

The opinion and response of health professionals associated with academics about the research design and methods: A study

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Abstract

Aim: The study aimed to survey the opinions and responses of health professionals in academics about their interest and experience in research, knowledge over study designs, and application of a common study design to find out the objectives behind any research study. **Materials and Methods:** A semi-structured questionnaire containing three variables with 15 questions were sent to 300 health professionals associated with academics in the category of Bachelor/Master/Doctorate working at Al-Farabi Colleges campuses located in Riyadh, Saudi Arabia. Data were collected manually, descriptive frequencies were generated and the variables were statistically analyzed using Chi-square test. The knowledge scores between the qualification and gender were carried out using ANOVA and *t*-test. The final response rate was in conjunction to the statistician to exclude the uncompleted responses from the statistical analysis. **Results:** The results showed a discrepancy in the participation; of 95 health professionals, (40) were females and (55) were males. Bachelor (16), Masters (61) and Doctorate holders (18) gave their opinion. For the first variable (research experience), all the surveyed categories showed the same response. However, for the second variable (study design and research criteria) bachelor holders showed poor, but equal performance was reported to the master and doctorate holders. In the third variable (objectives and common designs), bachelor holders showed a poor response in contrast to the master and doctorate holders whose have mixed opinions. For knowledge scores, no significance was present between the master and doctorate holders. **Conclusion:** There is a lack of understanding of the research objectives and common designs frequently used in research studies particularly among the bachelor holders. Additional postgraduate education on research methods is recommended to improve the knowledge and practices of research.

Key words: Colleges, health professionals, objectives, questionnaire, responses, study designs

INTRODUCTION

Everyday intentionally or unintentionally we plan the treatment options for our patients care. To draw these clinical decisions, we almost rely on the wealth of our own experience in clinical practice, discussion with

health professionals or academicians, literature from the text books, journals and recent or current review articles. As academicians it is very important to assist our best credibilities to teach the students and also to make substantial clinical decisions to carry out the research projects.^[1,2]

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Oral health professionals need to focus on the quality of the research journals and keep updated about the current critical reviews. Thus by this way of learning, any health professional can be able to good from poor research provided he himself is updated about the literature and methods.^[3]

Opinions based studies or surveys are most frequently practiced in the field of research.^[4-6] These are the types of studies, where the data is collected from the subjects either in the form of a questionnaire, personal interviews, telephonic interviews or via online services like web or E-mail networks. The results of the survey done with the help of the questionnaires are always subjective and generally depends on the response gained from the respondents.^[6]

The most valuable assert for conducting a medical research are the health professionals. Gaining the research experience from the health professionals is much different than the experience gained by the general population.

Globally, several studies assessed the value of qualitative data collection for research in dentistry.^[4-8] However, no similar study is performed in Saudi Arabia. In addition, this health professional survey aimed to analyze the response of Al-Farabi Colleges academic staff’s interest and experience in research, their knowledge of different study designs and its application to find out the objectives behind any research study.

MATERIALS AND METHODS

This is a cross-sectional semi-structured questionnaire based survey. The questionnaire was simplified and constructed based on the classification suggested by the international epidemiological design criteria.^[9-11]

Inclusion criteria

- Bachelor/Master/Doctorate (PhD)
- Minimum 2 years of experience in university.

Exclusion criteria

- Fresh graduates
- Health professionals working in hospitals and public health sectors
- Health professionals working part time in academics.

The questionnaire tool [Table 1] was developed using a published questionnaire from a previous study.^[6] The

Table 1: Research tool (questionnaire)

		Yes	No
I-Research experience			
Do you believe in research studies?			
Do you believe in qualitative research?			
Do you believe in quantitative research?			
Have you done any clinical or experimental studies?			
Do you think today research studies are just manipulative?			
II-The study design			
Observational studies include descriptive and analytical design?			
Cross-sectional studies associated with presence or not of disease and risk factor?			
Cohort studies are associated only with the presence or not of risk factor?			
Case control studies deals with presence or not of a disease for allocating the subjects?			
Randomized trails presents with both quasi-experimental and experimental studies?			
III-Objectives	Common designs		
	Cross-sectional	cohort	Controlled-trails
			Case controlled studies
Prevalence of a disease			
Incidence of a disease			
Cause of a disease			
Prognosis of a disease			
Treatment effect of a disease			
<i>Only one option was allowed</i>			

authors (SAR, OK) revisited the questions to adopt the study objectives. Five BDS, four Master of Science (MSc) and three Ph.D. academicians working at Al-Farabi Colleges were randomly selected to participate in the pilot study. Several changes were carried out to some questions to improve its clarity and to reflect the discrepancies in the nature of BDS, MSc and PhD holders. The Al-Farabi Colleges Institutional Research Review Committee requested few modifications to the questionnaire and provided ethical approval for the study.

