

Research attitudes, barriers, and prior experience: experience from interns working in Jeddah, Saudi Arabia

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ABSTRACT

Objectives: The aim of this study was to explore research productivity and attitudes by Saudi interns. **Materials and Methods:** Interns from two hospitals in Jeddah, Saudi Arabia were invited to participate in an online survey. **Results:** Fifty-seven interns responded to the survey. An accurate response rate is not possible because the invitation email reliably reached only a half of all 400 interns. Fifteen interns (26.3%) presented their research findings at a conference, and seven (12.3%) had managed to publish their findings. The main attractions to research were improving prospects of a successful residency/fellowship match (71.7%) and desire to learn more about the research subject (17%). **Conclusion:** Most interns in our sample expressed interest in being involved in research. The driving forces behind such eagerness, however, remain to be explicitly explored—although the majority of the sampled interns cited improved chances for a successful residency/fellowship match as the main reason.

Key words: Career choice, intern, medical student, research, Saudi Arabia

INTRODUCTION

Previous research has indicated that medical students from developing countries are perhaps “extrinsically” motivated to be involved research.^[1] Unlike intrinsic motivation (i.e., doing something due to its underlying innate pleasure), extrinsic motivation refers to undertaking an activity in order to achieve a reward. The keenness of such medical students being involved in research could be due to a multitude of reasons. These include prospective career anxiety, perceived academic prestige, and an attempt to increase their competitiveness in residency/fellowship matching in the United States.^[2]

Saudi medical student-perceptions toward research have previously been explored in the literature. Overall, medical students in Saudi Arabia exhibit a favorable attitude toward

research during their undergraduate degree.^[3] Significant barriers—including cultural—to formalized research still exist, however.^[4] How these attitudes resemble or differ once Saudi medical students become interns (i.e., first-year doctors) and residents (doctors engaged in specialty-training) remains unknown.

Given the fact that interns are at a stage where career decisions and residency applications need to be made, they are often looking for ways to “improve their CVs” in order to increase their chances. One of the major activities

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to achieve this is undertaking research.^[1] This aspect of the educational experience of interns has not been previously explored in Saudi Arabia. Once identified, interventions may then be instituted to enhance enablers and curtail barriers to research by these junior doctors.

Therefore, the aim of this study was to explore intern involvement in research. This was defined as their research productivity (i.e., evidence of prior publication/conference presentation) as well as prior experience (i.e., participation in study conception and design, data collection and analysis, and result dissemination). Additionally, opinions were sought on perceived attitudes toward, motivators for and barriers to formalized research by medical students and interns in Saudi Arabia.

MATERIALS AND METHODS

An online survey (through Google Documents) was created based on previous surveys available in the literature^[4,5] [see Table 1 for survey questions]. After explaining the purpose of the study, interns working in the city of Jeddah (King Abdulaziz University Hospital and King Fahad Armed Forces Hospital) were invited to participate in the survey anonymously via mass-e-mail through the hospital systems; this was undertaken between May 1, 2016 and December 1, 2016 by one of the authors. Two reminder e-mails were sent

at 3-monthly intervals. This study is part of a multicenter project that met the exemption criteria of the New Zealand Health and Disabilities Ethics Committee [Supplementary Material].

Demographic data were collected. Interns were also asked about details on prior research experience, and current and future career aspirations. Responses to the survey questions were evaluated using a 5-point Likert scale (1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree). To simplify analyses, negative responses (strongly disagree and disagree) were grouped together, and affirmative responses (strongly agree and agree) were grouped together. Descriptive statistics were used to analyze the data.

RESULTS

Sample characteristics

An accurate response rate is not possible because the invitation email is estimated to have reliably reached only a half of all 400 interns. Nevertheless, a total of 56 responded, giving a response rate of 28% (56/200).

