Libyan pharmacist's self-perceived competence and confidence to plan and conduct pharmacy practice research

By:
Shaima Buker 2610
Eman Benhalim 2439
Abdulrahman Elshweihdi 2363
Supervisor: Dr. Hiba Alshami
Coordinator: Dr. Ghada Awad

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2 Aim of the study

3 Methodology

4 Results

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Introduction

- According to WHO, pharmacists are identified as caregiver, decision-maker, communicator, manager, life-long-learner, teacher, and leader.
- All of these seven concepts are under the umbrella of "seven-stars pharmacist"
- Recently, two roles have been added to the seven roles including **researcher and entrepreneur** that leads to "nine stars pharmacist" so the affirmed the researcher concept as an important role of the professional practice and academic pharmacist.

Progress in Pharmacist Role

The role of the pharmacist is rapidly evolving and experienced a vast growth.

This growth requires appropriate changes in pharmacy, from product-based to patient-oriented practices, therefore pharmacist's participation in research and scientific publications hampered by several barriers.

Aim of the study

(1) to determine the self-reported competence and confidence scores of pharmacists

(2) to compare the competence and confidence scores between pharmacists

Methodology

Study design and duration

- This was a cross sectional study conducted among Libyan pharmacists using a **47 -items** questionnaire.

- The questionnaire was distributed between November the 19th 2022 and February the 19th 2023.

Inclusion and Exclusion criteria

Inclusion Criteria:

Pharmacists with Bachelor's or higher degree

Exclusion Criteria:

Other healthcare professionals

Instrument for data collection

- The questionnaire used for the study was developed by Abubakar U et al.
- Permission to use the survey was obtained from the corresponding author.
- The questionnaire was adjusted to suit Libyan setting.
- The adapted questionnaire was validated by three Pharmacists.
- The questionnaire consists of 47 item and six sections (demographic, research interest, barriers to conduct research, self-assessment of competence and confidence to conduct research, and postgraduate training interest).

Data collection

- The study's researcher shared the hyper link to the electronic survey with pharmacists in different setting
- Eligible pharmacists were invited to take part in this survey using social media invitations like :

Telegram

Facebook

WhatsApp

Messenger

Data Analysis

- The data for the study were analyzed using IBM SPSS, version 20.
- Categorical and continuous variables were presented as frequencies with percentages and mean respectively.

- The responses in the competence and confidence of pharmacists to plan and conduct pharmacy practice research were transformed into scores from 5 (extremely competent/very confident) to 1 (strongly not competent/ confident at all). Student t-test was used to compare the mean scores between pharmacists

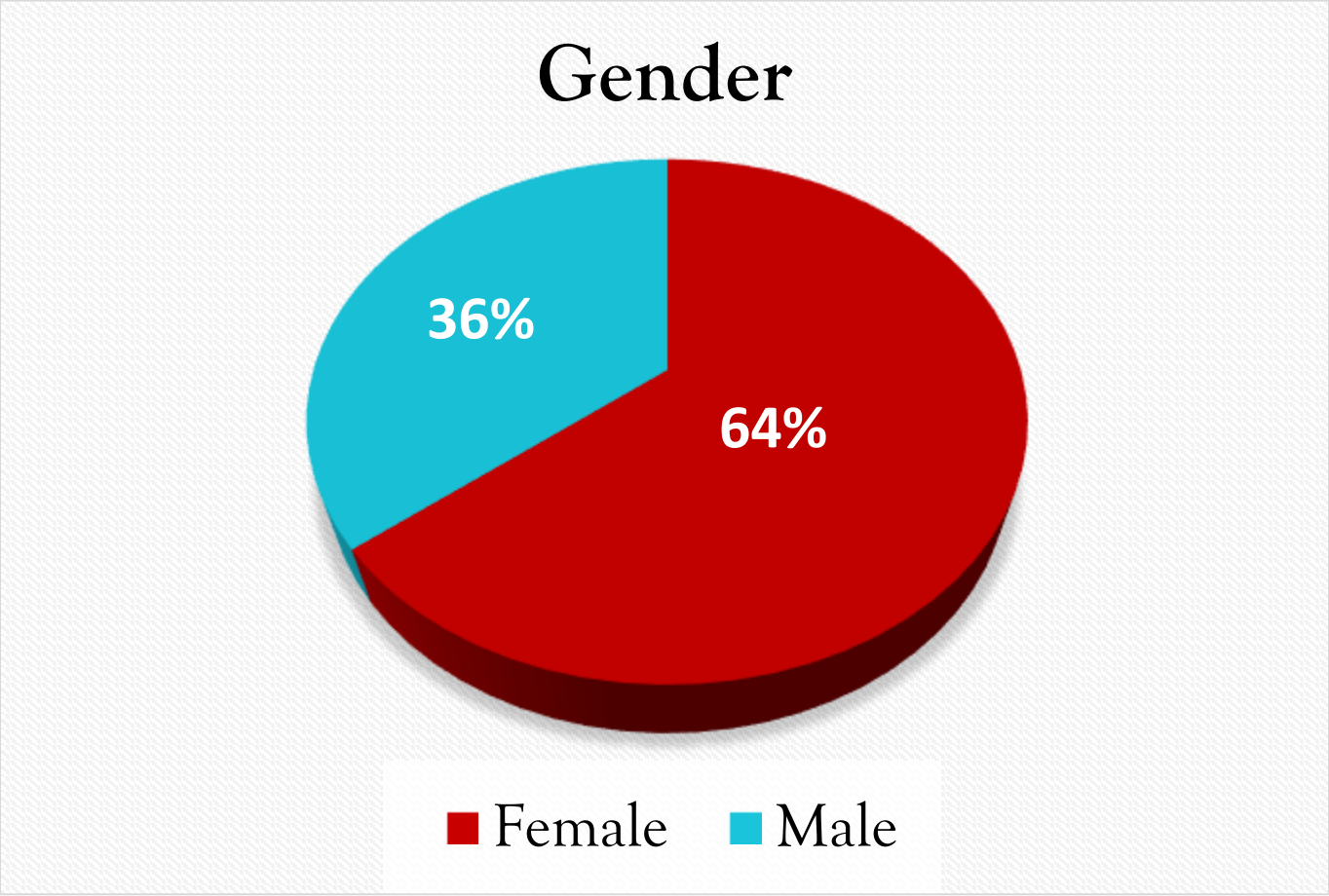
- P-values lower than 0.05 were considered statistically significant.