The validated questionnaire was comprised of two pages. It was divided into three parts each of which consisted of five questions in addition to demographic section [Table 1]. The three variables are (1) Research experience, (2) study design, (3) objectives and common designs. Each question was given 1 mark, and total questions contain 15 marks.

A convenience sampling technique was used. Three hundred questionnaires were sent to the teaching faculty

members recruited at Al-Farabi Colleges male/female campuses as BDS, MSc and Ph.D. via personal contact and by electronic mail service. The E-mail consists of a 15-item questionnaire with an informed consent and brief outline towards the research protocol. The respondents were asked to fill the questionnaire with their consent and provide their inputs by ticking the options yes or no for the first two variables, tick the option for the last variable. Two reminders were sent by E-mail to all the nonresponders 4th week subsequently after the initial mailing, if not responded then they were termed as nonrespondents for our study. The study began in May 2014 and it continued for 1 year.

The statistical analysis was performed using SPSS package version 20, IBM. The cross tabulation to examine the association of the gender and qualification was done using the Chi-square tests. The knowledge scores of the respondents by qualification and gender were obtained using ANOVA and *t*-tests. *P* < 0.05 was considered significant.

RESULTS

A total of 130 questionnaires were returned. Thirty-five incomplete questionnaires were excluded from the study. A total of 95 completed questionnaires were included in the analysis amounting the final response rate to 31.66%. Of these, 40 were females, and 55 were males. Furthermore, the respondents were 16 people from the BDS group, 61 from the MSc group and 18 from the Ph.D. group.

About the first variable—research experience, descriptive frequencies showed a similar response when all the three groups were compared. The BDS group gave a positive response (yes) value of 93.50%, MSc had a value of 91.80% and PhDs were at 88.90. According to the data analysis in Table 2a, the qualification showed that the positive response ranged from 76 to 100%. The BDS group showed a better response than the MSc and the Ph.D. groups. The belief in qualitative research (Q2) was much higher for the

BDS group (100%) as compared to the MSc (90.2%) and Ph.D. (72.2%) and the difference was statistically significant (*P* < 0.005). The entire MSc and Ph.D. groups (100%) claimed to have conducted clinical and experimental studies (Q4) compared to their BDS (68.8%) counterparts. When both the genders were compared, females claimed to have a much higher experience (100%) in conducting clinical studies as compared to males (90.9) and it showed a statistical significance of (0.071). However, 100% of the BDS group, 73.8% MSc group and 66.7% Ph.D. group thought that the research conducted these days could be manipulative, and this was statistically significant (*P* < 0.005).

Second variable (study design and research criteria): Descriptive frequencies were found to be low for the BDS (38.90%) and MSc (66.23%) groups, but the Ph.D. group showed a relatively higher frequency (72.22%). According to the data analysis in Table 2b, the respondents showed a lack of knowledge, with the correct answers ranging from 57% to 67%. Only two-third of the respondents were aware of the study design, there was no significant statistical difference between the academic degrees. A significantly higher percentage of Ph.D. respondents (77.8%) were aware that the case-control studies were associated with the presence or absence of a disease (Q4) as compared to the MSc group (62.3%) and the BDS group (18.8%). This difference was highly significant (*P* < 0.001). When the data were analyzed according to the gender there was no statistical difference seen.

Third variable (objectives and common designs): Descriptive frequencies were lower for the BDS group (23.75%), but the MSc and Ph.D. group had a much higher frequency of 68.85% and 64.44% respectively. Likewise [Table 2c], all the respondents showed poor knowledge of the objectives and the common designs, the difference being highly significant for all the questions when the data were analyzed according to the academic qualifications (*P* < 0.005). When the answers were analyzed according to the

Table 2a: Research experience*

Questions Variable (V) Question (Q)	Qualification (%)			Total (%)	<i>P</i>	Gender (%)		<i>P</i>
	BDS	MSc	PhD			Male	Female	
VI (Q1)	100	100	100	100	-	100	100	-
VI (Q2)	100	90.2	72.2	88.4	0.032	89.1	87.5	1.000
VI (Q3)	100	93.4	100	95.8	0.312	96.4	95.0	1.000
VI (Q4)	68.8	100	100	94.7	0.001	90.9	100	0.071
VI (Q5)	100	73.8	66.7	76.8	0.045	80.0	72.5	0.463

