International Journal of Community Medicine and Public Health
Al-Rossais AA et al. Int J Community Med Public Health. 2021 Dec;8(12):5777-5781
http://www.ijcmph.com
pISSN 2394-6032 | eISSN 2394-6040

DOI: https://dx.doi.org/10.18203/2394-6040.ijcmph20214566

Original Research Article

An assessment of knowledge of basic research methods among primary health care workers in Riyadh region

Amirah Abdulmohsen Al-Rossais[1], Shibli Sayeed[1]*, Mohammad Shibly Khan[2], Malak Ayedh Al-Qahtani[1], Aedh Nasser Bin Fardan[1]

[1]Department of Public Health, General Directorate of Health Affairs, Riyadh, Saudi Arabia
[2]King Salman Bin Abdulaziz Hospital, Central First Health Cluster, Riyadh, Saudi Arabia

Received: 03 November 2021
Revised: 19 November 2021
Accepted: 20 November 2021

***Correspondence:**
Dr. Shibli Sayeed,
E-mail: dr_shiblisayeed@yahoo.com

ABSTRACT

Background: The knowledge of and attitude towards medical research among health care staff is an important factor in delivering health care services. We aimed to assess the knowledge of basic research methods and the attitude towards medical research among health care professionals.
Methods: A cross-sectional study was conducted among the health care professionals working in primary care (including physicians, nursing staff, public health professionals and other paramedical staff). A pre designed, structured, closed ended, self-administered questionnaire was used to collect the data.
Results: A great majority (80%) showed interest in participating in a research if offered opportunity. Most of the attitude items had the highest proportion (>80%) of positive response whereas the knowledge items ranged from as low as 14% (awareness of reference management) to as high as 56% (correct knowledge of consent). Although the proportion of correct responses among the physicians was higher in almost all the knowledge items, as compared to nursing and other heath staff but this difference was not observed to be statistically significant ($p>0.05$).
Conclusions: While majority of the participants had good attitude towards medical research, their knowledge was found to be low in basic research methodology.

Keywords: Attitude, Health care professionals, Knowledge, Medical research, Primary care, Saudi Arabia

INTRODUCTION

Research is an essential need of the modern world and medical research is not an exception to this. With the advances in the treatment modalities, the health professional are ought to aware of these advances, since it is the right of the patient that they be offered the best treatment option available. In almost all of the trainings conducted for awarding diplomas and degrees for the health professional, basic medical research constitutes part of the curriculum; however it differs in its content and extent among differently specialties and disciplines. It is prudent for the health professionals to be aware about the recent advances in provision of quality health care delivery. Many established treatments were revoked due to accumulation of evidence questioning their safety profile or being less effective and so on.[1] In the light of these facts, the health professionals are ought to have an acceptable level of awareness regarding basic medical research. The nurses are also encouraged to work as clinical research nurse (CRN) to become a part of multidisciplinary clinical trial team.[2]

The research output from the Ministry of Health, has been reported to be low, despite of it having well established primary health care setup.[3] In an effort to promote

research, present study was conducted among the primary health care providers in Riyadh region to assess the attitude towards medical research and their knowledge of basic research methodology.

METHODS

Study site

A cross-sectional study was conducted under the department of public health, general directorate of health affairs in Riyadh region. The participants were selected from amongst the physicians, nursing staff and other paramedical staff working at the primary health centres or involved in the public health programs.

Sample size and data collection

Convenient sampling was done to collect the data. A research day workshop was organized in November 2019, under the public health department and the participants of the activity were invited to complete a survey questionnaire as pre-assessment. The participants were allowed to opt out to fill the questionnaire.

Data collection tool

A pre-designed, structured, close ended questionnaire was used to collect the data. The questionnaire was divided into three sections namely socio-demographics of the study participants, attitude towards and exposure on research and knowledge regarding basic research methods.

Data management

SPSS 20 was used to tabulate and analyze the data. Statistical significance was defined to be $p<0.05$. Chi square test was used to find out the association between variables.

Ethical consideration

Study was approved from the institutional review board, Ministry of Health, Riyadh, Saudi Arabia. A prior written consent was taken from the participants. The data collection was anonymous and the participants were ensured about the confidentiality of their responses.

RESULTS

A total of 120 study participants were included in the final analysis (Table 1). About 60% of the participants were males, while the major chunk of the sample size consisted of physicians (66%). The mean age was observed to be 41±9 years while majority (68%) were aged less than 45 years. Mean years of work experience was noted to be 13±8 years while highest proportion of the participants (35%) have had worked for more than 15 years.

