



AUTHOR(S):

TITLE:

YEAR:

Publisher citation:

OpenAIR citation:

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Perspectives of practising pharmacists towards interprofessional education and collaborative practice in Qatar

Abstract

Background. Healthcare is provided by a variety of different professionals, including pharmacists who are integral members of the team, and all are expected to work collaboratively to provide quality care. Little is known about the perceptions of pharmacists in Qatar towards interprofessional collaboration. Positive attitudes towards interprofessional education are essential to successful implementation of interprofessional collaboration. Therefore, to develop effective collaboration strategies in practice settings, it was essential to survey the attitudes of practising pharmacists towards collaboration.

Objective: To explore the awareness, views, attitudes and perceptions of practising pharmacists in Qatar towards interprofessional education and collaborative practice.

Setting: Community, hospital and primary healthcare settings in Qatar.

Methods: This was a two-staged sequential explanatory mixed method design. It utilised a quantitative survey (Stage 1), based on a modified version of the Readiness for Interprofessional Learning Scale. This was followed by a qualitative stage, utilising focus groups (Stage 2).

Main outcome measures included: 1) Qatar pharmacists' attitudes towards interprofessional education and collaborative practice; 2) Practising pharmacists' perspectives in relation to enablers, barriers and recommendations regarding interprofessional education and collaborative practice.

Results: Sixty three percent of the practising pharmacists (n=178) responded to the survey. Three focus groups followed (total n=14). High scores indicating readiness and positive attitudes towards interprofessional education were reported for pharmacists working in hospital, community and primary healthcare settings. Qualitative analysis identified three overarching themes in relation to the enablers, barriers and recommendations for practising pharmacists working collaboratively. The enabling themes were: professional and patient related benefits, and current positive influences in Qatar; the barriers were patients' negative perceptions; the status of the pharmacy profession and current working practices and processes; the recommendations related to improving patients' perceptions about pharmacists and enhancing the status of pharmacy profession in Qatar. The findings from this study highlighted two major observations: the lack of existence of collaborative practice and hierarchy and power play.

Conclusion: Pharmacists demonstrated willingness and readiness to develop interprofessional learning and collaborative practice with significant steps already taken towards improving collaborative working practices in different care settings.

42 **Introduction**

43 Healthcare is provided by a number of different professionals, including pharmacists who are
44 integral members of the healthcare team, and there is an expectation for all professionals to
45 work collaboratively and provide quality care [1, 2]. The role of the pharmacist has significantly
46 evolved, beyond the dispensing of medication, since the introduction of Hepler and Strand's
47 concept of pharmaceutical care in early nineties. This change corresponds with developments
48 in extensive training and expertise within the profession and the demand for complex
49 medication management. [3, 4, 1, 5, 6]. A key factor in successful implementation of
50 pharmaceutical care is the collaboration between pharmacists and other members of the
51 healthcare team i.e. interprofessional collaboration [7].

52 A number of definitions for interprofessional collaboration (IPC) exist [8-10, 6]. In many of
53 these definitions, key concepts of collaboration stem from shared responsibilities, collective
54 decisions, interprofessional communication, accountability, and education [11]. One example
55 is the definition from the International Pharmaceutical Federation where Collaborative
56 Pharmacy Practice (CPP) is defined as 'advanced clinical practice where pharmacists
57 collaborate with other healthcare professionals to care for patients, carers and public'. This
58 includes 'initiation, modification and monitoring of prescription medicine therapy; ordering and
59 performing laboratory and related tests, assessing patient response to therapy; counselling,
60 educating partnering with patients regarding their medications and administering medications'
61 [6] p. 6-7. The World Health Organisation and International Pharmaceutical Federation in a
62 joint document called for increased interprofessional working and advocated that pharmacists
63 need to assume new roles and responsibilities to function as collaborative members of the
64 healthcare team [1].

65 Pharmacists are assuming greater patient-centred care responsibilities [12, 1, 5]. These
66 responsibilities include medication management and review; chronic disease management;
67 medication reconciliation; disease prevention; immunisation services; health promotion
68 programmes; education; prescribing; and interprofessional clinical care based on shared
69 decision making and grounded on evidence-based practice [4, 2]. Collaboration with the
70 healthcare team requires diverse skills, expertise and attitudes. Pharmacists are required to
71 adopt approaches that effectively integrate healthcare teams. These include: being
72 accessible, visible, competent, confident, committed, and responsible when working with other
73 healthcare professionals [1]. Previous studies have demonstrated the evidence of the benefits
74 of pharmacists' collaboration with other healthcare professionals in improving patient care and
75 in decreasing medical errors [13-16, 5, 17].

