**Doctor’s perceptions, expectations and experiences regarding the role of Pharmacist in hospital settings of Pakistan**

**Abstract:**

**Background:** The inclusion of the pharmacist in health care system is essential to ensure optimal patient care. However, with the passage of time, pharmacist’s role has transcended from dispensing, compounding and counting of pills, to more sophisticated clinical duties. **Objective:** To evaluate doctors’ experience, perceptions and expectations regarding pharmacists’ role in Pakistani healthcare settings. **Setting:** All tertiary care hospitals across 26 cities of Pakistan. **Method:** A cross-sectional study using a self-administered questionnaire was carried out targeting doctors practising in Pakistan. The survey was conducted from January to April 2018. Chi-square (χ2) test was used to analyse responses of doctors regarding the pharmacist’s role in the healthcare system of Pakistan. The associations were considered significant at p-value less than 0.05. The study was approved by concerned ethical committee. **Main outcome measure:** Doctors’ experience, perceptions and expectations regarding pharmacists’ role. **Results:** A total of 483 questionnaires were received and analysed (response rate; 87.9%). Most participants (67.5 %) reported interacting with pharmacists at least once daily, and that was mostly related to drug availability inquiry (73.7%). 86.7% of doctors expected pharmacists to ensure safe and appropriate use of medicines to patients. 87.6% of doctors expected pharmacists to monitor patient’s response to drug therapy (p<0.05) and 66.5% expected pharmacists to review patient’s medicines as well as discuss possible amendments to therapy (p<0.05). Besides, most doctors (84.9%) disagreed to the notion of pharmacists prescribing medicine for patients (p<0.05). Most participants (81.6%) did not want pharmacists to prescribe independently. **Conclusion:** The study highlights that doctors considered pharmacists as drug information specialists, dispensers, educators and counsellors; however, their expectation of pharmacists performing the clinical role and being involved in direct patient care was limited. They negated the idea of prescription intervention and the direct involvement of pharmacists in planning of pharmacotherapy plan for the patients. It is significant to increase doctor’s awareness regarding the role pharmacists could play in Pakistan’s healthcare system. Currently, the clinical role of pharmacists in Pakistan’s healthcare system seem underutilized is seen with scepticism within the community of doctors.

**Impact on Practice**

* Doctor’s opinion about the role of pharmacists in hospitals will bridge the gap among the two professions and gain support for an extended role of hospital-based pharmacists in future patients’ medicines management.
* Pharmacists, working actively with doctors may provide possibilities to improve inter-professional collaborative care.
* For patients, quality relations among doctors and pharmacists will surely improve the pharmaceutical care and safety of patients.

**Introduction**

The profession of pharmacy is often viewed as an allied health profession that is associated with the supply of medicines within a legally regulated environment. This is carried out by either dispensing prescription medicines following receipt of a doctor’s prescription or, through over the counter (OTC) sales of non-prescription medicines [1]. This conventional view ignores contemporary changes in clinical practice that have occurred in many developed countries and focuses mainly on pharmacy practice associated with retail pharmacy. It disregards the intricacy of practice in primary, secondary and tertiary healthcare sectors [2]. Notwithstanding the importance of dispensing of medicines in a safe and controlled manner, the modern practice of pharmacy incorporates a wide range of professional patient-oriented activities that aim to improve patient safety and health outcomes that are sometimes, not directly linked to dispensing service [3-5].

In many developed countries, pharmacists are either in process or, have already been recognised as autonomous clinical practitioners. For instance, pharmacists in the UK have been licensed not only to dispense, but also prescribe medicines [6]. During the past 25 years pharmacists have been encouraged to embrace clinical responsibility and accountability, most notably with the development and application of Hepler & Strand’s (1990) description of ‘pharmaceutical care’ model [3]. The pharmaceutical care model or service is a patient-oriented care provided by pharmacist with an aim to improve the patients’ treatment outcomes [3-5, 7]. Evidence highlight that pharmacists may have a substantial influence on patient’s well-being [8]. Despite some level of advancements in pharmacy profession in few developed countries, there is a continuing resistance to the development of clinical pharmacy practice both in developed and many developing countries [9-11].

A potential barrier to acceptance of pharmacists’ role and benefiting from pharmacists could be due to the negative perceptions in doctors’ mind [12-14]. However, evidence indicates that significant number of doctors were welcoming to the notion of an enhanced role envisioned for pharmacists and believed that few pharmacists performed their duties as per international standards of practice [9, 12]. This belief was mainly due to the limited role of pharmacist i.e., dispensing and compounding of medications [15-17]. Although there may be a belief in practitioners that pharmacists could do perform better in clinical roles, the medical profession essentially works to prevent this in a form of professional protectionism [18].

Pakistan is an economically developing country in South Asian region. The health expenditure of the country was 2.6% ofthe total GDP in 2015 [19-21]. This was quite low as the healthcare spending of UK was 9.9% of its GDP in the same year [22]. The healthcare system of Pakistan is comprised of private and state funded hospitals [23, 24]. The state-funded health infrastructure is a three-tiered system comprising of primary, secondary and tertiary care facilities. The primary care facilities include basic health units and healthcare centres in rural areas. The secondary care include ambulatory, acute and in-patient care while tertiary care includes teaching hospitals at district-level [23, 24]. The total number of various healthcare facilities are 14,282 that includes 1,201 hospitals. However, with an increasing population, inadequate funds and inefficient distribution of healthcare staff, the health needs are not fulfilled by state-funded health structure. Therefore, private sector contributes to the healthcare services and is utilized by a larger population of the country [21, 23-25]. There is no difference in the practice of pharmacy in private and state funded hospitals since both are regulated by the same health authority of Pakistan.

The Western model of pharmacy practice in Pakistan’s healthcare sector is still developing. The Government of Pakistan formulated the ‘Drugs Act 1976’, that was similar to the UK Medicines Act 1968, for regulating pharmacy profession [26]. It stated regulations for manufacturing of drugs and their use as well as role of pharmacists [26]. Unlike the Medicines Act 1968, the Drugs Act 1976 was not subjected to constant modifications considering the changes in clinical practice.

Since last decade, the curriculum of pharmacy education in Pakistan is being subjected to regular changes over the time to accommodate the advancements in drugs use and pharmacy profession. Initially, the practice of pharmacy in Pakistan’s healthcare system was focused towards drug dispensing and compounding. Hence, a degree in pharmacy was designed as Bachelor of Science in Pharmacy (BSc. Pharmacy) comprised of 3 years full-time courses with core subjects related to compounding and dispensing of medicine. This was later modified to bachelors in pharmacy (B. Pharm) which was a four-year degree and had industrial pharmacy-related courses. In 2008, the course was again modified to Doctor of Pharmacy (Pharm.D) which was a five-year degree and had clinical and hospital pharmacy-related courses along with the previous ones [27-29]. This was done envisioning a clinical role of pharmacists in the country’s healthcare system [29,30]. Currently, as per the regulations of the Pharmacy Council of Pakistan, pharmacists are considered a part of healthcare team without prescribing authority [31]. However, some misapprehensions and scepticism regarding their clinical role exist among doctors [16, 32, 33].