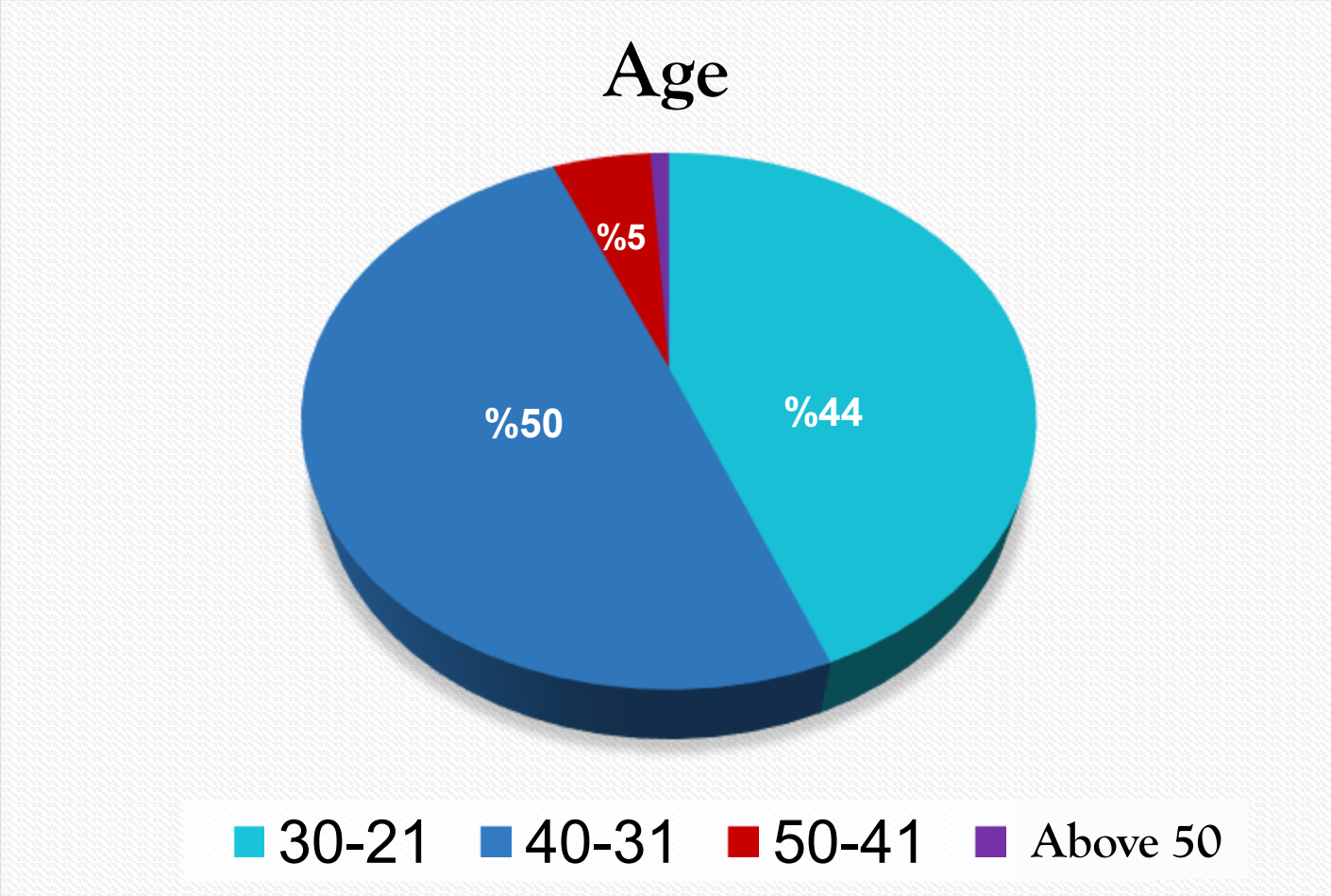
Results

PART 1

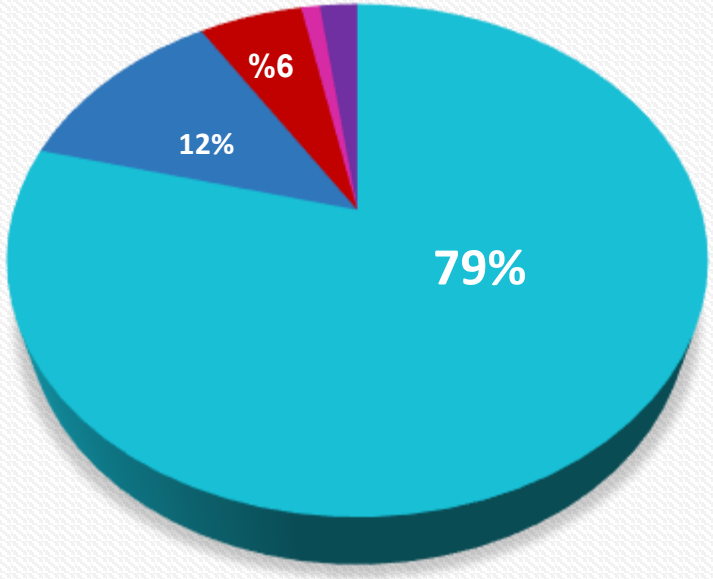
Demographic characteristics of the respondents