76 The preponderance of previous research has largely focused on exploring the relationship
77 between community pharmacists and general practitioners [18-25], and also on primary care

78 and inpatient settings [26-28]. A recent systematic review has highlighted the positive
79 attitudes that pharmacy students, practicing pharmacists and faculty had towards
80 Interprofessional Education (IPE) and IPC. Five main findings have been identified from this
81 review: heterogeneity in reporting IPE research, the traditional professional image of the
82 pharmacist, lack of longitudinal research follow-up, lack of IPE research on faculty and a
83 paucity in mixed method studies [29].

84 It is worth highlighting that pharmacists in developing countries are still struggling to gain
85 recognition for their role and are considered underutilised. [30, 31, 7]. This paper will focus on
86 pharmacy practice in Qatar which has evolved in the last 10 years. The establishment of the
87 first and only College of Pharmacy in Qatar with full accreditation from the Canadian Council
88 on Accreditation of Pharmacy Programs (CCAPP), and the recent advancements in the role
89 of the pharmacists especially in the country's hospital sector have contributed significantly.
90 These include a pharmacist-managed anticoagulation clinic [32-34], pharmacist delivered
91 discharges with a tailored follow-up in patients with Acute Coronary Syndrome [35], clinical
92 pharmacy services in palliative care, hospital emergency department and neonatal intensive
93 care unit [36-38], and a pharmacist delivered smoking cessation program in Qatar [39].
94 Furthermore, IPE which is defined as 'two or more professions learning with, from and about
95 each other to improve collaboration and the quality of care' [40], is an important element in the
96 accreditation standard for pharmacy for CCAPP. Similar to healthcare professionals in Qatar,
97 pharmacists practising in Qatar are a heterogeneous expatriate group from diverse
98 backgrounds with most pharmacists graduating from Egypt, Jordan, India, Sudan and
99 Pakistan [41]. Pharmacy programmes in these countries heavily focus on pharmaceutical
100 sciences and industry rather than on clinical pharmacy [42]. Little is known about the
101 perceptions of pharmacists in Qatar towards interprofessional collaboration (IPC). Therefore,
102 to develop effective collaboration strategies in practice settings, it is essential to survey the
103 attitudes of practising pharmacists towards collaboration as positive attitudes towards IPE are
104 essential for successful implementation of IPC [43].

105 **Aim of the study**

106 The aim of this study was to explore the awareness, views, attitudes and perceptions of
107 practising pharmacists in Qatar towards IPE and collaborative practice.

108 **Ethics approval**

109 The study was approved by Qatar University (QU) Institutional Review Board (QU-IRB 228-
110 E/13), Doha, Qatar and the Robert Gordon University (RGU) School of Pharmacy and Life
111 Sciences Research Ethics Committee (RGU-6-June-2013), Aberdeen UK.

112 **Methods**

113 A two-staged sequential explanatory mixed method design was used to capture
114 comprehensive perspectives of practising pharmacists toward IPE and IPC through a
115 quantitative survey (Stage 1) followed by - qualitative focus groups (Stage 2).

116 **Stage 1: Quantitative Survey**

117 A self-administered online English survey was created in Snap 10 Professional. The survey
118 included a modified version of the validated tool 'Readiness for Interprofessional Learning
119 Scale (RIPLS) [44]. This is a 23-item 5-point Likert scale (strongly disagree (1), to strongly
120 agree (5)) divided into three subscales: teamwork & collaboration, sense of professional
121 identity and patient-centredness. The maximum total score was 115 and the minimum total
122 score was 23. Higher score indicated more positive attitudes. However, this study's objectives
123 proposed to gain greater breadth and depth than the RIPLS would generate. Therefore, further
124 questions from previous studies [45] and experiences, were added to the survey. To assess
125 the content and face validity of the amended survey, the survey was piloted among 10
126 practising pharmacists from the various practice settings in Qatar. Following the piloting
127 phase, minor modifications were made to the survey questions to improve clarity, organization
128 and flow of questions. Pharmacists involved in the pilot were excluded from the main study
129 results.

130 As there were no up-to-date lists or databases of practising pharmacists in Qatar, the College
131 of Pharmacy in Qatar University database, which has been used in previous published
132 research was employed [46]. This database contained 557 pharmacists at the time of the
133 study. Using Raosoft® online sample size calculator [47], a recommended sample size of 228
134 was calculated to achieve a confidence level of 95% and a margin of error of 5% considering
135 50% response distribution. To account for non-response rate, a 25% increase to the sample
136 size was considered. Consequently, the recommended sample size was 285, which was
137 randomly selected. The selected sample received an invitation email to take part in this study.
138 Statistical analysis was completed in Statistical Package for Social Sciences, version 22 (IBM
139 SPSS® Statistics for Windows; IBM Corp, Armonk, New York, USA) using descriptive and
140 inferential statistics. Examples of tests included one-way between-groups ANOVA and a
141 series of independent t-tests.

