



Libyan International Medical University
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Literature Evaluating



Pharmacists' background, interests, barriers, self-perceived competence and confidence to design and undertake pharmacy practice-based research in the GCC geographic area

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Introduction

- Pharmacy practice-based research (PPBR) is defined as “research that attempts to inform and enhance pharmacists’ understanding of the way practice should focus to ensure informed medicine information, as well as guaranteed evidence-based practice”.
- Pharmacy practice research should be frequently performed to investigate the necessity, efficacy and efficiency of all pharmacy services to provide quality care, optimize medicine use and reduce medication errors for individuals.
- The World Health Organization (WHO) and the International Pharmaceutical Federation (FIP) initiated the ‘**nine-star pharmacist**’ concept, which acknowledged that a well-rounded pharmacist should have the following criteria:
 - ✓ A good decision maker, communicator and manager with leadership characteristics, entrepreneur, constant learner, and have teaching skills and research abilities.



Introduction

- World- wide, previous literature has reported **several barriers** to pharmacists' participation and conduction of PPBR, such as:
 - ✓ **Inadequate knowledge of research design, lack of time and job support , lack of research experience , inadequate knowledge, training and financial funds , the absence of education curricular and postgraduate training and mentorship, and finally low publication rate.**
- Therefore, this study aimed at highlighting the research background of the Gulf Cooperation Council (GCC) pharmacists which are the six Arab states of the Arabian Gulf, and examining barriers to conducting PPBR.
- In addition, to determine the self-perceived level of competence and confidence when planning and conducting PPBR.



Methods

1. Study design
2. Date collection instrument
3. Study population and data collection
4. Sample size
5. Data processing and analysis



Methods

1-Study design

The study was conducted during the:

- Saudi International Pharmaceutical Sciences Annual National Conference (SIPHA) in January 2020
- Dubai International Pharmaceuticals and Technologies Conference and Exhibition (DUPHAT) in February 2020.

2-Data collection instrument

- A pre-validated questionnaire was adopted to better fit the purpose of this study.
- Two experienced pharmacy practice academics read and evaluated the questionnaire for face and content validity.

3-Study population and data collection

- In addition, they provide a variety of lectures, new research projects presented as posters or presentations from pharmacy researchers and leaders to gain valuable knowledge and help pharmacists with their continuous learning and growth in their desired field.

4-Sample size

- Sample size was calculated using a web-based sample size calculator

5-Data processing and analysis

- Confidence and competence level of pharmacists' self-assessment was compared among GCCs using Chi-square/Fisher exact test (where it was applicable), to indicate which research skills pharmacists were most and least confident and competent to do, for all GCC countries together and separately.

Results

1- Response rate

Table 1 Frequency distribution for GCC pharmacist demographics (*n* = 214)

Variables	Group	Frequency (n)	Percentage (%)
Age	21–30	88	41.0
	31–40	96	45.0
	> 40	30	14.0
Gender	Female	151	71.0
	Male	63	29.0
Country of residence	KSA	90	42.0
	Kuwait	40	19.0
	Oman	40	19.0
	UAE	30	14.0
	Bahrain	11	5.0
Marital status	Qatar	3	1.0
	Married	136	64.0
Highest degree achieved	Single	78	36.0
	Bachelor of pharmacy (Bpharm)	106	50.0
	Doctor of Pharmacy (PharmD)	24	11.0
	Master's Degree	64	30.0
Place of obtaining first professional pharmacy degree	Doctor of Philosophy (PhD)	20	9.0
	University from home country	148	69.0
	From a foreign country	66	31.0
Field of pharmacy practice in	Hospital pharmacy	134	63.0
	Retail or community pharmacy	37	17.0
	Academia and research center	34	16.0
	Others (Administration, pharmaceutical company & Industry)	9	4.0
The number of years spent in the field of pharmacy practice	< 1 year	32	15.0
	1–5 years	73	34.0
	6–10 years	55	26.0
	11–15 years	22	10.0
	> 15 years	32	15.0