**Aim of the study**

The aim was to evaluate doctors’ experience, perceptions and expectations regarding pharmacists’ role in Pakistani healthcare settings.

**Methodology**

A cross-sectional survey was carried out from January 2018 to April 2018. The target population for this study was medical doctors. All doctors who graduated with a degree in medicine, with 1 year house job experience and were practicing in hospitals across Pakistan were included. Incomplete questionnaires were excluded from study. The study was conducted in tertiary care hospitals of twenty six cities of Pakistan.

The sample size was estimated using an automated online calculator (RAOSOFT) [34]. The official figures for number of doctors with a basic degree in medicine is 186,980 [35]. This figure was considered as total population, keeping an alpha error rate of 0.05 and confidence level of 95%. The sample size was 540 plus a 2% drop-out rate (n=10). Initially, a list covering all doctors working at studied hospitals was prepared, then the simple randomization technique was used to select doctors. Finally, a total of 550 participants were approached randomly to participate in this study. Before the initiation of the survey, the doctors were given an explanation regarding research purpose, and their consent to participate in the study was obtained. The questionnaires were in both English and Urdu languages, distributed as hard copy, in a face-to-face manner and, were collected later at a suitable time indicated by respondents. In some cases, the doctors were not keen on participating in the study mainly because of their busy schedule.

A total of 550 questionnaires were received. There were four sections in the questionnaire: demography; doctors’ interpersonal professional relationships with pharmacists; reasons for professional interaction; and doctors’ perceptions regarding pharmacy. The questionnaire was prepared from those used in previously published studies [8, 9, 16].

Data were analysed by SPSS 24.0 (SPSS, Chicago, IL, USA) and reported as percentage (%) and sample count (N). Chi-square (χ2) was used to analyse independent variables such as: level of education; type of hospital; and previous experience, with; dependent variables, such as: expectations of pharmacists; acceptance of pharmacists within the healthcare system; experiences of doctors with pharmacists; and, involvement of pharmacists in medicines management. Statistical significance was accepted at p-value less than 0.05.

**Ethics Approval**

Ethics approval was obtained from the Research Ethics Committee of the University of Sunderland, United Kingdom. Approval from respective hospitals was received prior to data collection. This ensured that research approval was also obtained locally.

**Results**

Of total 550 questionnaires received, 483 were completed and used in analyses giving a response rate of 87.9%. However, sixty-seven questionnaires were discarded based on failure to comply with the given instructions. Most were male (61.9 %, n=299) doctors. Almost half of respondents (55.3%) possessed a specialized post-registration medical qualification whilst almost a third (31.1%) had only a basic medical degree. Some doctors had overseas medical qualifications (13.7%) meaning that most respondents were trained and qualified in Pakistan. Almost equal proportion of doctors worked in state-funded (51.6%) and private hospitals (48.4%) respectively. As judged by individual job titles, most respondents were classed as Resident Medical Officers (RMO) (56.7%), 17.8% were Medical Officer, Registrar (9.5%) and Assistant Professors were 9.5%. Few were Associate Professors (5.2%) and Professors (1.2%).

Almost half of the respondents (45.3%) had work experience of less than 5 years, whereas 36.6% had experience between 5 – 10 years reflecting the predominantly junior grades of respondents. Whereas, only 18% had work experience of more than 10 years. Areas of practice stated by respondents included; internal medicine (27.3%), surgery (26.1%), paediatrics (22.4%) and, obstetrics & gynaecology (10.1%). About 14% of doctors were working in departments namely orthopaedics, ear nose and throat (ENT) and, emergency (ER). The respondents involved in the study were from all provinces of Pakistan in following proportions; Sindh (30.4%), Punjab (41.8%), Baluchistan (4.1%), Khyber Pakhtunkhwa (13.3%), Islamabad Capital Territory (7.5%), and Azad Jammu & Kashmir (2.9%). All the respondents were registered with Pakistan Medical and Dental Council (PM & DC). The majority (83.4%) of participants had national professional memberships while few doctors had both national and International memberships (16.6%). Table 1 illustrates the details about respondents’ demographics and relevant information.

Among all respondents, slightly more than a quarter (26.5%) had interactions with pharmacists described as ‘weekly’, whilst the majority described more than once daily interactions with pharmacists (67.5%). Few (6%) doctors had never or rarely interacted with pharmacists. It was evident from results that doctors interacted with pharmacists for queries regarding medicines availability (73.7%) while other were related to alternative- treatments (9.9%), drug dosage (7%), side effects (3.3%), and drug interactions (6.6%). The details regarding interaction of doctors with pharmacists are tabulated in Table 2.

Of the 483 respondents, most (83.9%) perceived pharmacists as clinicians whereas most doctors (16.1%) perceived them as a technician or having technical role. Regarding the occupation of pharmacy, most respondents considered pharmacists as professional (70.2%) whereas a fifth (21.7%) considered pharmacists as part of a commercial enterprise. A relatively few respondents (8.1%) described pharmacy as both professional and business. Table 3 summarises these views.

The later sections of the survey reports the expectations and experiences of doctors as well as their acceptance of pharmacists along with correlation coefficients of three main variables of study, i.e., education of doctors, type of hospitals, and work experience of doctors. Table 4a, 4b and 4c indicates doctors’ expectations. Furthermore, table 5a, 5b and 5c provides details about acceptance of pharmacist from a doctor’s perceptive. Besides, table 6a, 6b and 6c tabulates experience of doctors with pharmacist while table 7a, 7b and 7c reports the details pertaining to perception of doctors regarding involvement of pharmacists in medicines management.

**Discussion**

Evidence indicates that coordination among healthcare professionals is essential to achieve optimal patient outcome in any healthcare setting [36, 37]. Studies emphasize that the harmonization of clinical roles among health professionals must always exist [38, 39]. Though doctors considered pharmacists as part of clinical team however, our findings indicate that communication between them was not satisfactory.

The findings revealed that demographic factors are a determinant in shaping doctor’s perceptions about pharmacists. The level of education, work experience and type of hospital of doctors influenced their expectations, experiences and overall opinion about the pharmacists. Hence, our results are in line with the findings of Klopotowska and colleagues [21].

Most doctors in our study were male; it was not reflective of the official figures for male and female doctors in Pakistan which is roughly 50:50. A possible explanation to this occurrence could be the non-practicing of female graduates. Most female graduates do not practice medicine after graduation and become housewives. This was highlighted in several news articles and the phenomenon is termed as ‘Doctor Brides’ [40-42]. According to the 2016 Asian Development Bank report, number of Pakistani women pursuing a university degree have increased, however only a quarter work outside [43]. The report of World Economic Forum 2018 placed Pakistan on the second-to-last place in the list for worst gender equality index [44].

