ORIGINAL ARTICLE

Awareness regarding research skills among clinical and academic post graduate doctors in teaching hospitals of Karachi

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Abstract

Objective: To assess the awareness regarding research skills among clinical and academic post-graduate doctors in teaching hospitals of Karachi.

Methods: The cross-sectional study was carried out from August to October 2012 in two teaching hospitals of Karachi. Total 92 doctors who were enrolled in academic and clinical post-graduation programmes were included in the study through convenience sampling. Data was collected through a self-administered questionnaire and analysed by SPSS version 20.

Results: The mean age of the 92 doctors was 30.4+ 3.4 years; 49 (53.3%) were clinical; and 43 (46.7%) were academic post-graduate trainee doctors. Besides, 74 (80.4%) post-graduate doctors had attended research methodology course during their academic or professional careers. Low level of competence was found regarding various research skills, such as 56 (60.8%) in statistics, 47 (51.09%) in paper preparation, 40 (43.5%) in study design, 39 (42.4%) both in result interpretation and paper presentation, 37 (40.2%) in protocol writing and 35 (38.04%) in sampling technique. Moreover, 68(73.91%) doctors reported lack of research curriculum ($p<0.001$) as reason for low research output in Pakistan.

Conclusion: Post-graduate medical doctors showed positive attitude towards research, but they lacked research skills .They needed training in all aspects of research skills.

Keywords: Research skills, Post-graduate doctor, Teaching hospital. (JPMA 64: 624; 2014)

Introduction

Medical research is the research conducted to aid and support the knowledge in the field of health and medicine. This is the era of evidence-based medicine. Research experience is essential for physicians.[1] In order to provide the best possible care for their patients, doctors should be well versed in latest medical advancement and should be able to understand and critically evaluate latest research in various medical fields.[2] Existing research shows that doctors are not involved in research to the extent that they should be and their involvement in research is on a decline.[3] The UNESCO Institute of Statistics estimates that only 27% of total health researchers in the world are in developing countries.[4] South Asia comprised only 1.2% of all annual research on health topics.[5] In Pakistan, due to its population, potential for undertaking research is very high due to the high number of patients visiting hospitals. However, enough research is not being conducted.

The College of Family Physicians of Canada also emphasised on the importance of research skills for Canadian Family Physicians.[6] Research skills are required by residents to improve their ability to understand and assimilate medical literature and increase appraisal capability. Realising this need, there is a growing trend in developed nations such as US and Canada to include research skills as a mandatory part of training for physicians.[6] In South Asia, studies regarding awareness and attitudes towards research among physician are inadequate.[5]

In Pakistan, health research training is being incorporated in medical school curricula and post-graduation training programmes. It is an essential part of post-graduation training that will help in developing research skills. The domain of research in Pakistan is in its early stages and needs to be developed.[3] Doctors undertaking research in Pakistan face significant challenges which are similar to other developing countries. Major issues include flawed methodology, inadequate data collection and inadequate research training for the researcher.[3]

Situation across the world is the same and research skills for health professionals are important but their knowledge is inadequate.[1,2,5] Literature review suggested that information regarding awareness of research skills among doctors in Pakistan, is lacking. Worldwide and in

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Pakistan most of the researches were conducted on residents doctors, and there was no such research to compare the awareness of doctors doing post-graduation in clinical and academic fields.

The purpose of this study, therefore, was to assess and evaluate awareness of post-graduate doctors in teaching hospitals regarding research skills including barriers to research, extent of research methodology knowledge etc. This will identify gaps in the development of research orientation in the healthcare sector.

Subjects and Methods

The descriptive cross-sectional study was conducted in two private teaching hospitals of Karachi from August to October 2012 after due permission from the Institutional Ethics Committee. Sample population comprised doctors enrolled in clinical and academic post-graduation programmes. Clinical post-graduation programme was FCPS and the academic programme was M.Phil.

The sample size was calculated as 97 by using the world Health Organisation (WHO) sample size determination software with 80% power of the test, 95% confidence interval (CI), anticipated population proportion (P) as 50% and margin of error (d) of 10%. Although sample size was calculated as 97, but only 92 postgraduate doctors were available and willing to register at the time of data-collection in the two medical universities.

Non-probability convenience sampling technique was employed and we included those doctors from all specialties whose clinical or academic post-graduation programme was in progress. M.Phil students other than MBBS qualification were excluded. Those doctors who were in first year of training and those who passed FCPS Part I but had not started formal FCPS training in any teaching hospital were also excluded.

A pre-tested, structured and self-administered questionnaire based on study objectives was developed, taking guidance from previous literature. Research skills on which knowledge of study participants was assessed were protocol writing, study designing, study sampling, statistics, result interpretation, paper preparation and paper presentation. Competence on these skills was assessed on a scale of low, medium and high levels in line with literature.[7] The participants were informed about the study objective and written consent was obtained before the distribution of the questionnaire. Those who did not give consent were excluded.