Results

2-Research background and interests:

Table 2 Frequency distribution for GCC pharmacist research background and research interests variables (*n* = 214)

Variables	Group	Frequency (n)	Percentage (%)
Have any previous research experience?	No	64	30.0
	Yes	150	70.0
Previous research related training during undergraduate, postgraduate or during job	No training obtained	61	28.0
	Obtained training:	153	72.0
	Workshop	95	45.0
	Seminar	58	27.0
Experience on specialized short course	No	110	51.0
	Yes	104	49.0
	1–6 months	74	35.0
	7–12 months	17	8.0
	12 month	13	6.0
Do you have interest in conducting health-related research?	Not interested	50	23.0
	Interested	164	77
Are you interested in learning about how to conduct health-related research?	Not interested	44	21.0
	Interested	170	79.0
Overall ability to design and conduct health-related research	Poor	28	13.0
	Fair	55	26.0
	Good	101	47.0
	Excellent	30	14.0
Involvement in research as a subject or a respondent	Never	34	16.0
	Sometimes	77	36.0
	Often	48	22.0
	Usually	32	15.0
	Always	23	11.0
Involvement in research as a principal investigator or co-investigator	Never	64	30.0
	Sometimes	62	29.0
	Often	34	16.0
	Usually	36	17.0
	Always	18	8.0
Number of peer-reviewed journal articles published within the last 5 years	0 (No)	123	57.0
	1–3	70	33.0
	≥4	21	10.0
	0 (No)	107	50.0
Number of peer-reviewed posters and/or abstracts in local/regional conference since last 5 years	1–3	79	37.0
	≥4	28	13.0

Results

3-Barriers and interest to conducting research:

The most three reported areas of interest in pharmaceutical sciences among those participants were clinical and pharmacy practice (n = 145: 68%), pharmaceuticals (n = 19: 9%) and pharmacogenomics (n = 18: 8%), whereas the least reported areas of interest were medicinal chemistry (n = 15: 7%), pharmacognosy (n = 9: 4%), pharmacokinetics (n = 8: 4%) and pharmacology (n = 0: 0%).



Results

4-Self-perceived competence and confidence of GCC pharmacists when planning and conducting PPBR:

Participants (n = 214) were asked to choose from 3-point Likert-scale response options to assess their competence and confidence to conduct PPBR.

Table 3 GCC Pharmacists self-perceived competence and confident for planning and conducting health research (n = 214)