Most respondents had a work experience less than 5 years. This occurrence may be due to frequent migration of experienced doctors from Pakistan to developed countries [45]. Studies conducted in Pakistan highlighted a higher tendency among medical and allied health students to emigrate abroad. Most doctors who gain a certain level of work experience and seniority move to other countries. Those who stay in Pakistan may attain higher administrative positions and are involved in practice to a lesser extent [46, 47].

In our study, majority of the participant (67.5%) responded that they interacted with pharmacist daily and the reason for their interaction was mainly related to drugs availability inquiry (73.7%). This finding highlights that doctors’ knowledge and perception of pharmacists’ role was limited as they mainly interacted with pharmacists for logistical issues. This limited interaction further highlights the partial recognition of pharmacist’s role in clinical settings. This finding is also consistent with work of Khan and colleagues who evaluated the perceptions of doctors about pharmacists in public sector hospitals of Pakistan [16, 38].

Most doctors (89.6%) believed that pharmacists should guide patients about safe use of medicines (p>0.05). Majority (87.6%) of doctors mentioned that they expect pharmacists to monitor patient’s response to drug therapy (p<0.05). Additionally, most doctors (66.5%) expected pharmacists to review patient’s medicines and discuss possible amendments to therapy with patients should there be a need (p<0.05). Besides, most doctors (84.9%) disagreed to the notion of pharmacists prescribing medicine for patients (p<0.05). The doctors believed that pharmacists could perform several clinical duties such as educating patients, designing therapy regimens, dispensing drugs and monitoring prescriptions for any errors [39].The doctors were not welcoming to the idea of pharmacists treating minor illnesses during their stay in the hospital. Most participants (81.6%) did not want pharmacists to prescribe independently. The respondents (80.5%) did not believe that pharmacists could review and stop antimicrobial agents if they feel it to be unnecessary. This suggest that doctors were not comfortable with pharmacists intervening in prescriptions.

Previous studies have reported that pharmacists have a substantial impact on patient safety in hospitals [48-50]. Evidence indicates that improved interactions between pharmacists and doctors foster safe and cost-effective therapy. Most doctors (87.2%) agreed that pharmacists were keen to accept the responsibility for resolving drug-related problems (p<0.05). Furthermore, the doctors (87.4%) responded positively that in their experience, pharmacists regularly advise them about any clinical problems they encountered in prescriptions (p<0.05). One of the core tasks in pharmaceutical care service provided by pharmacists is to look for any drug-related problem and resolve them [51]. Hence, pharmacist may consider these tasks as their prime obligation.

In our study, most doctors disagreed (84.9%) to the notion of pharmacists prescribing medicine as they feared that confrontation between doctors and pharmacists could occur if pharmacists are involved in prescribing. It is evident from studies that although doctors may agree to the concept of pharmacists as counsellors but there is a hesitation among them regarding pharmacists’ independent prescribing and decision-making responsibilities [16, 33, 52]. This perception is further strengthened by regulations and legalities as pharmacists in Pakistan are not allowed to act as independent prescribers [53].

The outcomes of the study indicated that doctors considered pharmacists for logistical queries regarding drugs and not for clinical queriers. This suggests poor communication among doctors and pharmacist. The doctors considered them to be drug dispensers. This finding is in line with previous studies [5, 21, 30-35, 54-56]. Moreover, most doctors negatively perceived that pharmacists in Pakistan lack clinical expertise in recommending prescription drugs and believed that pharmacist cannot properly execute the duties related to advance clinical pharmacy practice.

The demographic variables of education level, area of practice and work experience of doctors influenced their perceptions about pharmacists and their roles. As the level of education increases such as undergoing a fellowship training or pursuing a masters, PhD, etc., that is usually done in a developed country. Doctors come across other allied health professionals and learn to work as a team to treat and ensure achievement of treatment goals for patients. Such education, work experience and place of practice may help in increasing their awareness regarding pharmacists and their roles in clinical settings. This may change their mindset and build a positive perception about pharmacists.

The results of our study together with previously reported literature highlight that the attitude of Pakistani doctors and their acceptance of pharmacists’ clinical roles have gradually improved over time [16, 33, 57]. However, the acceptance of pharmacists’ clinical role was linked to doctor’s experience of interaction with pharmacists. The doctors were generally receptive to consultation and counselling services provided by pharmacists but were impervious to their independent decision-making authority.

According to the national legislation, pharmacists are required to perform their traditional roles, i.e., dispensing, drug information, etc., along with clinical roles that further includes, medication utilization reviews, counselling, therapeutic drug monitoring, formulation of intravenous preparations, etc. However, the results of the current study reveal the gap between a pharmacist’s clinical knowledge and its application. The opportunities available for pharmacists to practise in Pakistan’s healthcare system are scant and therefore pharmacists are not being able to fully perform their clinical duties and hence their potential of clinical role remains to be utilized to the full extent.

**Recommendations**

The results highlight that there is a need to create awareness regarding pharmacist’s role in clinical settings. Therefore, integration of courses for inter-professional interactions among doctors and pharmacists should be added in curriculum. This may beneficial in the long run and may ensure satisfactory patient care [37, 52, 58]. Studies that could compare the benefits of pharmaceutical care with controls to demonstrate its effectiveness are recommended [59].

**Strengths and limitations of study**

The study gathered response from a large sample of doctors spread across 26 cities of Pakistan and a detailed analysis of their response highlights the extent of this problem. Such studies have not been carried out in Pakistan before. These aspects could be considered as strengths of this study. However, the results of this study cannot be generalised as responses from doctors in primary care hospitals as well as non-institutional doctors were not included. The views may differ among doctors based on hospitals and doctors’ expectations. Moreover, most doctors in our study had little work experience; perception of experienced doctor may have been different.

This study did not investigate the perceptions, expectations and experiences of pharmacists. Further studies that investigate attitudes and experiences of pharmacists would provide a better understanding of the problem from pharmacist’s point of view. The study was a survey-based research and involved close ended questions. Qualitative studies might be able to extract more rich data and help explicate expectations as well as experiences of doctors regarding the same.

**Conclusion**

The study highlights that doctors considered pharmacists as drug information specialists, dispensers, educators and counsellors however, their expectation of pharmacists performing clinical role and being involved in direct patient care was limited. They seemed sceptical of advance clinical pharmacy roles such as intervening in prescriptions and medication therapy, consultations, prescribing, etc. The doctors were not welcoming to the idea of pharmacists working as a member of allied healthcare team. There is a need to increase doctor’s awareness regarding the role pharmacists could play in Pakistan’s healthcare system. It is vital to involve pharmacists’ clinical rotations with doctors to develop a professional relationship. Moreover, it may be helpful if seminars are conducted on the importance of clinical pharmacy services in healthcare system. Such activities would provide an opportunity to recognize the accomplishments and limitations of pharmacist’s clinical role.

