and the pilot stage respondents were included in the final population under study.

## **ANALYSIS**

### **Quantitative data**

Quantitative data was entered by the researcher into SPSS version 17<sup>[46]</sup>. 10% of the entries were checked by a colleague, where discrepancies were found they were corrected. The rest of the entries were then checked by the same colleague. No other discrepancies were found<sup>[47]</sup>. Descriptive statistics (descriptive and frequencies) were used to analyse quantitative results. The Pearson Chi square test was used to find associations between demographic data and other variables due to the ordinal nature of the data retrieved. A P value  $\leq 0.05$  denoted a statistically significant association.

### **Qualitative data**

Analysis of qualitative data followed quantitative data analysis, because the main role of results generated from qualitative data was to support, refute, explain, reinforce, add to, or enhance the results generated from quantitative data. Thematic framework analysis was used to analyse qualitative results. This method was chosen due to its linear nature and because it is the ideal qualitative data analysis method to use when there is a short timescale for data analysis. Grounded theory analysis was

not chosen because data saturation is not the goal and because data collection and analysis were not performed side by side <sup>[48]</sup>. Analysis of the qualitative data was done separately for each open question using the following procedure <sup>[48]</sup>:

- All responses were read twice to familiarize with the data.
- Then, a rough thematic framework was designed based on previously read literature and on respondents' answers.
- While reading responses for the third time, new codes were written separately. Codes (such as staff issues, legislation and conflicting information) were extracted from a word(s) used in the response or from previously read literature. One or more codes were created for each response, since respondents usually raised more than one issue in their responses. The codes were compared to the rough thematic framework designed and either refined or kept the same.
- The refined codes were then grouped into themes.

This procedure was done twice for each question, to ensure results are consistent and reproducible. The last three open-ended questions gave respondents the opportunity to list other advantages or disadvantages, barriers, and facilitators to role extension. The average number of responses to each of these questions (14 responses) was small compared to responses to all other open questions in this study. Responses to these questions were strongly related. Therefore, after analysis of each question separately, themes emerging from each question were either grouped or divided into new themes to represent views expressed in all three questions.

### Ethical approval and research governance

The study received ethical approval from RGU ethics committee and from the Al Ain Medical District Human Research Ethics Committee (AAMDHREC) which serves as a proxy to the Abu Dhabi Research Ethics Committee (ADREC) <sup>[18]</sup>.

### Data protection and patient confidentiality

Respondents' names were not asked for in any part of the questionnaire. After sending out the questionnaires, the HAAD list of licensed pharmacists was placed in a sealed envelope and given to the workplace mentor, where she stored it in a locked drawer in her workplace (Robert Gordon University <sup>[47]</sup>). It was destroyed after analysis. Any personal information used or obtained in the course of the research was not disclosed to anyone <sup>[18]</sup> to ensure anonymity.

## RESULTS

### Response rate

Six hundred and eighty five questionnaires were distributed to all community pharmacists (including those from the pilot stage) in the emirate of AD by post and email. 137 completed questionnaires were returned, making the response rate 20%. 72 questionnaires were returned unclaimed or due to wrong addresses. Some respondents did not answer all the questions in the questionnaire.

A summary of the demographic information of respondents is provided in **Table 1**. As shown in the table, most of the respondents were between 25-45 years old, were female, had no postgraduate qualification, were employed in a large chain pharmacy, and worked for less than 5 years in AD. Respondents worked an average of 48 h per week (mean=48.14, standard deviation=6.586)

**Table 1.** Respondents' demographics.

Variables	Values	% (n=)
Age group	<25	6.6% (9)
	25-45	75.9% (104)
	46-60	11.7% (16)
	>60	5.8% (8)
Gender	Male	44.5% (61)
	Female	54% (74)
Postgraduate degree(s)	Yes	20.4% (28)
	No	38% (52)
	Not Mentioned	41.6% (57)
Type of pharmacy	Employed in Large Chain Pharmacy	49.6% (68)
	Employed in Small Chain Pharmacy	21.9% (30)
	Employed in Independent Pharmacy	16.8% (23)
	Owner/Partner of Large Chain Pharmacies	0% (0)
	Owner/Partner of Small Chain Pharmacies	2.9% (4)
	Owner/Partner of Independent Pharmacy	2.9% (4)
	Other	4.4% (6)



Number of years working in AD	<5 years	44.5% (61)
	5-10 years	32.1% (44)
	11-20 years	12.4% (17)
	21-30 years	7.3% (10)
	>30 years	1.5% (2)

Of the respondents to this study, 40.9% saw the survey posted by HAAD in 2010 on extending the roles of community pharmacists; 14.6% of the total respondents in this study also responded to HAAD's survey. Owners/partners of pharmacies (independent or small chain) were more likely to answer HAAD's survey (p=0.023) (**Table 1**).

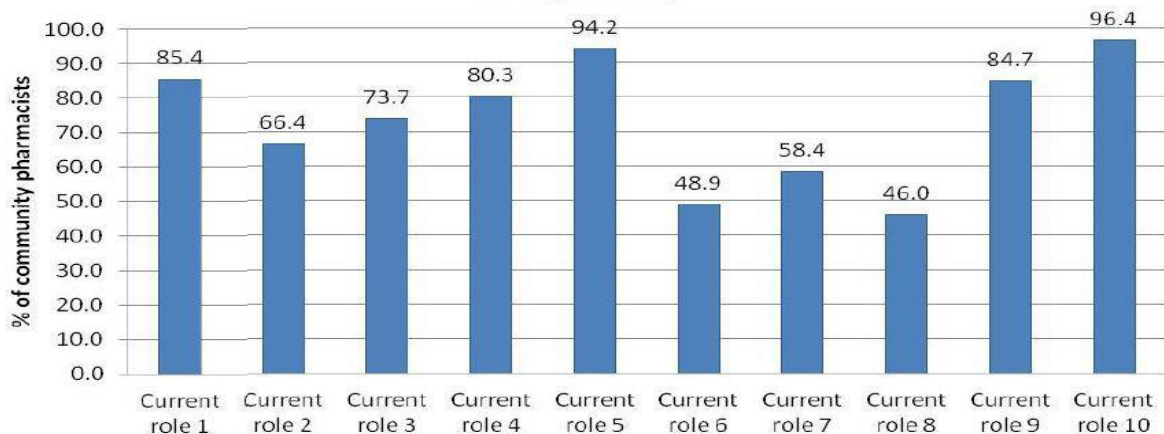
**Roles currently practiced by community pharmacists in AD**

**Table 2** shows that the roles provided very frequently or frequently by the majority of community pharmacists in AD currently include: selling and counseling on OTC drugs, explaining to patients the use of medical devices, and counseling patients on prescribed medications. Roles practiced to a much lesser extent include public health promotion and reporting ADRs, interactions and prescribing errors (**Figure 1**).

**Table 2.** Extent of practise of current roles.

Roles	Extent of Practice %(n=)						Total
	Very Frequent	Frequent	In-frequent	Very In-frequent	Never	Missing	
Counseling patients about prescribed medications	35.8% (49)	49.6% (68)	12.4% (17)	2.2% (3)	0% (0)	0% (0)	137
Detecting and preventing drug interactions and contraindications	17.5%	48.9%	23.4%	8.8% (12)	1.5% (2)	0% (0)	137
Detecting and preventing prescribing errors	35% (48)	38.7% (53)	18.2% (25)	5.8% (8)	2.2% (3)	0% (0)	137
Educating patients about their disease condition(s)	25.5% (35)	54.7% (75)	16.1% (22)	3.6% (5)	0% (0)	0% (0)	137
Explaining to patients use of medical devices	56.9%	37.2%	5.8% (8)	0% (0)	0% (0)	0% (0)	137
Public health promotion	13.9% (19)	35% (48)	32.1% (44)	8.8% (12)	10.2% (14)	0% (0)	137
Providing medicines information to health professionals	16.8% (23)	41.6% (57)	24.8% (34)	13.9% (19)	2.2% (3)	0.7% (1)	137
Reporting adverse drug reactions, interactions, and prescribing errors	13.1% (18)	32.8% (45)	29.2% (40)	14.6% (20)	10.2% (14)	0% (0)	137
Reviewing national circulars and international updates	40.9% (56)	43.8% (60)	13.1% (18)	1.5% (2)	0.7% (1)	0% (0)	137
Selling and counseling on OTC medicines	68.6% (94)	27.7% (38)	1.5% (2)	0.7% (1)	1.5% (2)	0% (0)	137
Total	32.4% (444)	41% (562)	17.7% (242)	6% (82)	2.8% (39)	0.07% (1)	1370

**Current roles practiced very frequently or frequently**



**Note:** Current Role 1: Counseling patients about prescribed medications, 2: Detecting and preventing drug medication errors, 3: Detecting and preventing prescribing errors, 4: Patient disease education, 5: Explaining to patients use of medical devices, 6: Public health promotion, 7: Medicines information to health professionals, 8: Reporting ADRs, interactions, prescribing errors.