142 **Stage 2: Qualitative focus group**

143 Three focus groups were conducted in English, with the different groups of practising
144 pharmacists (community, hospital, and primary care). Each focus group lasted around 2 hours.
145 Only respondents from the survey who indicated their willingness to participate in a focus
146 group were invited. This provided a sampling pool and allowed the principal researcher to

147 purposively select a sample that included an equal distribution of representatives from the
148 different pharmacy settings. The principal researcher sent the invitations to participants by
149 email along with an information leaflet about the study. A reminder email was sent to interested
150 participants again a week before the focus group's scheduled date. Over-recruiting of
151 participants has been recommended as a strategy to control for any potential absences [48,
152 49]. In this study, focus groups ranged from 4 to 6 participants per group which concurred with
153 best practices [50].

154 A moderator guide to structure the discussion was developed with guiding questions for the
155 focus groups (Table 1). Focus groups were conducted in the same format to allow for potential
156 comparison between groups during the analysis. Prior to the commencement of each focus
157 group, all participants provided written signed consent. An independent experienced
158 transcriber transcribed the audio files verbatim and these were verified and validated by the
159 principal researcher. Thematic analysis was undertaken on the transcripts [51]. The principal
160 researcher reviewed all the transcripts several times and coded the data and extracted the
161 main emerging themes. A second investigator reviewed the transcripts and the key themes
162 thus strengthening the validation of study results. All authors met thereafter to discuss the
163 coding, similarities and differences until consensus was reached on the key themes and
164 subthemes.

165

166 **Results**

167 **Stage 1**

168 The response rate for the survey was 178/285 (63%). Just over half of the respondents were
169 male (52%, n=93). Eighty-eight percent (n=157) of the respondents were aged between 25
170 and 44 years old. The majority were working in hospital settings (38%, n=67), with an equal
171 distribution of respondents between community and primary care settings. More than 70% of
172 respondents had worked in Qatar from 1 to 10 years. More than two thirds of the respondents
173 (67%, n=119) were qualified and obtained their highest pharmacy degree more than five years
174 ago (table 2). Most respondents were from: Egypt (30%, n=54), India (21%, n=37), Sudan
175 (12%, n=21) and Philippines (11%, n=19). Most respondents interacted with physicians (91%,
176 n=162), followed by pharmacists (87%, n=154), and less than three-quarters of the
177 respondents interacted with nurses (71%, n=127).

178 The respondents were asked to rank the responses that best reflected their beliefs about
179 factors affecting their IPC. Respondents gave their highest score to the importance of IPC to
180 the effectiveness of their work. However, pharmacists gave their lowest rating to satisfaction
181 with the process of IPC in their work settings. Additionally, respondents believed that they

182 understood other professionals' scope of practice much more than other professionals
183 understood the pharmacists' scope of practice (Table 3). Compared with pharmacists in
184 hospital and primary healthcare settings, community pharmacists reported that other
185 professionals understood the least about their scope of practice, that they had less
186 administrative support, and that they were less satisfied with IPC. Hospital pharmacists gave
187 their lowest rating to issues of confidentiality limiting their IPC and primary care pharmacists
188 reported that students, clients, and patients expected them to collaborate less than community
189 and hospital pharmacists. There was a significant difference between responses to the
190 question 'How much do issues of confidentiality limit IPC?' ($p = 0.034$). *Post hoc* testing using
191 Tukey's test revealed that there was a significant difference between hospital pharmacists (M
192 $= 2.88$, $SD = 1.078$) and community pharmacists ($M = 3.30$, $SD = 0.933$), $F(2,170) = 3.459$, p
193 $= 0.058$.

194 Table 4 highlights the seven items relating to respondents' self-assessment of their IPC
195 knowledge and skills from the highest to lowest mean scores. Overall, respondents rated their
196 knowledge much less than their skill level. Over a third of the respondents (34%, $n=60$) rated
197 their knowledge of IPC models and research as poor. More than a quarter of the respondents
198 (27%, $n=48$) rated their skills level for communicating effectively as satisfactory or poor.
199 Respondents ranked four potential barriers that may prevent them from attending an IPE
200 training with the barrier of 'time' being ranked as the highest, followed by 'financial and travel
201 limitations' and lastly lack of administrative support.