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**Table 1: Demographic information**

|  |  |
| --- | --- |
| **Characteristics** | **Respondents (n=483)** |
| **Gender** | |
| Male | 299 (61.9%) |
| Female | 184 (38.1%) |
| **Professional Education** | |
| Basic Medical Qualification | 150 (31.1%) |
| Specialized Medical Qualification | 267 (55.3%) |
| Overseas Medical Qualification | 66 (13.7%) |
| **Place of Work** | |
| State Funded Hospital | 249 (51.6%) |
| Private Hospital | 234 (48.4%) |
| **Current Job Title** | |
| Professor | 6 (1.2%) |
| Associate Professor | 25 (5.2%) |
| Assistant Professor | 46 (9.5%) |
| Senior Registrar | 46 (9.5%) |
| Resident Medical Officer | 274 (56.7%) |
| Medical Officer | 86 (17.8%) |
| **Years of Experience** | |
| Less than 5 years | 219 (45.3%) |
| 5-10 years | 177 (36.6%) |
| More than 10 years | 87 (18.0%) |
| **Area of Practice** | |
| Internal Medicine | 132 (27.3%) |
| Surgery | 126 (26.1%) |
| Paediatrics | 108 (22.45) |
| Obstetrics and Gynaecology | 51 (10.6%) |
| Others (Ortho, ENT, ER) | 66 (13.7%) |
| **State of Practice** | |
| Sindh | 147 (30.4%) |
| Punjab | 202 (41.8%) |
| Baluchistan | 20 (4.1%) |
| KPK | 64 (13.3%) |
| Capital Territory | 36 (7.5%) |
| AJK | 14 (2.9%) |
| **Are you registered with Medical Council?** | |
| Yes | 483(100%) |
| **Please state your Professional Membership** | |
| National | 403 (83.4%) |
| International (Both) | 80 (16.6%) |

**Table2: Frequency and reasons for interactions with Pharmacist**

|  |  |
| --- | --- |
| **Characteristics** | **Respondents (n=483)** |
| **How often do you work directly with Pharmacists?** | |
| Never/ Rarely | 29 (6.0%) |
| Once a week | 128 (26.5%) |
| Once a day | 326 (67.5%) |
| **What are the most common reasons for these interactions?** | |
| Drug availability queries | 356 (73.7%) |
| Drug alternative queries | 48 (9.9%) |
| Drug dosage queries | 34 (7.0%) |
| Side effects queries | 16 (3.3%) |
| Drug interaction queries | 29 (6.0%) |

**Table3: Perception about Pharmacy Profession in Pakistan**

|  |  |
| --- | --- |
| **Characteristics** | **Respondents (n=483)** |
| **Which of the following you think best describes the Pharmacist?** | |
| Clinician | 405 (83.9%) |
| Technician | 78 (16.1%) |
| **How would you define Pharmacy as an occupation?** | |
| Professional | 339 (70.2%) |
| Business | 105 (21.7%) |
| Both | 39 (8.1%) |

**Table 4a: Cross-tabulation of Doctors’ expectations from Pharmacists with their education (N = 483)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Expectations of Doctors from Pharmacists** | **Education** | **Agree** | **Disagree** | **p-value** |
| Educate patients about the safe and appropriate use of medication | Basic | 140 | 10 | 0.078 |
| Specialized | 238 | 29 |
| Overseas | 55 | 11 |
| Monitor patients’ response to drug therapy and inform if a patient encounters any drug-related problem | Basic | 104 | 46 | 0.000 |
| Specialized | 253 | 1.4 |
| Overseas | 66 | 60 |
| Available for consultation when I see patients (during rounds) | Basic | 74 | 76 | 0.000 |
| Specialized | 54 | 213 |
| Overseas | 26 | 40 |
| Communicate with other health care providers to provide patient care | Basic | 123 | 27 | 0.001 |
| Specialized | 241 | 26 |
| Overseas | 49 | 17 |
| Collaborate with other health care providers as part of a team | Basic | 119 | 31 | 0.000 |
| Specialized | 151 | 116 |
| Overseas | 50 | 16 |
| Provide advice to patients about their medication and/or health conditions | Basic | 130 | 20 | 0.000 |
| Specialized | 256 | 11 |
| Overseas | 55 | 11 |
| Be mostly involved in the technical component of dispensing (counting tablets and labelling) | Basic | 31 | 119 | 0.000 |
| Specialized | 26 | 241 |
| Overseas | 31 | 35 |
| Provide a “closed shop “service that just receives prescriptions from the clinicians and couriers the medicine to the patient | Basic | 134 | 16 | 0.191 |
| Specialized | 243 | 24 |
| Overseas | 55 | 11 |
| Check prescriptions are the correct dose for the patient | Basic | 150 | 0 | 0.000 |
| Specialized | 238 | 29 |
| Overseas | 42 | 24 |
| Check prescriptions do not have drug-drug interactions | Basic | 118 | 32 | 0.000 |
| Specialized | 242 | 25 |
| Overseas | 66 | 0 |
| Check prescription for any contraindications | Basic | 42 | 108 | 0.000 |
| Specialized | 42 | 225 |
| Overseas | 27 | 39 |
| Advise on the cost-effectiveness of medicines for disease states | Basic | 134 | 19 | 0.000 |
| Specialized | 241 | 26 |
| Overseas | 47 | 19 |
| Formally review patient’s medicines and discuss possible alterations to medicines therapy with the clinician | Basic | 101 | 49 | 0.019 |
| Specialized | 186 | 81 |
| Overseas | 34 | 32 |
| Supervise repeat prescriptions for a patient, according to agreed protocols | Basic | 80 | 70 | 0.000 |
| Specialized | 52 | 21.5 |
| Overseas | 26 | 40 |
| Make dose adjustments to a patient’s medicine using protocols established with prescribers | Basic | 130 | 20 | 0.778 |
| Specialized | 231 | 36 |
| Overseas | 55 | 11 |
| Prescribe a medicine for a patient after the clinicians has made the diagnosis, decided on the category of medicine required and given the pharmacist relevant clinical details (partnership prescribing) | Basic | 62 | 88 | 0.000 |
| Specialized | 11 | 256 |
| Overseas | 73 | 66 |

