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ORIGINAL PAPER

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# Previous Involvement in Research and Knowledge Regarding Basic Research Methods Among Doctors Working at Primary Care in Central Region, Saudi Arabia

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## ABSTRACT

**Introduction:** The cumulative outcomes of health research in the modern times had a huge effect on human health and longevity. The primary care physicians are the first point of contact between the health system and the society. Therefore their responsibility is higher to provide the latest information to their patients, in the context of rapidly changing field of medical science. Doctors are expected to have a basic knowledge of research methodology in order to develop a critical thinking and this is the rationale to include the research activity is an integral part of post-graduate medical training. **Aim:** We aimed to assess the previous involvement in research activities and knowledge in basic research methods among primary care physicians in central region, Saudi Arabia. **Methods:** It was a cross sectional descriptive study conducted on a conveniently selected sample of doctors (N=80) working under general directorate of health affairs in Riyadh region, Ministry of Health. The data was collected through a pre-designed, self-administered survey instrument containing closed ended questions. **Results:** The mean age of the physicians was observed to be  $44.7 \pm 9.6$  years. About 32% doctors had previous experience of writing a research proposal while only 20% had any publication in a scientific journal. About 45% had attended workshop on research methodology within last five years. Only one item related to 'consent in medical research' was answered correctly by 60% respondents. The correct responses in other knowledge items scored less than 50%

(ranging from 18.8% to 37.5%). The proportion of doctors having any publication was observed to significantly higher among younger age ( $p < 0.05$ ). Significantly higher proportion was observed for "having experience of proposal writing" and "paper presentation in a scientific conference" among family medicine and other specialties as compared to general practice ( $p < 0.05$ ). **Conclusion:** We found low previous engagement with research among doctors with low level of knowledge regarding basic research methods. This was particularly evident among general practitioners as compared specialist doctors. Regular conduction of research workshop with encouragement to undertake small research activities at the primary care should be promoted. **Keywords:** primary care physicians, research participation, knowledge, medical research, Saudi Arabia.

## 1. INTRODUCTION

The cumulative outcomes of health research in the modern times had a huge effect on human health and longevity (1). The primary care physicians are the first point of contact between the health system and the society. Therefore their responsibility is higher to provide the latest information to their patients, in the context of rapidly changing field of medical science. For instance, many established treatments were overturned in recent times as a result of gathering of evidences (2). It has been argued by the experts that the physicians require the use of research tools in evaluating their own practice

(3). Moreover, the doctors are expected to have a basic knowledge of research methodology in order to develop a critical thinking and this is the rationale to include the research activity is an integral part of post-graduate medical training (4, 5).

In spite of presence of a well-established primary health care setup in Saudi Arabia, the research output by the Ministry of health has been reported to be low (6). This low research output may be considered as reflection of low participation in research at the primary care level. The participation in research is influenced by the previous experience of engagement in research or research related activities (7). Moreover, a satisfactory level of knowledge in research methodology is a pre-requisite in order to undertake a research.

## 2. AIM

In the present study, we seek to assess the prior involvement in research and knowledge towards basic research methods among physicians working at primary care level in central region in Saudi Arabia.

## 3. MATERIAL AND METHODS

This study was carried out under the Department of Public Health at the general directorate of health affairs in Riyadh Region. The doctors working in the primary health care centers in peripheral areas of Riyadh region were included in the study.

### Data Collection and Management

The data collection was done through convenient sampling. A one-day workshop was organized under department of Public health, general directorate of health affairs in Riyadh region. Apart from doctors other staff members were also invited to partake in the workshop. The physicians were sent a pre-designed survey instruments. The data collected prior to the workshop and collected during the workshop was pooled together. The data pertaining to doctors was extracted from this pooled data and analyzed. The data was analyzed through SPSS 20. Appropriate statistical test was applied to find out the association between knowledge and attitude with certain socio-demographic characteristics of the study subjects. Statistical significance was set at  $p < 0.05$ .

### Data Collection Tool

The data collected through a pre-designed, structured, close ended survey instrument. The survey instrument contained questions pertaining previous involvement in research activities, question on interest in partaking in research if given opportunity, their self-perceived competence in critically review of a scientific paper and questions on basic research methods. In the last section probing the knowledge, the items were arranged in the form of multiple choice questions and the respondents were instructed to choose the most appropriate answer. In the analysis these responses were re-categorized as correct and incorrect/don't know.