Demographic characteristics of the respondents

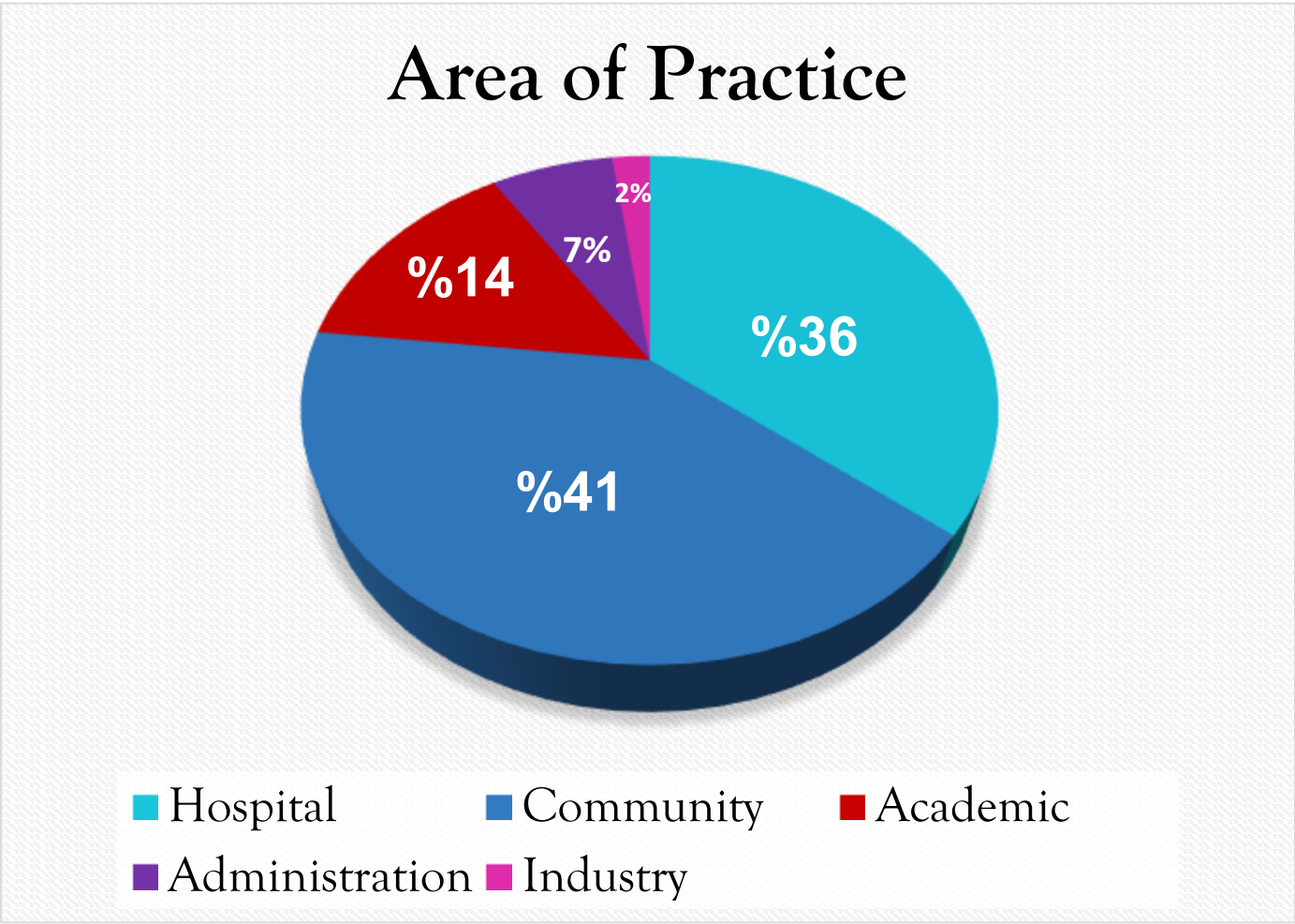


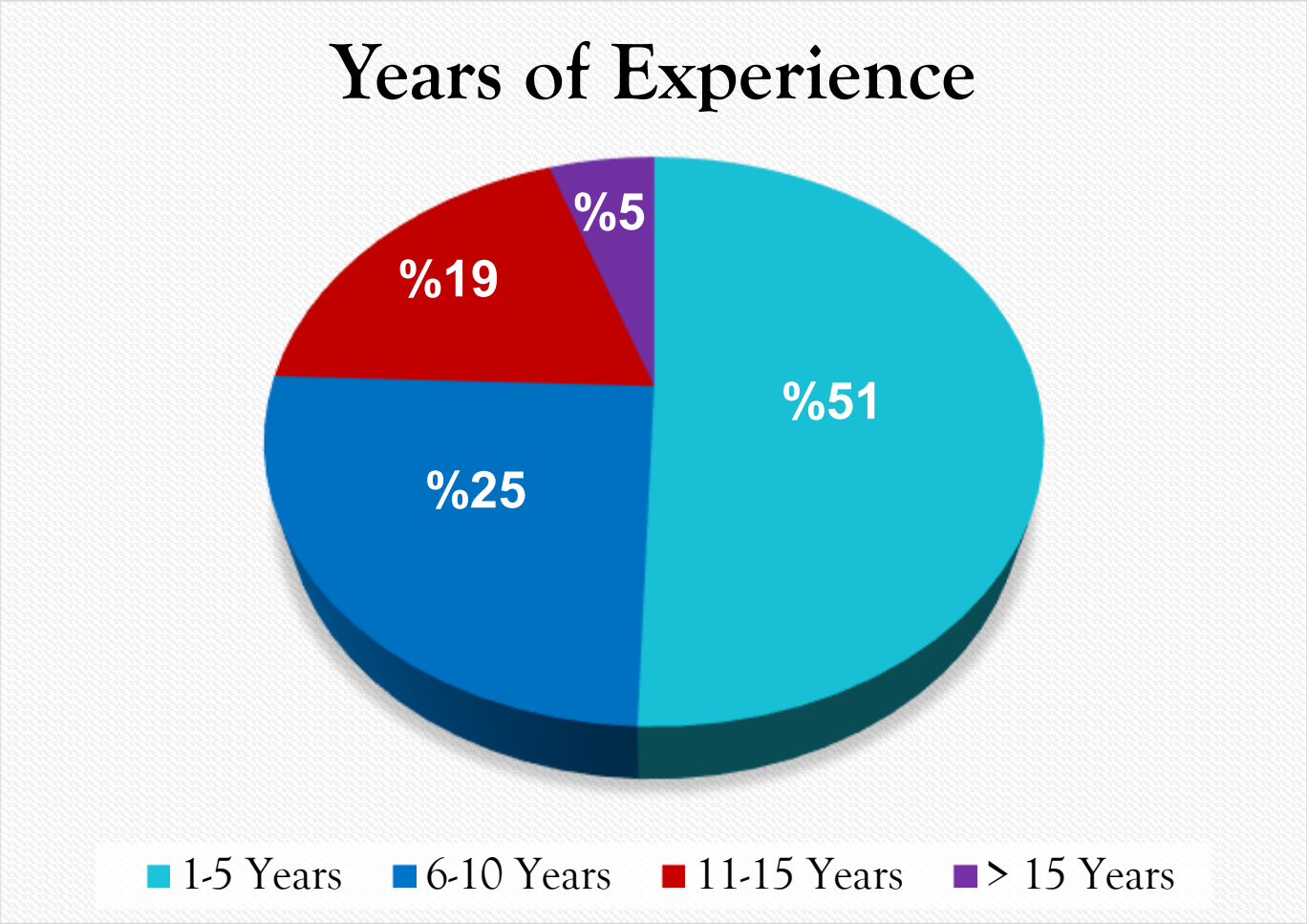

Age
%5
%50
%44
30-21
40-31
50-41
Above 50

City where the respondents are working in



Area of Practice

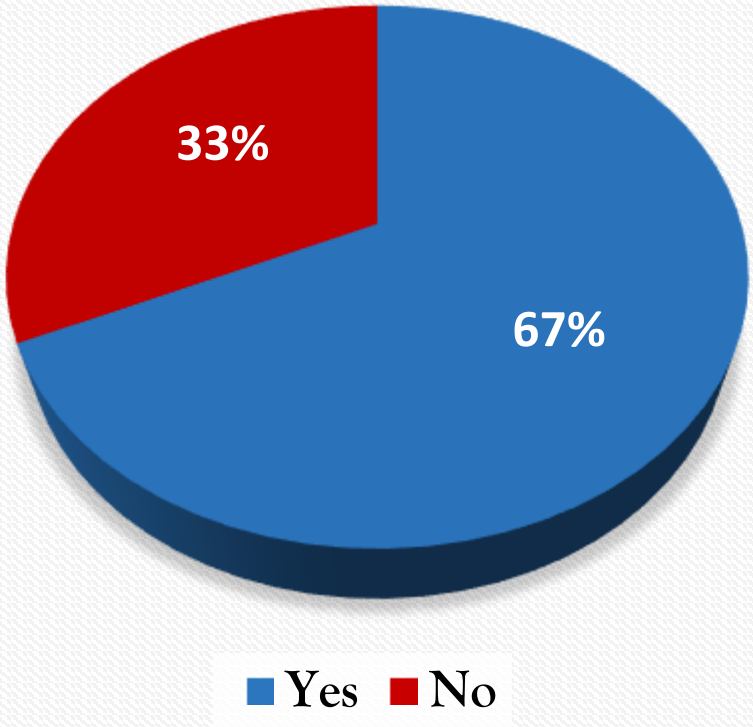



Years of Experience
%5
%19
%51
%25
1-5 Years
6-10 Years
11-15 Years
> 15 Years

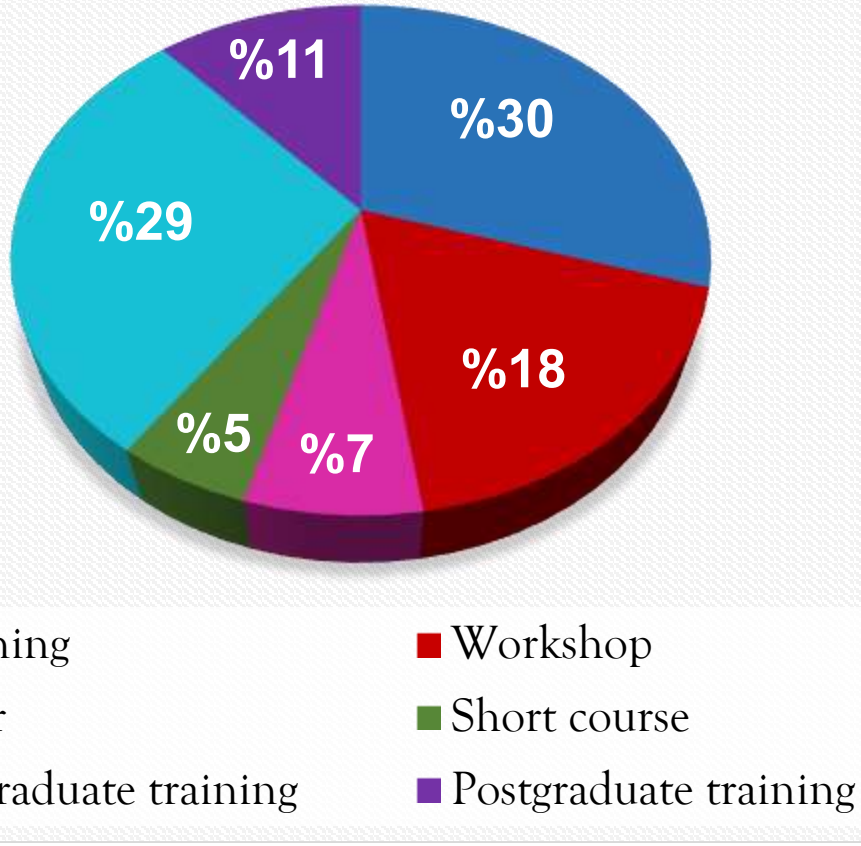
PART 2

Research background and interest of the respondents in conducting health-related research