**Table 4b: Cross-tabulation of Doctors’ expectations from Pharmacists with type of hospital (N = 483)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Expectations of Doctors from Pharmacists** | **Hospital** | **Agree** | **Disagree** | **P Value** |
| Educate patients about the safe and appropriate use of medication | State funded | 224 | 25 | 0.817 |
| Private | 209 | 25 |
| Other | 0 | 0 |
| Monitor patients’ response to drug therapy and inform if a patient encounters any drug-related problem | State funded | 198 | 51 | 0.000 |
| Private | 225 | 9 |
| Other | 0 | 0 |
| Available for consultation when I see patients (during rounds) | State funded | 100 | 149 | 0.000 |
| Private | 54 | 180 |
| Other | 0 | 0 |
| Communicate with other health care providers to provide patient care | State funded | 218 | 31 | 0.188 |
| Private | 195 | 39 |
| Other | 0 | 0 |
| Collaborate with other health care providers as part of a team | State funded | 142 | 107 | 0.000 |
| Private | 178 | 56 |
| Other | 0 | 0 |
| Provide advice to patients about their medication and/or health conditions | State funded | 216 | 33 | 0.000 |
| Private | 225 | 9 |
| Other | 0 | 0 |
| Be mostly involved in the technical component of dispensing (counting tablets and labelling) | State funded | 53 | 196 | 0.072 |
| Private | 35 | 199 |
| Other | 0 | 0 |
| Provide a “closed shop “service that just receives prescriptions from the clinicians and couriers the medicine to the patient | State funded | 218 | 31 | 0.163 |
| Private | 214 | 20 |
| Other | 0 | 0 |
| Check prescriptions are the correct dose for the patient | State funded | 209 | 30 | 0.000 |
| Private | 221 | 13 |
| Other | 0 | 0 |
| Check prescriptions do not have drug-drug interactions | State funded | 217 | 32 | 0.461 |
| Private | 209 | 25 |
| Other | 0 | 0 |
| Check prescription for any contraindications | State funded | 60 | 189 | 0.548 |
| Private | 51 | 183 |
| Other | 0 | 0 |
| Advise on the cost-effectiveness of medicines for disease states | State funded | 210 | 39 | 0.038 |
| Private | 212 | 22 |
| Other | 0 | 0 |
| Formally review patient’s medicines and discuss possible alterations to medicines therapy with the clinician | State funded | 180 | 69 | 0.005 |
| Private | 141 | 93 |
| Other | 0 | 0 |
| Supervise repeat prescriptions for a patient, according to agreed protocols | State funded | 92 | 157 | 0.041 |
| Private | 66 | 168 |
| Other | 0 | 0 |
| Make dose adjustments to a patient’s medicine using protocols established with prescribers | State funded | 202 | 47 | 0.001 |
| Private | 214 | 20 |
| Other |  |  |
| Prescribe a medicine for a patient after the clinicians has made the diagnosis, decided on the category of medicine required and given the pharmacist relevant clinical details (partnership prescribing) | State funded | 57 | 192 | 0.000 |
| Private | 16 | 218 |
| Other | 0 | 0 |

**Table 4c: Cross-tabulation of Doctors’ expectations from Pharmacists with work experience (N = 483)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Expectations of Doctors from Pharmacists** | **Experience** | **Agree** | **Disagree** | **P value** |
| Educate patients about the safe and appropriate use of medication | <5 years | 194 | 25 | 0.387 |
| 5-10 years | 163 | 14 |
| >10 years | 76 | 11 |
| Monitor patients’ response to drug therapy and inform if a patient encounters any drug-related problem | <5 years | 175 | 44 | 0.000 |
| 5-10 years | 161 | 16 |
| >10 years | 87 | 0 |
| Available for consultation when I see patients (during rounds) | <5 years | 70 | 149 | 0.995 |
| 5-10 years | 56 | 121 |
| >10 years | 28 | 59 |
| Communicate with other health care providers to provide patient care | <5 years | 166 | 53 | 0.000 |
| 5-10 years | 177 | 0 |
| >10 years | 70 | 17 |
| Collaborate with other health care providers as part of a team | <5 years | 157 | 62 | 0.024 |
| 5-10 years | 104 | 73 |
| >10 years | 59 | 28 |
| Provide advice to patients about their medication and/or health conditions | <5 years | 199 | 20 | 0.209 |
| 5-10 years | 166 | 11 |
| >10 years | 76 | 11 |
| Be mostly involved in the technical component of dispensing (counting tablets and labelling) | <5 years | 46 | 173 | 0.000 |
| 5-10 years | 11 | 166 |
| >10 years | 31 | 56 |
| Provide a “closed shop “service that just receives prescriptions from the clinicians and couriers the medicine to the patient | <5 years | 203 | 16 | 0.103 |
| 5-10 years | 153 | 24 |
| >10 years | 76 | 11 |
| Check prescriptions are the correct dose for the patient | <5 years | 210 | 9 | 0.000 |
| 5-10 years | 157 | 20 |
| >10 years | 63 | 24 |
| Check prescriptions do not have drug-drug interactions | <5 years | 183 | 36 | 0.007 |
| 5-10 years | 166 | 11 |
| >10 years | 77 | 10 |
| Check prescription for any contraindications | <5 years | 51 | 168 | 0.079 |
| 5-10 years | 33 | 144 |
| >10 years | 27 | 60 |
| Advise on the cost-effectiveness of medicines for disease states | <5 years | 189 | 30 | 0.002 |
| 5-10 years | 165 | 12 |
| >10 years | 68 | 19 |
| Formally review patient’s medicines and discuss possible alterations to medicines therapy with the clinician | <5 years | 163 | 55 | 0.003 |
| 5-10 years | 108 | 69 |
| >10 years | 50 | 37 |
| Supervise repeat prescriptions for a patient, according to agreed protocols | <5 years | 79 | 140 | 0.358 |
| 5-10 years | 53 | 124 |
| >10 years | 26 | 61 |
| Make dose adjustments to a patient’s medicine using protocols established with prescribers | <5 years | 188 | 31 | 0.935 |
| 5-10 years | 152 | 25 |
| >10 years | 76 | 11 |
| Prescribe a medicine for a patient after the clinicians has made the diagnosis, decided on the category of medicine required and given the pharmacist relevant clinical details (partnership prescribing) | <5 years | 51 | 168 | 0.000 |
| 5-10 years | 22 | 155 |
| >10 years | 0 | 87 |