Attitude towards medical research among study participants

As shown in Table 2, twenty two participants (18.3%) had any previous publication in a scientific journal, while about 34.2% (41/120) had previous experience of writing a research proposal. About 42.5% (51/120) had attended workshop on research methodology during last 5 years, while about 29% (35/120) had ever presented a scientific poster or paper in a conference or symposium. About 52.5% (63/120) affirmed that they are able to critically review a research article.

About 83% expressed their interest in the medical research and that they would like to participate in a medical research if given opportunity. About 91% had view that awareness about current research was must for the health staff. While 83% had an opinion that their practice in all aspects was based on recent evidence, about 50% admitted that they regularly brows a medical journal. About 53.3% (64/120) responded that internet was main source of updating their medical knowledge, 21% (26/120) use medical journals while 17.5% (21/120) and 7.5% (9/120) depended on the textbooks and their colleagues respectively, for the same purpose. Statistical section of a research article was considered to be the most difficult to understand by 54% (65/120) respondents.

Knowledge about basic research methodology

The knowledge of consent in a research was the single knowledge item which was known correctly to the highest proportion of the participants; about 56% (67/120) participants knew that consent was required in all the research involving human subjects. Secondly, about 38% knew that systematic review and meta-analysis constitutes the highest evidence in medical literature. 30% (36/120) were aware about the usage of Medline. Difference between primary and secondary data was known to 28.3% (34/120) while 26.7 (32/120) knew about any statistical software. Least proportion was noted from the knowledge item related to awareness about the reference management software (14%) (Table 2).

Association with certain socio-demographic factors

As shown in Table 3, it was interesting to note that no major statistically significant difference was observed between the selected socio-demographic factors and different knowledge items except for a few. The knowledge item related to consent was found to have a significant association with age and years of work experience ($p<0.05$). Awareness about reference management software was significantly associated with gender ($p<0.05$) while correct understanding of p value was significantly higher among higher age groups ($p<0.05$).

Table 1: Basic information of the study participants (n=120).

Socio-demographic factors		Frequency	Percentage (%)
Gender	Female	47	39.2
	Male	73	60.8
Professional class	Physicians	80	66.7
	Nursing staff	27	22.5
	Others	13	10.8
Age group (in years)	Less than 35	42	35.0
	36- 45	40	33.3
	46-55	25	20.8
	More than 55	13	10.8
Work experience (in years)	Less than 5	19	15.8
	6 to 10	30	25.0
	11 to 15	26	21.7
	More than 15	43	35.8

Table 2: Study participants' exposure to research, attitude towards medical research and their knowledge towards certain aspects of research methodology.

Research methodology	Frequency	Percentage (%)
Exposures		
Attended workshop on research methodology last 5 years	51	42.5
Previous experience of writing protocol	41	34.2
any publication in a scientific journal	22	18.3
Research paper/poster presentation in a scientific conference	35	29.2
Able to critically review a research article	63	52.5
Attitude		
Interested in medical research	99	82.5
Would like to participate in a research if given opportunity	100	83.3
Awareness about current research is must for the health staff	110	91.6
Your practice is based on current evidence in most of the aspects	100	83.3
Brows a medical journal often or regularly	61	50.8
Knowledge		
Difference between primary and secondary data	34	28.3
Highest evidence for clinical practice	46	38.3
Awareness about the use of Medline	36	30.0
Consent is required in all types of researches	67	55.8
Awareness about any statistical software	32	26.7
Awareness about the any reference management software	17	14.2
Correct understanding about p value	29	24.2

Table 3: Association of knowledge of basic research methods with certain socio-demographic factors.

Socio-demographic variables	Knowledge component						
	Difference b/w primary and secondary data (n=120)	**Highest evidence (n=118)**	**Use of Medline (n=120)**	**Consent (n=120)**	**Awareness of statistical software (n=118)**	**Reference management software (n=118)**	**Understanding of p value (n=118)**
Total correct responses N (%)	34 (28.3)	46 (38.3)	36 (30)	67 (55.8)	32 (26.7)	7 (14.2)	29 (24.2)
Gender							
Female (47)	16 (34.0)	22 (47.8)	19 (40.4)	27 (57.4)	14 (30.4)	14 (30.4)	15 (32.6)
Male (73)	18 (24.7)	24 (33.3)	17 (23.3)	40 (54.8)	18 (25.0)	3 (4.2)	14 (19.4)
P value	0.265	0.115	0.04	0.775	0.517	<0.001	0.105

Continued.