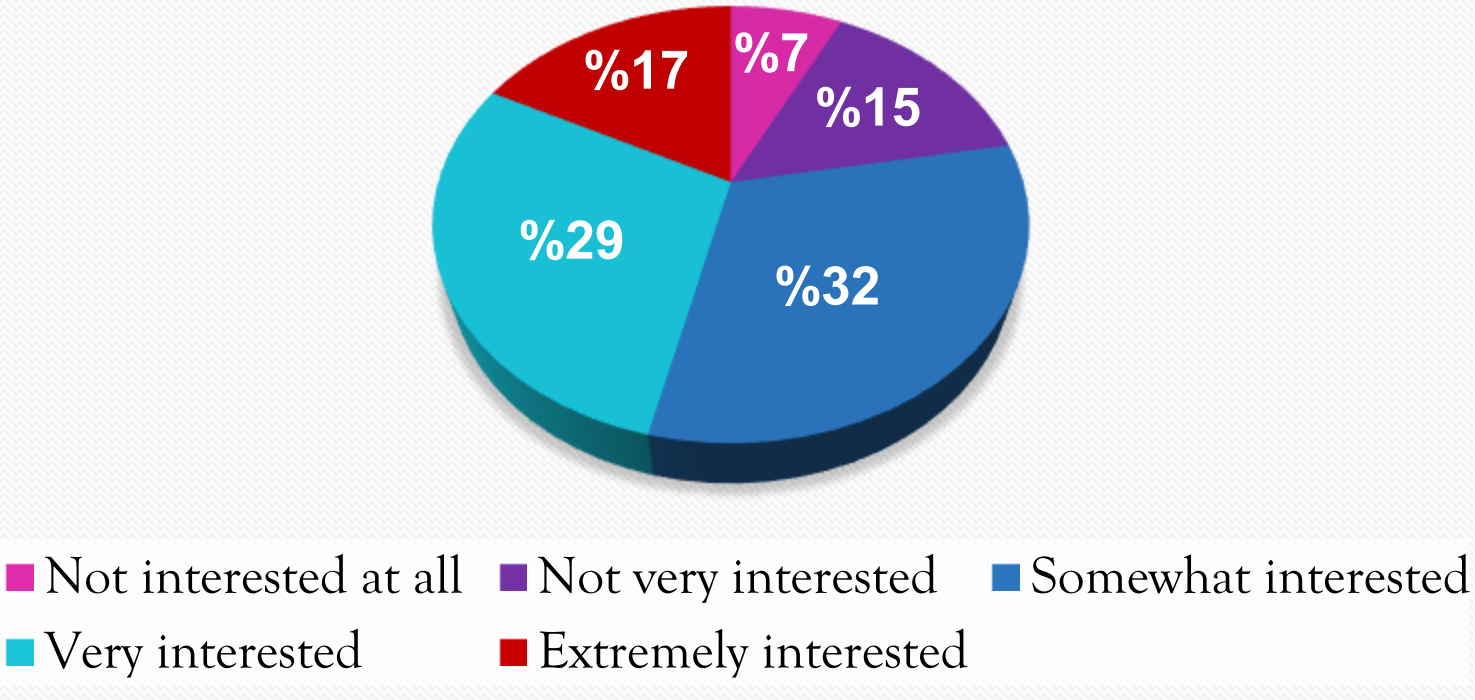
Previous research experience



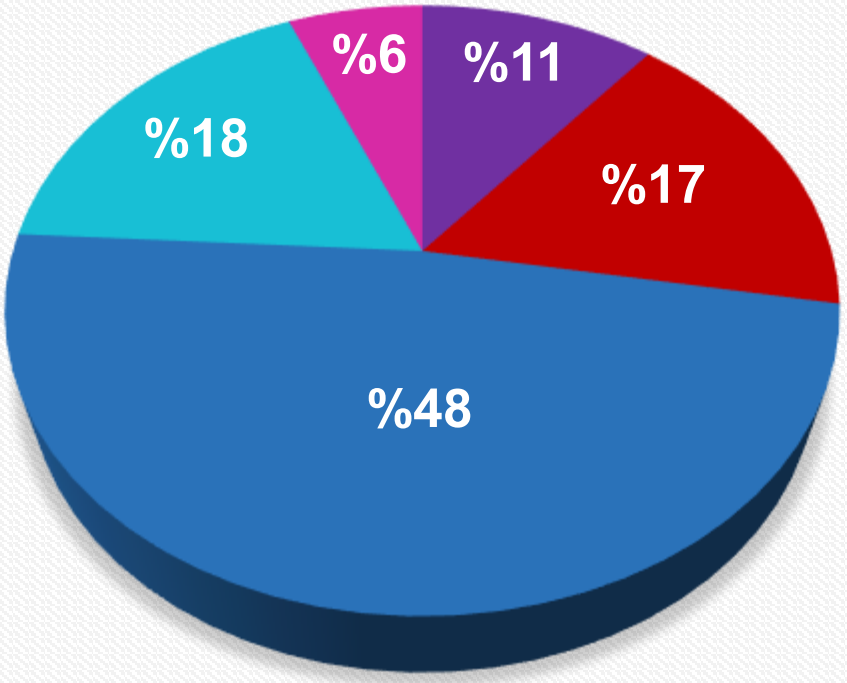
Previous research related training

