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Assessing the Preparedness of Foundation Year in Equipping Umm Al-Qura University Medical Students to Study the Newly Introduced Curriculum for Bachelor of Medicine and Bachelor of Surgery: A Student Perspective

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ABSTRACT

Background: *The preparatory year in medical school is meant to prime students to the challenges of studying the Bachelor of Medicine and Bachelor of Surgery (MBBS) program. In 2016, a huge change in the Umm Al-Qura University (UQU) medical school program was introduced with a new MBBS curriculum.* ***Aim:*** *The efficacy of the foundation year program to equip students to study the newly introduced MBBS curriculum has not yet been assessed. As such, the current study aims to assess the effectiveness and quality of the UQU foundation year program.* ***Materials and Methods:*** *This study used a cross-sectional design, targeting medical students of the new MBBS curriculum of MEDUQU, Makkah, Kingdom of Saudi Arabia (KSA), who have passed their first year of medical school. The study involved a structured questionnaire that was distributed among students using different platforms on social media.* ***Results:*** *A total of 572 students (age, 21.9 ± 3.5 years) completed the questionnaire. Most of the participants were women (52.1%). Most students reported that teaching and learning styles in the foundation year were completely different from the first year in medical school (74.3%). More than half of the students reported that the assessment of the foundation year was focused on memorization (57.7%) rather than learning. Considering content-related strategies, the highest reported agreement by the students was for a large amount of content (49.8%).* ***Conclusion:*** *An improvement in the education quality of the foundation year is needed, as students were least satisfied with college activities, tutors' preparedness, and teaching experiences.*

Keywords: Academic preparation, Foundation year, Medical students, Teaching styles, Updated MBBS curriculum, Umm Al-Qura University

INTRODUCTION

The foundation (preparatory) year of Umm Al-Qura University (UQU) is meant to prepare students for the challenges they will face during their subsequent years in medical college. It aims to help them integrate into the university environment and cope with the great shift from one stage of their education to another. The medical foundation year of UQU consists of two semesters, where the students are taught general and medical English language, and basic sciences of medical physics, biochemistry, human genetics, cell physiology, learning skills, and computer skills [1,2]. After the students successfully pass the foundation year, approximately 240 students will be assigned to the College of Medicine to begin their first year.

The first year of medical school is regarded as one of the most challenging and stressful among all the years of medical school; according to various studies, stress levels were highest in the first year and gradually decreased as the year progressed [3-5]. The Bachelor of Medicine and Surgery (MBBS) curriculum at UQU was updated in 2016,

owing to which first-year medical students likely encounter additional obstacles [6]. The MBBS is a six-year annual program that was revised by Umm Al-Qura University Medical College (UQUMED). The program consists of three phases: a) Phase I: The Foundation (Preparatory) (Year one); b) Phase II: The integrated clinical sciences and practice (Year two-six); c) Phase III: The internship (Year seven). The curriculum developed by UQUMED encompasses both horizontal and vertical modules within a five-year learning program. Each year of this program consists of several multidisciplinary horizontal modules that are delivered collaboratively by multiple academic departments, within the Faculty of Medicine. In addition, eight vertical modules run along with the five-year program, from year two to year six [6].

Despite the groundwork that the preparatory year provides, students at the College of Medicine still suffer from stress and other psychological problems as well as learning difficulties during their years at college [7,8]. Knowledge about the effectiveness and efficiency of the preparatory year to equip students, particularly after the introduction of the new MBBS curriculum, is still lacking. This imbalance needs to be understood and addressed to enhance student success. Consequently, the current study was conducted to fill the gap and assess the effectiveness and quality of the UQU foundation year program in preparing medical students for the newly introduced MBBS curriculum.