Data was entered and analysed on SPSS version 17. All quantitative variables were presented as mean and standard deviation (SD), and qualitative variables were presented as frequencies and percentages. Fisher Exact test was applied and $p< 0.05$ was considered significant

Results

The mean age of the 92 subjects was 30.5±3.5 years. Of them, 29(31.5%) were males and 63(68.4%) were females. Their average year of working experience was 3.18±1.9 years. Among the respondents 49(53.38%) were from the clinical side and enrolled in FCPS programme, while 43 (46.7%) were M.Phil candidates on the academic side.

Overall, 74 (80.4%) participants had attended a research-based course during their academic or professional careers and there was significant difference

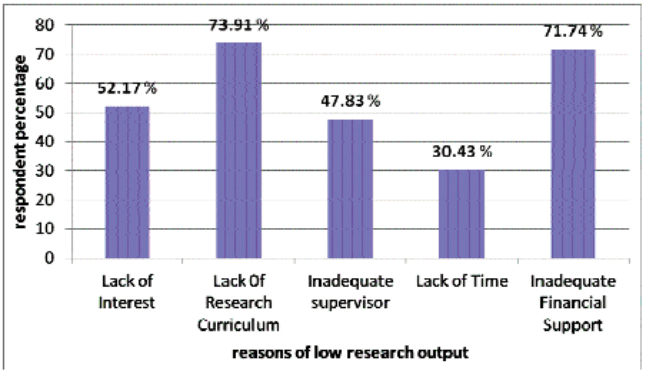

Figure-1: Reasons for Low Research Output in Pakistan (n=92).

Table-1: Competence Level of Doctors in various Research Skills (n=92).

	High		Medium		Low	
	n	%	n	%	n	%
Protocol Writing	8	8.7	46	50	38	41.3
Designing Study	9	9.78	43	46.74	40	43.48
Study Sampling	7	7.61	50	54.35	35	38.04
Statistics	1	1.09	35	38.04	56	60.87
Result Interpretation	6	6.52	47	51.09	39	42.39
Paper Preparation	6	6.52	39	42.39	47	51.09
Paper Presentation	11	12.0	41	44.57	40	43.5

Table-2: Competence of doctors regarding research skills according to Post-graduate Programme and Research Course attended.

Research Skills	Post Graduation Programme	Competency level			P-value	Research Course Attended	Competency level			P-value
		Low n (%)	Medium n (%)	High n (%)			Low n (%)	Medium n (%)	High n (%)	
Protocol writing	Academic	18 (19.6)	20 (21.7)	5 (5.4)	0.606	Yes	30 (32.6)	41 (44.6)	3 (3.3)	0.003
	Clinical	20 (21.7)	26 (28.3)	8 (8.7)		No	8 (8.7)	5 (5.4)	5 (5.4)	
Designing Study	Academic	19 (20.7)	20 (21.7)	4 (4.3)	0.985	Yes	31 (33.7)	38 (41.3)	5 (5.4)	0.065
	Clinical	21 (22.8)	23 (25)	5 (5.4)		No	9 (9.8)	5 (5.4)	4 (4.3)	
Study Sampling	Academic	16 (17.4)	22 (23.9)	5 (5.4)	0.391	Yes	26 (28.3)	42 (45.7)	6 (6.5)	0.504
	Clinical	19 (20.7)	28 (30.4)	2 (2.2)		No	9 (9.8)	8 (8.7)	1 (1.1)	
Statistics	Academic	26 (28.3)	17 (18.5)	-	0.629	Yes	43 (46.7)	30 (32.6)	1 (1.1)	0.512
	Clinical	30 (32.6)	18 (19.6)	1 (1.1)		No	13 (14.1)	5 (5.4)	-	
Result Interpretation	Academic	17 (18.5)	24 (26.1)	2 (2.2)	0.624	Yes	28 (30.4)	42 (45.7)	4 (4.3)	0.084
	Clinical	22 (23.9)	23 (25)	4 (4.3)		No	11 (12)	5 (5.4)	2 (2.2)	
Paper Preparation	Academic	19 (20.7)	18 (19.6)	6 (6.5)	0.02	Yes	36 (39.1)	33 (35.9)	5 (5.4)	0.636
	Clinical	28 (30.4)	21 (22.8)	-		No	11 (12)	6 (6.5)	1 (1.1)	
Paper Presentation	Academic	17 (18.5)	18 (19.6)	8 (8.7)	0.182	Yes	29 (31.5)	34 (37)	11 (12)	0.109
	Clinical	23 (25)	23 (25)	3 (3.3)		No	11 (12)	7 (7.6)	-	

($p<0.02$) between clinical and academic post-graduates. Regarding reading medical journals, 79 (85.9%) doctors were in the habit with a significant difference ($p<0.002$); 51 (54%) had conducted research previously and of them only 10(10.9%) had published it at some place; 91 (98.9%) agreed that research knowledge will help in their professional work; 87 (94.6%) were of opinion that conducting research promotes critical thinking; 63(68.5%) were aware of the procedure of taking informed consent from subjects of the research project; and 39 (42.4%) were aware about the ethical requirements regarding subjects. Low level of competence was found regarding various research skills among the participants, particularly in statistics and paper preparation as 56 (60.8%) and 47 (51.09%) respectively (Table-1).

