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## Study on medical student's attitude towards research activities between University College Cork and Universiti Sains Malaysia

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### Abstract

Research has been integrated as one of the important subjects in medical curriculum. In University College Cork (UCC), it is compulsory to complete a substantive research during final year while in Universiti Sains Malaysia (USM), students are required to complete a community-based project in third year. So far there is no evaluation done to look at their attitude on the activity. Aim of the study is to compare the attitude of medical students on research in UCC and USM. A cross-sectional study using validated questionnaire involving fourth and final year students of both universities was carried out. Questions were primarily closed-ended and consisted of 5 Likert scales. Mann-Whitney test was used to determine statistical differences between the groups. A total of 269 questionnaires were completely returned. The UCC and USM contributed 47.6 % and 52.4 % respectively. Overall 43.3% students of UCC and 47.2% students of USM believe that research would be an aspect of their future care as a physician. Time, availability of research mentors, formal teaching of research methodology and the perception that the student would not receive appropriate acknowledgement for work put towards a research project appear to be barriers for students to become actively involved in research during medical school. Present study shows medical students had good attitudes towards research in both universities. There are some barriers that need to be evaluated to improve the involvement of students in research activities.

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### 1. Introduction

In this modern world, evidence based medicine (EBM) has become an important part of medical decision-making. It is a paradigm shift movement that has helped us to make decisions with our patient systematically. EBM comprises of understanding and use of scientific principles and methods as its component (Sackett *et al*, 1996). In order to establish the importance and practicality of EBM among medical students, formal teaching of EBM has been incorporated as part of the modern undergraduate medical curriculum (Parkes *et al*, 2002). Scholarly activities can be either an elective option or part of the syllabus.

#### 1.1 Research activities in University College Cork (UCC)

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UCC is currently practicing a new integrated medical curriculum and one of the objectives is to expand the research skills of their students and to identify a range of opportunities that will allow them to experience research. This objective is expected to be fulfilled through elective scholarly program or Student Selective components (SSCs) in the early years and core mandatory research modules in the final years. In final year, a senior lecturer is responsible to oversee undergraduate research initiatives and research skills training. It is compulsory for all final year students to complete a substantive research that contributes to 10% of their final year aggregate mark (UCC, School of Medicine).

### *1.2 Research activities in Universiti Sains Malaysia (USM)*

In USM, research methodology subject is taught to the students when they are in year three. Third year students are required to do a community placement project which consists of 4 phases. During these 4 phases, students will identify medical problems in the community, gather information about the selected problem, and implement an intervention. Throughout their 5 years program, students will be exposed to Evidence Based Medicine (EBM) methodology and the implementation of EBM will be enhanced during clinical placements. Furthermore, those who are interested in being actively involved in research can opt to do a research elective in the early stages of medical school (USM Objective book, 2010).

The aim of this study is to compare the experience and attitudes regarding research by medical students in University College Cork and Universiti Sains Malaysia.

## **2. Methodology**

A comparative cross sectional study was carried among fourth and final year medical students of both universities. Sample size was determined by using two means formula and minimum number of samples required was 154 after considering 20% dropout. Participation within these representative classes was completely voluntary and confidentiality was maintained at all times as no identifying information was recorded in the survey results. Questionnaires were distributed between lectures and classes.

### *2.1 Study tool*

The questionnaire consisted of 34 closed-ended questions addressed to report the experience and attitudes of medical students to identify a number of issues: why do students choose to be involved in research; what is the relevance of student research to career aspirations; what are the barriers to successful participation in research; are students adequately exposed to research methodology and critical appraisal? The survey took on average only five to ten minutes to complete. The questionnaire consisted of two parts namely demographic information and questions related to research interest and research barriers. Questionnaire was taken from an established paper with permission from the author (Siemens *et al*, 2010).