202 ➤ **RIPLS scale for practising pharmacists**

203 Overall RIPLS scores were high among hospital, community, and primary healthcare
204 pharmacists indicating high readiness and better attitudes (Table 5). Cronbach's alpha for the
205 23 statements in the RIPLS scale was 0.809. There was a significant difference between
206 responses to the question 'the function of nurses and therapists is mainly to provide support
207 for doctors' ($p = 0.018$). *Post hoc* analysis using Tukey's test revealed hospital respondents
208 ($M = 2.75$, $SD = 1.318$) scored significantly lower than community respondents ($M = 3.36$, SD
209 $= 1.025$), $F(2,169) = 4.101$, $p = 0.019$.

210 *IPE definition*

211 Although 60% ($n=106$) of the respondents were aware of the term IPE, only 39% ($n=70$) could
212 identify the correct statement. Less than a quarter (21%, $n=37$) of the respondents had
213 previous experience of IPE. Just over half of the respondents (56%, $n=100$) could identify the
214 correct statement for IPC (Table 6). When *t*-tests were carried out, there was a significant
215 difference between the means on subscale 1, teamwork and collaboration, when respondents

216 correctly identified which statement described IPE ($M = 57.23$, $SD = 6.04$) compared to
217 respondents who did not ($M = 59.20$, $SD = 5.51$), $t(160) = -2.10$, $p = 0.037$ (Table 5).

218 *Effect of gender*

219 In the analysis of RIPLS subscales, female pharmacists had higher mean scores on team
220 collaboration and patient-centredness than male pharmacists. t -tests demonstrated a
221 significant effect of gender on teamwork and collaboration. Females scored higher ($M = 59.33$,
222 $SD = 4.96$) than males ($M = 56.87$, $SD = 6.41$), $t(160) = 2.70$, $p = 0.008$. There was no
223 significant effect of gender on the two other subscales, with p greater than 0.05.

224 **Stage 2**

225 Three focus groups were convened for practising pharmacists: community pharmacists ($n=4$),
226 hospital pharmacists ($n=6$) and primary healthcare ($n=4$). These further explored the
227 perceptions and experiences of the different participants concerning IPE, collaborative
228 practice. Three overarching themes were identified related to pharmacists' perceptions of the
229 enablers, barriers, and recommendations for the implementation of IPE and collaborative
230 practice as shown in Table 7.

231 ➤ **Pharmacists' perceptions of enablers**

232 Focus group participants discussed various advantages for implementing IPE and
233 collaborative practice. They were categorised under three different themes.

234 Firstly, participants identified professional related benefits of having collaborative practice at
235 their settings and this was perceived to ease interprofessional communication. Participants
236 identified that appreciation and trust by the other healthcare professions will translate to
237 increased self-confidence when working in a team compared to working individually. There
238 was also the enrichment of practice experience and the opening of new horizons for practising
239 pharmacists as one community pharmacist mentioned:

240 "Interprofessional working can take pharmacists to different new areas opening up new sectors
241 for pharmacists, professions" (Community Pharmacist Participant 1).

242 The second theme highlighted was patient related benefits where participants repeatedly
243 emphasised that the ultimate focus for all healthcare professionals is positive patient
244 outcomes, so all professionals should work effectively together to achieve this. When working
245 interprofessionally, participants perceived there should be a reduction of errors including
246 medication errors as all the healthcare professions aim to provide safer environments for
247 patient care as illustrated by the below quotation.

248 "What is your expertise? What is their expertise? and collectively what you're going to do for
249 patients. To serve high quality or the best quality service to a patient. Also, it is necessary to

250 reduce errors to reduce any signs of negative or bad things in treatment ... Collectively
251 integrating different efforts by healthcare professionals will produce a more effective treatment
252 care to the patient” (Primary Care Pharmacist Participant 1).

253

254 The third theme was the current positive influences driving change towards collaborative
255 practice in Qatar. Participants noted that there have been many improvements in the last three
256 years. These include: the Qatar National Vision with the prospect of greater opportunities for
257 pharmacists and healthcare professionals; accreditations for hospital and primary care
258 settings that will deliver the highest standard of quality healthcare; the recent transformation
259 of the pharmacist role moving from being product-focused to being patient-focused. One
260 clinical pharmacist explained:

261 “At the beginning, it was very challenging and because there were few clinical pharmacists,
262 they were not covering all the teams. They had a big load of patients and so a lot of their
263 intervention was not noticed that much. However, the current situation is quite different and we
264 have a good base of clinical pharmacists and the role of the clinical pharmacist is much more
265 obvious, their role is well-accepted and other healthcare professionals are looking for them”
266 (Clinical Pharmacist Participant 1).

267

268 This is in addition to recruiting healthcare professionals with western backgrounds who have
269 expertise and experience of extended pharmacists’ roles and the need to invest in future
270 pharmacy graduates with educational strategies that instil change agent roles to greatly
271 enhance practice as hoped by one hospital pharmacist:

272 “This is the time for change! if the older graduates didn’t change then the newer graduates
273 should change everything” (Hospital Pharmacist Participant 2).