**Table 5a: Cross-tabulation of Doctor’s acceptance of Pharmacists’ role with education (N = 483)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Doctors’ acceptance of Pharmacists’ role** | **Education** | **Agree** | **Disagree** | **P value** |
| Patient education | Basic | 129 | 21 | 0.573 |
| Specialized | 235 | 32 |
| Overseas | 55 | 11 |
| Supply non-prescription medications independent of other clinicians | Basic | 48 | 102 | 0.000 |
| Specialized | 22 | 245 |
| Overseas | 9 | 57 |
| Design and monitor pharmacotherapeutic regimes | Basic | 119 | 31 | 0.042 |
| Specialized | 236 | 31 |
| Overseas | 57 | 9 |
| Prevent prescription errors by near-patient pre-screening of prescriptions | Basic | 136 | 24 | 0.042 |
| Specialized | 245 | 22 |
| Overseas | 66 | 0 |
| Detect and rectify prescription errors | Basic | 150 | 0 | 0.000 |
| Specialized | 238 | 29 |
| Overseas | 55 | 11 |
| Review and monitor prescriptions and therapy initiated by other clinicians | Basic | 32 | 118 | 0.299 |
| Specialized | 41 | 226 |
| Overseas | 11 | 55 |
| Treat minor illnesses (prescribing for common ailments) independent of other clinicians | Basic | 52 | 98 | 0.000 |
| Specialized | 26 | 241 |
| Overseas | 11 | 55 |
| Recommend prescription medicines to clinicians | Basic | 119 | 31 | 0.000 |
| Specialized | 251 | 16 |
| Overseas | 46 | 20 |
| Independently treat patients with specific conditions within an outpatient clinic setting | Basic | 33 | 117 | 0.000 |
| Specialized | 36 | 231 |
| Overseas | 0 | 66 |
| Monitor patients taking high risk or narrow therapeutic index medicines | Basic | 128 | 22 | 0.006 |
| Specialized | 236 | 31 |
| Overseas | 66 | 0 |
| Review and stop unnecessary antimicrobial agents | Basic | 38 | 112 | 0.000 |
| Specialized | 26 | 241 |
| Overseas | 30 | 36 |
| Conduct patient medical/drug histories on admission | Basic | 134 | 16 | 0.369 |
| Specialized | 227 | 40 |
| Overseas | 55 | 11 |
| Contribute to discharge management of patients at the end of their hospital stay | Basic | 57 | 93 | 0.000 |
| Specialized | 16 | 251 |
| Overseas | 20 | 46 |
| Liaise with primary healthcare providers about the care of patients | Basic | 141 | 9 | 0.006 |
| Specialized | 237 | 30 |
| Overseas | 66 | 0 |

**Table 5b: Cross-tabulation of Doctor’s acceptance of Pharmacists’ role with type of hospital (N = 483)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Doctors’ acceptance of Pharmacists’ role** | **Hospital** | **Agree** | **Disagree** | **P value** |
| Patient education | State funded | 205 | 44 | 0.003 |
| Private | 214 | 20 |
| Other | 0 | 0 |
| Supply non-prescription medications independent of other clinicians | State funded | 48 | 201 | 0.073 |
| Private | 31 | 203 |
| Other | 0 | 0 |
| Design and monitor pharmacotherapeutic regimes | State funded | 187 | 62 | 0.000 |
| Private | 225 | 9 |
| Other | 0 | 0 |
| Prevent prescription errors by near-patient pre-screening of prescriptions | State funded | 238 | 11 | 0.009 |
| Private | 209 | 25 |
| Other | 0 | 0 |
| Detect and rectify prescription errors | State funded | 224 | 25 | 0.148 |
| Private | 219 | 15 |
| Other | 0 | 0 |
| Review and monitor prescriptions and therapy initiated by other clinicians | State funded | 52 | 197 | 0.037 |
| Private | 32 | 202 |
| Other | 0 | 0 |
| Treat minor illnesses (prescribing for common ailments) independent of other clinicians | State funded | 44 | 205 | 0.659 |
| Private | 45 | 189 |
| Other | 0 | 0 |
| Recommend prescription medicines to clinicians | State funded | 213 | 36 | 0.701 |
| Private | 203 | 31 |
| Other | 0 | 0 |
| Independently treat patients with specific conditions within an outpatient clinic setting | State funded | 58 | 191 | 0.000 |
| Private | 11 | 223 |
| Other | 0 | 0 |
| Monitor patients taking high risk or narrow therapeutic index medicines | State funded | 217 | 32 | 0.173 |
| Private | 213 | 21 |
| Other | 0 | 0 |
| Review and stop unnecessary antimicrobial agents | State funded | 54 | 195 | 0.203 |
| Private | 40 | 194 |
| Other | 0 | 0 |
| Conduct patient medical/drug histories on admission | State funded | 218 | 31 | 0.351 |
| Private | 198 | 36 |
| Other | 0 | 0 |
| Contribute to discharge management of patients at the end of their hospital stay | State funded | 53 | 196 | 0.243 |
| Private | 40 | 194 |
| Other | 0 | 0 |
| Liaise with primary healthcare providers about the care of patients | State funded | 239 | 10 | 0.001 |
| Private | 205 | 29 |
| Other | 0 | 0 |

**Table 5c: Cross-tabulation of Doctor’s acceptance of Pharmacists’ role with work experience (N = 483)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Doctors’ acceptance of Pharmacists’ role** | **Experience** | **Agree** | **Disagree** | **P value** |
| Patient education | <5 years | 187 | 32 | 0.000 |
| 5-10 years | 167 | 10 |
| >10 years | 65 | 22 |
| Supply non-prescription medications independent of other clinicians | <5 years | 37 | 182 | 0.221 |
| 5-10 years | 33 | 144 |
| >10 years | 9 | 78 |
| Design and monitor pharmacotherapeutic regimes | <5 years | 188 | 31 | 0.289 |
| 5-10 years | 146 | 31 |
| >10 years | 78 | 9 |
| Prevent prescription errors by near-patient pre-screening of prescriptions | <5 years | 205 | 14 | 0.126 |
| 5-10 years | 166 | 11 |
| >10 years | 76 | 11 |
| Detect and rectify prescription errors | <5 years | 210 | 9 | 0.009 |
| 5-10 years | 157 | 20 |
| >10 years | 76 | 11 |
| Review and monitor prescriptions and therapy initiated by other clinicians | <5 years | 32 | 187 | 0.140 |
| 5-10 years | 31 | 146 |
| >10 years | 21 | 66 |
| Treat minor illnesses (prescribing for common ailments) independent of other clinicians | <5 years | 41 | 178 | 0.263 |
| 5-10 years | 37 | 140 |
| >10 years | 11 | 76 |
| Recommend prescription medicines to clinicians | <5 years | 188 | 31 | 0.009 |
| 5-10 years | 161 | 16 |
| >10 years | 67 | 20 |
| Independently treat patients with specific conditions within an outpatient clinic setting | <5 years | 22 | 197 | 0.013 |
| 5-10 years | 36 | 141 |
| >10 years | 11 | 76 |
| Monitor patients taking high risk or narrow therapeutic index medicines | <5 years | 208 | 11 | 0.000 |
| 5-10 years | 135 | 42 |
| >10 years | 87 | 0 |
| Review and stop unnecessary antimicrobial agents | <5 years | 42 | 177 | 0.000 |
| 5-10 years | 22 | 155 |
| >10 years | 30 | 57 |
| Conduct patient medical/drug histories on admission | <5 years | 208 | 11 | 0.000 |
| 5-10 years | 132 | 45 |
| >10 years | 76 | 11 |
| Contribute to discharge management of patients at the end of their hospital stay | <5 years | 57 | 162 | 0.000 |
| 5-10 years | 16 | 161 |
| >10 years | 20 | 67 |
| Liaise with primary healthcare providers about the care of patients | <5 years | 201 | 18 | 0.333 |
| 5-10 years | 166 | 11 |
| >10 years | 77 | 10 |