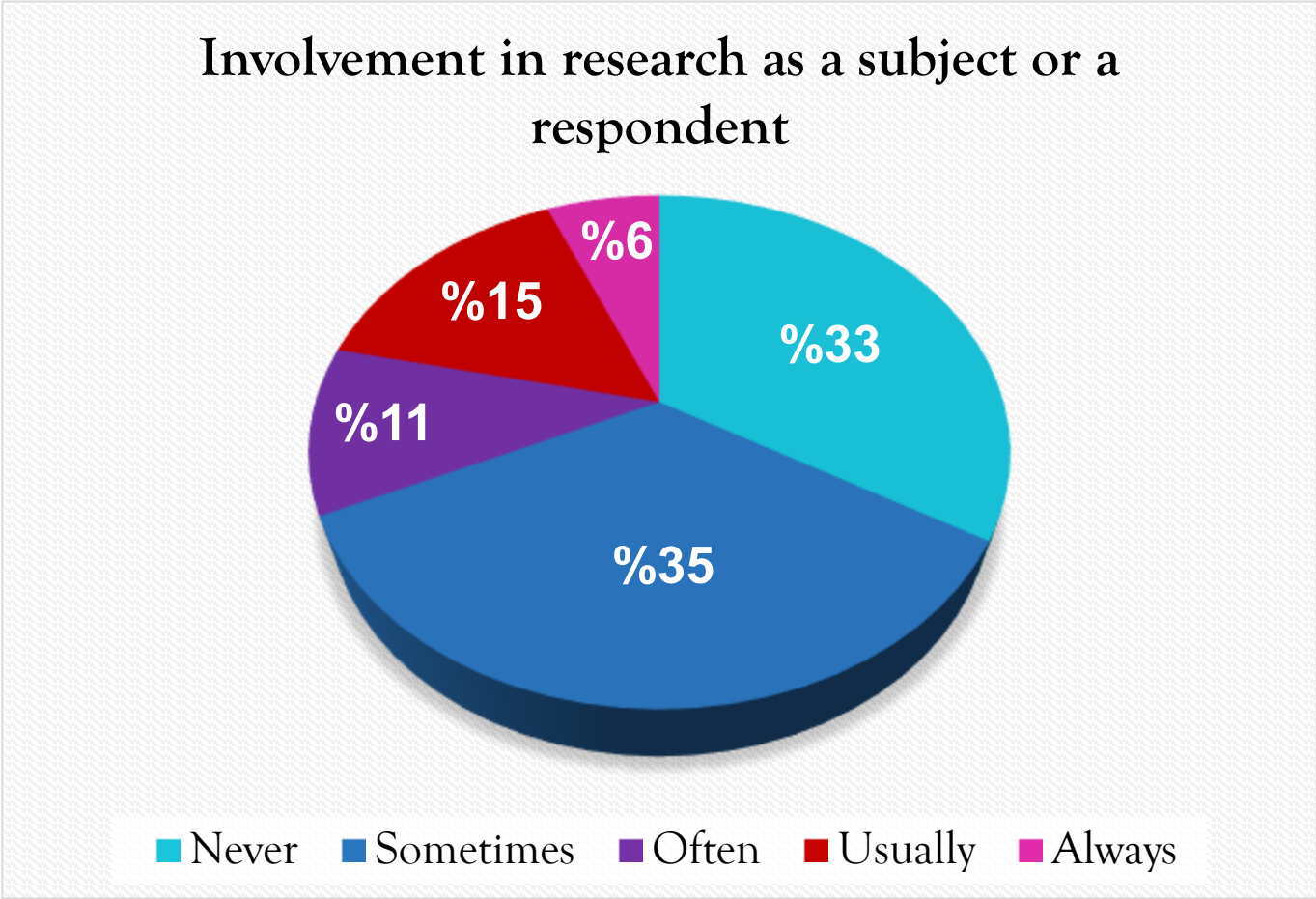


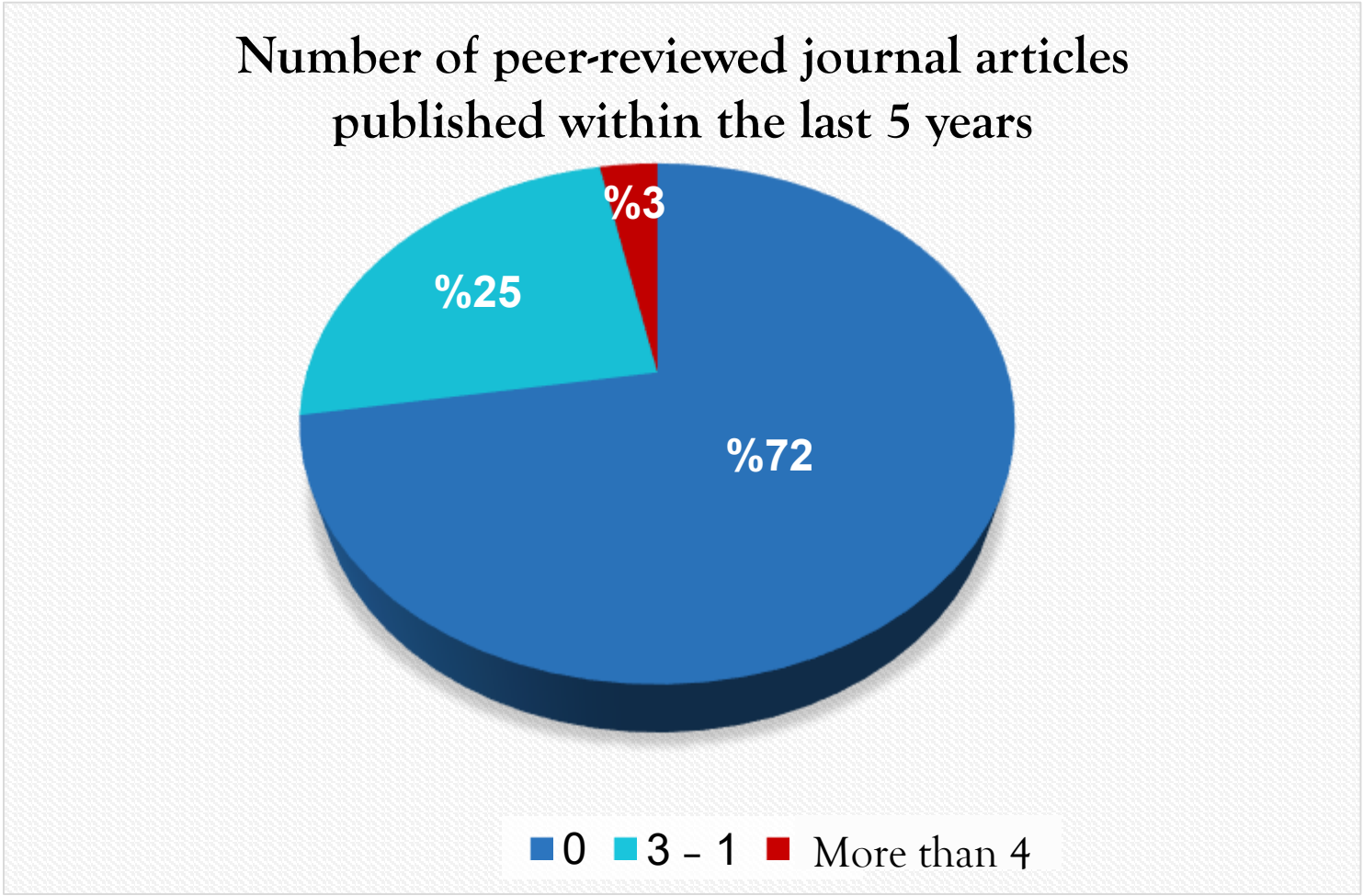
Interest in conducting health-related research