### *2.2 Data analysis*

Descriptive statistics were used to describe demographics and research background of students. For ease of reporting, descriptive differences using the agreement responses of 4 and 5 were grouped together, as were disagreement responses of 1 and 2. All other quantitative statistics utilized the full 5-point Likert scale. Bivariate analysis with Mann-Whitney test was used to determine statistical differences between demographic data and research experience between schools. IBM SPSS Statistics 20.0® was used for analysis.

### *2.3 Ethical consideration*

Ethical approval was attained from each institutional review board and explanations for the objectives of the study and assurance of confidentiality was distributed to the students responding to the survey.

### 3. Results

A total of 269 completed questionnaires were collected from both medical schools. The response rates were 43% in UCC and 34% in USM. Students from UCC are slightly older than those from USM. Demographic data and level of past and present research experience for the respondents categorized by medical school are presented in Table 1.

Table1: Comparison of age of respondents and research experience between medical schools

Variables	USM (n = 142)	UCC (n = 127)	P value
Age [mean (SD)]	22.6 (0.85)	23.8 (2.90)	< 0.001*
Never presented research in medical school	55.9	57.5	0.841**
No current involvement in research project	30.3	44.1	0.190**
No research experiences prior to medical school	58.8	66.1	0.663**
Published research paper	7.4	3.9	0.841**

\*Independent t test, \*\* Chi Square test

#### 3.1 Comparison of attitudes regarding research interest for respondents

Almost fifty percent of students in both medical schools agreed that they are involved in research because they believe it will facilitate their admission into a post-graduate training program. Sixty-three percent of respondents from both groups agreed that research would be part of their long-term careers. More than half of the respondents from both universities expected research to be part of their long-term career regardless of their chosen specialties. The majority of medical students were involved in research because they have interest in the field that they involved. Higher numbers of students in USM believe that research should be an important criterion for a post-graduate placement. Meanwhile in USM, about thirty-two percent students ( $p = 0.044$ ) believe they do not have enough time to participate in research and forty-seven percent suggested for a specific time to be provided by the school for them to do research.

Table 2: Comparison of attitudes regarding research interest between medical schools

Variables	Agreement USM (n = 142)	Agreement UCC (n = 127)	P value*
Involved in research facilitate admission to post-graduate program	49.6	48.8	0.674
Research will be a part of long term career goals	63.8	63.0	0.965
Involved in research because interest in the field	61.0	63.0	0.417
No interest in research	16.2	26.7	0.826
Research is not relevant to medical education	13.4	23.6	0.290
Research should be an important criteria for acceptance to post-graduate program	54.2	33.9	<0.001
Mandatory research time should be set in medical school curriculum	47.2	60.7	0.167
Not having enough time to do research	32.4	48.8	0.044
Research will an aspect of future career as physician	53.5	64.6	0.032

\* Mann-Whitney test

#### 3.2 Comparison of attitudes regarding research barriers between medical schools

Twenty-seven percent of respondents from USM and twenty-six percent from UCC felt that the training they received in research methodology was inadequate. A similar percentage reported that there was not enough training in reviewing scientific literature. Interestingly, a higher proportion of USM students perceived that their research mentors were easily available. However, students from both universities have the perception that it is hard for them to publish their research during medical school and not many students felt that an adequate room was set-aside for them in medical school curriculum to pursue their research interest

Table 3: Comparison of attitudes regarding research barriers between medical schools

Variables	Agreement	Agreement	P value*
	USM (n = 142)	UCC (n = 127)	
Adequate time in medical school to pursue research	23.9	28.4	0.013
Adequate training in research methodology in medical school	27.5	26.7	0.008
Adequate training in reviewing scientific literature	24.1	26.0	0.014
Research supervisors are easily available	55.6	42.5	0.008
Research supervisors offer good training and guidance	54.9	37.0	0.008
Hard to present research in medical school	45.0	42.6	0.408
Hard to publish research during medical school	39.4	48.1	0.242
Will receive acknowledgement for contributions to research	48.6	44.1	0.265
Adequate room set aside in the curriculum to pursue research interest	22.5	19.7	<0.001

