



## Original article

## Attitudes of pharmacy students towards scientific research and academic career in Saudi Arabia

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## ABSTRACT

**Background:** Academic research is an essential part of undergraduate and post graduate education to become qualified health care professionals. The objective of this study was to evaluate the attitudes of pharmacy students towards scientific research and/or academic careers in Saudi Arabia.

**Methods:** A cross-sectional survey based study was conducted among pharmacy students at King Saud University. A self-administered questionnaire was implemented over a period of 3 months (January to March 2018).

**Results:** A total of 223 students returned the survey. More than one third students (66.3%) agreed that participation in research increased their interest in pursuing a career in research/academic pharmacy. Most students (75.3%) were interested in participating research during the course of study and 73.6% believed that research training should be a compulsory part of teaching curriculum. In addition, more than half of students (54.5%) were interested in higher studies such as PhD after graduation. Most of students (70.3%) ranked lifestyle (73.6%) and earning potential (70.3%) as an important factor for them when choosing a specialty.

**Conclusions:** Pharmacy students had positive attitudes towards research activities and they desired to be involved more in research publications. However, addressing the barriers and improving student participation will increase their interest in academic research.

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## 1. Introduction

Academic research is a crucial component of undergraduate and post graduate student education that enables them to become qualified health care professionals (QHCP). Globally, many educational institutions have undertaken initiatives to promote research amongst their students. Moreover, the American College of Clinical Pharmacy (ACCP) and the Agency for Health Care Research and Quality (AHRQ) has supported the need for medical and pharmacy related research through the establishment of health care networks (Sadana et al., 2004; Munabi et al., 2006).

Pharmacists play a major role in dispensing medication and saving the life of patients through extensive health care therapy by collaborating with general practitioner. In addition, health

systems allow them to perform a full range of medication decision-making functions as part of the patient's health care team. It is imperative then that a QHCP is trained and proficient in various aspects of health care including academic research. Furthermore, conducting effective and efficient research is the ground rule for the establishment of evidence based medicine (Sadana et al., 2004; Munabi et al., 2006; ACCP, 2006). Incorporation of research based training in both undergraduate and post-graduate education is thus important to for a firm understanding of their curriculum.

A recent cross-sectional, self-reported online survey study found that pharmacy students had a good attitudes towards research activities. Besides, they believed that participation in research activities leads to an academic impression along with respect from their faculty members (Bhagavathula et al., 2017). However, involving students in research activities is a difficult task because many students assume that research is time consuming and difficult to learn. Indeed, several studies have identified various barriers for the lack of students' interest in research, including management of time, unavailability of support from faculties, and lack of financial care (Bhagavathula et al., 2017; Amin et al., 2012;

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Burgoyne et al., 2010; Siemens et al., 2010) (4–7). Some other studies reported that compensation was a major inspiration to simplify research followed by extra teaching classes, sufficient time, and adequate provision from the higher management (Daly, 2013; Zier and Stagnaro Green, 2001).

Owing to the fact that scientific knowledge is more vital in reporting and solving difficulties encountered during clinical practice in relation to the patients and community, it is mandatory that research is progressively promoted by health care organizations and committees across the world (Siemens et al., 2010). Moreover, given the already challenging undergraduate pharmacy and health care curriculum, it is essential to understand and explore the attitudes of students towards research. The current study was thus taken up to assess the research experiences and attitudes about research along with their long-term career goals amongst pharmacy students.

## 2. Methods

This study was cross-sectional survey among pharmacy students carried out at the College of Pharmacy, King Saud University, from January to May 2018. The sample size involved students from the 2nd to 5th years of their study. Contribution in this study was completely voluntary, anonymous and confidential as well as no identifying information was recorded (e.g., names, students ID numbers, etc.). This study used a validated self-administered questionnaire from previous study (Getov et al., 2015). The questionnaire was designed to assess the research experience and attitudes about research and the long-term career intentions of students. It consisted of 9 questions, which is based on a 5-point Likert-like: strongly agree, agree, strongly disagree, disagree and not sure. In addition, one question to assess their interest in participating in research during education were to be answered with a 'YES' or 'NO'.