**Figure 1.** Percentage of community pharmacists practicing current roles very frequently or frequently.

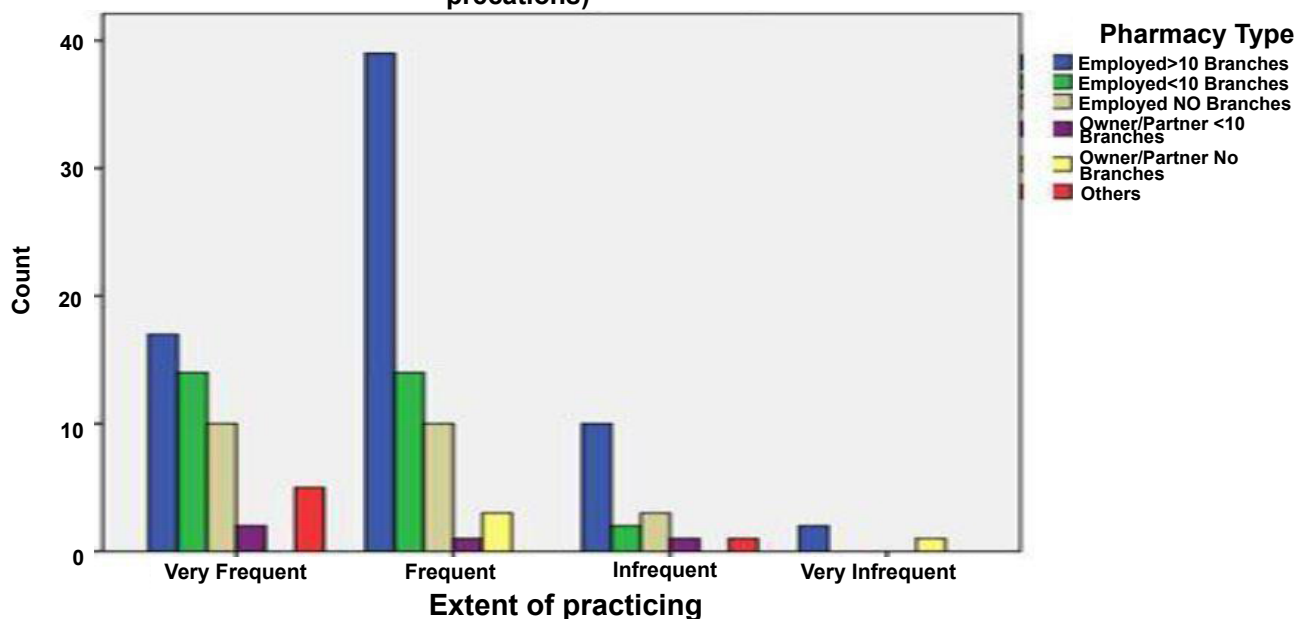
When community pharmacists were asked which of the roles they practiced ‘infrequently’, ‘very infrequently, or ‘never’, they would like to practice more in the future, the majority picked public health promotion. “I would like to practice in the public health promotion awareness, especially in the field of smoking cessation, drug misuse and correct medicine storage and disposal in future” (Male, aged 46-60, employed in independent pharmacy). A large number of respondents also picked reporting ADRs, interactions, and prescribing errors. One respondent explained the reason why he did not practice this role frequently. He said:

“I am working in a pharmacy which is very busy most of the time, so I am getting very less time to concentrate more on drug interactions and secondly patient is not willing to wait for long to discuss his medical condition after long wait in hospital.” (Male, aged 25-45, employed in large chain pharmacy). The impact of time constraints on practicing current or future roles was also discussed in response to other questions. Another reason given for not reporting ADRs specifically was that they don’t occur often. A lot of the respondents wanted to be more involved in patient counseling- this was expressed in terms like ‘clinical pharmacy’, ‘counseling patients about side effects’, and ‘counseling patients about more common diseases’.

Significant correlations between demographic factors and practice of current roles were found using the Pearson Chi square test:

- Respondents employed in large chain pharmacies were more likely to counsel patients about prescribed medications (p=0.027)
- Respondents with less than 5 years’ experience were more likely to: detect and prevent prescribing errors (p=0.003), explain to patients use of medical devices (p=0.047), and sell and counsel on OTC medications (p=0.029 respectively)
- Respondents with no postgraduate qualification were more likely to provide medicines information to health professionals (p=0.005) and report ADRs, interactions, and prescribing errors (p=0.018) (**Figure 2**).

**Counselling patients about prescribed medicines (including side effects and precautions)**



**Figure 2.** Association between pharmacy type and extent of counseling patients on prescribed medications.

**Interest in practicing extended roles**

More than 90% of the respondents strongly supported or supported the further extension of community pharmacists’ roles in AD.

**Table 3** shows a summary of respondents’ interest in practicing a range of extended roles. As shown in the table, the majority of respondents were very interested or interested in supporting careers of patients with chronic disease (85.4%, 38% very interested), reviewing and monitoring prescribing guidelines (85.4%, 38.7% very interested), the minor ailment scheme (82.3%, 41.6% very interested. Respondents were least interested in administering vaccines and limited types of injections (49.6% not interested). More than 75% of the respondents were very interested or interested in practicing all other roles (repeat dispensing, MURs, etc.) (**Figure 3**).

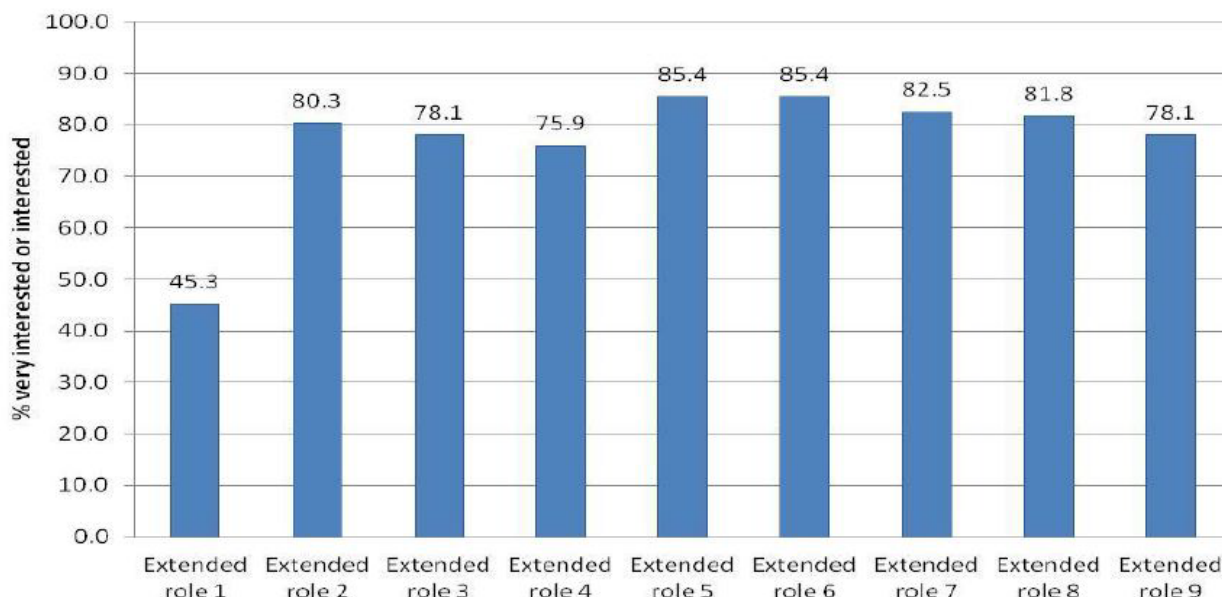
Younger community pharmacists were more likely to be interested in administering vaccines and limited types of injections in the future (p=0.001). No other significant associations were found between demographic factors and interest in practicing any of the other extended roles.

When asked if there were any other roles not mentioned in this study, they would like to practice in the future, responses fell under three main categories:

**Table 3.** Extent of interest in practising extended roles.

Extended roles	Extent of Practice % (n=)					Total
	Very Frequent	Interested	Unsure	Not Interested	Missing	
Administering vaccines and limited types of injections in the community pharmacy setting	21.2% (29)	24.1% (33)	16.1% (22)	33.6% (46)	5.1% (7)	137
Health assessment, monitoring, and screening	35% (48)	45.3%	5.8%	8% (11)	5.8%	137
Involvement in early disease detection and disease prevention programs	27% (37)	51.1% (70)	13.1% (18)	2.9% (4)	5.8% (8)	137
Repeat dispensing of chronic medication prescriptions	33.6% (46)	42.3% (58)	10.2% (14)	5.8% (8)	8% (11)	137
Supporting careers of patients with chronic disease	38% (52)	47.4% (65)	6.6% (9)	2.2% (3)	5.8% (8)	137
Review and monitoring of prescribing guidelines	38.7% (53)	46.7% (64)	8% (11)	0.7% (1)	5.8% (8)	137
Involvement in a minor ailments scheme	41.6% (57)	40.7% (56)	7.3% (10)	4.4% (6)	5.8% (8)	137
Medicines use review	35.8% (49)	46% (63)	10.2% (14)	2.2% (3)	5.8% (8)	137
Involvement in disease state management programs	30.7% (42)	47.4% (65)	13.9% (19)	2.2% (3)	5.8% (8)	137
Total	33.5% (413)	43.4% (536)	10.1% (125)	6.9% (85)	6% (74)	1233

### Interested in practicing extended roles



**Figure 3.** Percentage of community pharmacists very interested or interested in practicing extended roles.

**Note:** Extended role 1: Administering vaccines/limited types of injections, 2: Health assessment, monitoring, and screening, 3: Early disease detection/disease prevention, 4: Repeat dispensing, 5: Supporting careers of chronic disease patients, 6: Review and monitor prescribing guidelines, 7: MAS, 8: MURs, 9: Disease state management programs.

- counseling and monitoring patients

“Smoking cessation serious to be done in the pharmacy and under insurance coverage” (Female, aged 25-45, employed in large chain pharmacy)

“For example we will keep one IPAD or any display project devices to make like 2-3 slides of describing about how medication will be act in easy way to make all patient aware about benefits and harmful of each medication prescribed” (Female, aged below25, employed in large chain pharmacy)

- volunteer work to help needy/poor people

“Collect free medicine and do dispense to some people who cannot pay their medicine” (Female, aged 46-60, type of pharmacy not mentioned)

- supplying a wider variety of medications that are currently prescription only (POM)

“I would like to be more permission to dispense some prescription-only medicines without prescription, like antibiotics because I have full information about this group and I know all its side effects.” (Male, aged 25-45 employed in large chain pharmacy)

“.....I would like to deal with active and chronic infections diseases, commonly dealt by the physicians. Pharmacist should

be allowed to suggest the antibiotics for the patients without prescription for common infectious diseases” (Male, aged 25-45, type of pharmacy not mentioned).

### **Respondents’ attempts to extend their roles**

#### **➤ Participation in HAAD’s programs**

57.7% (n=79) of the respondents did not participate in HAAD’s recently launched programs to extend community pharmacist roles. The reasons for not attending were grouped into three themes:

- Theme 1: insufficient or lack of information

- respondents did not know about the program:

*“I was unaware of it (not informed by HAAD)” (Female, aged 25-45 years, employed in small chain pharmacy)*

- respondents did not receive enough information on how to join:

*“I didn’t know about the date, details, how to join” (Female, aged 25-45 years, employed in large chain pharmacy)*

- Theme 2: inconvenient time or location

- the programs were held on a working day

- the programs were held in a time when they were on vacation/sick or the programs were held at a time they had other preoccupations

- the programs were held at a distant location from their place of work/home

- Theme 3: staff issues- the programs were held at a time where there was not enough staff in the pharmacy or the pharmacy was too busy to allow the absence of a staff member

*“No enough licensed pharmacists in my pharmacy to leave the pharmacy” (Female, aged 25-45, employed in large chain pharmacy)*

Insufficient or lack of information was the most common reason given by respondents for not attending, followed by lack of time. Some explained their non-participation by including more than one of the themes above.