\* Mann-Whitney test

#### 4. Discussion

There is not much disparity regarding research experience among medical students in UCC and USM. Demographically, students in UCC are a slightly older than USM students. Students in USM are all direct-entry students and thus, there would not be much variance expected between students' age in USM. On the other hand, students in UCC are mixed between direct-entry and graduate entry students. Therefore, age differences between direct-entry and graduate entry would be varies. The majority of students did not have research experience prior to medical school and most of them have not presented any research project during medical school. This is consistent with the number of direct-entry students that representing majority of the students in the class. A research has been done previously showing that students with prior degree or research experience have better attitudes towards research (Siemens *et al*, 2010). On top of that, students who had high attitude toward science will tend to be highly involved in research activities (Pruskil *et al*, 2009) and teaching research methodology in the medical curriculum have shown to significantly increased positive attitude toward research (Vujaklija *et al*, 2010).

There is no disparity between participation and attitudes towards research in both medical schools. Majority have a positive response that research teaching would be beneficial to their education in medical school. This is in keeping with their response regarding the role of research in their future career, sixty-three percent of respondents admitted that research will be part of their future career. It is interesting to note that this study also underscores the variable experience and attitudes towards research during medical school. Twenty- seven percent students in UCC and sixteen-percent in USM reported they have no interest in research during medical school. In addition, a small portion of students admitted that they do not believe research will be part of their future career as physician. The percentage of students that have no interest in research and do not believe research will be beneficial is undeniably quite significant. These conditions could be improved if we make research project as a mandatory in medical school's curriculum as reported by many previous studies (Houlden *et al*, 2004, Hren *et al*, 2004, Pruskil *et al*, 2009). The majority of students agreed that the main reason for participation in research during medical school was to facilitate their admission to the post-graduate program of their choice. Similar pattern of finding was reported by Siemens *et al*, when they conducted a study among medical students in Ontario medical school. Forty three percent of the respondents agree that the main reason for participation in research during medical school was to facilitate acceptance into a residency of choice (Siemens *et al*, 2010).

There are a number of barriers which could discourage medical students to proceed with research activities. Time was seen to be a significant barrier to pursue research interest with only twenty-three and twenty-eight percent respondents in USM and UCC respectively felt there was adequate time in medical school for them to pursue research. Time factor also play major role as barriers for medical students to conduct the research activities in other previous studies (Siemens *et al*, 2010, Amin *et al*, 2012). A proper time slot in the curriculum has been suggested to overcome this problem. Only twenty-seven percent respondents in both schools agreed that there was adequate training in research methodology in medical school. Lack on research methodology lesson could affect the interest of medical students to continue the research (Hren *et al*, 2004). When comparing both medical schools, it is

captivating to observe that higher number of students in UCC felt that it was hard for them to find research mentor to pursue research interest. Furthermore, only thirty-seven percent students in UCC believed their supervisor offered them good training and guidance. In USM, fifty-five percent respondents felt that it was easy for them to find research supervisor and subsequently the opportunity for research. Following that statement, the same percentage responded that their supervisor offered them good training and guidance in research methodology. This is more likely due to the nature of research teaching curriculum particularly in UCC whereby students are required to find supervisor on their own initiatives. In USM, students are assigned to the community placement and the research is done in group which may contribute to this result.

There are several limitations to this study that need to be considered. First, the results are derived from a self-report survey and independent verification of data was not possible. Secondly, the response rate was relatively low from both universities and the results might not be a true representative of entire study population. Finally, survey was distributed to all students in UCC regardless whether they are direct-entry or graduate entry. Students in USM are totally direct-entry and there would be bias when comparing both schools. However, total numbers of graduate-entry students involved in this study in UCC were very small and did not really affect the result of the study.

## 5. Conclusion

There were no significant differences regarding attitudes towards research in medical school between University College Cork and Universiti Sains Malaysia. There was a positive perception among students in both schools regarding their participation in research and the role of research in their future career. Time, training and present of supervisor seems to be the barriers of pursuing research interest in medical school.

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