The sex distribution was almost equal (female, $n = 29$, 51%), and the median age was 24 years (range 21–30). Almost all surveyed interns were Saudi (96.5%). Intern career

Table 1: Summary of responses to survey questions on research attitudes and barriers as perceived by study participants

Statements	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean (SD)
1 Training in scientific research is essential to undergraduate medical education	1 (1.5%)	1 (2%)	10 (17.5%)	16 (28.1%)	29 (50.9%)	4.2 (0.9)
2 Training in scientific research must be a mandatory component of undergraduate medical education	1 (1.5%)	1 (2%)	12 (21.1%)	19 (33.3%)	24 (42.1%)	4.1 (0.9)
3 Scientific research knowledge and skills are relevant in clinical practice regardless of my future specialty	13 (21.9%)	4 (6.9%)	7 (12.3%)	21 (37%)	12 (21.9%)	3.3 (1.5)
4 I will be involved in scientific research because of an interest in a scientific enquiry	1 (1.8%)	6 (10.7%)	13 (23.2%)	27 (46.4%)	10 (17.9%)	3.7 (0.9)
5 I will be involved in scientific research to facilitate entry to residency/fellowship medical programs	0 (0%)	1 (1.7%)	5 (8.8%)	22 (38.6%)	29 (50.9%)	4.4 (0.7)
6 My adequate possession of research knowledge and skills promote participation in future research activities	2 (3.5%)	4 (7%)	14 (24.6%)	26 (45.6%)	11 (19.3%)	3.7 (1.0)
7 I will participate in scientific research activities throughout my medical career	1 (1.5%)	1 (2%)	11 (19.3%)	25 (43.9%)	19 (33.3%)	4.1 (0.9)
8 I have no interest at all in scientific research	17 (29.8%)	21 (36.8%)	10 (17.5%)	6 (10.6%)	3 (5.3%)	2.3 (1.2)
9 It is hopeless to combine a successful research career in labs with an enjoyable social and family life	4 (7%)	15 (26.3%)	26 (45.6%)	10 (17.5%)	2 (3.6%)	2.8 (0.9)
10 I personally prefer to take care of patients more than to do research	2 (3.5%)	8 (14%)	18 (31.6%)	18 (31.6%)	11 (19.3%)	3.5 (1.1)
11 There exist sex-based institutional barriers (minimal funding, smaller laboratory space, low salary, etc.)	0 (0%)	1 (1.8%)	30 (53.6%)	24 (41.4%)	2 (3.5%)	3.5 (0.6)
12 There is no adequate encouragement to become a "physician-scientist" in the future	1 (1.8%)	10 (16.1%)	14 (25%)	27 (48.2%)	5 (8.9%)	3.4 (0.9)
13 There are no very successful and well-known "physician-scientist" role models in Saudi Arabia	5 (8.8%)	8 (14%)	12 (21.9%)	19 (33.3%)	8 (14%)	3.6 (1.0)

SD = standard deviation

Statements are based on previous published literature.^[4,5]

aspirations were distributed among medical, surgical, and community specialties [Figure 1].

Prior research experience

Of the surveyed sample, 42 interns (73.6%) had prior research experience—although the majority of which (57.1%) did not result in presentations or publications. Fifteen interns presented their research findings at a local or international conference (almost divided equally between oral and poster presentations).

Seven interns had managed to publish their findings (total $n = 10$). These were in the form of local audits ($n = 6$) and case reports ($n = 4$). The involved interns were the first authors in six publications, second in two and not listed as authors in two.

Attitudes toward and barriers to research

A total of 40 interns expressed interest in formalized research projects. The ideal duration of research was a “few months” (e.g., to complete a summer studentship) for 62.5% of the interns, “1 year” (e.g., to complete an honors degree) for 30%, and “2 or more years” (e.g., to complete a PhD) for 7.5%.

The main attractions to research, in descending order, were improving prospects of a successful residency/fellowship match (71.7%), desire to learn more about the research subject (17%), general interest in research (9.4%), and advice from mentor/tutor (1.9%). Participant responses to survey questions are summarized in Table 1.