*“Didn’t hear about it, and the one time I heard about it there was less staff so I couldn’t attend” (Male, aged 25-45, employed in large chain pharmacy)*

*“I’m the only pharmacist in the pharmacy and that is at a distance of more than 100 from Al Ain” (Female, aged 25-45, employed in an independent pharmacy).*

Respondents who gave inconvenience of location as a reason were working in a pharmacy in Al Ain or close to Al Ain; which is a city about 160 KM away from AD. Most HAAD programs are conducted in AD. Of those respondents that did attend HAAD’s programs, the majority participated in the diabetes management program. A few respondents participated in the immunization training program. The rest of the respondents mentioned names of other programs they attended but which were not related to HAAD’s specialized training programs for role extension; for example: “cardiovascular disease updates”, “1st and 2nd annual pharmacist OTC education conference”, “advances in hepatology and gastroenterology”, and “clinical pharmacy day”.

Participation in HAAD programs was significantly related to having postgraduate degrees, where those with postgraduate degrees were more likely to participate (p= 0.025).

#### **➤ Improving knowledge**

Respondents improved their knowledge in different ways. Some are doing postgraduate degrees. Others are “reviewing circulars and reading articles on new medicines and case studies” or trying to gain knowledge via “CME lectures, internet, reading medical books and magazines”.

Some respondents used other techniques for learning.

*“It’s my own trial in my own pharmacy that every Friday we make open day totally free for illustrating disease and how to be aware and how to prevent complications like (diabetes, obesity, smoking, etc)” (Male, aged 25-45, owner/partner of small chain of pharmacies).*

*“Many Pakistani pharmacist meet together and are discussing with each other” (Male, aged 25-45, employed in small chain pharmacy).*

#### **➤ Increasing the range of roles practiced in the community pharmacy setting**

The role most commonly practiced by community pharmacists in an attempt to extend their roles beyond dispensing was counseling. Pharmacists counseled patients regarding:

- Lifestyle changes

“Always keep on educating the patients, the health hazard due to smoking and alcoholism in patients with diabetes and cardiac problems. Advice for alcoholic patients in avoiding certain food habits and giving them the knowledge of yoga practice in their daily life especially pranayamam in yoga” (Male, aged above 60, employed in large chain pharmacy)

- Prescribed or dispensed medication

“...everything regarding doses, interaction, indications, and side effects” (Female, aged below 25, employed in large chain pharmacy)

➤ **Improve communication with physicians and patients**

Two female pharmacists working in large chain pharmacies but in different age groups said they “.....ensuring better interaction with prescribing physicians to avoid errors...” and “sometimes asking for any other disease conditions and calling doctors if the dose is not matching with age of children”.

**Pharmacists’ views of advantages, disadvantages, barriers, and facilitators to role expansion- results of closed questions**

As shown in **Table 4**, community pharmacists in AD agreed or strongly agreed that the most important advantages of role extension are an increase in community pharmacists’ confidence and job satisfaction (95.6%, 56.2% strongly agreed), easier and faster access to healthcare for patients (92.7%, 48.2% strongly agreed) and fewer medication errors, less medication misuse and more suitable medication received by the patient (84.7%, 46% strongly agreed).

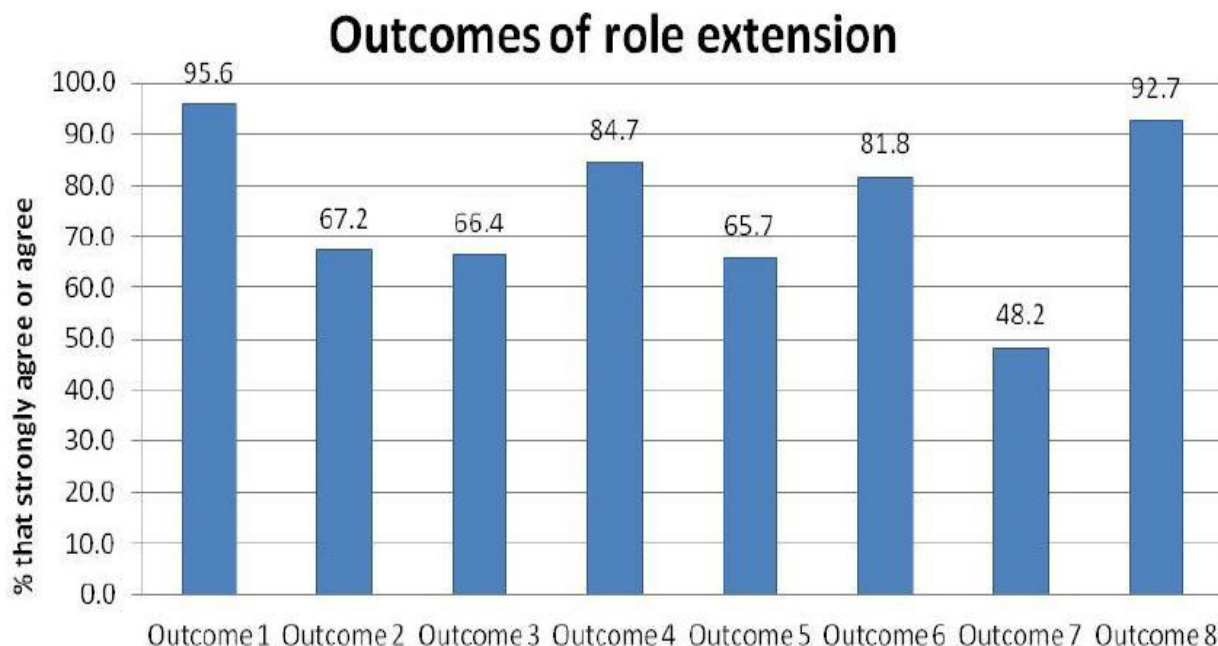
**Table 4.** Percentage of community pharmacists that strongly agree or agree on outcomes (advantages/disadvantages) of role extension.

Advantages/Disadvantages	Extent of Agreement % (n=)						Total
	Strongly Agree	Agree	Unsure	Disagree	Strongly Disagree	Missing	
Allowing community pharmacists to practice more roles will increase their confidence and job Satisfaction	56.2% (77)	39.4% (54)	1.5% (2)	0.7% (1)	0% (0)	2.2% (3)	137
Extending community pharmacist roles may be more cost-effective for insurance companies and/or Stakeholders on the long run.	26.3% (36)	40.9% (56)	23.4% (32)	3.6% (5)	1.5% (2)	4.3% (6)	137
Extending community pharmacist roles may increase workload pressure on community pharmacists	27.0 % (37)	39.4% (54)	14.6% (20)	13.1% (18)	1.5% (2)	4.3% (6)	137
Extending community pharmacist roles will ensure less medication errors, less medication misuse and more suitable medication received by the patient	46.0%	38.7%	9.5%	2.2% (3)	0.7% (1)	2.9% (4)	137
Extending roles of community pharmacists may create a tense relationship with physicians	24.8% (34)	40.9% (56)	18.2% (25)	10.9% (15)	2.9% (4)	2.2% (3)	137
Involvement of community pharmacists with medicines management of patients may give physicians more time to deal with more complex patient issues and will decrease workload on physician clinics	29.2% (40)	52.5% (72)	11.7% (16)	3.6% (5)	0% (0)	2.9% (4)	137
Patients may get conflicting information on their medications from their community pharmacists and physicians	13.9% (19)	34.3% (47)	29.2% (40)	14.6% (20)	4.3% (6)	3.6% (5)	137
Patients will have easier and faster access to healthcare if community Pharmacists practice more roles	48.2% (66)	44.5% (61)	4.3% (6)	0% (0)	0% (0)	2.9% (4)	137
<b>TOTAL</b>	<b>34.0% (372)</b>	<b>41.3% (453)</b>	<b>14.0% (154)</b>	<b>6.1% (67)</b>	<b>1.4% (15)</b>	<b>3.2% (35)</b>	<b>1096</b>

Respondents agreed or strongly agreed that community pharmacists’ provision of extended services would give more time for physicians to deal with more complex patient issues and would decrease workload on physician clinics (81.7%). Respondents felt that this role expansion would increase their workload pressure (66.4%) and may create a tense relationship with physicians (65.7%). Almost half of the respondents (48.2%) agreed or strongly agreed that community pharmacist role extension may result in patients receiving conflicting information from their pharmacists and physicians.

Views were mixed on whether community pharmacist role extension would be more cost-effective for insurance companies and stakeholders on the long term. Older respondents (above 60) were more likely to agree that community pharmacist role extension will increase their confidence and job satisfaction (p=0.028), increase their workload pressure (p=0.0019), and ensure less medication errors and misuse by patients (p=0.057).

Male respondents ( $p=0.006$ ) were most likely to agree that this may cause a tense relationship with physicians. Those without postgraduate degrees were most likely to agree that role expansion will increase their confidence and job satisfaction ( $p=0.0027$ ) (Figure 4).



**Figure 4.** Percentage of community pharmacists that strongly agree or agree on outcomes (advantages/disadvantages) of role extension.

**Note:** Outcome 1: Increased confidence and job satisfaction of community pharmacists, 2: More cost-effective for insurance companies/stakeholders, 3: Increased workload pressure, 4: Safer treatment for patients, 5: Tense relationship with physicians, 6: Decreased workload on physician clinics, 7: Patients may receive conflicting information on medications, 8: Easier and faster access to healthcare.

Respondents agreed or strongly agreed that lack of space and facilities in some community pharmacies (70%), lack of incentives (67%), and lack of time to participate in training/educational programs (66.2%) were barriers to their role extension. More than 50% agreed or strongly agreed that lack of time during working hours is a barrier. 49.6% agreed or strongly agreed that community pharmacists had insufficient knowledge/expertise/training to provide extended roles (as opposed to 26.9% who disagreed or strongly disagreed).