274

275 ➤ **Pharmacists’ perceptions of barriers**

276 Pharmacists identified three themes related to the barriers for moving forward with
277 collaborative practice. The first related to the patients’ negative perceptions. Participants in
278 the different settings described their frustration with the patients’ view of them as merely
279 ‘vending machines’ for medications. Participants emphasised the lack of appreciation, respect,
280 and trust by patients. They reported that patients viewed their interactions with the pharmacist
281 differently from that with the physician. One hospital pharmacist said:

282 “I think communication between pharmacists and patients will not be like patient physician
283 relationship. Patients do not value pharmacists’ contribution as they do for physicians. This is very
284 challenging” (Hospital Pharmacist Participant 1).

285 The second identified theme was the status of the pharmacy profession. This related to
286 perceived organisational concerns within the profession and included the lack of a grading

287 system for hospital pharmacists and the manner in which pharmacists are graded in the
288 primary care setting. These systems were considered poor and provided a lack of incentive
289 for career progression. This is contrary to what was perceived as career progression for nurses
290 as illustrated by this quote:

291 "Nurses have more opportunities than pharmacist and this is due to management supporting
292 them, giving them new roles and responsibilities, they look after them very well, they put them
293 into open new places, new work, this not happening between pharmacists and our management
294 I don't know why? ... I can innovate, but the way is blocked for me!" (Hospital Pharmacist
295 Participant 1).

296 Additionally, in primary care the pharmacists' role is mainly concerned with dispensing. The
297 community pharmacists discussed how their setting is very much business oriented and how
298 they lack the time to meet patients' needs due to the large number of patients seen per day.
299 Additionally, community pharmacists expressed concerns about lower salaries in comparison
300 to other pharmacy sectors and that they will not be compensated for working
301 interprofessionally. Another factor affecting the status of the pharmacy profession is the lack
302 of pharmacist confidence which participants' perceived had been sensed by patients. Some
303 pharmacists felt less confident in giving drug information advice to other healthcare
304 professionals. Participants attributed the lack of confidence perceived by some pharmacists
305 to limited clinical knowledge and lack of clinical training as noted by one primary care
306 pharmacist:

307 "I know very well a lot of pharmacists and they may be very competent in their knowledge but they
308 lack communication skills to transfer their knowledge even when dealing with physicians ... they
309 may have the right answer – but they (are) shy, okay, to give the real or the right answers ... but as
310 far as I know, a lot of pharmacists, they [are] hesitant to ask a doctor if there is a real, error in their
311 prescription. Why? To my point of view because they didn't have such training before. How to
312 communicate with other professions, how to be self-confident when dealing with others..." (Primary
313 Care Pharmacist Participant 1).

314 Additionally, participants noted a lack of continuous professional development, training
315 opportunities, and protected time for training.

316 The final theme identified was the current working practices and processes. This theme had
317 five subthemes. It was evident in all the focus groups that hierarchy in the healthcare system
318 was a barrier to implementing collaborative practice and this was frequently discussed.
319 Pharmacists agreed that physicians are usually the leaders in the healthcare team and are
320 the 'maestro of the clinical rotation'. In many instances, the word 'interference' was used to
321 describing pharmacists' dealing with physicians. This led to pharmacists withdrawing from a
322 more engaging interprofessional role. Community pharmacy participants were concerned that

323 when physicians communicated with them it was merely for stock checking or for a dispensing
324 issue and not pharmacotherapy related queries. They were very cautious in their interaction
325 and felt they needed to please the physician and manage expectations as highlighted by one
326 community pharmacist:

327 "Some doctors assume that I only call for business, or for something not available, not for the
328 patient. So when I make a recommendation, some doctors feel I want to take his job I want to
329 make overlay of his rule ... physician feels threatened so when I talk with them, to ease the
330 conversation, I would say: I know you know more than me" (Community Pharmacist Participant
331 4).

332 Moreover, participants reported that some physicians were threatened by the increasing
333 therapeutic role of the pharmacist and preferred the traditional way of practice. One primary
334 care pharmacist commented:

335 "I want to say there is sometimes a problem between doctors and pharmacists about knowledge
336 every time the doctors believes his knowledge is in higher level than pharmacists. This is a
337 problem. Sometimes we are working together and we make recommendation based on
338 evidence based practice and challenge them on what they have prescribed ... sometimes they'll
339 listen, sometimes no, but the decision is coming from the doctor to the pharmacist" (Primary
340 Care Pharmacist Participant 2).

341 It emerged from the focus groups that pharmacists perceived that the power differential was
342 greater within hospitals. It was claimed that nurses had lots of support from the hospital
343 administration, giving them more opportunities to advance their professional careers.