Socio-	Knowledge component						
Professional class							
Physicians (80)	25 (31.2)	30 (38.5)	27 (33.8)	48 (60)	24 (30.8)	15 (19.2)	18 (23.1)
Nursing staff (27)	6 (22.2)	11 (40.7)	7 (25.9)	14 (51.9)	4 (14.8)	1 (3.7)	9 (33.3)
Others (13)	3 (23.1)	5 (38.5)	2 (15.4)	5 (38.5)	4 (30.8)	1 (7.7)	2 (15.4)
P value	0.604	0.978	0.355	0.312	0.262	0.108	0.406
Age group (in years)							
<35 (42)	8 (19.0)	16 (39)	12 (28.6)	22 (52.4)	9 (22)	5 (12.2)	6 (14.6)
36- 45 (40)	11 (27.5)	15 (37.5)	9 (22.5)	17 (42.5)	10 (25)	5 (12.5)	8 (20)
46-55 (25)	10 (40.0)	10 (40)	9 (36)	17 (68)	8 (32)	6 (24)	11 (44)
>55 (13)	5 (38.5)	5 (41.7)	6 (46.2)	11 (84.6)	5 (41.7)	1 (8.3)	4 (33.3)
P value	0.248	0.994	0.368	0.03	0.526	0.474	0.04
Work experience (in years)							
Less than 5	5 (26.3)	7 (38.9)	3 (15.8)	15 (78.9)	7 (38.9)	3 (16.7)	4 (22.2)
6 to 10	7 (23.3)	14 (46.7)	11(36.7)	12 (40)	4 (13.3)	5 (16.7)	6 (20)
11 to 15	5 (19.2)	8 (30.8)	4 (15.4)	12 (46.2)	7 (26.9)	0	3 (11.5)
More than 15	17 (39.5)	17 (40.5)	17 (39.5)	27 (62.8)	13 (31)	8 (19)	15 (35.7)
P value	0.254	0.684	0.07	0.02	0.213	0.141	0.130

Although the proportion of correct responses among the physicians was higher in almost all the knowledge items, as compared to nursing and other heath staff but this difference was not observed to be statistically significant ($p>0.05$). Similarly, proportion of correct response was higher in female as compared to male however; this was not found to be statistically significant ($p>0.5$) except for knowledge items related to usage of Medline and reference management ($p<0.05$).

DISCUSSION

We have attempted to assess the basic knowledge of medical research among different sections of health care professionals at the primary level. Most of the previous studies have included only a particular section of professionals for instance; primary care physicians, physicians working in hospitals, nurses and health professionals at primary care.[4,12-18]

About one fifth of our study respondents had any previous publication in a scientific journal, which was quite high among primary care physicians as compared to some studies while some have reported still higher publication rate.6,12

The attitude items had the highest proportion of positive response. More than 80% were willing to take part in a research if given opportunity. While in a study from primary health care physicians in military hospital, Riyadh this proportion was 66%.[7] However, similar to our findings, majority of the previous studies conducted across the health professionals have reported overall good attitude towards medical research.[4-7,14-17]

The proportion of correct responses in different knowledge items related to research methodology ranged from 14% (knowledge item related to reference

management software) to 55% (knowledge item related to consent). We didn't find a significant relationship with knowledge and gender, however; some have reported a significant association of gender with knowledge, attitude and practice.[15,18]

Despite the fact that about 40% had attended a research workshop within last five years, this low knowledge might indicate quick de-learning with respect to these domains. Non-involvement with the research activities may be a factor responsible for low knowledge among the study participants. Having good attitude along with low knowledge have also been reported by various other studies.[4-6,15-17]

Interestingly the knowledge items were not found to be statistically significantly different among classes of health professionals, however; it was higher among physicians. Among primary care physicians, a significantly higher level of research participation has been reported among family medicine specialist as compared to general practitioners.[19]

Limitations

As our study was an observational study it had the limitations of such study type. The results of our study were not amenable for generalization as our sample was based on convenient sampling. We have not any scoring system for quantifying the knowledge level which could have been more appropriate for assessing the level of knowledge.

CONCLUSION

While we found that majority of the participants had overall good attitude towards medical research, the knowledge with respect to basic research methods was low. Moreover, knowledge in basic research method is not being affected by their professional classes. The findings of the study can be used for policy making reflecting readiness of the health care staff towards participation in the medical research as well their capability towards effectively using the medical research in the context of evidence based medicine.