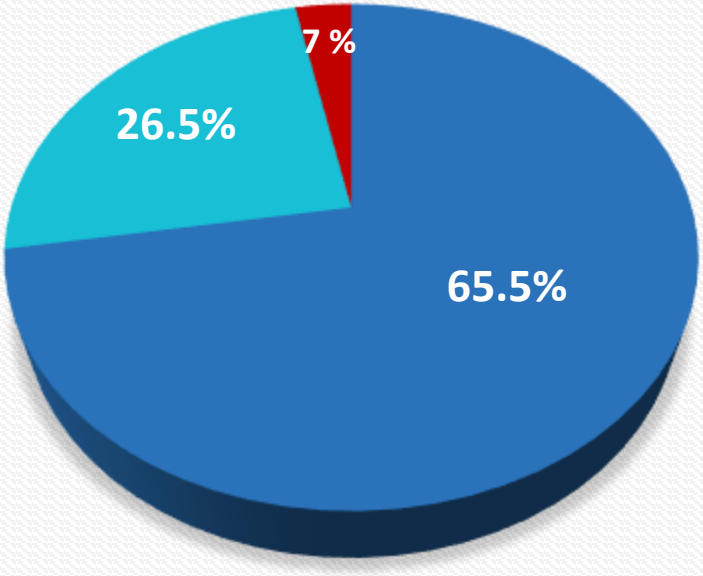
Overall ability to design and conduct health-related research



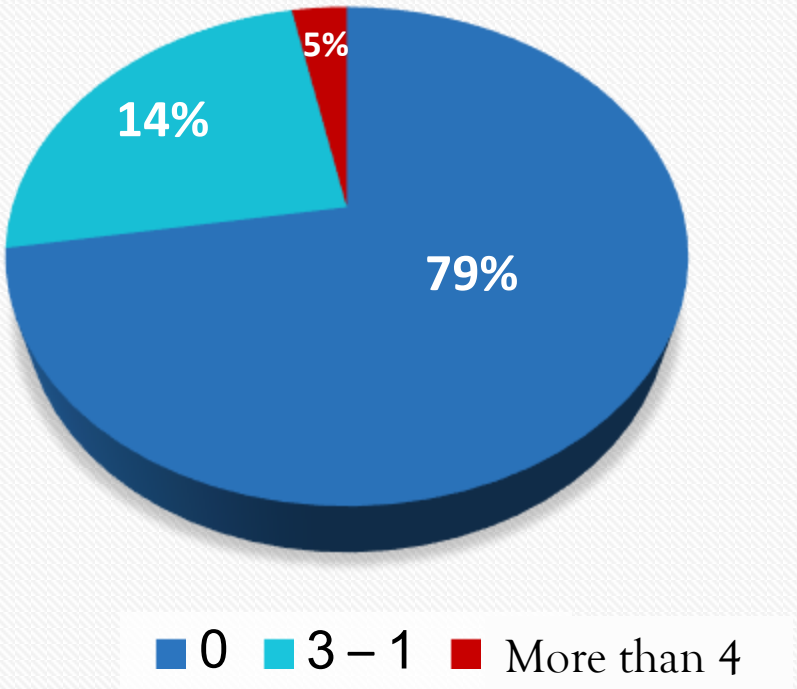

Involvement in research as a subject or a respondent
%6
%15
%33
%11
%35
Never
Sometimes
Often
Usually
Always


Number of peer-reviewed journal articles published within the last 5 years
%3
%25
%72
0
3 - 1
More than 4

Number of peer-reviewed posters and/or abstracts in local/regional conference since last 5 years

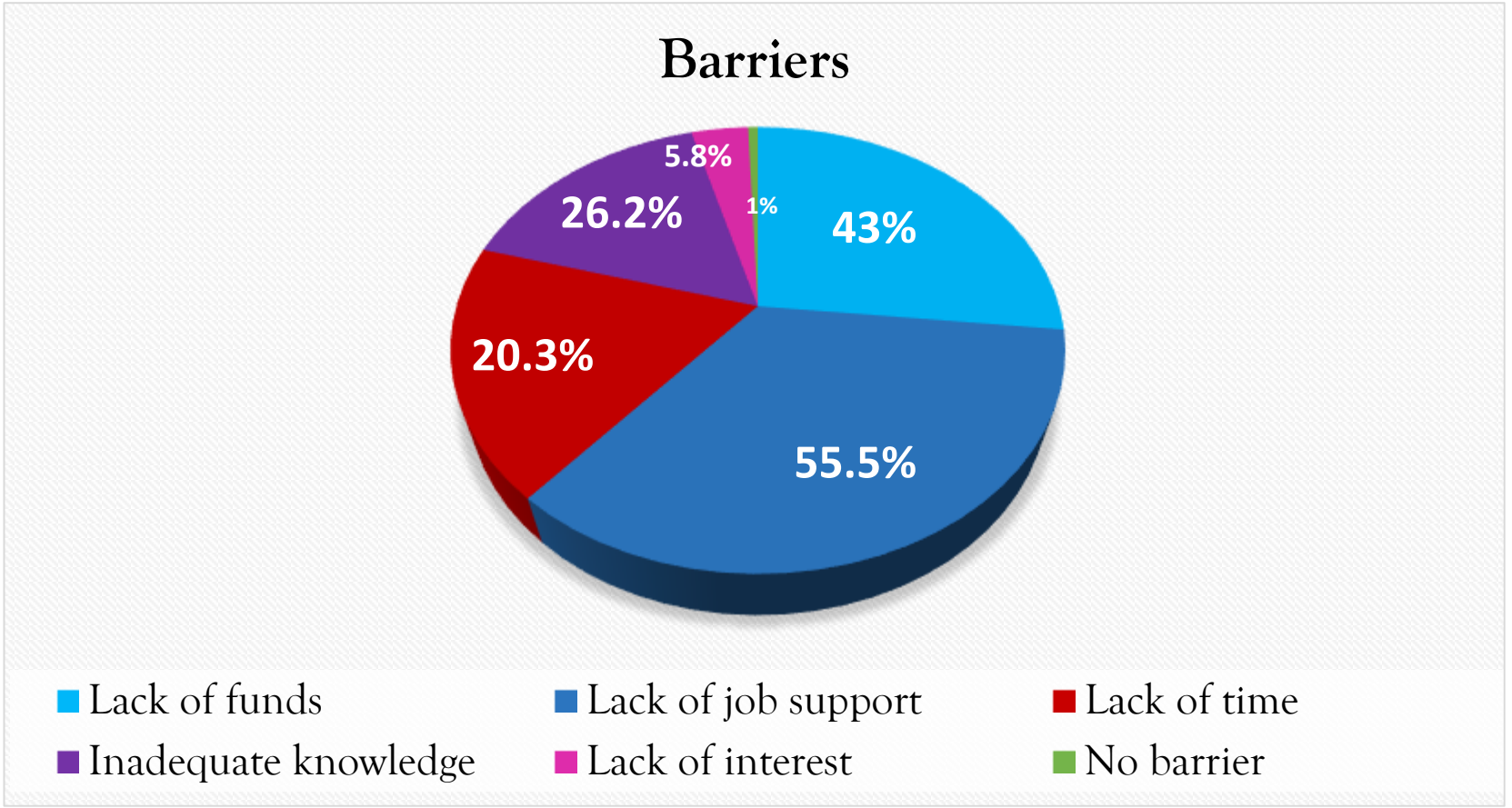


Number of peer-reviewed posters and/or abstracts in international conference since last 5 years