Data were entered into statistical package for social science version 24.0 (SPSS Inc., Chicago, IL, USA). Descriptive statistics included frequency and percentages. The chi-squared test was applied for to find the association between students' attitude and other variables of the study. A  $P < 0.05$  was considered statistically significant.

## 3. Results

A total of 223 participants participated in the survey. The mean age of the study participants was  $21.53 \pm 1.6$  years. A majority of respondents were male (81.6%), and more than half were Pharm D students (55.7%) (Table 1).

**Table 1**  
Demographic of the respondent (n = 223).<sup>a</sup>

Characteristics of the study subjects	Number	%
<i>Age in years</i>		
Means	21.53 ± 1.6	
<i>Gender</i>		
Male	176	81.6
Female	39	17.5
<i>Year of study</i>		
2nd year	88	39.5
3rd year	42	18.8
4th year	34	15.2
5th year	50	22.4
<i>Faculty type</i>		
Bpharm	97	43.5
Pharm D	122	55.7

<sup>a</sup> Data is not up to 100% due to missing data.

In this study, most of respondents (75.8%) were interested in participating in research during their education and about 70% students indicated that this helped them in pursuing a career in research/academic pharmacy. Nearly 76% respondents thought that research training should be a compulsory part of pharmacy school curriculum. More than one third of respondents agreed that "laboratory-based scientific research is relevant to pharmacy practice". Interestingly, 45% respondents felt that "taking time off to do research is waste of time, if it did not advance their future careers" (Table 2).

When respondents were asked about their long-term career plans and research, more than one-third of respondents planned to be involved in research throughout their pharmacy career and more than half were interested in pursuing postgraduate studies (PhD) after graduation. In addition, about one-third of respondents were in agreement that "opportunity for research was an important consideration when choosing a specialty". Most of respondents reported that earning potential and lifestyle are important while choosing a specialty (Table 3).

## 4. Discussion

Research is a critical part in the advancement and improvement of health care services to provide high-quality care, reduce medical errors and improve patient safety and efficacy (Lowrie et al., 2015; Noorelahi et al., 2015; Ibrahim et al., 2013) (13–15). The current cross-sectional questionnaire based study was conducted to understand the attitudes of pharmacy students towards research.

About 75% of respondents in the current study had participated in research activities during their education. A similar study conducted in Bulgaria reported that a higher percentage (87%) of pharmacy students were interested in participating in some form

**Table 2**  
Demonstrating the pharmacy students Research Experience and Attitudes toward research and research training during pharmacy school (n = 223<sup>a</sup>).

Variables	N%
<i>Did participation in research increased interest in pursuing a career in research/academic pharmacy</i>	
Strongly agree	47(21.1)
Agree	110(49.3)
Strongly disagree	57(25.6)
Disagree	8(3.6)
Not Sure	–
<i>Interested in participating in research during education</i>	
Yes	169(75.8)
No	51(22.9)
<i>Research training should be a compulsory part of pharmacy school curriculum</i>	
Strongly agree	68(30.6)
Agree	101(45.5)
Strongly disagree	41(18.4)
Disagree	12(5.4)
Not Sure	–
<i>Laboratory-based scientific research is relevant to pharmacy practice</i>	
Strongly agree	60(26.9)
Agree	114(51.1)
Strongly disagree	41(18.4)
Disagree	6(2.7)
Not Sure	–
<i>Taking time off to do research is waste of time, if it does not advance my future career</i>	31(13.9)
Strongly agree	30(13.5)
Agree	56(25.1)
Strongly disagree	70(31.4)
Disagree	33(14.8)
Not Sure	–

<sup>a</sup> Data is not up to 100% due to missing data

**Table 3**  
details the student's opinions about Research with respect to long-term career plan and specialty choice (n = 223<sup>a</sup>).