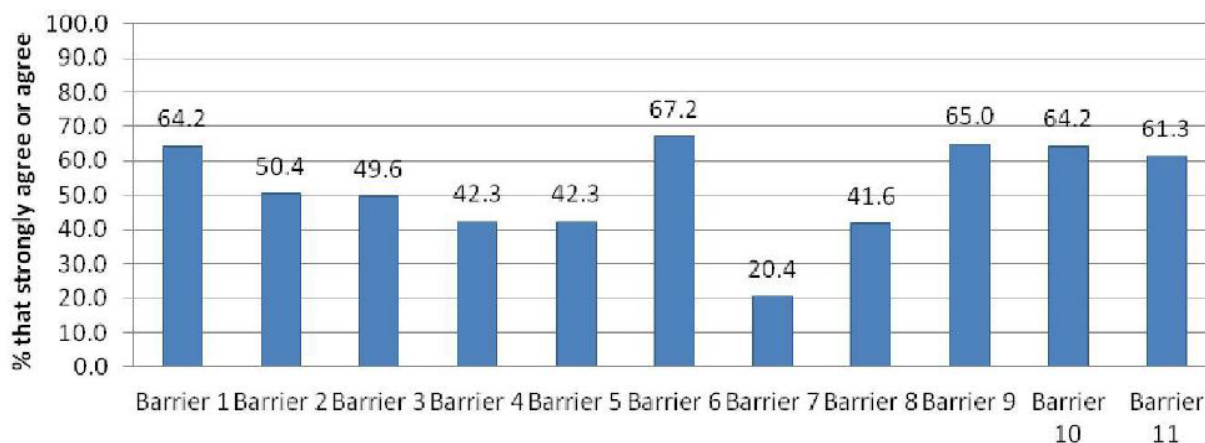
20.9% of respondents agreed or strongly agreed that lack of public trust in community pharmacists may act as a barrier to the extension of community pharmacist roles (as opposed to 55.9% who disagreed or strongly disagreed). Other perceived barriers are shown in **Table 5** and **Figure 5**.

**Table 5.** Perceived barriers to community pharmacists' role extension.

Barriers	Extent of Agreement % (n)						Total
	Strongly Agree	Agree	Unsure	Disagree	Strongly Disagree	Missing	
Current laws in the UAE	23.4% (32)	0.4% (56)	14.6% (20)	11.7% (16)	7.3% (10)	2.2% (3)	137
Physicians may resist the expansion of community pharmacists' roles	18.2% (25)	32.1% (44)	24.8% (34)	18.2% (25)	3.6% (5)	4.3% (4)	137
Some community pharmacists in the UAE may not have sufficient knowledge/expertise/training to practice extended roles	11.7% (16)	37.9% (52)	26.3% (36)	17.5% (24)	4.4% (6)	2.2% (3)	137
Some community pharmacists in AD do not have enough confidence to practice extended roles	7.3% (10)	35.0% (48)	18.2% (25)	29.9% (41)	5.8% (8)	3.6% (5)	137
Some community pharmacists in AD may not want to take the responsibility to practice extended roles	8.0% (11)	34.3% (47)	24.0% (33)	24.8% (34)	5.8% (8)	3.2% (4)	137
Some pharmacies in AD do not have enough space and facilities	21.9% (30)	45.3% (62)	13.1% (18)	14.6% (20)	2.2% (3)	2.9% (4)	137
The public do not trust community Pharmacists to practice extended roles	2.2% (3)	18.2% (25)	21.9% (30)	35.0% (48)	20.4% (28)	2.2% (3)	137
Cost of medicines recommended by community pharmacists for minor ailments may discourage patients from seeking pharmacist advice	10.2% (14)	31.4% (43)	18.2% (25)	29.2% (40)	8.0% (11)	2.9% (4)	137

Lack of incentives (especially financial)	16.8% (23)	48.2% (66)	10.2% (14)	13.9% (19)	8.0% (11)	2.9% (4)	137
Lack of time to participate in training/ educational programs that are necessary to practice extended roles	21.9% (30)	42.3% (58)	10.2% (14)	16.1% (22)	6.6% (9)	2.9% (4)	137
Lack of time to practice extended roles during working hours	19.0% (26)	42.3% (58)	13.1% (18)	13.1% (18)	8.0% (11)	4.4% (6)	137
Total	14.6% (220)	37.1% (559)	17.7% (267)	20.4% (307)	7.3% (110)	32.1% (44)	1507

## Barriers to role extension



**Figure 5.** Percentage of community pharmacists that strongly agree or agree on barriers to role extension.

**Note:** Barrier 1: Legislation, 2: Physician resistance, 3: Insufficient knowledge/expertise/training of community pharmacists, 4: Community pharmacists lack confidence, 5: Community pharmacists may not want to take extra responsibility, 6: Lack of space and facilities, 7: Lack of public trust, 8: Cost of medicines recommended by Community pharmacists, 9: Lack of incentives, 10: Lack of time to participate in training/ educational programs, 11: Lack of time to practice extended roles during working hours.

Respondents with postgraduate degree(s) were more likely to agree that legislation, physician resistance, and a pharmacy's space and facilities were barriers to the extension of community pharmacist roles in the future ( $p=0.004$ ,  $0.002$ ,  $0.028$  respectively). Those aged above 60 years old were more likely to agree that physician resistance is a barrier to role extension ( $p=0.045$ ).

Respondents viewed that the most important facilitators to extend their roles are making the costs of training/educational programs more affordable via sponsorships or external funding (90.1%), providing financial rewards to those practicing extended roles (89.4%) and teaching pharmacy students how to provide clinical services in the community pharmacy setting during their internship (85.6%).

The majority of respondents felt that the following factors are necessary to increase public awareness of or trust in community pharmacists' expertise:

- Launching programs/seminars for public to attend (90.7%)
- Giving community pharmacists that practice extended roles special accreditation from regulatory bodies (90.1%)
- Placing signs in the pharmacies and in physicians' clinics which encourage the public to seek pharmacist advice (84.1%)
- Distinguishing community pharmacists that practice extended roles by a special mark- ex: lab coat color- to allow customers to differentiate them from other pharmacists (72.8%)

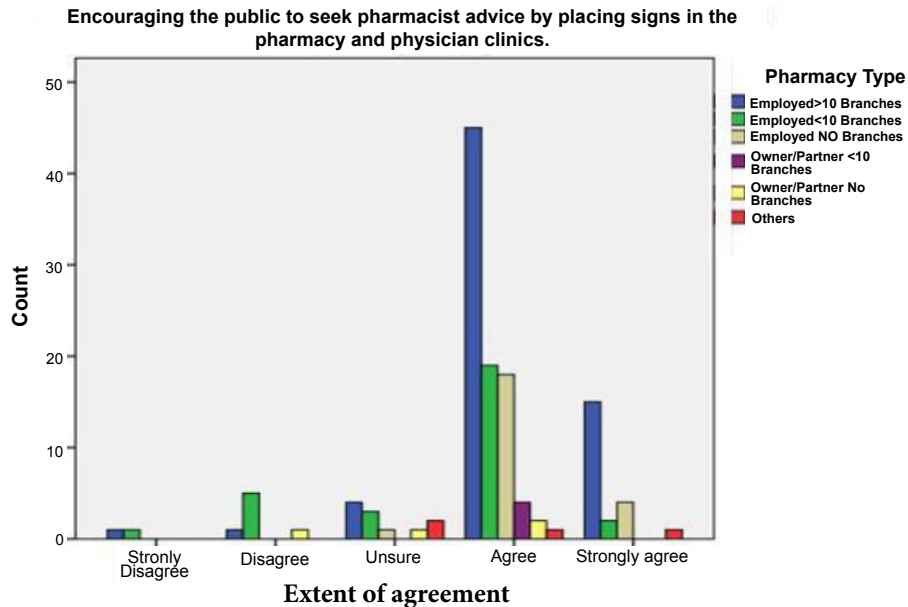
Other facilitators are shown in **Table 6**.

**Table 6.** Perceived facilitators to role extension.

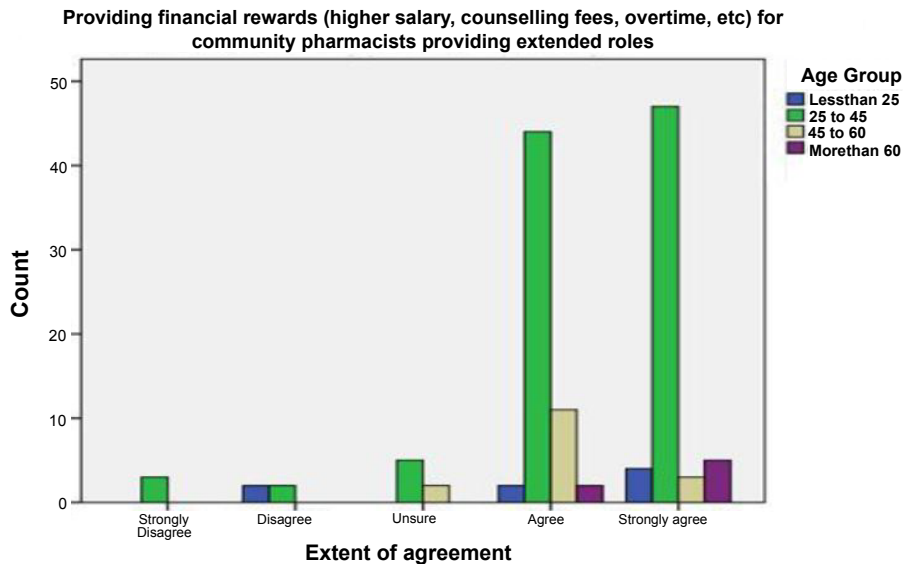
Facilitators	Extent of Agreement % (n)						Total
	Strongly Agree	Agree	Unsure	Disagree	Strongly Disagree	Missing	
Changes in legislation	22.6% (31)	40.1% (55)	19.7% (27)	12.4% (17)	1.5% (2)	3.6% (5)	137
Distinguishing community pharmacists that practice extended roles	21.2% (29)	48.9% (67)	6.6% (9)	13.9% (19)	5.8% (8)	3.6% (5)	137
Encouraging the public to seek pharmacist advice by placing signs in the pharmacy and Physician clinics	16.1% (22)	65.0% (89)	8.0% (11)	5.8% (8)	1.5% (2)	5.1% (7)	137