PART 3

Barriers to Pharmacists participation in health-related research


Barriers
5.8%
1%
26.2%
43%
20.3%
55.5%
Lack of funds
Lack of job support
Lack of time
Inadequate knowledge
Lack of interest
No barrier

PART 4

Competence and confidence of pharmacists to plan and conduct health-related research

Table 1:

Competence domain	1.0	2.0	3.0	4.0	5.0	Median score
Conception of research idea	16 (8.4)	44 (23.0)	61 (31.9)	44 (23.0)	22 (11.5)	3.0 (0 – 5)
Writing research proposal including hypotheses, research questions, study designs and methods	32 (16.8)	42 (22.0)	53 (27.7)	40 (20.9)	19 (9.9)	3.0 (0 – 5)
Searching and reviewing the literature efficiently	38 (19.9)	42 (22.0)	46 (24.1)	46 (24.1)	18 (9.4)	3.0 (0 – 5)
Defining target population, sample and eligibility criteria and choosing an appropriate sampling technique (e.g. random sampling)	27 (14.1)	42 (22.0)	48 (25.1)	52 (27.2)	21 (11.0)	3.0 (0 – 5)
Determine appropriate sample size	30 (15.7)	40 (20.9)	55 (28.8)	47 (24.6)	15 (7.9)	3.0 (0 – 5)
Determining outcome measures (variables to measure)	33 (17.3)	43 (22.5)	52 (27.2)	45 (23.6)	15 (7.9)	3.0 (0 – 5)
Outlining detailed statistical plans to be used in data analyses	40 (20.9)	48 (25.1)	53 (27.7)	40 (20.9)	7 (3.7)	3.0 (0 – 5)
Development, designing and validation of data collection form (e.g. questionnaire	29 (15.2)	39 (20.4)	54 (28.3)	54 (28.3)	12 (6.3)	3.0 (0 – 5)
Collecting relevant data using pre-planned data collection forms and managing and storing data entry into a database	25 (13.1)	33 (17.3)	57 (29.8)	52 (27.2)	18 (9.4)	3.0 (0 – 5)
Choosing and applying Statistical analyses using software (e.g. STATA, SPSS, Epi Info)	49 (25.7)	51 (26.7)	35 (18.3)	37 (19.4)	15 (7.9)	2.0 (0 – 5)
Summarizing data in tables or charts and interpretation of the findings and determining the significance of obtained results	27 (14.1)	42 (22.0)	45 (23.6)	49 (25.7)	21 (11.0)	3.0 (0 – 5)
Preparing a presentation (oral or poster)	15 (7.9)	27 (14.1)	41 (21.5)	55 (28.8)	47 (24.6)	4.0 (0 – 5)
Writing a manuscript for publication in a scientific journal	33 (17.3)	45 (23.6)	41 (21.5)	42 (22.0)	25 (13.1)	3.0 (0 – 5)

1- strongly not competent at all 2- not very competent 3- moderately competent 4- very competent 5- extremely competent

Median total competence score: 38 (1 – 65)

Table 2:

Confidence domain						
Conception of research idea	14 (7.3)	29 (15.2)	52 (27.2)	59 (30.9)	31 (16.2)	3.0 (0 – 5)
Searching and reviewing the literature efficiently	20 (10.5)	32 (16.8)	54 (28.3)	57 (29.8)	20 (10.5)	3.0 (0 – 5)
Writing research proposal including hypotheses, research questions, study designs and methods	18 (9.4)	37 (19.4)	50 (26.2)	60 (31.4)	19 (9.9)	3.0 (0 – 5)
Defining target population, sample and eligibility criteria and choosing an appropriate sampling technique (e.g. random sampling)	20 (10.5)	32 (16.8)	53 (27.7)	57 (29.8)	22 (11.5)	3.0 (0 – 5)
Determine appropriate sample size	22 (11.5)	36 (18.8)	56 (29.3)	51 (26.7)	20 (10.5)	3.0 (0 – 5)
Determining outcome measures (variables to measure)	21 (11.0)	40 (20.9)	60 (31.4)	48 (25.1)	16 (8.4)	3.0 (0 – 5)
Outlining detailed statistical plans to be used in data analyses	27 (14.1)	45 (23.6)	60 (31.4)	37 (19.4)	14 (7.3)	3.0 (0 – 5)
Development, designing and validation of data collection form (e.g. questionnaire	24 (12.6)	32 (16.8)	57 (29.8)	52 (27.2)	20 (10.5)	3.0 (0 – 5)
Collecting relevant data using pre-planned data collection forms and managing and storing data entry into a database	17 (8.9)	41 (21.5)	54 (28.3)	48 (25.1)	24 (12.6)	3.0 (0 – 5)
Choosing and applying Statistical analyses using software (e.g. STATA, SPSS, Epi Info)	40 (20.9)	37 (19.4)	48 (25.1)	37 (19.4)	21 (11.0)	3.0 (0 – 5)
Summarizing data in tables or charts and interpretation of the findings and determining the significance of obtained results	23 (12.0)	34 (17.8)	59 (30.9)	40 (20.9)	29 (15.2)	3.0 (0 – 5)
Preparing a presentation (oral or poster)	12 (6.3)	27 (14.1)	55 (28.8)	46 (24.1)	44 (23.0)	3.0 (0 – 5)
Writing a manuscript for publication in a scientific journal	31 (16.2)	36 (18.8)	44 (23.0)	46 (24.1)	28 (14.7)	3.0 (0 – 5)

1- strongly not confidence at all 2- not very confidence3- moderately confidence 4- very confidence 5- extremely confidence

Median total confidence score: 40 (0 – 65)

Table 3:

Differences in the competence and confidence to conduct health-related research among the respondents

Variables	Median competence score	P value	Median confidence score	P value
Previous research experience				
Yes	⬆	<0.001	⬆	<0.001
No	⬇		⬇	
Previous research related training				
Yes	⬆	<0.001	⬆	0.002
No	⬇		⬇	
Involvement in research as a subject or a respondent				
YES	⬆	<0.001	⬆	<0.001
NO	⬇		⬇	
Publish a peer-reviewed journal article within the last 5 years				
Yes	⬆	0.001	⬆	0.003
No	⬇		⬇	
Publish a peer-reviewed posters/abstracts in local/regional conference since last 5 years				
Yes	⬆	<0.001	⬆	<0.001
No	⬇		⬇	

Discussion

Research background and interest of the respondents in conducting health-related research

The current study investigated the competence and confidence of practicing pharmacists to plan and conduct health-related research.

