



**ORIGINAL ARTICLE**

**Knowledge, Attitudes and Practices of Training Doctors in a Tertiary Care Hospital in Bahrain Towards Health Research**

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**Abstract**

**Background:** Health research methodology is becoming essential research types in current clinical practice. Training for necessary research skills and practicing research early in the career are found to be associated with continued professional academic growth. The aim of this study is to assess the research-related knowledge, attitude, and practices of training doctors, in the main tertiary care and training hospital, in Bahrain.

**Methods:** Cross-sectional study was conducted among 142 trainee doctors, recruited in the Specialty Training Residency Program (STRP) at all levels, in Salmaniya Medical Complex (SMC). They completed self-filled questionnaire which was developed using questionnaires from previous studies and included demographic, knowledge, attitude, and practice, related to health research.

**Results:** A total of 142 training doctors participated in the study. More than half of them (55.6%) considered their level to be good, while only 12 (8.5%) assessed themselves to be excellent. Although majority of the respondents (87.3%) thought that training doctors should participate in research, only one-third (34.5%) of them felt confident in interpreting and writing research. When asked about the main limitation to conduct health research, the participants ranked lack of mentors and/or assistants as the first limitation (63.4%), followed by lack of time (49.3%), and lack of research curriculum (40.1%).

**Conclusion:** Training doctors have an excellent attitude towards health research and good knowledge, but their participation in research does not match with their attitude and knowledge. An urgent change in the curriculum and training of the postgraduate programs is needed to include health research participation.

**Keywords:** Knowledge, Attitudes, Practices, Doctors, Bahrain, Health Research.

## Introduction

Clinical research is of great value to the medical field as it can provide important information regarding the patterns of diseases, their risk factors, ways of treatment, or interventions and the burden produced by them.<sup>1</sup> The medical field needs to diversify their approach to medical research so as to obtain complementary insights related to the varied approaches and their outcomes to treating different diseases.<sup>2</sup> In the past, clinical trials helped in understanding the efficacy and the adverse effects of many medical interventions which have facilitated the path towards better patient outcomes. Today, evidence-based medicine is an emerging and developing research and accordingly will be imperative.<sup>3</sup> It is the responsibility of all health professionals to further the advancement of medicine in order to obtain optimum quality of health and well-being for the future generations. It is also crucial to include medical research as part of medical education because the rapid expansion and progress in biomedical research is expected to transform medical care.<sup>4,5</sup>

Research training is now being incorporated as part of medical school curricula and residency training programs to create a cluster of future competent physician-scientists.<sup>4,6</sup> The physician-investigators are considered the link between basic and clinical sciences, who have the ability to discover the molecular basis of the disease and transform it into therapeutic interventions<sup>4,5,6</sup>.

Most of the postgraduate training programs around the world require the trainees to participate in medical research and some of them are also required to publish their work as part of their requirements to graduate from the training program.<sup>7,8,9</sup>

Several studies have been conducted in different parts of the world to evaluate the knowledge, attitude, and practice towards medical research among the resident doctors.<sup>10,11,12,13,14,15</sup> Training for research skills and experiencing research early in their career was found to be associated with continued professional academic work and helped the residents' clinical decisions.<sup>6</sup> Literature regarding knowledge, attitudes, and practices towards medical research among residents is limited in Bahrain,

therefore, we decided to undertake this study to assess the research-related knowledge, attitude and practices of training doctors in Salmaniya Medical Complex (SMC) which is the main tertiary care and training hospital in Bahrain.

## Methods

This cross-sectional study was undertaken among trainee doctors recruited in the Specialty Training Residency Program (STRP) at all levels in SMC. STRP is a structured fellowship program within the six departments (medicine, surgery, pediatrics, obstetrics and gynecology, ENT, and ophthalmology, among others) that lasts for 4-5 years and aims to graduate competent specialists within each specialty.

All STRP residents from all the departments in SMC were eligible to be included in this study. At the time of conducting the study, the total number of trainees was around 300. Those who were on leave or refused to participate were excluded from the study.

A self-filled questionnaire was used; the items of the questionnaire were developed using questionnaires from previous studies.<sup>10, 11, 12, 13, 14</sup> The questionnaire included variables such as demographic (age, sex, and nationality), work factors (qualification, years of experience, and year of residency), knowledge (level of general knowledge, sources of knowledge), attitude (confidence in conducting and writing research, ability of trainee doctors to plan and conduct research) and practice (experience with conducting research and presenting the research as poster or oral presentation).

The questionnaires were distributed to all STRP by name through the training department in SMC. The questionnaires were given to the secretary of each department in envelopes and the participants were not known to the researchers. The questionnaires were collected from each department by the researchers after a week. An instruction about filling the questionnaire was provided with each questionnaire and clear instructions for each question were included.