**Table 6a: Cross-tabulation of Doctor’s experience of working with Pharmacists, with education (N = 483)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Doctors’ experience of working with Pharmacists** | **Education** | **Agree** | **Disagree** | **P value** |
| Pharmacists are a reliable source of general drug information (i.e., specific facts about drugs, which can be found in standard references) | Basic | 130 | 20 | 0.009 |
| Specialized | 240 | 27 |
| Overseas | 66 | 0 |
| Pharmacists routinely counsel my patients regarding the safe and appropriate use of their medications | Basic | 134 | 16 | 0.027 |
| Specialized | 243 | 24 |
| Overseas | 66 | 0 |
| Pharmacists routinely inform me about more cost-effective alternatives to the drugs I prescribe | Basic | 134 | 16 | 0.123 |
| Specialized | 245 | 22 |
| Overseas | 55 | 11 |
| In my experience, pharmacists appear willing to take personal responsibility for resolving any drug-related problems they discover | Basic | 124 | 26 | 0.000 |
| Specialized | 251 | 16 |
| Overseas | 46 | 20 |
| Pharmacists routinely inform me if they discover clinical problems with my prescriptions | Basic | 119 | 31 | 0.000 |
| Specialized | 241 | 20 |
| Overseas | 55 | 10 |
| Pharmacists frequently ask me to clarify for them the drug-therapy objectives I have in mind for my patients | Basic | 141 | 9 | 0.173 |
| Specialized | 241 | 26 |
| Overseas | 57 | 9 |
| Pharmacists frequently let me know that my patients have experienced some problem with their medications | Basic | 141 | 9 | 0.000 |
| Specialized | 267 | 0 |
| Overseas | 44 | 22 |

**Table 6b: Cross-tabulation of Doctor’s experience of working with Pharmacists, with type of hospital (N = 483)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Doctors’ experience of working with Pharmacists** | **Hospital** | **Agree** | **Disagree** | **P value** |
| Pharmacists are a reliable source of general drug information (i.e., specific facts about drugs, which can be found in standard references) | State funded | 222 | 27 | 0.395 |
| Private | 214 | 20 |
| Other | 0 | 0 |
| Pharmacists routinely counsel my patients regarding the safe and appropriate use of their medications | State funded | 229 | 20 | 0.837 |
| Private | 214 | 20 |
| Other | 0 | 0 |
| Pharmacists routinely inform me about more cost-effective alternatives to the drugs I prescribe | State funded | 216 | 33 | 0.020 |
| Private | 218 | 16 |
| Other | 0 | 0 |
| In my experience, pharmacists appear willing to take personal responsibility for resolving any drug-related problems they discover | State funded | 207 | 42 | 0.006 |
| Private | 214 | 20 |
| Other | 0 | 0 |
| Pharmacists routinely inform me if they discover clinical problems with my prescriptions | State funded | 188 | 61 | 0.000 |
| Private | 234 | 0 |
| Other | 0 | 0 |
| Pharmacists frequently ask me to clarify for them the drug-therapy objectives I have in mind for my patients | State funded | 238 | 11 | 0.000 |
| Private | 201 | 33 |
| Other | 0 | 0 |
| Pharmacists frequently let me know that my patients have experienced some problem with their medications | State funded | 218 | 31 | 0.000 |
| Private | 234 | 0 |
| Other | 0 | 0 |

**Table 6c: Cross-tabulation of Doctor’s experience of working with Pharmacists, with type of hospital (N = 483)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Doctors’ experience of working with Pharmacists** | **Experience** | **Agree** | **Disagree** | **P value** |
| Pharmacists are a reliable source of general drug information (i.e., specific facts about drugs, which can be found in standard references) | <5 years | 199 | 20 | 0.000 |
| 5-10 years | 150 | 27 |
| >10 years | 87 | 0 |
| Pharmacists routinely counsel my patients regarding the safe and appropriate use of their medications | <5 years | 179 | 40 | 0.000 |
| 5-10 years | 177 | 0 |
| >10 years | 87 | 0 |
| Pharmacists routinely inform me about more cost-effective alternatives to the drugs I prescribe | <5 years | 208 | 11 | 0.000 |
| 5-10 years | 161 | 16 |
| >10 years | 65 | 22 |
| In my experience, pharmacists appear willing to take personal responsibility for resolving any drug-related problems they discover | <5 years | 182 | 37 | 0.000 |
| 5-10 years | 172 | 5 |
| >10 years | 67 | 20 |
| Pharmacists routinely inform me if they discover clinical problems with my prescriptions | <5 years | 199 | 20 | 0.001 |
| 5-10 years | 157 | 20 |
| >10 years | 66 | 21 |
| Pharmacists frequently ask me to clarify for them the drug-therapy objectives I have in mind for my patients | <5 years | 184 | 35 | 0.000 |
| 5-10 years | 177 | 0 |
| >10 years | 78 | 9 |
| Pharmacists frequently let me know that my patients have experienced some problem with their medications | <5 years | 210 | 9 | 0.000 |
| 5-10 years | 177 | 0 |
| >10 years | 65 | 22 |

**Table 7a: Cross-tabulation of Doctor’s perception regarding involvement of Pharmacists in Medicines Management (MM), with education (N = 483)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Doctor’s perception regarding pharmacists’ involvement in MM** | **Education** | **Agree** | **Disagree** | **P value** |
| Do you think pharmacists should increase their involvement in medicines management? | Basic | 150 | 0 | 0.001 |
| Specialized | 249 | 18 |
| Overseas | 66 | 0 |
| The funding stream currently does not support pharmacists and clinicians collaborating on medication management | Basic | 139 | 11 | 0.000 |
| Specialized | 267 | 0 |
| Overseas | 55 | 11 |
| Other than to dispense prescriptions, pharmacists are on the periphery of the core health care team | Basic | 135 | 15 | 0.000 |
| Specialized | 258 | 9 |
| Overseas | 55 | 11 |
| A pharmacist providing this service would not be calling my judgment into question | Basic | 11 | 139 | 0.117 |
| Specialized | 29 | 238 |
| Overseas | 11 | 55 |
| This service by a pharmacist would be challenging my authority | Basic | 38 | 112 | 0.000 |
| Specialized | 22 | 245 |
| Overseas | 22 | 44 |
| This is not duplication of the clinician’s work | Basic | 150 | 0 | 0.000 |
| Specialized | 267 | 0 |
| Overseas | 55 | 11 |
| I don’t feel comfortable with the autonomy pharmacists have when dealing with patients | Basic | 11 | 139 | 0.001 |
| Specialized | 11 | 256 |
| Overseas | 11 | 55 |
| I don’t have time to discuss patient-related medicine issues with pharmacists | Basic | 94 | 56 | 0.088 |
| Specialized | 195 | 72 |
| Overseas | 46 | 20 |
| Pharmacist’s knowledge of pharmacology and clinical use of medicines is inadequate to intervene on the patient’s behalf | Basic | 33 | 117 | 0.000 |
| Specialized | 11 | 256 |
| Overseas | 11 | 55 |
| I have sufficient confidence in the clinical knowledge of pharmacists for them to provide this service | Basic | 124 | 26 | 0.000 |
| Specialized | 267 | 0 |
| Overseas | 55 | 11 |
| Pharmacists are sufficiently trained to provide this service | Basic | 33 | 117 | 0.484 |
| Specialized | 47 | 220 |
| Overseas | 11 | 55 |
| The patient may get conflicting information regarding medicines use | Basic | 128 | 22 | 0.000 |
| Specialized | 267 | 0 |
| Overseas | 66 | 0 |
| This would enhance my current relationship with my pharmacists | Basic | 150 | 0 | 0.000 |
| Specialized | 216 | 51 |
| Overseas | 66 | 0 |
| This service would improve patients’ medicine-related health outcomes | Basic | 141 | 9 | 0.024 |
| Specialized | 230 | 37 |
| Overseas | 55 | 11 |