Launching programs/seminars to increase public awareness of community Pharmacists' expertise	37.2% (51)	48.9% (67)	3.6% (5)	3.6% (5)	1.5% (2)	5.1% (7)	137
Giving community pharmacists that practice extended roles special accreditation from regulatory bodies to increase the public's trust in their expertise	34.3% (47)	51.8% (71)	2.9% (4)	5.1% (7)	1.5% (2)	4.4% (6)	137
Providing assistant pharmacists with increased training to be able to dispense prescriptions	27.7% (38)	46.7% (64)	16.1% (22)	5.1% (7)	0.7% (1)	4.4% (6)	137
Providing financial rewards for community pharmacists providing extended roles	43.1% (59)	43.1% (59)	5.1% (7)	2.9% (4)	2.2% (3)	3.6% (5)	137
Making the costs of training/educational programs more affordable via sponsorships or external funding	46% (63)	40.9% (56)	3.6% (5)	5.1% (7)	0.7% (1)	3.6% (5)	137
Teaching pharmacy students how to provide clinical services in a community pharmacy during their internship	44.5% (61)	38.0% (52)	5.1% (7)	5.8% (8)	2.9% (4)	3.6% (5)	137
Total	32.5% (401)	47.0% (580)	70.8% (97)	6.6% (82)	2.0% (25)	3.9% (48)	1233

Respondents working in a large chain pharmacy were more likely to agree that changes in legislation and placing signs in pharmacies and physicians' clinics are facilitators to community pharmacist role expansion (p=0.002, 0.037, respectively) Other responses included roles which did not fall under these categories such as first aid provision, ear piercing, MURs, planning with the physician a care pathway for patients, checking prescriptions for errors, and giving injections (**Figures 6-8**).



**Figure 6.** Association between pharmacy type and extent of agreement to place signs in pharmacies/physician clinics.



**Figure 7.** Association between age group and extent of agreement to provide financial rewards.



## Facilitators to role extension



**Figure 8.** Percentage of community pharmacists that strongly agree or agree on facilitators to role extension.

**Note:** Facilitator 1: Legislation, 2: Distinguishing community pharmacists that practice extended roles, 3: Placing signs in pharmacies/physician clinics, 4: Launching programs/seminars, 5: Special accreditation from regulatory bodies, 6: Increase training of pharmacist assistants, 7: Financial rewards, 8: More affordable training/educational programs, 9: Teaching pharmacy students clinical services.

### Pharmacists' views of other advantages, disadvantages, barriers, and facilitators to role expansion- results of open questions

Participants' responses to these questions fell under five themes: advantages/disadvantages/barriers/facilitators in relation to pharmacists, pharmacy owners and the pharmacy, physicians, patients, and legislation.

#### ➤ The community pharmacists

Respondents worried about the increased workload that may result from community pharmacist role expansion in the absence of:

- Time and staff

*"In a busy pharmacy with one community pharmacist on shift (like ours) it is extremely hard to perform the expanded roles"* (Female, aged 25-45, employed in an independent pharmacy).

- Appropriately trained technicians

*"...lack of patient-oriented practice by technicians which also push you to dispense more and spend less time with patient"* (Male, aged 25-45, employed in large chain pharmacy).

- Appropriate reimbursement

*"Pharmacist should be paid for his advice and pharmaceutical care"* (Male, aged 25-45, employed in large chain pharmacies).

Respondents felt that this role expansion will ensure that they are finally reimbursed properly. They highlighted that all these factors must be addressed to facilitate role expansion. Several respondents pointed out that the current training and evaluation provided to community pharmacists may not be sufficient to allow for role extension.

*"I saw many pharmacists in UAE they practicing without enough experience even they passed MOH, DOH, and HAAD. This is fatal mistake about the 3 evaluation"* (Male, aged 25-45, owner/partner of a small chain of pharmacies).

*"Lack of educational or training programs provided to pharmacists to expand community pharmacists' roles"* (Female, aged 25-45, employed in independent pharmacy).

It was also suggested that a special evaluation exam for pharmacists that intend to practice extended roles is needed. Different methods of obtaining the necessary training/education were suggested; such as university-based science courses, pharmacist discussion groups, or physician outreach visits to community pharmacies. However, respondents discussed that community pharmacist role extension will allow better utilization of their skills and will increase their knowledge, productivity, confidence and job satisfaction.

*"Allowing CPs (community pharmacists) in AD to practice more roles is today's need and is the suitable rather exact placement of CP where he can utilize his capabilities"* (Male, aged 25-45, employed in independent pharmacy).

*"CP will be more confident, professional, productive, and they can contribute something valuable for the society and"*

healthcare system. Pharmacists will become moving encyclopedias of medicines” (Male, aged 25-45, employed in large chain pharmacy).

➤ **The pharmacy and pharmacy owners**

Lack of facilities and private consultation rooms in community pharmacies was discussed by many respondents.

*“Inadequate space in big pharmacies adjacent to hospitals....counseling rooms should be made functional by making presence of BP apparatus and glucometers mandatory and HAAD must focus on this issue” (Male, aged 25-45, employed in large chain pharmacy).*

Some respondents argued that their role extension may be resisted by pharmacy owners/stakeholders if implementation of this change increased costs; and that insurance companies should financially support this change.

*“Private pharmacy which is only one branch will find it costly to implement...” (Female, aged 25-45, employed in large chain pharmacy).*

*“Any pharmacy who help in expansion of community pharmacist roles, the HAAD must push on insurance companies to reduce the discount to replace the money that the pharmacy loss it” (Male, aged 25-45, employed in large chain pharmacy).*

➤ **Physician resistance**

Respondents felt that their role expansion may be resisted by physicians or will worsen their already tense relationship with physicians.

*“Doctors will start causing trouble to community pharmacist as they will feel they took over their role. More problems will happen, so education is also required for doctors” (Female, aged 25-45, employed in large chain).*

➤ **The patients**

Respondents that disagree that community pharmacist role extension will ensure less medication errors, less medication misuse, and more suitable medication received by the patient; explained that lack of access to patient medication records or lack of information on the patient’s medication history may result in medication-related errors.

*“As the pharmacist doesn't know about the conditions of the patients (in case the patient hesitates to reveal his confidential things to the pharmacist, other than a doctor), the chances of drug interactions and complications will be more than usual...” (Female, aged 25-45, employed in small chain pharmacy).*

Views on whether patients may get conflicting information from their physicians and pharmacists were mixed.

*“Some pharmacists may need some training and also some physicians need to be honest (they will disagree with information given from others-pharmacists or other physicians), but excluding these two points scientific information is the same from the pharmacist and physician” (Male, aged 46-60, employed in independent pharmacy).*

*“For the patient.....to decide who is ultimate in his health matters. It will be confusing for him” (Male, aged 25-45, type of pharmacy not mentioned).*

Advantages to patients, such as easier and faster access to medications and more cost-effective treatment, were reinforced; as long as patients do not misuse the insurance system.

*“Easy access of medicines for patients, as the patient does not have to wait for months to get an appointment with the doctor” (Female, aged 25-45, employed in small chain pharmacy).*

*“The most important disadvantage is that it may cause an increase in the misuse of the insurance system” (Male, aged 25-45, employed in large chain pharmacy).*

Patients’ expectations, trust in, and perspective of a community pharmacist were discussed as a barrier, facilitator, and a possible advantage to role extension.

*“Authorities and community doesn't consider CPs (community pharmacists) as medical professionals and as result we CPs don't deliver also” (Male, aged 25-45, employed in large chain).*

*“The relationship between a doctor and patient is based on trust. If it is possible to attain ‘trust’ between patient and pharmacist, equal to or more than the trust between doctor and patient, as professional pharmacists we will be successful.... inside pharmacy, pharmacist should stay away from money handling and concentrate more on advice and patient care. Change pharmacist from glorified salesperson to a healthcare provider” (Male, aged 25-45, employed in large chain pharmacy).*

➤ **Legislation**

The effect of current laws on community pharmacist role expansion and how these could be changed was also discussed by respondents.

*“The pharmacist is controlled by HAAD roles and can't dispense many medicines and can't do many services to patient like BP monitoring, blood sugar level checking” (Male, aged 25-45, employed in large chain pharmacy).*

*“HAAD should make some changes in technician roles in dispensing to patients” (Male, aged 25-45, owner/partner of small chain of pharmacies).*

## DISCUSSION

### Key findings

The current roles most frequently practiced by community pharmacists in AD include: selling and counseling on OTC drugs, explaining to patients the use of medical devices and counseling patients on prescribed medications. Roles practiced to a much lesser extent include public health promotion and reporting ADRs, interactions, and prescribing errors. Extended roles that respondents were most interested in practicing in the future are the minor ailment scheme/service; supporting careers of patients with chronic diseases and reviewing and monitoring prescribing guidelines. Respondents were least interested in administering vaccines and limited types of injections.

Respondents were also interested in expanding their counseling roles and being more involved in public health promotion (especially smoking cessation). Even though respondents took personal initiatives to extend their practice roles (like widening the range of services they offer to patients and improving communication with physicians and patients) and the vast majority supported further extension of community pharmacists' roles, more than half of them did not participate in HAAD's specialized training programs. Various reasons were given for this including insufficient or lack of information, inconvenient timing or location, and lack of staff.

Respondents' answers to open and closed questions on their views of the advantages, disadvantages, barriers, and facilitators to community pharmacists' roles extension presented important findings. The majority of respondents felt that community pharmacists' role extension will increase their confidence and job satisfaction but will increase their workload in the absence of sufficient time, trained technicians and other staff pharmacists.

Their view on the importance of reimbursement for the roles they will be providing or are already providing was evident. Views were mixed on whether community pharmacists' knowledge/expertise/training is sufficient to practice extended roles; but the majority felt that lack of time to participate in training/educational programs could be a major barrier to their role extension. Most agreed that the reduction in the costs of training/educational programs will facilitate role extension.

Respondents felt that their role extension will decrease workload on physician clinics, but will intensify their already tense relationship with physicians. Respondents viewed that benefits of role extension to patients include easier and faster access to healthcare, and safer and more cost-effective treatment; but there were concerns about lack of access to patient records or lack of information about patients' history. Views were mixed on whether patients may receive conflicting information from pharmacists and physicians.

