

# The Roles of Students and Supervisors in Medical Research Projects: Expectations and Evaluations

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## Abstract

**Background:** As research becomes one of the cornerstones of modern medicine, medical students are playing a greater role in contributing to its production. While such studies help expand their knowledge, the importance of doctoral supervision is important in effective training, empowerment and the facilitation of young scholars in becoming independent researchers. However, the roles of students and supervisors in the creation of a research paper is still a gray zone.

**Methods:** An online, web-based survey was designed and sent out to medical students, residents and professors. Participants were queried about their background, demographics, position in education, and attitudes towards research projects. The goal of the questionnaire was to identify students' expectations from supervisors and attitudes toward research projects, and vice versa. Questions were evaluated on a 5-point scale, with 1 being 'strongly disagree' and 5 being 'strongly agree'

**Results:** Ultimately, 194 participants responded to the questionnaire, of which 82% were medical students. Most students believed that it is the supervisors that should be cited as first authors, and that it was the students' responsibility to ensure that the work done on the research topic is completed by the submission deadline. Contrarily, when taking the supervisors point of view, they believed that it was their responsibility not the students'. In general, the supervisors believed they had a bigger role to play when it came to laying out the research project and ensuring its progression.

**Conclusion:** The perception of the roles of supervisors and students when it comes to producing a research project differ quite significantly. Supervisors believe that they should have much more minute responsibilities involving overall project management, while students believe that the time management of the projects is more of their responsibilities, with supervisors guiding and overseeing the project as a whole.

**Keywords:** STUDENTS, SUPERVISORS, MEDICAL, RESEARCH PROJECTS

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## Introduction

The way medicine is practiced now has changed. What previously was known as "Clinical Judgment" or "The Art of Medicine" has now been replaced by Evidence-Based Medicine (EBM). The term evidence-based was first coined by David M. Eddy in his publication

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in the American College of Medicine titled "A Manual for Assessing Health Practices and Designing Practice Policies" (1). EBM is now defined as the conscientious, explicit, judicious and reasonable use of modern, best evidence in making decisions about the care of individual patients (2). The heart of EBM lies within proper, statistically sound research by which clinicians make their clinical decision upon. As research is becoming more mainstream and one of the cornerstones of modern medical practice, medical students are increasingly

playing a greater role in contributing to the production of a research project, and while such studies help expand their knowledge, the importance of doctoral supervision has a hand in effective training, empowerment, and the facilitation of young scholars in becoming independent researchers (3-6).

On the other side lies one of the other pillars of modern medical practice, Medical Education. The process and methods of teaching have been investigated extensively as much research has found that student's expectations with regards to lectures and the way professors conduct them differ. From what was seen, students tend to prefer professors that throw intellectual challenges at them, have experience, and clearly explain not only the subject, but also how to succeed in learning (7, 8).

However, the process of research differs from the traditional teaching/learning activity. As it depends on the utilization and formulation of research questions and hypotheses, data collection and analysis, reflection and representation. These skills and activities are different and yet necessary to gain new scientific knowledge through finding and the analysis of scientific information (9). By going through this process, it can be assumed that students expect certain levels and types of support from the supervisors, from providing them with the motivation to begin the study, providing useful feedback, and assisting them in the analysis and interpretation of data.

As students are becoming active participants in the process of a medical research project, certain expectations are set by them and their supervisors. This has motivated our research group to analyze and understand the expectations of students and their supervisors with regards to the process of research.

## Methods

### *Survey*

We developed an online, web-based survey which was sent out to medical students, medical residents and professors at Kuwait

University through multiple social media platforms. Participants were queried about their background, demographics, position in education, and attitudes towards research projects. The goal of the questionnaire was to identify students' expectations from supervisors and students' attitudes toward research projects, and vice versa. Questions were evaluated on a 5-point scale, with 1 being 'strongly disagree' and 5 being 'strongly agree'. A sample of the survey can be seen in Appendix. Data were analyzed by content analysis.