Research domain	Competent			Confident		
	Competent n (%)	Moderately competent n (%)	Not competent n (%)	Confident n (%)	Moderately competent n (%)	Not confident n (%)
1. Conception of research idea.	91 (42.5)	84 (39.3)	39 (18.2)	101 (47.9)	84 (39.8)	26 (12.3)
2. Searching the literature efficiently.	108 (50.5)	81 (37.9)	25 (11.7)	109 (51.7)	82 (38.9)	20 (9.5)
3. Critically reviewing research literature.	83 (38.8)	93 (43.5)	38 (17.8)	93 (44.1)	87 (41.2)	31 (14.7)
4. Formulating research hypotheses and research questions.	77 (36.0)	95 (44.4)	42 (19.6)	76 (36.0)	101 (47.9)	34 (16.1)
5. Proposing appropriate study designs or methods.	72 (33.6)	86 (40.2)	56 (26.2)	78 (37.0)	92 (43.6)	41 (19.4)
6. Writing research proposal or developing a protocol.	78 (36.4)	89 (41.6)	47 (22.0)	77 (36.5)	89 (42.2)	45 (21.3)
7. Defining target population, sample and eligibility criteria.	90 (42.1)	80 (37.4)	44 (20.6)	77 (36.5)	86 (40.8)	48 (22.7)
8. Determine appropriate sample size.	61 (28.5)	85 (39.7)	68 (31.8)	59 (28.0)	94 (44.5)	58 (27.5)
9. Choosing an appropriate sampling technique (e.g. random sampling).	68 (31.8)	86 (40.2)	60 (28.0)	60 (28.4)	94 (44.5)	57 (27.0)
10. Determining outcome measures (variables to measure).	70 (32.7)	90 (42.1)	54 (25.2)	75 (35.5)	91 (43.1)	45 (21.3)
11. Ethical considerations.	102 (47.7)	77 (36.0)	35 (16.4)	102 (48.3)	72 (34.1)	37 (17.5)
12. Outlining detailed statistical plans to be used in data analyses.	54 (25.6)	85 (40.3)	72 (34.1)	60 (28.4)	92 (43.6)	59 (28.0)
13. Designing a data collection form.	75 (35.5)	89 (42.2)	47 (22.3)	78 (37.0)	87 (41.2)	46 (21.8)
14. Developing and validating a study instrument (e.g. questionnaire).	71 (33.6)	85 (40.3)	55 (26.1)	72 (34.1)	89 (42.2)	50 (23.7)
15. Collecting relevant data using preplanned data collection forms.	79 (37.4)	88 (41.7)	44 (20.9)	91 (43.1)	76 (36.0)	44 (20.9)
16. Managing and storing data including data entry into a database.	84 (39.8)	74 (35.1)	53 (25.1)	81 (38.4)	81 (38.4)	49 (23.2)
17. Statistical analyses using software (e.g. STATA, SPSS, Epiinfo).	56 (26.5)	62 (29.4)	93 (44.1)	51 (24.2)	75 (35.5)	85 (40.3)
18. Choosing and applying appropriate "INFERENCEAL" statistical tests and methods.	43 (20.4)	69 (32.7)	99 (46.9)	46 (21.8)	76 (36.0)	89 (42.2)
19. Summarizing data in tables or charts.	94 (44.5)	78 (37.0)	39 (18.5)	97 (46.0)	79 (37.4)	35 (16.6)
20. Interpretation of the findings and determining the significance of obtained results.	80 (37.9)	83 (39.3)	48 (22.7)	93 (44.1)	77 (36.5)	41 (19.4)
21. Preparing a presentation (oral or poster).	126 (59.7)	61 (28.9)	24 (11.4)	118 (55.9)	73 (34.6)	20 (9.5)
22. Writing a manuscript for publication in a scientific journal.	76 (36.0)	77 (36.5)	58 (27.5)	80 (37.9)	81 (38.4)	50 (23.7)

Discussion

- This study is the first to examine the research background of GCC pharmacists and determine their barriers to conducting PPBR.
- It found that 70% had prior research experience, but this proportion was lower than Nigerian pharmacists.
- Also it found that lack of time was the most common barrier to conducting PPBR, followed by lack of knowledge, financial and job support.
- In order for PPBR to continue to evolve, pharmacists should be encouraged to conduct more research and be involved in research ideas. Additionally, all barriers should be recognized and resolved.

Conclusion

- This study's findings support the fact that GGC pharmacists realize the importance and value of planning and conducting PPBR for their practice and are more confident and competent to undertake and contribute to research, compared to pharmacists from other countries .
- However, being interested in research does not correspond to GCC pharmacists' actual ability to plan or undertake PPBR.

Conclusion

- Pharmacists' self-reported competence and confidence to undertake statistical tests of data and determine sample size were weak .
- Addressing the weaknesses and barriers reported by GGC pharmacists may promote the implementation of research outcomes in the Gulf countries.



References

- Alhomoud, F.K (2020), Pharmacists' background, interests, barriers, self-perceived competence and confidence to design and undertake pharmacy practice-based research in the GCC geographic area, BMC Med Educ 20: 411. pp:1-12 Available at: <https://doi.org/10.1186/s12909-020-02346-4>

thank
you

The text "thank you" is written in a warm, reddish-brown, cursive script. The word "thank" is on the top line and "you" is on the bottom line. Five small, hand-drawn stars of the same color are scattered around the text: one above the 't', one to the right of the 'k', one to the left of the 'y', one below the 'n', and one below the 'u'.