Results showed that while most respondents did not feel that public trust could act as a barrier to their role extension, certain initiatives should be taken to increase public's awareness of community pharmacists' expertise. The lack of space and facilities, increased costs to pharmacy owners/stakeholders and the restrictions of current legislation were other barriers concerning respondents. Significant correlations were found between various variables and demographic factors.

### Strengths and limitations

This was the first research done in the UAE to investigate the views and attitudes of community pharmacists towards extending their practice roles based on qualitative and quantitative results. This research investigated, for the first time in AD, community pharmacists' opinion on important topics, like interest in practicing extended roles, extent of participation in HAAD's programs, perceived advantages, disadvantages and facilitators to role extension.

This is one of a few researches that used the postal service to collect information from community pharmacists in AD. Postal questionnaires in other countries have resulted in higher response rates (30-60%, mean=56%)<sup>[49-55]</sup>. Therefore, the possibility of non-responder bias cannot be ignored<sup>[28]</sup> despite extensive attempts taken by the researcher to increase response rates (see section 2.3.3). Consequently, generalization of results should be approached with caution.

However, response rates of health professionals to postal questionnaires are generally falling<sup>[52]</sup>; possibly due to 'questionnaire fatigue'. Other reasons for low response rates could be that the targeted study population:

- Have little experience when it comes to postal survey questionnaires
- Have little faith that results of a research may affect decision-making by health authorities
- Are overloaded with work pressures and time constraints, hence have no time to solve questionnaires or send back questionnaires by post

Perhaps the fact that of the 40% that saw the HAAD online survey, only 14.6% answered it, confirms the above assumptions. However it was interesting that owners/partners of pharmacies (independent or small chain) were more likely to answer HAAD's survey <sup>[20]</sup> while the most respondents in this survey were employed in large chain pharmacies.

Using the postal service in this research has presented important implications that could be beneficial for future researchers in AD. This all proves that the postal service in AD is active and reliable; but due to possible inaccuracies in the pharmacists' contact information, it may not be the most practical method for survey research at the meantime. Perhaps a stronger database of community pharmacist information is needed to support future researches that will be conducted by post. This should be encouraged by HAAD as researchers that have relied on alternative methods of questionnaire distribution, such as hand delivery and pick up, found it very laborious and time consuming <sup>[31]</sup>. In addition to that, hand delivery of questionnaires usually requires additional resources (university students, researching team, or distribution companies) which many researchers may not afford or have access to. Distribution companies like ARAMEX, DHL and EMPOST in AD are very expensive (ARAMEX, DHL, EMPOST personal communication by phone. 17 Sept.2011).

Responses to email questionnaires were relatively low compared to postal responses even after adjustments in the format (see section 2.3.3). This may be due to:

- Wrong/ inaccurate email addresses provided to HAAD-this was confirmed by delivery failure messages due to incorrect email address- again, this may call for a change in data keeping by HAAD to ensure this does not happen in future researches
- Lack of faith in the sender (unknown name of researcher)- this information may be used by future researches to attempt to send the questionnaires via HAAD or other known authorities

Even though face and content validity of the questionnaire were reviewed extensively (see section 2.3.3), the nature of self-completion questionnaires may have resulted in data inaccuracies from memory vagueness and misunderstanding of a few questions by some respondents <sup>[31]</sup>. Also, some questions were left unanswered but this is difficult to avoid in self-completion questionnaires <sup>[44]</sup>.

## **Discussion of results in relation to other studies**

Discussion of qualitative and quantitative results occurs simultaneously to provide a comprehensive picture of respondents' views and attitudes.

### **1: Roles currently performed by community pharmacists in AD**

#### **➤ Reporting ADRs, interactions, and prescribing errors**

This essential role <sup>[2,6,7]</sup> was not practiced frequently by respondents in this study. In Hasan et al. <sup>[32]</sup> study, this role was considered as an 'enhanced/professional' role. It was performed always or mostly by 42% (identification and reporting of medication errors) and 47% (identification and reporting of ADRs) of community pharmacists in the UAE.

Insufficient reporting of ADRs, interactions, and prescribing errors may imply that there is no reliable record of these. The availability of a reliable record of ADRs is important as it would facilitate identification of patients at high risk of experiencing ADRs, dissemination of information to healthcare professionals, and education of healthcare professionals about various ADRs and how they can be prevented <sup>[24]</sup>. Moreover, reporting ADRs by pharmacists has been proven to reduce drug-related morbidity and mortality and consequently reduce healthcare costs <sup>[56,57]</sup>. There is no published record of the number of hospital admissions due to ADRs in AD <sup>[13]</sup>.

Likewise, having a reliable record of prescribing errors could give health authorities an idea of the quality of prescribing by physicians in AD. Reasons given for the under-reporting of these, by respondents in this study, include lack of time and in the case of reporting ADRs, chances of happening are low. Studies show that there may be other reasons for not performing this role frequently.

Pharmacists may not realize the importance of this role and their responsibility in fulfilling it; or maybe they don't know the procedures of reporting or they find the procedures complicated or unclear <sup>[56]</sup>. In this study, no correlations were found between pharmacy type and extent of identifying and reporting ADRs and/or medication errors; which contradicts the results of Hasan et al.'s research <sup>[32]</sup> which showed that community pharmacists working in an independent pharmacy were more likely to practice these roles than those working in a chain pharmacy (0.002, 0.001, respectively).

#### **➤ Public health promotion**

Since statistics show that in AD, almost 17%, 21%, and 36% of UAE nationals suffer from hypertension, diabetes and high lipids respectively and that 35%, 18% and 18% of expatriates suffer from hypertension, diabetes and high lipids respectively <sup>[13]</sup>, HAAD has realized that chronic diseases are a challenge facing the health care system in AD and has prioritized its goal to increase public health promotion to prevent chronic diseases; this includes improving the quality of life of asthmatic (and other chronic diseases) patients, reducing the incidence of cardiovascular diseases, prevention of cancer, reducing the number of smokers in the UAE, preventing and controlling communicable diseases, and reducing the incidence of environmental and occupational diseases <sup>[19]</sup>.

Generally, improving the general health of the population can decrease hospital admissions and remarkably reduce healthcare costs [26,57]. Public health promotion is provided very frequently or frequently by 50% of the respondents to this study.

Hasan et al. [32] study showed that smoking cessation counseling and community education is provided always or mostly by 41% and 34%, respectively of community pharmacists in the UAE. However, their results showed that only 32% of the community pharmacists working in AD always or mostly counseled patients on smoking cessation (as opposed to 53% in Dubai and 39% in Ajman). The results of this study and Hasan's study show that the contribution of community pharmacists to the promotion of the public's health in AD when compared to the rest of the UAE does not match HAAD's focus on this issue [19].

#### ➤ **Providing medicines information to health professionals**

The practice of community pharmacists in AD of this role was infrequent. Perhaps, as evident from their responses, they may not be confident that their knowledge is sufficient to provide information to other healthcare professionals; or because they did not feel GPs or other healthcare professionals would welcome this. Another reason could be that community pharmacists in AD do not feel that this is a role they should be providing as part of their standard practice.

In a study conducted in New Zealand, where community pharmacists and GPs were asked what roles they think community pharmacists should provide as part of their standard practice, results showed that more than 75% of community pharmacists felt that they should be a source of clinical advice to GPs (such as selection of a medicine for a particular disease state); only 46% of GPs agreed that this is a standard role to be provided by community pharmacists. However, both agreed that community pharmacists should provide GPs with information on adverse effects or contraindications of medications [58].

### **2: Interest in practicing extended roles and attempts taken to achieve this**

Respondents' evident interest in roles like supporting carers of patients with chronic diseases and reviewing and monitoring prescribing guidelines, minor ailment prescribing, repeat prescription dispensing, providing MURs or involvement in disease state management programs, was similar to the interest of community pharmacists in other countries [50,59]. According to the results of this study, respondents' poor interest in administering vaccines and limited types of injections may explain why their participation in

HAAD's immunization training program was much less compared to HAAD's other training programs for extended roles. Community pharmacist role extension was supported by community pharmacists in this study and in other studies around the world [60].

In a study conducted in New Zealand, more than 60% of pharmacists agreed that extended roles, such as formal revision of patient's medications and a discussion of possible alterations to medicines therapy with the general practitioner, making dosage adjustments to a patient's medication according to agreed protocols, and repeat prescription dispensing and supervision should be provided by pharmacists as part of their standard practice [58].

Nevertheless, in a qualitative study conducted in one of the cities in New Zealand, pharmacists expressed conflicting attitudes towards role extension. Many showed their interest in increasing their scope of practice to include more clinical services but not at the expense of handing over dispensing to non-pharmacists. Others were content with their current roles and had little interest in acquiring further roles [30].

#### ➤ **Correlations**

Perhaps the reason why younger community pharmacists in this study were more interested in the role of administering vaccines and limited types of injections is that they have more updated clinical skills. This has probably given them the confidence required to take up new roles. Also, older pharmacists may be accustomed to accepting this service as one to be provided by nurses [50].

### **3: Counselling roles**

Respondents have expressed their interest in expanding and improving their counseling roles repetitively in response to several questions in this study. This interest has also been expressed by community pharmacists in other countries in the Middle East. This shows that HAAD's plans to expand community pharmacists' roles by starting with extending their roles in counseling/educating asthmatic and diabetic patients are in the right track [13,14,16,20].

### **4: Pharmacists' views of advantages, disadvantages, barriers, and facilitators to role expansion**

#### **A: In relation to the pharmacists, pharmacy owners and the pharmacy**

##### ➤ **Job satisfaction**

Perhaps one of the main reasons there was such a strong support from respondents for role expansion is their belief that this will increase their confidence and job satisfaction. Hasan et al.'s study [31] suggests that there may be a lack of professional job satisfaction by community pharmacists in the UAE.

The reason why older respondents and those with no postgraduate qualifications were more likely to agree with this

advantage of role extension, could be because these two sectors of the community usually feel more threatened about their jobs as they are easily replaceable (with younger pharmacists or those with postgraduate qualifications). The ability of any employee in any field to provide diverse tasks increases his/her value.