## Results

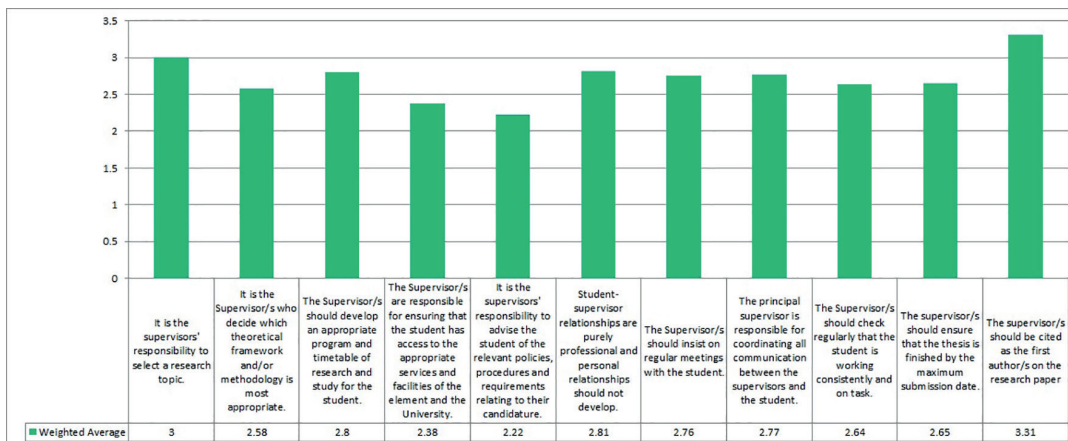
A total of 194 participants responded to the questionnaire. It was seen that 67% of the participants were female, of which 82% were found to be medical students, 3% medical residents, and 16% supervisors. Most students (28%) were in the fifth year of their medical studies, while most supervisors (93%) were from the faculty of medicine (Table 1). Figure 1 illustrates the overall responses to the survey questions, from both the supervisors and students' perspectives. It was commonly believed that the supervisors should be cited as the first authors on the research project, with 25% of the respondents scoring that question as 5; while it was seen that most participants believed that it is not the supervisors' responsibility to advise the student of the relevant policies, procedures and requirements relating to their candidature, with 45% of respondents answering with a score of 1 for that question.

### *Analysis of Results from the Student Point of View*

When it came to analyzing the results from the students' point of view, most students believed that it is the supervisors that should be cited as first authors, with 25% responding with a score of 5 for that question. Furthermore, 14% of the students responded with a score of 5 for the question "The principal supervisor is

**Table 1:** Demographics of Participants

Demographic	Percentage (%) and/or number (n)
Gender (Female)	67.19%
Students %	81.77% (157)
Residents %	2.63% (4)
Supervisors %	16.15% (31)
Students year of study	
1	10.76% (17)
2	14.56% (23)
3	5.06% (8)
4	8.86% (14)
5	27.85% (44)
6	17.72% (28)
7	14.56% (23)
Faculty of Supervisor	
Medicine	93.33% (28)
Allied Health	3.33% (1)
Public Health	3.33% (1)
Department of Supervisor	
Community medicine	4
Internal Medicine	4
Pathology	2
Pharmacy	2
Pediatrics	1
OBGYN	1
Microbiology	1
Anatomy	1
Psychology	2
Biochemistry	1
Surgery	2
Unknown	1



**Figure 1:** The overall response to the survey questions, from both the supervisors and students' perspectives

responsible for coordinating all communication between the supervisors and the student”. On the other hand, most students believed that it is not the supervisors’ responsibility to advise the student of the relevant policies, procedures and requirements relating to their candidature,

with 50% of respondents answering with a score of 1 for that question. Furthermore, 44% of the students responded with a score of 1 for the question “The Supervisor/s are responsible for ensuring that the student has access to the appropriate services and facilities

of the element and the University.” It was also seen that from the student perspective, it was the students’ responsibility to ensure that the work was being done on the research topic and ensuring that it is complete by the maximum submission date (Figure 2).

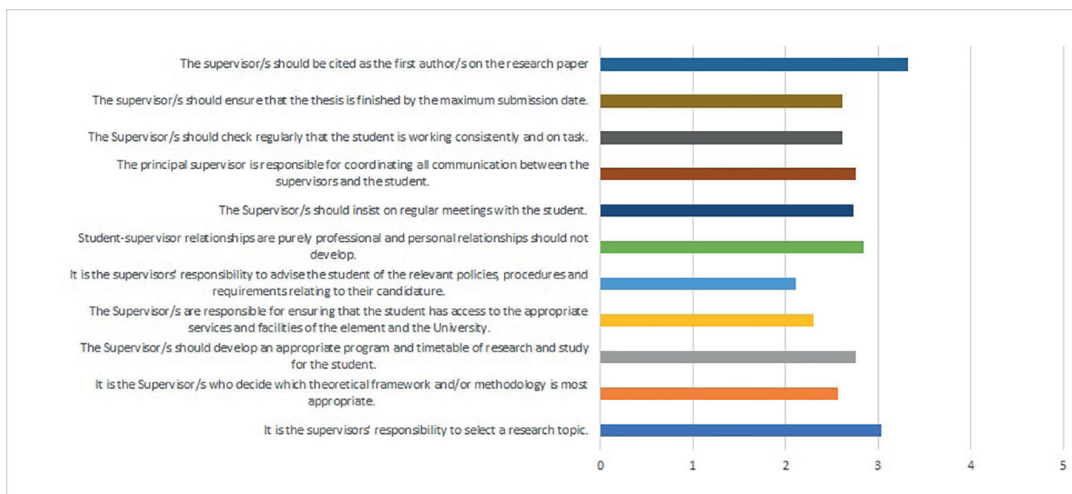
*Analysis of Results from the Supervisors’ Point of View*