DISCUSSION

This is the first study to investigate research perception and productivity by interns from Saudi Arabia. The

majority of the interns had prior research experience—albeit unclear whether curricular or extracurricular. Likewise, the majority of interns also expressed interest in formalized research projects of varying durations. As previously speculated in the literature, the main attraction was improving the odds of successfully matching in residency/fellowship programs.^[2]

Research output (15 presentations and 10 publications) is comparatively high in relation to other international studies. For example, we previously investigated research productivity in interns from New Zealand and found the rate to be substantially smaller.^[6] Although two interns commented that they were involved in research projects but not included as authors, it is difficult to ascertain whether they fulfilled authorship criteria. Notwithstanding, concerns have previously been raised in relation to the inclusion of senior faculty and heads of departments as “honorary authors” to the dismissal of junior researchers.^[7] It remains difficult, however, to extrapolate the extent of such problem in Saudi Arabia from our present study.

Career specialty choices were varied, which lends some reassurances in representing a wide range of interns with different interests and career aspirations. An encouraging number of interns indicated their interest in family medicine—a specialty that continues to suffer from shortages in Saudi Arabia.^[8]

It is sobering to see the majority of interns expressing interest in formalized research projects. Unfortunately, much is left to be desired in relation to research opportunities available to medical students/interns in the Arab world.^[9,10] Perhaps the lack of encouragement and role models and persistent sex-based biases are additional hindrances.^[11]

The main attraction to research as viewed by the majority of Saudi interns was enhancing applications for residency/fellowship positions. This is consistent with previous literature from Pakistan.^[2] Because a sizeable number of medical graduates of such countries as Saudi Arabia undertake postgraduate training in North America and Europe, trying to “strengthen” one’s application is justifiable. Such eagerness ought to be harnessed rather than dismissed in order to foster lasting interest in research and evidence-based practice.^[12]

Several limitations to our study ought to be acknowledged. Recruiting interns to participate was voluntary, and hence, a sampling bias of participating interns with an interest in research cannot be excluded. In addition, the total number of participants

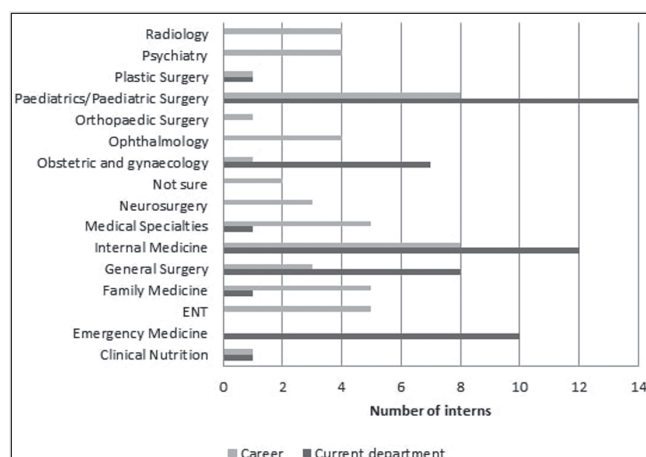


Figure 1: Career aspirations and current place of work of interns included in the study

is small and comes from a single city in Saudi Arabia—both factors limiting the generalizability of our findings. Future studies, addressing these limitations, would include larger samples, as well as provide qualitative responses. This is hoped to generate robust data to bolster research activities by medical students and junior doctors in Saudi Arabia.^[13]

CONCLUSION

Most Saudi interns in our sample expressed interest in being involved in research; some successfully materialized their interest into the form conference presentations and/or publications. The driving forces behind such eagerness, however, remain to be explicitly explored—although the majority of the sampled interns cited improved chances for a successful residency/fellowship match as the main reason. Universities should foster such interest by introducing formalized research opportunities (e.g., research degrees), and policy-makers and nongovernmental organizations should facilitate this by providing scholarships and research bursaries.

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Conflicts of interest

There are no conflicts of interest.

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