Pharmacists providing extended roles like the MAS and the repeat dispensing service in the UK and USA expressed that this extension in their roles utilized their skills more effectively<sup>[61]</sup>, gave them a chance for professional development, increased patients' perception of their expertise in drugs and treatment, generally improved their image as healthcare professionals<sup>[62]</sup>, and allowed them to work in an extended pharmacy team and to have strong integration with secondary care<sup>[54,63]</sup>.

#### ➤ **Reimbursement**

Respondents' views on reimbursement in this study are similar to other studies conducted in the UAE and other countries<sup>[20,31,50,59]</sup> which showed that appropriate reimbursement will encourage community pharmacists to practise current roles like public health promotion and counseling in a more qualified and efficient way<sup>[25]</sup> and will enable them to finally regain control of compensation for the professional services they are providing<sup>[60,63]</sup>.

Opposing views in other studies show concerns whether it is appropriate for pharmacists to be taking money for something they may be doing normally (such as advice-giving) and concerns that asking patients to pay for such services will create an uncomfortable relationship with patients since they might start viewing these extended services as services being 'sold' to them. Consequently, patients may start questioning the motives of pharmacists, especially if the service doesn't result in much change. In their opinion, the 'incentivisation' of providing extended services may detract from pharmacists' professional status instead of improving it<sup>[60]</sup>.

#### ➤ **Correlation**

Pharmacists working in large chain pharmacies are more likely to focus on improving their professional status through extension of their roles regardless of whether this involves financial reimbursement or not<sup>[59]</sup>. In this study, the importance of financial rewards as a facilitator/barrier to role extension was unrelated to pharmacy type; instead it was related to age where younger pharmacists were less likely to view it as a barrier, perhaps because of community pharmacists' focus nowadays is on professionalism.

#### ➤ **Workload**

Respondents' insistence on proper reimbursement in this study can be explained by their concern of the increased workload that could result from role extension in the absence of time and staff. As in other studies, they expressed concern that they would be expected to maintain the same dispensing volumes and reach the same selling targets despite their practice of more roles<sup>[31,60]</sup>. Therefore, the majority of community pharmacists in this study and other studies viewed that providing assistant pharmacists with appropriate training to be able to dispense medications is an important facilitator as it leaves more time for pharmacists to practice extended roles<sup>[31,59]</sup>. However, one study showed that some community pharmacists preferred to continue dispensing rather than delegate this task because they did not trust other staff to acquire the dispensing role and because they preferred to avoid interaction with the patient which comes hand in hand with providing new roles<sup>[60]</sup>.

#### ➤ **Knowledge, training and expertise**

Despite the difficult licensing exam and licensing renewal requirements in AD, approximately 50% of respondents in this study still felt that community pharmacists' insufficient knowledge/expertise/training could act as a barrier to providing extended roles. They focused on the importance of improving training and education and the consequent methods of evaluation and accreditation to allow community pharmacists to practice extended roles. While most studies conducted in different countries (including the Middle East) showed that community pharmacists had the same views<sup>[57,58,63,64]</sup>, a study carried out in the UAE showed that most community pharmacists did not feel that the lack of appropriate knowledge/skills would always act as a barrier to provide enhanced services<sup>[31]</sup>. Since Abu Dhabi is the second most populated emirate in the UAE<sup>[65]</sup>, competition between employees is very high. When competition is high, the importance of an employee's knowledge and skills increases. That could explain why community pharmacists in AD, compared to the UAE as a whole were more likely to feel that knowledge and training could act as a barrier to their role extension.

HAAD has attempted to encourage participation in training/educational programs by encouraging sponsoring of the CMEs by pharmaceutical companies so that pharmacists would not have to pay much (or pay anything at all) to attend. HAAD also created an online system which allows healthcare professionals to educate themselves and complete part of their CME requirements at home or at work<sup>[5]</sup>. Community pharmacists in this study have taken personal initiatives to improve their knowledge and skills; this shows that if the right facilitators were implemented, community pharmacists in AD are ready and willing to learn.

#### ➤ **Pharmacy space and facilities**

As in other studies assessing community pharmacists' views<sup>[31,58,64]</sup>, respondents in this study mostly agree that some pharmacies in AD lack the space and facilities, especially private consultation room, to provide these roles. When the public's

opinion was investigated in the UAE, they expressed their dissatisfaction with the waiting areas and the lack of private consultation areas in community pharmacies <sup>[34]</sup>.

## **B: In relation to physicians**

### ➤ **Resistance**

The results of most studies showed that the majority of community pharmacists felt that physician resistance may act as a barrier to their role expansion <sup>[31,51,58,63,66]</sup> only half of the respondents in this study agreed that this could act as a barrier. On the other hand, more than 65% of the respondents in this study felt that their role expansion may create a tense relationship between them and physicians. Possible reasons for that suggested by respondents in this study and other studies include:

- Physicians may feel threatened that community pharmacists may take up some of their roles (like minor ailment prescribing- which accounts for about 80% of admissions to GP clinics) <sup>[66]</sup>.
- Physicians may not trust community pharmacists' skills and expertise and knowledge in providing extended roles <sup>[31]</sup>.

GPs in New Zealand resisted the practice of more clinical roles by community pharmacists- such as screening for chronic conditions (hypertension, diabetes), repeat dispensing, selecting medicines or dosages according to agreed protocols after a GP diagnoses, or suggesting alterations to medicines regimens; they had more support for the provision of technical and counseling and monitoring roles by community pharmacists- such as maintaining patient profiles of OTC and prescription medications, providing health education, or reporting adverse effects <sup>[58]</sup>.

Some GPs claim that their resistance to cooperating with community pharmacists and accepting their interventions is because they view them as 'sellers' who may put profit above the patients' actual benefit <sup>[63]</sup>.

### ➤ **Workload**

Studies have shown that most community pharmacists feel that their role extension will decrease GP workload and will allow GPs more time to spend with patients with more complex issues; because some of the roles they are practicing can now be provided by community pharmacists efficiently- such as minor ailment prescribing <sup>[57,63,66]</sup>. Community pharmacists in this study had the same views.

However, data from non-peer reviewed literature showed that even after provision of the MAS by community pharmacists in the UK, GP workload was unaffected. The NHS in all UK nations still faced challenges with a significant burden of minor ailments being presented to the GPs in 2011. Minor ailments accounted for an estimated £2 billion per year of which over 80% relates to GP hours alone as a result of approximately 57 million consultations <sup>[62]</sup>.

## **C: In relation to the public**

### ➤ **Public trust**

Studies conducted in different countries have shown that community pharmacists find lack of public trust in their skills and knowledge a major barrier to their role extension <sup>[25,68]</sup>. Hasan et al.'s study <sup>[31]</sup> showed that 67% of the community pharmacists in the UAE felt that public demand and acceptance could act as a 'strong barrier' or 'somewhat of a barrier' to the extension of community pharmacist roles.

Studies show that the public tend to trust community pharmacists in providing the more 'basic' roles like minor ailment prescribing, but not in more 'complex' roles like health screening, health progress monitoring, or therapeutic monitoring of drug therapy <sup>[21,62]</sup>.

Some studies have shown that patients occasionally feel that the community pharmacist is more concerned with trading and selling, rather than serving the patient <sup>[21,31,66]</sup>. This was also expressed as a concern by a few respondents in this study. Limited contact between the community pharmacist and the patient resulting from the community pharmacists' preoccupation with other managerial roles or an incomplete dispensing process may also contribute to a questionable image of the pharmacist in some patients' perspective <sup>[32]</sup>. However, the most recent study done by Hasan et al. showed that the public in the UAE had confidence and trust in community pharmacists' expertise and knowledge <sup>[33]</sup>; this justifies the views of respondents in this study- that lack of public trust in community pharmacists is not a barrier to their role extension.

Some respondents in this study suggested that providing extended roles may improve their image to patients. However, community pharmacists providing MUR in England feared that if their interventions did not result in any major changes in a patient's therapeutic plan, their image to patients may be undermined as they may start to question community pharmacists' real motives; especially if this intervention was paid for <sup>[60]</sup>.

Despite their confidence in the public's trust in their expertise, respondents in this study feel that steps still need to be taken to further increase public awareness of community pharmacists' expertise before community pharmacists can practice extended roles.

Respondents working in large chain pharmacies seemed to be more focused on finding ways to increase public awareness of community pharmacists' skills and expertise; perhaps because they are more likely to be put under pressures to achieve targets (sometimes by selling and advertising for more expensive medications or non-professional products like cosmetics and commercial skin care products) <sup>[63,66]</sup>; and less likely to spend time with patients in counselling and advice-giving <sup>[31,60,63,66]</sup>.

A qualitative study conducted in England investigated the nature of the relationship between patients attending two different types of pharmacies (multiple chain and small chain pharmacy) and pharmacists. Interviews with patients revealed that their trust in the pharmacist was affected by the type of pharmacy the pharmacist works in; those working in an independent or small chain pharmacy were usually more trusted than those working in a large chain pharmacy. The reason they gave for that was the former can usually create a personal relationship with the customer and give 'real' healthcare services (i.e., provide care and attention that the patient really needs; they do not try to 'sell' the patient other medicines/services/commodities <sup>[21]</sup>.

In all cases, since patients' satisfaction with services is greatly dependent on their relationship with their pharmacist and the amount of care and time dedicated by the pharmacist to serve those <sup>[33]</sup>, community pharmacists must focus on creating a loyal and trustful relationship with their patients and on dedicating extra time and care to serve them.

#### ➤ **Cost of medication**

As opposed to the results of this study, other studies have argued that the cost of medication recommended by community pharmacists for minor ailments could discourage patients from seeking pharmacist advice and therefore act as a barrier to community pharmacist role expansion <sup>[54]</sup>. In the UAE, the public have expressed that they are not satisfied with medication prices <sup>[33]</sup>. Sometimes, in order to avoid paying for medications supplied by pharmacists, patients (exempt from prescription charges) visit the GP to obtain a prescription to get the medications for free; even if they know that they could self-treat the ailment with advice from the community pharmacist <sup>[51]</sup>.