Figure 3 illustrates the responses to the questions from the supervisors’ perspective. When comparing these results to those from the students, the supervisors believed that it is more of their responsibility to insist on regular meetings, provide access to appropriate services and facilities, develop an appropriate program and timetable of research and study for the student, check that the students are

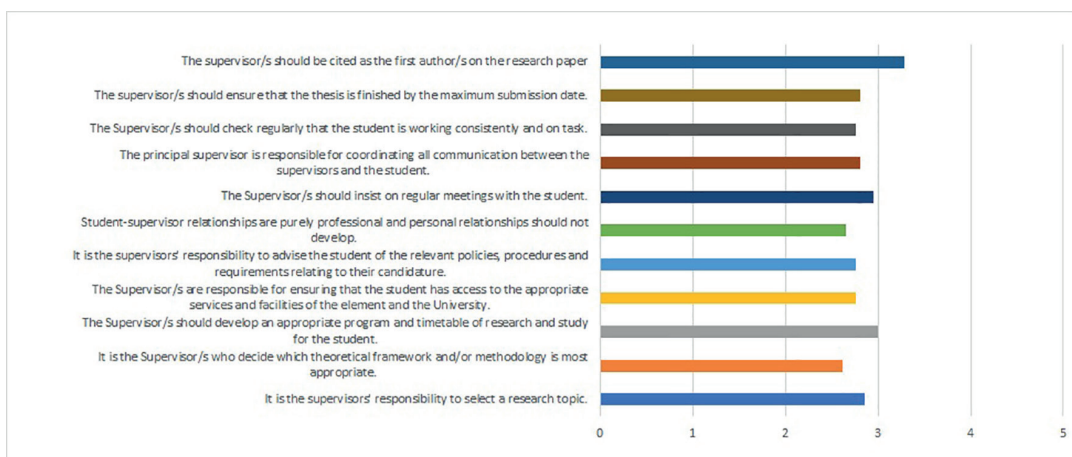
working consistently and are done in due time. On the other hand, students believed more than the supervisors that it was the supervisors responsibility to select a research topic, and the relationship between students and their supervisors should remain more of a professional one.

**Discussion**

The roles of the supervisors and students in research projects have been investigated before, however, most published research does not specify the scientific field of research and mostly just mention the education level (Bachelors, Masters or PHD). Thus, our study, to our knowledge, is the first of its kind that looks at the roles expected from



**Figure 2:** responses to the questions from the students’ perspective



**Figure 3:** responses to the questions from the supervisors’ perspective

supervisors and students when conducting a medical research project. We were able, by using the questionnaire, to identify the points of view of both the supervisor and students who represent the two ends of the research team. The questionnaire displayed some interesting results pertaining to what responsibilities are regarded as being those of supervisors and students from each of their perspectives. When viewed from the student's perspective, it was seen that they believed more than the supervisors that it was the supervisors responsibility to select the research topic, as well as that the student-supervisor relationship should remain strictly professional. They also believed that the other tasks were more of the student's responsibility and not the supervisors. Multiple instruction manuals have been written and published detailing the process of how to perform effective supervision and focus on topics such as practical advice about interviewing, agreeing on the ground rules, introducing the student to new colleagues, project and time management, raising ethical issues and so on (10-12). Almost in all of these manuals the mentor (i.e. the supervisor) is usually described as being a non-judgmental adviser. All of which enforces and highlights the fact that the supervisor's task is more of directing and project management as a whole rather than performing individual small tasks. Moskviceva and colleagues (13) were able to demonstrate in their study that, at the bachelor level, the supervisor is expected to systematically monitor the acquisition of research tools by students and the timely execution of tasks; orienting students to obtaining necessary knowledge and skills. However, for master's level students and especially for graduate students the necessity to control timeliness of the work reduces, but the role of scientific support (including discussion of the theoretical foundations in accordance with the research purpose) increases. Masters and graduate students also need systematic feedback from the supervisor to confirm the correctness and the timely correction of

work. This contradicts the findings of our survey as our questionnaire showed that the supervisors believed more than the medical students (students that are considered to be at the graduate level) that they are responsible for creating a timetable for the research project, monitoring the timely execution of tasks and meeting deadlines.