344 "I think it's related to the power they have (nurses) ... hospitals are very much nurse dominated
345 ... For example, hospital projects are run by nurses and I would like to see pharmacist going
346 beyond their usual practices and to be involved in running projects at hospital level" (Hospital
347 Pharmacist Participant 1).

348 Furthermore, healthcare professionals in Qatar come from a variety of cultures and countries
349 with different backgrounds. This can enrich the practice experience, but participants agreed
350 that this can also be one of the challenges. They noted disparities in knowledge, qualifications,
351 attitudes, and experiences between health care professionals with some lacking
352 interprofessional experiences. This was illustrated by one of the clinical pharmacist
353 participants:

354 "The working environment is very multicultural. Healthcare professionals are all from different
355 nationalities, with different cultures. Now, sometimes this will enrich the environment but
356 sometimes it will make it difficult to understand how to approach this doctor or this nurse.
357 Because they come, they all come from different backgrounds, so for me, like how I'm going to
358 communicate with someone who's coming from India or from Philippines or US, UK ... so at

359 the end of the day, these people have different beliefs and different attitudes and different
360 cultures making it really difficult” (Clinical Pharmacist Participant 1).

361 Additionally participants noted that many pharmacists’ educational backgrounds are not
362 clinically-orientated but industry-focused. Therefore, IPE training is often non-existent.
363 Furthermore, most pharmacists noted a lack of a collaborative practice but highlighted some
364 emerging examples in some hospitals and slow introduction in primary care. However, there
365 was no collaborative practice reported from the community pharmacists.

366 “Currently there is nothing like interprofessional working that’s going around here. People are more
367 or less very specific about their own professions. Very little interest and there are no movements to
368 link people together in practice ... in a community pharmacy our interaction with physicians or
369 specialists or nurses are a matter of querying prescriptions. This is the only kind of interprofessional
370 relationship we have but nothing like IPE ... I don’t see a scope for a real practical possibility”
371 (Community Pharmacist Participant 1).

372

373 ➤ **Pharmacists’ recommendations**

374 Two themes were identified for this category and this included changing the patient
375 perceptions concerning the role of the pharmacist suggested by one hospital pharmacist:

376 “We need to change the perception of the patient about pharmacist before the perception of
377 the doctor or physician” (Hospital Pharmacist Participant 1).

378 Secondly, to enhance the status of the pharmacy profession through training, providing more
379 support for the profession and raising awareness about other professions. One of the hospital
380 pharmacist participant believed the issue stems from the lack of competent pharmacist
381 leaders:

382 “It’s a problem in leaders; it would be good to get more pharmacist as leaders - innovative leaders
383 will make things. If leaders are innovating, or think about the profession, (voices overlap), profession
384 will advance and move forward leading to positive change” (Hospital Pharmacist Participant 1).

385

386 **Discussion**

387 This mixed method study is the first comprehensive and explicit assessment of pharmacists’
388 perspectives, from different practice settings, towards IPE and collaborative practice in the
389 State of Qatar, and perhaps worldwide. The results of the survey indicated that practising
390 pharmacists had generally positive attitudes toward engaging in interprofessional learning and
391 collaboration and this is replicated in other studies [24]. The follow-up focus groups allowed
392 exploration of the pharmacists’ perceptions in relation to the advantages, barriers, and
393 recommendations for the implementation of IPE and collaborative practice.

394 Findings from this study indicated that IPC had many professional related gains. Pharmacists
395 may view IPC as an opportunity to improve their working conditions in the hope of reaching a
396 similar status to their medical colleagues [52], increased professional fulfilment, and an
397 improved professional image [22, 25, 53]. Collaborations are affected when there is role
398 conflict, ambiguity and hierarchical differences between healthcare professionals. For
399 example, pharmacists are concerned with appearing incompetent when relating to physicians;
400 perceived as encroaching on boundaries of the physician's roles; or feeling the other
401 professional is not interested in collaboration [54]. The findings from this study highlighted two
402 major observations which are discussed in detail below namely, the lack of existence of
403 collaborative practice, hierarchy and power play.