#### ➤ **Conflicting information and access to medication records**

Half of the respondents in this study felt that their role expansion may result in patients receiving conflicting information about their medication from their community pharmacists and physicians. Reasons they gave for that include not having access to patient records and not having enough information about the patient. These views were also expressed in other studies <sup>[51,57,60]</sup>. Access to patient records can help community pharmacists determine whether their patients have been complying with drug regimens and whether the medications prescribed are the most suited to the patient <sup>[51,60]</sup>. Researchers in Jordan suggested that this barrier could be easily overcome by keeping computerized records of patients' medications and demographics in the community pharmacy and improving communication with physicians.

#### ➤ **Access to and quality of health care**

The majority of respondents felt that their role expansion will result in easier and faster access to healthcare, and safer treatment (fewer medication errors, less medication misuse, more suitable medication) for patients; other studies support this <sup>[57,69]</sup>. This could be because in comparison with a GP consultation, meeting with a pharmacist requires no appointment, does not involve long waiting times, and costs less; or because community pharmacies are usually open for longer hours than GP clinics <sup>[51,62,63,70-80]</sup>.

In contrast, a study in England showed that some community pharmacists felt role expansion would lessen the quality of healthcare delivered to patients; because the increased workload that may result from community pharmacist role expansion may lessen the time available for community pharmacists to spend with the patient in important stages of the dispensing process like counseling or advice-giving <sup>[60]</sup>.

#### **D: In relation to legislation**

Community pharmacists in AD seem to find legislation a major barrier to their role expansion; some consider that changes allowing a wider range of medications to be dispensed by community pharmacists without the need of a prescription are needed because they feel they have the necessary education and training to prescribe certain medications like antibiotics.

Legal and regulatory constraints have also been highlighted as main barriers to the provision of enhanced services by community pharmacists in the UAE <sup>[34]</sup>. Laws related to how medications are paid for, patient access to medications and availability of certain medications through the pharmacist, pharmacy ownership, and drug procurement and distribution processes can all influence the type of pharmacy services available and, consequently, define the pharmacists' role in the healthcare system <sup>[31]</sup>.

Studies in the UK demonstrated the same concerns <sup>[59]</sup>. Reclassification of some medicines, changes in the process of reclassification of medicines so that amendment to legislation would not be required every time the legal status of the medicine changes, and legislation changes to the requirements of community pharmacists' supervision for supply of non-prescription medicines were seen as important facilitators to allow provision of extended roles such as the MAS <sup>[62,81-91]</sup>.

#### **Recommendations for practice and further research**

Research related to the community pharmacy profession and practice in the UAE, and specifically in AD is minimal. Results of



research will always present useful references for researchers and for health authorities when planning changes or improvements in practice.

#### ➤ **Reporting of ADRs, interactions and prescribing errors**

It is important to properly investigate reasons behind the under-reporting of ADRs, interactions, and prescribing errors. Strategies must be devised to increase the practice of this role; perhaps health authorities may enrol community pharmacists in AD (and in the UAE) in an educational program to increase their awareness of their responsibility towards reporting ADRs, interactions, and prescribing errors, and to train those that do not know on how the relative forms could be filled and sent to HAAD.

#### ➤ **Public health promotion**

Public health promotion is not currently considered as an essential role to be practiced by community pharmacists in AD <sup>[7]</sup>, despite HAAD's focus on prioritizing public health-related goals.

HAAD should take advantage of community pharmacists' interest in this role to achieve its public health-related goals; especially since the effectiveness of the role of community pharmacists in improving public health (specifically in smoking cessation, lipid management, diabetes control, and flu immunization) has been proven in many studies <sup>[25,57,69]</sup>. In order to achieve this, community pharmacists should be provided with more advanced training programs. Health authorities should direct stakeholders and other health professionals to refer healthy and ill patients to the pharmacy <sup>[63]</sup>.

Also, pharmacists should be taught that they are in a unique position to use their skills and expertise to offer better patient care and promote public health as they are the most accessible healthcare professionals <sup>[57,66]</sup>.

#### ➤ **Providing medicines information to health professionals**

Reasons behind why providing medicines information to health professionals is practiced by only a small percentage of community pharmacists in AD must be investigated. Is it because health professionals do not trust community pharmacists enough to provide accurate medical and pharmaceutical information? Is it because the relationship between community pharmacists and other health professionals is not as strong as should be? Is it because community pharmacists are not being considered as a crucial part of the primary care team?

#### ➤ **Reimbursement and working conditions**

When employees are not satisfied in their jobs, for whatever reason-inadequate remuneration, difficult working conditions (long working hours, increased workload pressures, inadequate staffing, etc.), they resign. This leads to high turnover rates, which in turn may affect continuity of care provided to patients <sup>[31]</sup>. Therefore, it is important to ensure that community pharmacists in AD are satisfied in their jobs by creating a health working environment and ensuring appropriate reimbursement as suggested by respondents in this study.

Therefore, while planning the extension of community pharmacists roles, health authorities should devise reimbursement strategies so that community pharmacists can provide these roles in an efficient manner. Keeping electronic records of the services provided by community pharmacists then sending them to payers can ensure pharmacists are remunerated correctly <sup>[51,60]</sup>. As suggested by respondents in this study, insurance companies should take a part in financially supporting pharmacy owners that intend to provide extended services in their pharmacy; in order to make up for the extra expenses and the higher salaries to be paid to pharmacists <sup>[92-102]</sup>.

#### ➤ **Knowledge, training and expertise**

It seems that community pharmacists in AD feel that improving their education to include more clinical aspects should start from as early as the university by training pharmacy students to provide clinical services in the community pharmacy setting. As suggested by Hasan et al., since the training of pharmacy students was only practiced by half of the community pharmacists in the UAE, perhaps incentives (such as monetary compensation, allowing pharmacists to serve on various college posts and committees, periodic offerings of CME programs tailored to pharmacists' needs) may be needed to encourage community pharmacists to take up the training of pharmacy students <sup>[31]</sup>. Improving undergraduate curricula and training, introduction of the Master of Clinical Pharmacy and PharmD in universities, and publication of results of local studies on the benefits of pharmaceutical care are all fundamental steps to be taken to prepare pharmacy students and community pharmacists for the new roles that await them.

Results of this study have shown that respondents feel that the current licensing exam is not a sufficient measure for a pharmacist's eligibility to practice extended roles.

Perhaps pharmacists could take another exam to assess their eligibility to provide extended roles. Maybe the completion of a short internship or training program before that exam, where the more clinical aspects of community pharmacy services are focused on, could be introduced <sup>[29,60]</sup>. The quality of information or training provided in the CMEs could improve to meet community pharmacists' new learning requirements.

Attempts must be taken to overcome barriers to training and education that respondents in this study have suggested. These attempts may include:

- Encouraging employers to allow attendance of training programs during working hours.
- Encouraging employers to coordinate with their staff for coverage and ensure availability of enough staff to allow attendance of a training program.
- Finding ways to reduce the costs of training/educational programs via sponsorships for example
- Arranging convenient methods of transportation for those working in Al Ain or other cities in the western region of the emirate (also about 60 Km away from AD) to facilitate attendance of the programs
- Making sure that information about the new training/educational programs launched by HAAD or upcoming CMEs is disseminated properly to ALL community pharmacists in AD- the fact that a high percentage of respondents attribute their non-participation in HAAD's programs to their lack of knowledge about these programs means that the methods of dissemination that have been used so far by HAAD are not effective enough and should be changed. Low rates of participation could have been misinterpreted in the past as a sign of lack of interest, lack of willingness of pharmacists to uptake new roles, or even lack of seriousness to be involved in trainings.
- Making sure that pharmacy managers/in-charges have updated knowledge about the latest programs launched by HAAD to train community pharmacists for role extension, and that they communicate this to their employees and encourage them to attend <sup>[50,70]</sup>.

#### ➤ **Patient information**

Since the lack of access to patient information was a concern repetitively raised by respondents in this study; attempts must be taken by health authorities to investigate the possibility of allowing community pharmacists practicing extended roles to access patient information or to keep records of patient information in the pharmacy. Effective IT measures in the community pharmacy can facilitate recording of patient information and products/services supplied. In addition to that, records of the services provided by community pharmacists can ensure pharmacies are remunerated correctly <sup>[51,60]</sup>.

The use of IT in the community pharmacy setting has not been fully utilized yet in the UAE; researches on the applicability of introducing new IT systems should be investigated.

#### ➤ **Physician resistance**

Before any change in community pharmacists' roles is to be implemented, further research is needed to investigate the actual attitudes of physicians in AD towards community pharmacist role expansion. Also as suggested by respondents in this study, increasing the awareness of GPs to community pharmacists' skills and expertise and communicating to them the advantages of community pharmacist role extension is necessary. Pharmacists also have a part in ensuring that the relationship with physicians remains strong and free of any tension. Pharmacists must be appropriately trained on how to communicate with physicians if they wish to increase their scope of practice <sup>[57,59]</sup>.

#### ➤ **Public trust**

Suggestions were made by community pharmacists in this study and other studies on how to raise the public's awareness of community pharmacists' expertise. For example, evidence on the benefits of community pharmacist role expansion could be sought and presented to the public <sup>[59]</sup>. The physician may encourage patients to seek pharmacists' advice <sup>[63]</sup>. The physician has an important role in this because patients usually have more trust in their physician regarding their health and who they can rely on to get expert advice. Other attempts, like placing posters on pharmaceutical organizations' websites, launching campaigns (ex: 'Choose the Right Remedy' or 'Ask Your Pharmacist'), and establishing an appointment system with community pharmacists providing extended services, have been taken by different countries to encourage the public to seek pharmacist advice. Some of these attempts were effective; others less.

#### ➤ **Minor ailment prescribing**

The authors of one study carried out in Scotland explained that the introduction of the electronic- MAS overcame the barrier of the cost of non-prescription medicines as it allows pharmacies to offer free advice, product supply and onward referral as appropriate to patients exempt from prescription charges. It also created a record of the service offered by the pharmacist, thereby ensuring that they are properly reimbursed for it <sup>[51]</sup>.

Respondents in this study did not feel that minor ailment medication cost discourages patients from seeking their advice. However, they showed strong interest in being involved in such a service; also they repetitively expressed that appropriate reimbursement for their services is necessary. Therefore, the practicality and possibility of implementation of the electronic MAS in AD could be considered to decrease cost of treatment for patients, possibly reduce workload on GP clinics, and ensure pharmacists are reimbursed for a service they now offer for free.

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