Each questionnaire was assigned a special identity number for referencing and was coded for data

entry and processing. Data were entered in a data-based program (SPSS). Frequency tables with percentage were produced for further analysis and interpretation.

**Results**

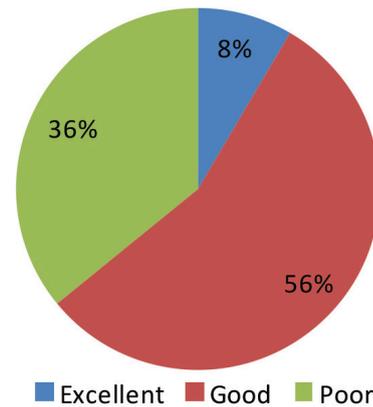
A total of 142 training doctors participated in the study. The majority (95.1%) of them were Bahraini. Female predominance (59.9%) was observed, 80 (56.3%) were below the age of 30 years, and 91 (64.1%) were married. More than half (54.9%) had 2-4 years of practice experience, while only 25 (17.6%) had practice of more than 4 years. (Table 1)

**Table 1:** Demographic and general characteristics of the study participants

Variable	No	%
<b>Nationality</b>	Bahraini	135 95.1%
	Non-Bahraini	7 4.9%
	<b>Total</b>	<b>142 100.0%</b>
<b>Gender</b>	Male	57 40.1%
	Female	85 59.9%
	<b>Total</b>	<b>142 100.0%</b>
<b>Age</b>	<=30	80 56.3%
	> 30	62 43.7%
	<b>Total</b>	<b>142 100.0%</b>
<b>Marital status</b>	Married	91 64.1%
	Single	50 35.2%
	Divorced	1 0.7%
	<b>Total</b>	<b>142 100.0%</b>
<b>How many years have you been practicing in secondary care?</b>	< 2	39 27.5%
	2 - 4	78 54.9%
	> 4	25 17.6%
	<b>Total</b>	<b>142 100.0%</b>

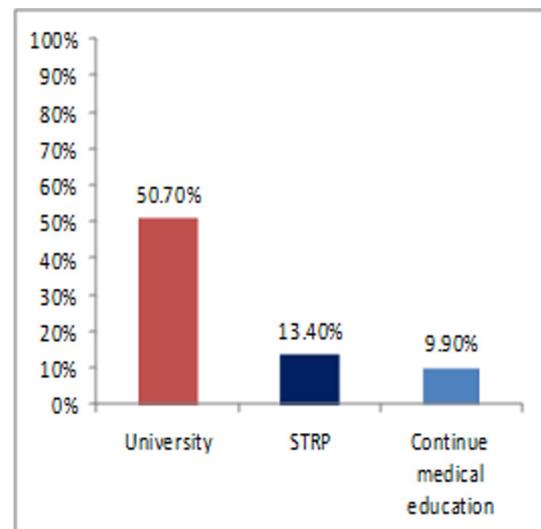
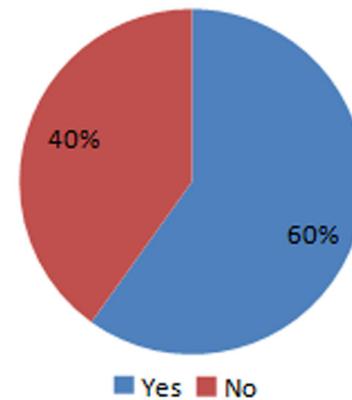
When asked about their general level of knowledge regarding health research, more than half (55.6%) subjectively considered their level to be good, while only 12 (8.5%) thought that they had an excellent level. More than one third of them (35.9%) stated

that they had poor knowledge about health research (Figure 1).



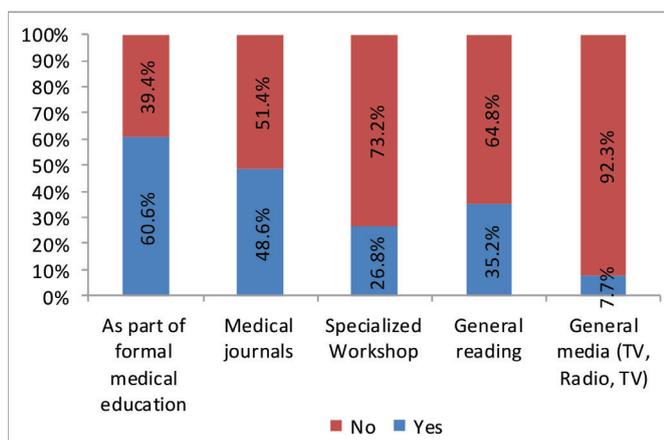
**Figure 1:** General level of knowledge of training doctors among the study participants

Around 60% of the training doctors stated that they received a formal training in health research, 72 (50.7%) of them mentioned undergraduate university as the source of this formal training, while only 19 (13.4%) mentioned post graduate training as the source of formal training in health research (Figure 2).