ACKNOWLEDGEMENTS

We were thankful to the health care staff who participated in the study.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. U. S. Food and Drug Administration. Fact sheet: Drug recalls. Available at: https://www.fda.gov/drugs/drug-safety-and-availability/drug-recalls. Accessed on 18 October 2021.
2. Gibbs CL, Lowton K. The role of the clinical research nurse. Nursing Standard. 2012;26(27):37-41.
3. Jahan S, Al-Saigul AM. Primary health care research in Saudi Arabia: A quantitative analysis. Int J Health Sci (Qassim). 2017;11(2):9-15.
4. Khalaf AJ, Aljowder AI, Buhamaid MJ, Alansari MF, Jassim GA. Attitudes and barriers towards conducting research amongst primary care physicians in Bahrain: a cross-sectional study. BMC Fam Pract. 2019;20(1):1-5.
5. Jahan S, Al-Saigul AM, Suliman AA. Attitudes to statistics in primary health care physicians, Qassim province. Prim Health Care Res Develop. 2016;17(4):405-14.
6. Jahan S, Henary B. Attitudes of primary health care physician managers toward research: a pre-experimental study. Austral J Prim Health. 2013;19(2):171-6.
7. Al-Abdullateef SH. A survey of the attitude and practice of research among doctors in Riyadh military hospital primary care centers, Saudi Arabia. J Fam Commun Med. 2012;19(1):38.
8. Rosemann T, Szecsenyi J. General practitioners' attitudes towards research in primary care: qualitative results of a cross sectional study. BMC Fam Pract. 2004;5(1):31.
9. Hummers-Pradier E, Scheidt-Nave C, Martin H, Heinemann S, Kochen MM, Himmel W. Simply no time? Barriers to GPs' participation in primary health care research. Fam Pract. 2008;25(2):105-12.
10. Salmon P, Peters S, Rogers A, Gask L, Clifford R, Iredale W, et al. Peering through the barriers in GPs' explanations for declining to participate in research: the role of professional autonomy and the economy of time. Fam Pract. 2007;24(3):269-75.
11. Johnston S, Liddy C, Hogg W, Donskov M, Russell G, Gyorfi-Dyke E. Barriers and facilitators to recruitment of physicians and practices for primary care health services research at one centre. BMC Med Res Methodol. 2010;10(1):109.
12. Omolase CO, Egberongbe AA, Komolafe OO, Olasinde AA, Omolase BO, Adeosun OA. Practice of bio-medical research amongst doctors in Owo. South Afr Fam Pract. 2015;57(2):112-5.
13. Sumi E, Murayama T, Yokode M. A survey of attitudes toward clinical research among physicians at Kyoto University Hospital. BMC Med Educ. 2009;9(1):75.
14. Aksoy HB, Arici MA, Ucku R, Gelal A. Nurses' knowledge, attitudes and opinions towards clinical research: a cross-sectional study in a university hospital. J Basic Clinic Health Sci. 2018;2(2):38-44.
15. AbuRuz ME, Hayeah HA, Al-Dweik G, Al-Akash HY. Knowledge, attitudes, and practice about evidence-based practice: a Jordanian study. Health Sci J. 2017;11(2):1.
16. Darawad MW, Alhussami RNM, Sa'aleek MA, Ateeq RNEA, Samarkandi OA, Al-Anati A. Nursing faculty members' attitudes and perceived barriers toward conducting scientific research: a descriptive study from Saudi Arabia. Int J Caring Sci. 2018;11(2):1192-203.
17. Alqahtani N, Oh KM, Kitsantas P, Rodan M. Nurses' evidence-based practice knowledge, attitudes and implementation: A cross-sectional study. J Clinic Nursing. 2020;29(1-2):274-83.
18. Jahan F, AlMaqbali A, Siddiqui MA, Al Zadjali NM. Attitude and barrier towards research amongst health care professionals working in primary care service of Oman. J Health Educ Res Develop. 2015:1-5.
19. Al-Rossais AA, Sayeed S, Khan MS, Jaber AAB, Al-Qahtani MA, Fardan AB. Previous involvement in research and knowledge regarding basic research methods among doctors working at primary care in central region, Saudi Arabia. Mater Sociomed. 2020;32(4):263-6.

Cite this article as: Al-Rossais AA, Sayeed S, Khan MS, Al-Qahtani MA, Fardan ANB. An assessment of knowledge of basic research methods among primary health care workers in Riyadh region. Int J Community Med Public Health 2021;8:5777-81.