METHODS

The present study used a cross-sectional design, targeting medical students of the new MBBS curriculum of MEDUQU, Makkah, Kingdom of Saudi Arabia (KSA), who had passed their first year of medical school between the years 2016 and 2019. Students who had studied at another university before coming to UQU were excluded. A self-administered online questionnaire was used to collect data between August and September of 2020. The authors uploaded the questionnaire of the study to different platforms of social media. All students who met the criteria were invited to complete the online questionnaire. The required sample size for this study was calculated using OpenEpi version 3.0, considering the following: the population size of medical students in UQU is about 1,300 students, keeping the Confidence Interval (CI) level at 95%, and considering the anticipated percentage of frequency as 50% and taking design effect as 1 [9]. The sample size was 297 participants. In case of possible data loss, the total sample size required was 340 participants. However, the final collected data included 572 students. The questionnaire was inspired and created for this study based on an extensive literature review of a previously published study [10]. The questionnaire used in the present study included four sections. The first section inquired about participants' socio-demographic characteristics, including gender, age, and academic year. The second section, which had seven items, examined students' opinions about the teaching strategies of the foundation year. The third section, which included four items, focused on assessing the gaps in the foundation year through students' opinions of the assessment methods used in the year. The fourth (last) section examined the students' point of view about the content provided in the foundation year using two items to explore the sources and amount of knowledge provided through the year. All items in sections two, three, and four were assessed using a Likert scale of three options (Agree, Neutral, and Disagree). The validity and reliability of the questionnaire were assessed.

Raw data were collected, cleaned, and coded using Microsoft Excel. It was then transferred to the Statistical Package for Social Sciences (SPSS) for Mac, version 22 (IBMCorp, Armonk, NY, USA). All information was reported as descriptive statistics using frequencies and percentages. In addition, all statistical analyses were performed using two-tailed tests. Statistical significance was set at $p<0.05$.

RESULTS

The present study recruited a total of 572 medical students who participated in the study through a questionnaire. Female students accounted for 52.1% of this number. The students' ages ranged from 18 to 25 years, with a mean age of 21.9 ± 3.5 years. The highest number of participating students were from batch 2019, who had successfully passed their first year in medical school (206, 36%), followed by batch 2017 (168, 24.7%), while the lowest number of participating students were from batch 2016 (57, 10%) (Table 1).

Table 1 General information and characteristics of undergraduate medical students

Personal characteristics		No	%
Gender	Male	274	47.9%
	Female	298	52.1%
Age in years	18-21 years	326	57.0%
	22-23 years	223	39.0%
	24-25 years	23	4.0%
Academic year	Batch 2019	206	36.0%
	Batch 2018	141	24.7%
	Batch 2017	168	29.4%
	Batch 2016	57	10.0%

Table 2 shows college-related gaps regarding teaching strategies in the foundation year. The highest agreement regarding strategies was for, "Teaching and learning style in the foundation year is completely different from the first year in MBBS program at medical school" (74.3%), followed by "Teaching of English language at the foundation year is relevant for MBBS" (47.4%), "Subjects taught at the foundation year are relevant to the study of medicine" (39.7%) and "Teaching done according to the learning outcomes" (32.9%). As for assessment strategies (Table 3), the highest agreement was for "Assessment methods in the foundation year focused on memorization" (57.7%) followed by "Inappropriate marks distribution" (38.3%) and "Assessment of courses reflects learning outcomes" (29.2%). Considering content-related strategies, the highest reported agreement by the students was for, "A large amount of content (subjects are too heavy)" (49.8%) and "Lack of information resources and availability of study materials" (32.7%) (Figure 1).

Table 2 College-related gaps in foundation year in the domain of "teaching strategies" among undergraduate students in Makkah, Saudi Arabia

S. No.	Items	Disagree	Neutral	Agree
1	Activities of the foundation year give me satisfaction as pre-requisites for the following years of the MBBS	28.0%	54.2%	17.8%
2	Tutors are well prepared for their activities	18.7%	57.9%	23.4%
3	Subjects taught at the foundation year are relevant to the study of medicine	20.6%	39.7%	39.7%
4	Teaching experience of the foundation year prepares me well for MBBS	34.1%	42.0%	24.0%
5	The teaching of the English language at the foundation year is relevant for MBBS	15.9%	36.7%	47.4%
6	Teaching done according to the learning outcomes	10.5%	56.6%	32.9%
7	Teaching and learning style (strategies) in the foundation year is completely different from the first year in the MBBS program at medical school	3.8%	21.9%	74.3%

Table 3 Medical students' perception of the assessment methods in the foundation year

S. No	Items	Disagree %	Neutral %	Agree %
1	Assessment methods in the foundation year focus on higher-order thinking (analysis and synthesis)	25.0%	50.5%	24.5%
2	Assessment methods in the foundation year focus on memorization	5.6%	36.7%	57.7%
3	Assessment of courses reflects learning outcomes	12.6%	58.2%	29.2%
4	Inappropriate marks distribution	17.8%	43.9%	38.3%