**Figure 2:** History and source of training in health research among training doctors in the study participants

When asked about the main source of knowledge about health research, the participants ranked formal medical education as the main source (60.6%), followed by medical journals (48.6%), and only one-quarter (26.8%) mentioned specialized workshops as the main source of knowledge for health research. (Figure 3).



**Figure 3:** Main source of knowledge about health research among training doctors in the study participants

Although most of the respondents (87.3%) thought that training doctors should participate in research, only one-third (34.5%) of them felt confident in interpreting and writing research.

The majority (83.8%) of our study participants also thought that training doctors could plan and conduct research, but only 17.6% of them thought that they could do it without a supervisor (Table 2).

Around three-quarters (73.9%) of respondents stated that they participated in a research project before. Less than half (48.6%) of them had an experience in writing a scientific paper. The participants had a limited extent of experience in presenting scientific work, either as a poster (31%) or oral (23.2%) presentation. Around one-third (34.5%) stated that they are involved currently in research as principal investigator and another third (37.3%) as co-investigator (Table 3).

When asked about the main limitation to conduct health research, the participants ranked lack of mentors and/or assistants as the first limitation (63.4%), followed by lack of time (49.3%), and lack of research curriculum (40.1%). Interestingly, 7% of the participants stated lack of interest as one of the limitations, 10.6% considered personal commitments as a limitation and 17.6% mentioned lack of financial aid as one of the limitations (Table 4).

**Table 2:** Attitude of training doctors among the study participants

ATTITUDE	Yes		No		Total	
	No	%	No	%	No	%
Do you feel confident in interpreting and writing a research paper?	49	34.5%	93	65.5%	142	100.0%
Do you think training doctors should participate in research?	124	87.3%	18	12.7%	142	100.0%
Do you think training doctors can plan and conduct a research project and write a scientific paper?	119	83.8%	23	16.2%	142	100.0%
Training doctors can plan and conduct research project without supervision	25	17.6%	117	82.4%	142	100.0%

**Table 3:** Practice of training doctors in the study participants

Practice	Yes		No		Total	
	No	%	No	%	No	%
Have you ever participated in a research project?	105	73.9%	37	26.1%	142	100.0%
Have you ever written a scientific paper?	69	48.6%	73	51.4%	142	100.0%
Have you experienced presenting posters in conferences?	44	31.0%	98	69.0%	142	100.0%
Have you experienced presenting oral papers in conferences?	33	23.2%	109	76.8%	142	100.0%
Are you currently involved in any research project as Principal Investigator?	49	34.5%	93	65.5%	142	100.0%
Are you currently involved in any research project as Co-Investigator?	53	37.3%	89	62.7%	142	100.0%

**Table 4:** Limitations of health research according to in the study participants

	Yes		No		Total	
	No	%	No	%	No	%
Lack of mentors/ Assistants	90	63.4%	52	36.6%	142	100.0%
Lack of time	70	49.3%	72	50.7%	142	100.0%
Lack of research curriculum	57	40.1%	85	59.9%	142	100.0%
Lack of financial aid	25	17.6%	117	82.4%	142	100.0%
Personal commitments (Family issues)	15	10.6%	127	89.4%	142	100.0%
Lack of interest	10	7.0%	132	93.0%	142	100.0%

## Discussion

This study revealed that a good proportion of the trainee doctors considered their level of knowledge about medical research to be good and held an excellent attitude towards conducting health research. However, this was not reflected in their participation in research publications and presentations.

This study also revealed a good knowledge of participants towards health research, similar to previous studies conducted in India which showed a good knowledge of research concepts among medical doctors ranging up to 58%, and more than that reported from Pakistan (36.9 %).<sup>12,13,14</sup>

The participants had an excellent attitude towards the importance of health research in the medical practice, which is similar to previous studies conducted in Kingdom of Saudi Arabia (KSA), India, Malaysia and Japan.<sup>5,10,12,13,14,15,16,17</sup> This positive attitude was not reflected in the practice of participants as only around one third of them is currently involved in research, which was also noticed in KSA, India, and Pakistan.<sup>10,12,13,14</sup>

This study revealed that there was a lack of formal training in research methodology among the trainee doctors as only 60% of participants stated that they had a formal training, majority (50.7%) of which was during undergraduate study, a better proportion

than those reported from previous studies conducted in India and Pakistan.<sup>12,13,14</sup> These results show that there is an urgent need to review and revise the curriculum of postgraduate medical training to include health research methodology as an integral part of training, especially with the mandatory requirements of most postgraduate training to conduct research and publish articles.<sup>7,8,9</sup>

Trainee doctors participating in this study stated that lack of mentors, lack of time and lack of curriculum were the major obstacles to conduct research, similar to previous studies in KSA, India and Pakistan, Malaysia and Japan.<sup>10, 12, 13,14,16,17</sup> This indicates that there is a need to review the current layout of the training programs in order to add a period for medical research with sufficient resources including experienced mentors for the residents in training.