### Ethical Consideration

Ethical Approval was sought from the institutional review board, Ministry of Health, Riyadh, Saudi Arabia. A prior written consent was taken from the participants.

Socio-demographic factor	Frequency	Percentage (%)
Gender		
Female	25	31.3
Male	55	68.8
Age		
	44.7 ± 9.6 years	
less than 35 years	20	25.0
36- 45 years	26	32.5
46-55 years	21	26.3
more than 55 years	13	16.3
Specialty		
family medicine	14	11.7
general practice	42	35.0
Other	24	20.0
Work Experience		
less than 5 years	10	12.5
6 to 10 years	20	25.0
11 to 15 years	18	22.5
more than 15 years	31	38.8

Table 1. Basic information of the study participants

The data collection was anonymous and the participants were ensured about the confidentiality of their responses.

## 4. RESULTS

A total of 80 doctors were included in the final analysis. As shown in Table 1, males outnumbered the females (68% vs. 33%) with mean age  $44.7 \pm 9.6$  years. Highest proportion noted from was from general practice (35%) while majority were working in active clinical practice for more than 5 years.

About 32% doctors in our study had previous experience of writing a research proposal while only twenty percent had any publication in a scientific journal. The study respondents who had ever presented a research paper or poster in a scientific conference were noted to be 35% (Table 2).

About 45% had attended workshop on research methodology within last five years. More than 80% of the respondents expressed their interest in taking part in a research if given opportunity. More than half considered themselves to be competent enough in critically reviewing a scientific paper. Contrastingly, the knowledge regarding basic research methods was noted to be unsatisfactory. Only one item related to 'consent in medical research' was answered correctly by 60% respondents. Rest knowledge items had below 50% correct responses. About 40% knew correctly about the highest evidence in a medical literature. Only 18.8% of doctors were aware about any reference management tool, which was least proportion of correct response in any knowledge item (Table 2).

Table 3 is showing the "previous engagement with research" among doctors in our study according to certain socio-demographic variables. A significant association was noted between age of the physicians and any prior publication whereby the research publications proportion was noted to higher among younger doctors ( $p < 0.05$ ).

The proportion of respondents belonging to family medicine and other specialties were noted to be higher

S. N.	Component/Item detail	Frequency	Percentage
Previous involvement with research			
1	Have any publication in a scientific journal	16	20%
2	Presented a research paper/poster in a scientific conference	28	35%
3	Attended a Research Methodology workshop in last 5 years	36	45%
4	Previous experience of writing protocol	26	32.5%
Interest			
5	Interest in partaking in research if given opportunity	Strongly interested	31 38.8%
		Interested	38 47.5%
		Indifferent	10 12.5%
		Not interested	1 1.3%
Self-perceived Competence			
6	Ability to critically review a scientific paper	Strongly competent	10 12.5%
		Competent	36 45.0%
		Neutral	24 30.0%
		Can review with some difficulty	8 10.0%
		Not able to review at all	2 2.5%
Knowledge about basic research methods			
7	Difference b/w primary & secondary data	Correct	25 31.3%
		Incorrect/don't know	55 68.8%
8	what constitute the highest evidence in Medical literature	Correct	30 37.5%
		Incorrect/don't know	48 60.0%
9	Utility of MEDLINE	Correct	27 33.8%
		Incorrect/don't know	53 66.3%
10	Knowledge about consent in a medical research	Correct	48 60.0%
		Incorrect/don't know	32 40.0%
11	Awareness about any statistical software	Yes	24 30.0%
		No	54 67.5%
12	Awareness about any reference management tool	Yes	15 18.8%
		No	63 78.8%
	Concept of p value	Correct	18 22.5%
		Incorrect/don't know	60 75.0%

Table 2. Previous involvement with research, interest to partake and knowledge about basic research methods among primary care physicians

for “paper/poster presentation in a scientific conference/symposium” and “having an experience of writing research proposal” and this was observed to statistically significant ( $p < 0.05$ ). No significant association was noted with other variable related to previous engagement with research ( $p > 0.05$ ).