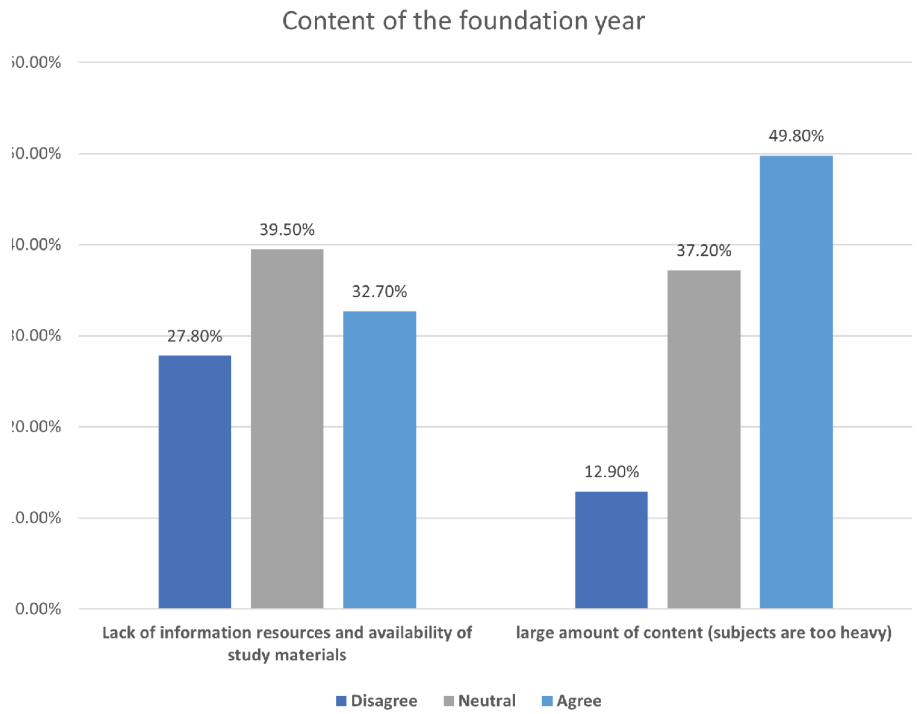

Figure 1 Medical students' perception of the knowledge content provided in the foundation year

DISCUSSION

In this study, we evaluated college-related gaps in the foundation year. Interestingly, most of the students agreed that the teaching and learning styles in the foundation year were completely different from those in the first year of the MBBS program.

Regarding teaching strategies in the foundation year, a high percentage of the students were satisfied with the English language and subjects, as they had prepared them well for the study of medicine. On the other hand, they were least satisfied by activities, tutors' preparedness, and teaching experience. As for assessment methods, most of the students felt that it did not focus on higher-order thinking analysis, and focused only on memorization. This is consistent with a study conducted at the University of Bisha College of Medicine, Saudi Arabia, where most of the students agreed that the English language prepared them for the next year (mean=2.21). Similar to the present study, students were least satisfied with teaching experience, activities, and subjects (with mean=1.56, 1.58, 1.83 respectively). The students also felt that the methods of assessments used did not focus on higher-order thinking analysis. This finding agrees with the Al-Shahrani study conducted at the University of Bisha College of Medicine [10]. The current study may have limitations about its design. Considering medical students were the sole reporters for all research variables and a self-report survey was the only instrument utilized for data collection, a shared-method bias is possible. Nevertheless, the present study is the first to assess the preparedness of the foundation year to equip UQU medical students to study the newly introduced MBBS curriculum.

CONCLUSION

The findings of the current study and others, suggest the importance of improving education quality. Universities need to put in more effort to improve the foundation year curriculum, to fill the gap between high school studies and medical programs. Students face many challenges during this transition and educational institutions must create the best environment to reduce the impact of these challenges. Moreover, an improvement in the educational quality of the foundation year is needed, as students were least satisfied with college activities, tutors' preparedness, and teaching experiences. The development of "learning skills courses" might be necessary, to address the needs of students and to prepare them to cope with the new environment and challenges.

DECLARATIONS

Ethical Considerations

The current study received ethical approval (HAPO-02-K-012-2020-08-430) from the Biomedical Ethics Committee at the Faculty of Medicine, Umm Al-Qura University (UQU), Makkah, Saudi Arabia. Electronic informed consent was obtained from each participant before answering the questionnaire. Participant privacy was ensured and names or phone numbers were not requested from any participant.

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Conflicts of Interest

The authors declared no potential conflicts of interest concerning the research, authorship, and/or publication of this article.

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Data Availability Statement

All data related to the article are available upon request.

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