**Table 7b: Cross-tabulation of Doctor’s perception regarding involvement of Pharmacists in Medicines Management (MM), with type of hospital (N = 483)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Doctor’s perception regarding pharmacists’ involvement in MM** | **Hospital** | **Agree** | **Disagree** | **P value** |
| Do you think pharmacists should increase their involvement in medicines management? | State funded | 240 | 9 | 0.893 |
| Private | 225 | 9 |
| Other | 0 | 0 |
| The funding stream currently does not support pharmacists and clinicians collaborating on medication management | State funded | 227 | 22 | 0.000 |
| Private | 234 | 0 |
| Other | 0 | 0 |
| Other than to dispense prescriptions, pharmacists are on the periphery of the core health care team | State funded | 214 | 35 | 0.000 |
| Private | 234 | 0 |
| Other | 0 | 0 |
| A pharmacist providing this service would not be calling my judgment into question | State funded | 31 | 218 | 0.163 |
| Private | 20 | 214 |
| Other | 0 | 0 |
| This service by a pharmacist would be challenging my authority | State funded | 55 | 194 | 0.002 |
| Private | 27 | 207 |
| Other |  |  |
| This is not duplication of the clinician’s work | State funded | 55 | 194 | 0.002 |
| Private | 27 | 207 |
| Other | 0 | 0 |
| I don’t feel comfortable with the autonomy pharmacists have when dealing with patients | State funded | 238 | 11 | 0.001 |
| Private | 234 | 0 |
| Other | 0 | 0 |
| I don’t have time to discuss patient-related medicine issues with pharmacists | State funded | 22 | 227 | 0.072 |
| Private | 11 | 223 |
| Other | 0 | 0 |
| Pharmacist’s knowledge of pharmacology and clinical use of medicines is inadequate to intervene on the patient’s behalf | State funded | 164 | 85 | 0.086 |
| Private | 171 | 63 |
| Other | 0 | 0 |
| I have sufficient confidence in the clinical knowledge of pharmacists for them to provide this service | State funded | 212 | 37 | 0.000 |
| Private | 234 | 0 |
| Other | 0 | 0 |
| Pharmacists are sufficiently trained to provide this service | State funded | 64 | 185 | 0.000 |
| Private | 27 | 207 |
| Other | 0 | 0 |
| The patient may get conflicting information regarding medicines use | State funded | 227 | 22 | 0.000 |
| Private | 234 | 0 |
| Other | 0 | 0 |
| This would enhance my current relationship with my pharmacists | State funded | 244 | 5 | 0.000 |
| Private | 188 | 46 |
| Other | 0 | 0 |
| This service would improve patients’ medicine-related health outcomes | State funded | 227 | 22 | 0.037 |
| Private | 199 | 35 |
| Other | 0 | 0 |

**Table 7c: Cross-tabulation of Doctor’s perception regarding involvement of Pharmacists in Medicines Management (MM), with work experience (N = 483)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Doctor’s perception regarding pharmacists’ involvement in MM** | **Experience** | **Agree** | **Disagree** | **P value** |
| Do you think pharmacists should increase their involvement in medicines management? | <5 years | 219 | 0 | 0.000 |
| 5-10 years | 159 | 18 |
| >10 years | 87 | 0 |
| The funding stream currently does not support pharmacists and clinicians collaborating on medication management | <5 years | 208 | 11 | 0.000 |
| 5-10 years | 177 | 0 |
| >10 years | 76 | 11 |
| Other than to dispense prescriptions, pharmacists are on the periphery of the core health care team | <5 years | 204 | 15 | 0.080 |
| 5-10 years | 168 | 9 |
| >10 years | 76 | 11 |
| A pharmacist providing this service would not be calling my judgment into question | <5 years | 20 | 199 | 0.614 |
| 5-10 years | 20 | 157 |
| >10 years | 11 | 76 |
| This service by a pharmacist would be challenging my authority | <5 years | 22 | 197 | 0.001 |
| 5-10 years | 38 | 139 |
| >10 years | 22 | 65 |
| This is not duplication of the clinician’s work | <5 years | 219 | 0 | 0.000 |
| 5-10 years | 177 | 0 |
| >10 years | 76 | 11 |
| I don’t feel comfortable with the autonomy pharmacists have when dealing with patients | <5 years | 11 | 208 | 0.054 |
| 5-10 years | 11 | 166 |
| >10 years | 11 | 76 |
| I don’t have time to discuss patient-related medicine issues with pharmacists | <5 years | 132 | 87 | 0.000 |
| 5-10 years | 136 | 41 |
| >10 years | 67 | 20 |
| Pharmacist’s knowledge of pharmacology and clinical use of medicines is inadequate to intervene on the patient’s behalf | <5 years | 22 | 197 | 0.699 |
| 5-10 years | 22 | 155 |
| >10 years | 11 | 76 |
| I have sufficient confidence in the clinical knowledge of pharmacists for them to provide this service | <5 years | 193 | 26 | 0.000 |
| 5-10 years | 177 | 0 |
| >10 years | 76 | 11 |
| Pharmacists are sufficiently trained to provide this service | <5 years | 27 | 192 | 0.004 |
| 5-10 years | 42 | 135 |
| >10 years | 22 | 65 |
| The patient may get conflicting information regarding medicines use | <5 years | 208 | 11 | 0.068 |
| 5-10 years | 166 | 11 |
| >10 years | 87 | 0 |
| This would enhance my current relationship with my pharmacists | <5 years | 195 | 24 | 0.001 |
| 5-10 years | 150 | 27 |
| >10 years | 87 | 0 |
| This service would improve patients’ medicine-related health outcomes | <5 years | 184 | 35 | 0.011 |
| 5-10 years | 166 | 11 |
| >10 years | 76 | 11 |