### 5. DISCUSSION

We report a quantitative assessment of previous involvement in research activities among primary care physicians

Socio-demographic factor	Items related to previous involvement with research*			
	Any publication	Attended Research workshop	Paper/poster presentation	Experience of writing research proposal
Gender				
Male	8 (14.5%)	24 (43.6%)	17(30.9%)	17(30.9%)
Female	8 (32%)	12 (48%)	11 (44%)	9 (36%)
Significance	$p=0.07$	$p=0.716$	$p=0.255$	$p=0.652$
Age group				
<35 years	8 (40%)	9 (45%)	7 (35%)	3 (15%)
36- 45 years	2 (7.7%)	12 (46.2%)	9 (34.6%)	8 (30.8%)
46-55 years	5 (23.8%)	6 (28.6%)	6 (28.6%)	11 (52.4%)
>55 years	1 (7.7%)	9 (69.2%)	6 (46.2%)	4 (30.8%)
Significance	$p=0.031$	$p=0.145$	$p=0.779$	$p=0.085$
Specialty				
Family Medicine	5 (35.7%)	7 (50%)	7 (50%)	5 (35.7%)
General Practice	5 (11.5%)	14 (33.3%)	7 (16.7%)	4 (9.5%)
Others	6 (25%)	15 (62.5%)	14 (58.3%)	17 (70.8%)
Significance	$p=0.119$	$p=0.067$	$p=0.001$	$p<0.001$
Work Experience				
less than 5 years	4 (40%)	6(60%)	4 (40%)	3 (30%)
6 to 10 years	4 (20%)	10 (50%)	5 (25%)	3 (15%)
11 to 15 years	3 (16.7%)	6 (33.3%)	5 (27.8%)	7 (38.9%)
>15 years	5 (16.1%)	14 (45.2%)	14 (45.2%)	13 (41.9%)
Significance	$p=0.410$	$p=0.555$	$p=0.426$	$p=0.223$

Table 3. Previous involvement with research according to certain socio-demographic variables among study participants \*represents frequency of affirmative response

in central Saudi Arabia. About one-fifth of the doctors on our study had any publication in a scientific journal. However, about one-third had prior experience of writing a research proposal. The family medicine and other specialist would have advantage of being exposed to research activities during their post-graduate training. But this reflected only in two aspects i.e. paper presentation and proposal writing. The younger doctors had significantly higher participation in terms of research publication. This could be because of increased emphasis being given during recent times in post graduate as well as under-graduate training.

Compared to our findings, similar proportion of doctors had any research publication in a study conducted at Riyadh Military Hospital Primary care centers (7), while in another study in Qassim region reported only one physician had any publication in a scientific journal (8). In general, most of the studies conducted among doctors working in hospital have reported higher previous participation in research as compared to those who focused on doctors working in primary care (9, 10).

The attitude of doctors towards research in our study

was very good as more than 85% of the doctors shown their interest in taking part in a research if given opportunity. But this attitude was not corresponded with their knowledge regarding basic research methods. Except for one item related to consent, rest all other items had less than fifty percent correct responses. The physicians in general are supposed to have relatively low knowledge in biostatistics (11). This low level of knowledge was corroborated with the finding that about 45% had attended a research methodology workshop during last five years. Similar to our study, another study conducted among general practitioners in United Kingdom reported that majority of the physicians expressed their interest in research; however, about 38% had undertaken a course on research methodology (12). Another study conducted in Qassim region in Saudi Arabia has also reported low level of knowledge in biostatistics among primary care physicians with good having an attitude towards it (13).

We found a significant association between certain aspects or prior engagement in research activities with post-graduate training. Similar to our findings, another study from Bahrain has also reported a significant association between physicians' designation and specialty board with attitude towards research (14). Another study conducted among faculty members, has also reported a significant association between research involvements with research training undertaken during post graduate training (15).

## 6. CONCLUSION

Overall we found low level of previous engagement in research activities and knowledge in basic research methods. However, the physicians reflected a good attitude towards research participation which should be properly utilized and improved through conduction of regular conduction of research courses and workshop in order to increase their participation in research.

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