404 **1. Lack of existence of collaborative practice**

405 This study revealed a poorer definition of IPE and IPC with more than one third of the
406 respondents believing IPE to be shared learning. Although 56% of the respondents were able
407 to identify the correct statement for IPC, they had poor knowledge of IPC models and research.
408 Respondents rated their knowledge much less than their skill level and this was consistent
409 with observations reported in another study using the same scale [45]. Additionally, more than
410 a quarter of the survey respondents rated their skill level for communicating effectively as
411 satisfactory or poor. This can be related to the practising pharmacists' differences in
412 educational backgrounds and lack of exposure to IPE during their undergraduate training,
413 which was highlighted in the focus group discussion. The majority of pharmacists practising in
414 Qatar are a heterogeneous expatriate group with most pharmacists graduating from
415 programmes that focus on pharmaceutical sciences and industry rather than clinical pharmacy
416 [42]. This, coupled with the current pharmacy practice infrastructure in Qatar, resulted in just
417 over a quarter (27%, n=36) of respondents reporting that they spend the majority of their time
418 in direct patient care activities [55]. These results concur with another study where insufficient
419 opportunities to interact with other healthcare professionals was amongst the most common
420 perceived barriers by pharmacists in Qatar to providing pharmaceutical care [56].

421 Additionally, although respondents gave their highest ratings to the importance of IPC as it
422 relates to the effectiveness of their work, the results of the survey showed pharmacists were
423 not satisfied with the process of IPC in their work settings. This was confirmed in the focus
424 group, where most pharmacists indicated a lack of collaborative practice. This is similar to
425 other reports in the literature where pharmacists noted poor communication and limited
426 collaboration existing between them and members of the healthcare team [22, 24]. Clear
427 differences exist between the practice settings with reports of collaboration emerging in some
428 hospitals, and recently being introduced in primary care, but there was no evidence of
429 collaborative practice in the community. This was anticipated and highlighted in the FIP report,

430 where the varying degree of collaboration by pharmacists with other healthcare professionals
431 across the different care settings and within the same healthcare setting was noted [6]. It was
432 promising that participants who had the opportunity to practise collaboratively were satisfied
433 with their experience and reported positively about it.

434 Time and financial limitations were identified as major barriers preventing pharmacists from
435 learning more about IPC. These have also been reported as barriers for engaging in IPC [24,
436 22]. The low salary, particularly for community pharmacists, and lack of compensation for
437 providing pharmacy services demotivated pharmacists to move from their 'shopkeeper' image
438 and utilise their knowledge and skills to enhance interprofessional working and patient care
439 provision. Additionally, the perceived lack of time could be the result of believing that IPC is
440 an additional task to their current job responsibilities rather than incorporating it into current
441 working practices. Another barrier identified was the diverse educational backgrounds of the
442 healthcare professionals, leading to divergent understandings of roles and responsibilities.
443 Pharmacists also admitted that they lack confidence in dealing with other healthcare
444 professionals. There were two factors associated with this: their perceived lack of clinical
445 knowledge and their lack of skills in communicating with other healthcare professionals.

446

447 Although many participants were not happy about the current collaborative process in their
448 work settings, practising pharmacists were united in their optimism and were adamant that the
449 future would be different, highlighting a number of current initiatives. Examples of the initiatives
450 reported included the 'Qatar National Vision 2030'. Furthermore, few of the hospitals in Qatar
451 have integrated automated dispensing units (pharmacy robots) within their pharmacies,
452 enabling pharmacists to assume more patient care responsibilities [57]. Additionally, the
453 accreditation of practice settings ensures that the highest standard quality healthcare is being
454 followed. Implementing an interprofessional culture usually requires a new generation of
455 healthcare professionals [58]. Hence, pharmacy students graduating from the College of
456 Pharmacy are expected to be the drivers for change enhancing the growth of clinically effective
457 pharmacy practice services [57]. Community pharmacy practice in Qatar is still noted to be
458 traditional and business oriented. However, the Ministry of Public Health has established a
459 community pharmacy network supported by policies and procedures as per Qatar National
460 Health Strategy (2011-2016). The goals of the community pharmacy strategy focus on
461 providing high quality medication practice and the enhancement of healthcare services. [59].
462 Community pharmacists in Qatar have demonstrated their willingness to assume new roles
463 for better patient care, which in turn will enhance the pharmacists' public image [60].

464 **2. Hierarchy and power play**

465 A limited understanding of the pharmacist's scope of practice by other professionals was
466 perceived in both the survey and focus groups with frequent reference to physicians' lack of
467 awareness. However, evidence suggests that effective working relationships between
468 healthcare professionals and previous positive experiences are important components for
469 successful collaboration [61]. A hierarchical system is apparent in this study's findings.
470 Pharmacists articulated this with references related to: physicians being the 'maestro of this
471 clinical rotation'; pharmacists not wanting to interfere with GPs and concerned that
472 collaboration may make matters worse; diverse expectations between pharmacists and
473 physicians'; and the pharmacists' perception that physicians believe their knowledge is much
474 higher. These findings are similar to other Middle Eastern countries where healthcare is mainly
475 physician driven and they are the main decision makers for patient care [62]. Observations
476 from the mixed method study reported important communication taking place between
477 physicians in contrast to fewer communications with the rest of the healthcare team. The
478 suggested reasons for this was that physicians do not place value on expertise beyond their
479 disciplines or the need for collaboration due to their limited awareness of others scope of
480 practice [63]. Additionally, another study conducted in Qatar reported that physicians were not
481 comfortable with pharmacists informing patients about cost-effective alternatives for
482 prescribed medication or discussing with the physicians drug related problems. In the same
483 study, physicians were not in favour of pharmacists being responsible for resolving drug-
484 related problems [64]. In another study conducted in Ireland, GPs questioned the role of the
485 pharmacists in certain activities such as prescribing, which is interpreted as a 'boundary
486 encroachment' [18]. This study concurs with such evidence in the wider literature and adds to
487 the body of knowledge on pharmacists' perspectives of collaborative working.