**P* - value (<0.05). Chi-square tests

Table 2b: Study design

Questions Variable (V) Question (Q)	Qualification (%)			Total (%)	P	Gender (%)		P
	BDS	MSc	PhD			Male	Female	
VII (Q1)	62.5	67.2	72.2	67.4	0.833	67.3	67.5	1.000
VII (Q2)	37.5	62.3	72.2	60.0	0.099	65.5	52.5	0.213
VII (Q3)	43.8	70.5	66.7	65.3	0.134	67.3	62.5	0.667
VII (Q4)	18.8	62.3	77.8	57.9	0.001	63.6	50.0	0.211
VII (Q5)	56.2	68.9	72.2	67.4	0.562	67.3	67.5	1.000

Chi-square tests

Table 2c: Objectives and common designs

Questions Variable (V) Question (Q)	Qualification (%)			Total (%)	P	Gender (%)		P
	BDS	MSc	PhD			Male	Female	
VIII (Q1)	25.0	70.5	50.0	58.9	0.003	67.3	47.5	0.061
VIII (Q2)	25.0	67.2	72.2	61.1	0.005	70.9	47.5	0.211
VIII (Q3)	18.8	68.9	61.1	58.9	0.001	61.8	55.0	0.533
VIII (Q4)	31.2	72.1	66.7	64.2	0.010	65.5	62.5	0.830
VIII (Q5)	18.8	70.5	77.3	63.2	0.001	67.3	57.5	0.391

Chi-square tests

different genders, nearly a statistical significance (0.061) was seen with respect to the first question.

Table 3 shows a significant association of knowledge with gender and qualification (BDS, MSc and PhD). The total mean of knowledge (10.77 ± 1.70) with significant association with gender and academic degree.

The BDS group showed the least knowledge scores when compared to the MSc and Ph.D. groups. Male respondents showed better knowledge scores (11.20) when compared to the females (10.20) with a significance value ($P < 0.005$).

DISCUSSION

Our study intended to gauge the opinion and response of the health professionals associated with academics to their research experience, design, and the objection and commonly used designs in the field of research.

The data obtained from the respondents was less than satisfactory, as out of 300 questionnaires sent to the academicians via personal contacts and mail, only 95 questionnaires were complete and the participation was found to be only 31.66%

In our study, we found that males responded earlier as compared to the females. According to our first variable [Table 2a], the response was found to be similar among all the health professionals irrespective of whether they belonged to the BDS/MSc or/Ph.D. groups.

Table 3: Knowledge scores of the respondents by qualification and gender

	n	Mean	SD	P
Qualification*				
Bachelor	16	8.06	0.77	0.001
Master	61	11.34	1.34	
PhD	18	11.27	0.89	
Total	95	10.77	1.70	
Gender**				
Male	55	11.20	1.64	0.004
Female	40	10.20	1.62	

*ANOVA; **t-test. ANOVA=Analysis of variance, SD=Standard deviation

The second variable [Table 2b] was the response rate, wherein the BDS group gave a very poor response, and the MSc group showed a better response when compared to the Ph.D. groups. The respondents lacked the ability to provide correct answers for the study.

When the data for the third variable [Table 2c] was collated, the BDS group showed a poor response once again, but the response of the MSc and the Ph.D. groups was almost similar.

We found that our study was similar to the studies done by Adeyemi *et al.* and Mcsherry *et al.* Adeyemi *et al.* surveyed the opinion of resident doctors in Nigeria on the use of qualitative research design and methods in dentistry. All 20 dental residents were familiar with qualitative research design, 50% residents categorized qualitative research design as social science, 25% residents said it was just a science and 25% residents

were not sure of the qualitative research technique. Adeyemi *et al.* admitted that the qualitative approach to research in dentistry may be useful to understand meanings which patients attach to actions, decisions, beliefs and values concerning their care.^[9]

Mcsherry *et al.* conducted a descriptive quantitative study about research awareness in evidence based practice. Out of his convenience sample of 2126 registered health care practitioners (RHCPs), 843 RHCPs responded to the questionnaires. Seven hundred and thirty-three (91%) RHCPs agreed that evidence-based practice played a large role in improving patient care. This point was reinforced when 701 (86%) of respondents strongly agreed that evidence-based practice was the way forward to change clinical practice. The author concluded that irrespective of position or grade, the RHCPs had a positive attitude towards research but faced many obstacles. The key obstacles listed were a lack of time, support, knowledge and confidence.^[12]

During our research, we received 35 partially filled questionnaires from health professionals thus showing a lack of interest to respond.

The knowledge scores of the BDS group when compared to the MSc and the PhD groups showed a high statistical significance. The knowledge scores for the MSc group compared to the PhD group showed no statistical significance [Table 3].