The results showed that more than two-thirds of the participants were interested to conduct health-related research and this is in agreement with the finding of a previous studies.

Awaisu, A. and N. Alsalimy, *Pharmacists' involvement in and attitudes toward pharmacy practice research: A systematic review of the literature.* Research in Social and Administrative Pharmacy, 2015. **11**(6): p. 725-748.

Stewart, D., et al., *A theoretically informed survey of the views and experiences of practicing pharmacists on research conduct, dissemination and translation.* Research in Social and Administrative Pharmacy, 2019. **15**(11): p. 1298-1308.

Alhomoud, F.K., *Pharmacists' background, interests, barriers, self-perceived competence and confidence to design and undertake pharmacy practice-based research in the GCC geographic area.* BMC Medical Education, 2020. **20**(1): p. 411.

Most of the pharmacists had previous research experience and previous research-related training, and this was consistent with the result from Nigeria and a multinational study, and higher than the finding reported in Qatar and Saudi Arabia.

The variations could be attributed to the differences in the time of the study and undergraduate and postgraduate research training opportunities available to practicing pharmacists and pharmacy students.

Alhomoud, F.K., *Pharmacists' background, interests, barriers, self-perceived competence and confidence to design and undertake pharmacy practice-based research in the GCC geographic area.* BMC Medical Education, 2020. **20**(1): p. 411.

Abubakar, U., et al., *Nigerian pharmacists' self-perceived competence and confidence to plan and conduct pharmacy practice research.* Pharmacy Practice (Granada), 2018. **16**(1).

Awaisu, A., et al., *Hospital pharmacists' self-evaluation of their competence and confidence in conducting pharmacy practice research.* Saudi Pharmaceutical Journal, 2015. **23**(3): p. 257-265.

Sultana, K., et al., *Attitude, barriers and facilitators to practice-based research: cross-sectional survey of hospital pharmacists in Saudi Arabia.* Journal of Pharmaceutical Policy and Practice, 2016. **9**(1): p. **4**.

Opportunities and Barriers to publications

- Research outcome including manuscripts and abstracts publications were low among the pharmacists involved in this study.
- Previous studies have demonstrated that less than one-thirds of practicing pharmacists have published research manuscript or research abstract.
- This reflects a low research involvement among practicing pharmacist, and could be attributed to some barriers including lack of job support, lack of funding, lack of time and lack of knowledge. These barriers have been reported as common barriers to pharmacists' involvement in pharmacy practice research.

Awaisu, A. and N. Alsalimy, *Pharmacists' involvement in and attitudes toward pharmacy practice research: A systematic review of the literature.* Research in Social and Administrative Pharmacy, 2015. **11**(6): p. 725-748.
Stewart, D., et al., *A theoretically informed survey of the views and experiences of practicing pharmacists on research conduct, dissemination and translation.* Research in Social and Administrative Pharmacy, 2019. **15**(11): p. 1298-1308.
Abubakar, U., et al., *Nigerian pharmacists' self-perceived competence and confidence to plan and conduct pharmacy practice research.* Pharmacy Practice (Granada), 2018. **16**(1).
Awaisu, A., et al., *Hospital pharmacists' self-evaluation of their competence and confidence in conducting pharmacy practice research.* Saudi Pharmaceutical Journal, 2015. **23**(3): p. 257-265.

Competence & Confidence Domains

It was found that only about two-thirds of pharmacists were competent/confident in conception of research idea, data collection and entry into a database, and preparing a presentation (oral or poster).

This was lower than the results presented in previous studies.

In contrast, the pharmacists were found to have low competence and confidence in outlining statistical plans for data analyses, and selecting appropriate statistical analyses using software (e.g. STATA, SPSS, Epi Info).

This is consistent with the findings of previous studies conducted in the Gulf Cooperation Council and Nigeria.

Alhomoud, F.K., *Pharmacists' background, interests, barriers, self-perceived competence and confidence to design and undertake pharmacy practice-based research in the GCC geographic area.* BMC Medical Education, 2020. **20**(1): p. 411.
Abubakar, U., et al., *Nigerian pharmacists' self-perceived competence and confidence to plan and conduct pharmacy practice research.* Pharmacy Practice (Granada), 2018. **16**(1).
Awaisu, A., et al., *Hospital pharmacists' self-evaluation of their competence and confidence in conducting pharmacy practice research.* Saudi Pharmaceutical Journal, 2015. **23**(3): p. 257-265.

Competence & Confidence Domains

Overall, practicing pharmacists were found to have moderate competence and moderate confidence to plan and conduct health-related research despite the high rate of previous research experience among pharmacists.

Competence & Confidence Scores

The study also revealed that pharmacists with:

- Previous research experience
  - Previous research-related training
    - Frequent research involvement as respondents
      - Previous research publication experience

were found to have better competence and confidence scores compared to those who don't.

These results were in consonance with the findings of previous studies.

Alhomoud, F.K., *Pharmacists' background, interests, barriers, self-perceived competence and confidence to design and undertake pharmacy practice-based research in the GCC geographic area.* BMC Medical Education, 2020. **20**(1): p. 411.
Abubakar, U., et al., *Nigerian pharmacists' self-perceived competence and confidence to plan and conduct pharmacy practice research.* Pharmacy Practice (Granada), 2018. **16**(1).

Limitations

- Firstly, the responses in the competence and confidence domains were self-reported by the pharmacists and this increases the risk of social desirability.
- Secondly, convenient sampling was used to recruit the study participants raising concern about selection bias.
- Thirdly, a vast majority of the study participants were from Benghazi and this may affect the generalizability of the findings for practicing pharmacists across Libya.
- Finally, there is no accurate data considering the actual number of the pharmacists overall Libya to calculate the definite sample size required for this study.

Conclusion

The pharmacists have moderate competence and confidence to plan and conduct research with higher scores observed among those with previous research experience, those with previous research-related training, those with research publication experience, and those with frequent research involvement as respondents/subjects.

Recommendations

1. Considering the importance of research to the advancement of pharmacy practice, interventions to promote pharmacists' participation in research is recommended.

2. Early research experience and participation especially during undergraduate training should be encouraged. Available evidence has shown the impact of a research in pharmacy course in improving the research competence and confidence of undergraduate pharmacy students

3. The findings of the current study underline the importance of providing mandatory research-related training and research-related project experience in undergraduate and postgraduate pharmacy training curricula.

4. Dissemination of research findings through article publication and poster presentation should be encouraged to prepare pharmacy students for future research involvement.

5. In addition, we conducting this research to highlight the gabs and difficulties that face the pharmacists in doing researches and notify them to improve their skills to leave a fingerprint in this improvement journey.

Reference

1. Awaisu, A. and N. Alsalimy, *Pharmacists' involvement in and attitudes toward pharmacy practice research: A systematic review of the literature.* Research in Social and Administrative Pharmacy, 2015. **11**(6): p. 725-748.

2. Stewart, D., et al., *A theoretically informed survey of the views and experiences of practicing pharmacists on research conduct, dissemination and translation.* Research in Social and Administrative Pharmacy, 2019. **15**(11): p. 1298-1308.

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The End

The Beginning

Thank You