488 Unfortunately, Qatar lacks a regulatory body for the pharmacy profession, [57, 55]. This was
489 reflected in the participants' frustration regarding their current job status and the lack of a
490 grading systems for their career progression. This is in contrast to nurses, whom hospital
491 pharmacists perceived to have immense support from the hospital administration, with many
492 opportunities to advance. The lack of strong pharmacy leadership and the limited number of
493 leaders were implicit in their comments. Pharmacists expressed a sense of hopelessness in
494 their practice settings, attributing this to the hierarchal nature of the health system with
495 physicians being the leaders. Pharmacists seemed to be adopting an attitude of defensiveness
496 and subordination, and blaming physicians for their status [58]. A national body representing
497 the pharmacy profession could be a way forward to alleviate this situation.

498 There are a number of limitations to this current study. No formal registry for pharmacists
499 practising in Qatar exists [55] to allow access to named pharmacists, and the College of
500 Pharmacy database was used instead. Additionally, the survey was only offered in the English

501 language which may have discouraged pharmacists from participating, thus potentially limiting
502 the response rate. However, previous surveys also used English as a language with no issues
503 [56, 41]. The possibility of social desirability bias cannot be excluded from this survey and the
504 focus groups. This did not seem to influence respondents' views as highlighted in their
505 comments. Only one focus group was conducted for each practice setting and there were
506 similar emerging themes. Additionally, in mixed method research, the concept of the
507 representativeness/saturation trade-off exists [65]. Therefore, in a sequential explanatory
508 design, there is a greater emphasis on the quantitative stage, which is traded off with reaching
509 saturation in qualitative data [65, 66]. Furthermore, the qualitative stages provided deeper
510 insights into the posed research questions.

511 The study provided a unique exploration of the pharmacy perspectives towards IPE and
512 collaborative practice from a Middle Eastern context. Readiness assessment is recommended
513 as a precursor to change implementation using the mixed method approach. Further work is
514 needed to explore the perspectives of other healthcare professions' attitudes and readiness
515 toward IPE and collaborative practice to ensure a comprehensive understanding of readiness
516 of healthcare professionals to IPE and IPC.

517

518 **Conclusion**

519 Although collaborative practice is yet to be implemented in many pharmacy practice settings
520 in Qatar, pharmacists have already demonstrated a willingness and readiness to engage with
521 interprofessional learning and collaborative practice. They perceive anticipated professional
522 benefits as well as patient benefits. These findings are encouraging and should be taken as
523 an opportunity to promote IPC in different work settings. Barriers to collaborative working have
524 been discussed and these need to be investigated further and overcome before collaborative
525 working can be fully achieved.

526

527 **Impact on Practice**

- 528
- 529 • The results of this study encourage stakeholders to call for a national structured training
530 to promote IPC in practice settings for pharmacists and for the rest of the healthcare team
531 in both postgraduate education and within continuing professional development
532 opportunities.
 - 533 • These findings can be used to initiate discussions with key stakeholders on how to improve
collaboration and promote it within the practice culture.

- 534 • The State of Qatar is taking significant steps towards improving the healthcare delivery
535 system in all settings, yet attention needs to be focused on promoting collaborative
536 practice.
- 537 • With the landscape of health services rapidly changing in Qatar, and the advent of the
538 Qatar vision 2030, the country requires pharmacists and all healthcare providers to utilise
539 each other's expertise to the maximum and work together towards patient-centred care.
- 540 • Formal channels of communication need to be developed between healthcare
541 professionals not just in Qatar but worldwide.

542

543 **Acknowledgments**

544 The authors wish to thank all the pharmacists who completed the survey and participated in
545 the focus group.

546

547 **Funding**

548 This study was funded by an internal grant from the Office of Academic Research at Qatar
549 University.

550

551 **Conflicts of interest**

552 The authors of this manuscript have no conflicts of interest to declare. The authors alone are
553 responsible for the content and writing of this article.

554

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