The MSc graduates are well aware of the recent advances in research methodologies. In a few countries, a mini thesis is included in the Msc 2 year program while in a few others a complete dissertation is included in the Master of Dental Surgery (MDS) 3-year program which is equivalent to a PhD thesis.

In this study, we expected the third variable to be more pronounced among the PhD graduates, but it was similar to the MSc graduates. The third variable showed statistical significance when the data were analyzed on the basis of qualification [Table 2c]. This was evident for the qualification as the third variable had difference among the opinion for the questions.

The same was evident in our study as we found a high statistical significance with BDS group compared to the MSc and the Ph.D. groups.

The health professionals must involve themselves into evidence-based learning and supported each other

by their research experience and knowledge, then a coordinated approach would enable them to gain confidence in academics or clinical practice.

In our study, we found men (18.3%) responded earlier than women (13.3%). This was in agreement with the study done by McFarlane *et al.*, where among 1592 of his respondents with physician demographic characteristics, 80% were male, and 20% were females.^[13]

The knowledge scores [Table 3] for the males as compared to the females was slightly higher and was statistically significant. This might be due to the lesser no of female academicians in the University as compared to men.

The nonresponse bias in our study was quite evident. The probable cause may be due to the academicians associated with the universities having varied work schedules and being preoccupied with pending questionnaire studies to answer. A few professionals like the PhDs are hard to reach and are redirected to their receptionists or assistants.

Our opinion matched with Sudman *et al.*, where he addressed the receptionists as gatekeepers because most of the questionnaires would be retained by them and hence would remain unanswered.^[14]

Cummings *et al.* revealed in 2001 that the response rate among the health professionals would be 10% lower than the studies conducted with the general population. In our study, we too observed a lack of response from the health professionals.^[15]

According to Leece *et al.*, 2004, he concluded, that in surveys conducted via internet or mail service, a greater nonresponse bias may be seen in comparison with other methods like personal contact via questionnaire, interviews or repeated telephonic surveys. According to McMohan *et al.* 2003, he concluded that the response accuracy in his study was low, as he found a few incomplete answers compared to the answers in the same questionnaires sent by fax or postal services.^[16,17]

This was in conjunction with our study, as we also obtained a less than satisfactory response, as we also chose the web services via the internet E-mail service to distribute our questionnaire.

Few authors like Berry, VanGeest *et al.* (2000), suggested that the nonresponse bias can be overcome by advertising

the authors with prepaid incentives, personalized letters and professional organization sponsorship could show an increased response rate as compared to sending repeated questionnaire via mail services.^[18,19]

In this study, irrespective of the sample size, we were keen to collect the data from these learned individuals and to gauge their opinion. The questionnaire was very simple and contained very straight forward questions, thus reducing the bias with the questionnaire.

Thus, we could label our research as a feasibility study, as we conducted our study by using very simple and flexible methodology. On the other hand, a pilot study uses a more rigid methodology such as sample estimation, randomization, case and control group selection and statistical analysis. Moreover, almost all pilot studies would report their results inaccurate and may demand to conduct further larger studies. Most of the feasibility studies may not admit such an intention.^[20,21]

The objective of our survey was to ascertain the opinion of health professionals and also their response and enthusiasm regarding this study. Our study seemed to be a qualitative research, as it showed us the actual response rather than what was expected. Thus, this kind of research is totally dependent on the participants to investigate any scientific or social cause.

Most authors can interpret multiple opinions with qualitative research, but most of their experiences regarding qualitative research are strong and encouraging. Leedy and Ormrod (2001) stated that qualitative research is less structured in the description, as it helps in the formation and builds up new theories via subjective responses from the participants.^[22,23]

Unlike qualitative research, quantitative research builds on deductive reasoning. Although started in ancient times around 1250 AD, quantitative research was used for surveys and experimental studies with existing theories. Quantitative research is always independent of the researcher, as it creates the results through objectivity uncovered in the collected data.^[24]

We believe that this study is limited due to the low response rate, and it has been conducted at the single academic institute. We envisage this study could be utilized for a broader research study that would include several academic institutes in Saudi Arabia and Gulf region to reflect the views of academic staff on this important notion.

CONCLUSION

This survey was done to judge or elicit the response of health professionals associated with academics. The response gained was not satisfactory. The analyzed data presented a high statistical significance when the BDS group was compared with the MDS and Ph.D. groups. However, there was no significant difference found between the MDS and Ph.D. groups. It is always believed that knowledge is the most powerful tool and knowledge from research must be applied to clinical practice, thus helping us to guide the students in a better way. The art of literature criticism is a skill that can be learned, and the practice of this art will contribute to the knowledge of the literature.

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Conflicts of interest

There are no conflicts of interest.

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