Knowledge of doctors regarding research skills was assessed on the basis of post-graduate programme and attending research workshop/course. Overall level of research skills was from low to medium level among M.Phil candidates and clinical residents, but significant difference ($p<0.02$) was found in paper preparation. Similarly significant difference ($p<0.003$) in protocol writing was found between those who attended workshops and who did not (Table-2).

Out of the total, 87(94.6%) were of the view that doctors should participate in research projects and almost half of study participants i.e. 54(58.7%) planned to pursue the career in medical research. For 86 (93.5%) participants, conducting research under a supervisor would be very helpful, while 77 (83.7%) had their research projects with the supervisor from respective fields.

Regarding reasons for low research output in Pakistan, most common reasons were lack of research curriculum and inadequate financial support as stated by 68 (73.91%) and 66 (71.74%) participants (Figure). However significant difference was observed for inadequate financial support ($p=0.01$) and lack of interest ($p=0.02$) between clinical and academic post-graduates.

The participants were also asked about research areas in which training is needed for them to improve research skills. Majority, 72 (78.3%) required training to improve statistics skills, 50 (54%) required training in medical ethics, 49 (53.3%) in protocol writing and 42 (45.7%) in proposal writing.

Discussion

In the past most of the work on this topic was conducted among under-graduates and post-graduate trainee doctors, but in this study knowledge regarding research skills was assessed and compared between clinical and academic post-graduate trainee doctors. Findings of our study have shown that clinical and academic post-graduate doctors both had low to medium level of knowledge regarding research skills. Study conducted on clinical trainee doctors earlier also illustrated poor knowledge regarding research skills.[1] Most of our post-graduate trainee doctors i.e. 60% reported low competence level in statistics, whereas highest competence level was reported in paper presentation by only 12%. Significant difference was observed for paper presentation between clinical and academic post-graduates. On the other hand the earlier study pointed out that 64% of residents found difficulty in result interpretation and writing the research paper,[1] and

another study showed that doctors had poor knowledge regarding study sampling (62%) and study designing (61%).[7]

A major proportion (74%) of our study participants attended research-based workshop/ courses during their training period. Similar statistics were found in one research conducted in India which showed that 64% of the residents had attended research-based workshops.[1,2] Our results did not show any great increase in competence level after attending a workshop; the only significant difference was found in protocol writing. However, it was observed that the exposure of medical doctors earlier towards research courses or trainings during their professional career may enhance their research skills.[3,6,8] Regarding research skills of post-graduate residents in Canada who had been involved in research training found improvement in their research skills.[6]

Findings of our study point out that both clinical and academic post-graduate trainees have positive attitude towards research as in opinion of 99% research will help in professional working and 95% said research will improve critical thinking. However, with regards to this positive attitude there was difference towards actual participation in research. Similar findings were found in various other researches[6,9] where majority of the post-graduate medical residents were interested in research projects, but very few had participated in research work, other than the mandatory dissertation project. Furthermore, very few had published their research papers in any journal. Another study conducted in University of Toronto involving Family Medicine graduates found that majority of them were of the opinion that these skills helped them as practising physician and only 39% believed that they were properly trained in these skills.[6] Significance of integration of research education into residency program was also highlighted by Atesok KI and Kanna B.[10,11]

Majority of our post-graduate doctors were readers of medical journals. More than half of them wanted to pursue a career in research. This is another important finding of our study which showed positive attitude and recent increase in trend of upcoming post-graduate doctors towards the emerging field of research in an underdeveloped country. Hence this influx in future might further increase their contribution towards evidence-based medicine. Dissimilarity was found in one research conducted in Faisalabad where majority of the trainees realised the importance of reading current literature, but only few were actively involved in it.[12]

Although many reasons were identified in this study as the cause of low research output in Pakistan, but the most important reasons were lack of research curriculum and inadequate financial support. In contrast, other researches cited lack of time as the most common cause of low research work.[1,2] Inadequate financial support and lack of curriculum were also pointed out by earlier studies.[1,2,13]

Our study also reported significantly low levels of research skills in Statistics and post-graduate doctors were of the opinion that they needed training in statistic and medical ethics. A study conducted in India showed that post-graduate doctors working in hospitals and involved in research were also keen to learn statistics and medical ethics.[2]

There are several limitations to this study. Firstly, convenience sampling technique was used and the sample size was very small so findings cannot be generalised. Additionally, data was collected from two medical universities so this is further limiting the possibility of generalisation of the findings. However these results may be used in future and open more research avenues in the same field with improved sample size.

Conclusion

Majority of post-graduate doctors showed awareness and positive attitude towards research. But despite being actively involved in research projects, they lacked research skills. Majority of the participants were readers of medical journals and thought of research knowledge and skill as positive practice for professional advancement. Research skills of doctors enrolled in academic post-graduate programme were higher compared to clinical programme.

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