This study has some limitations, including the convenient sampling methods, the limited number of participants in a single center study and the recall bias incurred with cross sectional design. Despite the limitations however, we believe that this study reflects to a good extent the current attitude and practice of all the training residents and the subjective self-evaluation of knowledge in Bahrain, as it agrees with the published literature in the region and internationally.

## Conclusion

This study showed that the training doctors have an excellent attitude towards health research and good knowledge, but their participation in research does not match with their attitude and knowledge. An urgent change in the curriculum and training of the postgraduate programs is needed to include health research methodology.

## Conflict of Interest

The authors have no financial or proprietary interests in any material or method mentioned.

## References

1. Portney LG, Watkins MP. Foundations of clinical research: Applications to practice (3rd edition). Philadelphia, PA: FA Davis; 2015.
2. Institute of Medicine (US) Committee on Health Research and the Privacy of Health Information: The HIPAA Privacy Rule; Nass SJ, Levit LA, Gostin LO, editors. Beyond the HIPAA Privacy Rule: Enhancing Privacy, Improving Health Through Research. Washington (DC): National Academies Press (US); 2009. 3, The Value, Importance, and Oversight of Health Research. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK9571/>
3. Sackett DL, Roseberg WM, Gray JA, Haynes RB, Richardson WS. Evidence based medicine: What it is and what it isn't. *BMJ* 1996;312:71-2.
4. Potti A, Mariani P, Saeed M, Smego RA, Jr. Residents as researchers: Expectations, requirements and productivity. *Am J Med.* 2003;115:510-4.
5. Alghamdi KM, Moussa NA, Alessa DS, Alothimeen N, Al-Saud AS. Perceptions, attitudes and practices toward research among senior medical students. *Saudi Pharm J.* 2014;22(2):113-117.
6. Aslam F, Shakir M, Qayyum MA. Why Medical Students Are Crucial to the Future of Research in South Asia. *PLOS medicine.* 2005;2:e322.
7. American Board of Internal Medicine, Certification policies for internal medicine. Available from: <https://www.abim.org/certification/policies/internal-medicinesubspecialty-policies/internal-medicine.aspx>
8. Saudi Commission for Health Specialties; Saudi Board of Internal Medicine Curriculum.
9. General Medical Council; General (internal) medicine curriculum Available from: <https://www.gmc-uk.org/education/standardsguidance-and-curricula/curricula/generalinternal-medicine-curriculum>
10. Mitwalli H, Al Ghamdi K, Moussa N. Perceptions, attitudes, and practices towards research among resident physicians in training in Saudi Arabia. *EMHJ.*2014;20:99-104.
11. Khamis N, Ibrahim R, Fetyani DM. Assessment of the research-oriented knowledge, attitude and practice of medical students and interns of

- the King Abdulaziz University, Jeddah and the adoption of a research-intervention educational program. *RMJ*. 2013;38(4):432–9.
12. Giri PA, Bangal VB, Phalke DB. Knowledge, Attitude and Practices towards Medical Research amongst the Postgraduate Students of Pravara Institute of Medical Sciences University of Central India. *J Family Med Prim Care*. 2014;3(1):22–4.
  13. Pawar DB, Gawde SR, Marathe PA. Awareness about medical research among resident doctors in a tertiary care hospital: a cross-sectional survey. *Perspect Clin Res*. 2012;3(2):57–61.
  14. Khan H, Khan S, Iqbal A. Knowledge, attitudes and practices around health research: the perspective of physicians-in-training in Pakistan. *BMC Med Educ*. 2009;9:46. Published 2009 Jul 17.
  15. Memarpour M, Fard AP, Ghasemi R. Evaluation of attitude to, knowledge of and barriers toward research among medical science students. *Asia Pac Fam Med* 2015;14:1.
  16. Kyaw Soe HH, Than NN, Lwin H, Nu Htay MNN, Phyu KL, Abas AL. Knowledge, attitudes, and barriers toward research: The perspectives of undergraduate medical and dental students. *J Educ Health Promot*. 2018;7:23. Published 2018 Feb 9.
  17. Sumi E, Murayama T, Yokode M. A survey of attitudes toward clinical research among physicians at Kyoto University Hospital. *BMC Med Educ*. 2009;9:75.