Variables	N%
<i>I plan to be involved in research throughout my pharmacy career</i>	
Strongly agree	48(21.5)
Agree	103(46.2)
Strongly disagree	49(22)
Disagree	9(4)
Not Sure	4(1.8)
<i>I am interested in pursuing higher degree (PhD) after graduation</i>	
Strongly agree	60(26.9)
Agree	68(30.5)
Strongly disagree	57(25.6)
Disagree	24(10.8)
Not Sure	6(2.7)
<i>Opportunity for research is an important consideration for me when choosing a specialty</i>	
Strongly agree	34(15.2)
Agree	98(43.9)
Strongly disagree	66(29.6)
Disagree	12(5.4)
Not Sure	3(1.3)
<i>Earning potential is an important consideration for me when choosing a specialty</i>	
Strongly agree	43(19.3)
Agree	113(50.7)
Strongly disagree	54(24.2)
Disagree	4(1.8)
Not Sure	-
<i>Lifestyle is an important consideration for me when choosing a specialty</i>	
Strongly agree	75(33.6)
Agree	92(41.3)
Strongly disagree	41(18.4)
Disagree	5(2.2)
Not Sure	1(0.4)

<sup>a</sup> Data is not up to 100% due to missing data.

of research activities during their study (Getov et al., 2015). However, this study used a very small sample (n = 16). Therefore participation rate could have been higher than our study. Interestingly, another study carried out in medical and pharmacy students (N = 362) from Asian and African universities showed about 42% of pharmacy students were interested in participating in original research (Bhagavathula et al., 2017).

Research indicates that providing motivation and chances for research during health school could help in encouraging students to pursue academic careers (Park et al., 2010). Consistent with this, in this study too, more than 70% students indicated that participation in research increased their interest in pursuing a career in research/academic pharmacy. This positive attitude was much higher than reported elsewhere (27%) (Getov et al., 2015).

Research is essential and not a waste of time. Unfortunately this study found that 45% respondents felt that participation in research is waste of time. This study did not explore the reason why less than half of students reported negative attitude about participation in research is waste of time. This might be because of those students with research experience being increasingly mindful of the negative aspects of an academic career, for example, persistently going after financing and the likelihood of research projects uncovering insignificant outcomes, despite time and commitment put resources into the projects (Park et al., 2010).

In Saudi Arabia, especially pharmacy school, King Saudi University, it is mandatory for students in their final year to participate in research. Some of the study results could have been influenced by this factor. Nevertheless, 76.1% of pharmacy students believed that research training should be a compulsory part of pharmacy curriculum. Similar observations by Alghamdi et al in medical

students from final year at King Saud University found that 67.4% students suggested that conducting research should be mandatory for all medical students in their curriculum (Alghamdi et al., 2014).

Additionally, the results of this study showed that more half of pharmacy students had earlier plans to pursue higher degree after graduation. These interesting results are similar to observations from Syria (El-Hammadi, 2012) and unlike the case of several other countries including Britain, Australia, and the United States, where the most of students prefer to work directly after completion (El-Hammadi, 2012).

There might be a few difficulties to consolidating the basic research educational modules at numerous schools of pharmacy. A culture of grant might be missing in the college. To cultivate a culture of grant, school administration must give a sufficient framework and bolster administrations to help workforce in this undertaking (Lee et al., 2010). The training workshop was extremely effective in enhancing members' learning about research. The information of the objective population was especially enhanced after the instructive mediation program (Ibrahim et al., 2013).

As this study was carried out in only one university in Saudi Arabia, the results may not completely reflect the attitude of all pharmacy students. Moreover, because the essential research curriculum for pharmacy degree varies across universities, the generalizability of our findings should be evaluated in future studies.

## 5. Conclusions

Taken together, the attitude of pharmacy students about research and a career in research was positive. In addition, most of pharmacy students plan to participate in research activities during pharmacy school, and most of them plan to be involved in research throughout their pharmacy careers. Further studies are needed to explore how pharmacy student training can contribute to establishing a suitable structure for clinical research.

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## Conflicts of interest

The author reports no conflicting interests with respect to this study.

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