Interesting data were presented by Wisker (14) as she highlighted and subdivided the supervisors' roles into three stages. Stage one, the starting stage, of the guidance process, proposals would be prepared. At the stage two, supervision maintenance, would be done. Stage three, the final stage, activities such preparing papers, building self-esteem and self confidence in students to answer possible questions and preparing them to enter higher levels of thinking would be performed.

In another study by Wisker and colleagues (15) they argued and discussed that emotional intelligence and flexibility plays a significant role as well as working with students throughout the research period to its successful completion. There is some evidence that poor emotional intelligence coupled with a mismatch in styles (such as when the student is still dependent, but the supervision style is one of 'benign neglect') can lead to, unsurprisingly, poor completion rates.

As in most scientific and non-scientific fields, good communication is a key element in the supervisory task. Discussions between the student and supervisor about the supervision process have been shown to produce a positive impact on the quality of the communication (16-20). In a study conducted by Vilkinas (21) to evaluate the supervision process of PhD students' thesis preparation, it was seen that most supervisors supported their students intellectually, emotionally, and structurally, with some academics considering their students as colleagues. It was stated that watching the students grow, develop and do research with them as colleagues was the most enjoyable aspects of the supervision process. Overall, it has been shown that supervisors

highly appreciate the research potential of students and the degree of its implementation. However, from the previously mentioned study (13), it was seen that there were no significant correlations between supervisors' evaluation of research potential of the students and indicators of students' research abilities. At the same time, positive interrelations were found between the supervisor's evaluation of scientific research potential of a student and the external manifestations of their research activity, such as participation in conferences and the number of publications. This fact points to the gap between the external manifestations of research productivity and real research possibilities of students, which may cause students to fear participation in research projects because of high demands on themselves and low assessment of their own capabilities.

Some limitations were encountered while performing this study. They include the limited access to students from other faculties (other than medicine), most responders were medical students (from the fifth year of their studies, i.e. limited variability among the entire student population) and very few postgraduate residents were involved in the survey, as well as the fact that there was only one medical school in our country, therefore, all the responses were obtained from that one institution, limiting variability.

## Conclusion

The perception of roles of supervisors and students when it comes to producing a research project differ quite significantly. According to our results, supervisors believe that they should have much more minute responsibilities involving overall project management such as setting a timeline and making sure the students are keeping up with the tasks and meeting deadlines, while students believe that the time management of the projects is more of their responsibilities, with supervisors guiding and overseeing the project as a whole.

**Conflict of Interest:** None Declared.

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**Appendix: Sample of the Survey Used**

### Student - Supervisor Roles in Research

**Demographics**

1 Gender  
 Male  
 Female

2 Age?

3 Which faculty are you associated with?  
 Faculty of Medicine  
 Faculty of Pharmacy  
 Faculty of Allied Health  
 Faculty of Public Health  
 Faculty of Dentistry  
 Other (please specify)

4 Are you currently a student? (if no, skip to question 7)  
 Yes  
 No

5 In which year of your studies are you currently?

6 Are you a medical resident? (if not, skip to next page)  
 Yes  
 No

7 Name of University

8 In what faculty does your supervisor work?  
 Faculty of Medicine  
 Faculty of pharmacy  
 Faculty of allied health  
 Faculty of public health  
 Faculty of dentistry

9 In what department does your supervisor work?

**Student - supervisor expectations**

Read each pair of statements on this sheet. Each expresses a standpoint supervisors and students may take. Please estimate your position and mark it on the scale. For example with statement 1, if you believe very strongly that it is the Supervisor's responsibility to select a good topic you would select '1'. If you believe that both the Supervisor and the student should equally be involved you would select '3' and if you think it is definitely the student's responsibility to select a topic, choose '5'.

10 Please rate according to what you believe to be most appropriate

	1	2	3	4	5
It is the supervisor's responsibility to select a research topic.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is the Supervisor's who decide which theoretical framework and/or methodology is most appropriate.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The Supervisor's should develop an appropriate program and timetable of research and study for the student.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The Supervisor's are responsible for ensuring that the student has access to the appropriate services and facilities of the element and the University.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is the supervisor's responsibility to advise the student of the relevant policies, procedures and requirements relating to their candidature.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Student supervisor relationships are purely professional and personal relationships should not develop.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The Supervisor's should insist on regular meetings with the student.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The principal supervisor is responsible for coordinating all communication between the supervisors and the student.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The Supervisor's should check regularly that the student is working conscientiously and on task.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The supervisor's should ensure that the thesis is finished by the maximum submission date.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The supervisor's should be cited as the first author/s on the research paper	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>