

ORIGINAL ARTICLE

Student's Experience, Satisfaction and Barriers of Hybrid Undergraduate Obstetrics & Gynaecology Teaching During Covid-19 Pandemic

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ABSTRACT

Introduction: Hybrid teaching method has been implemented in majority of medical schools to adapt with the Covid pandemic era. With this integrated method, we aim to determine the student's experience, satisfaction and barriers of hybrid undergraduate teaching in obstetrics & gynaecology posting. **Methods:** A cross sectional study was conducted among medical students undergoing hybrid teaching during obstetrics & gynaecology posting in the year of 2020 and 2021. Participants were 112 fourth and fifth year medical students whom were affected by the pandemic. On-line questionnaires through Google forms were distributed to all eligible students. The questionnaire consists of four sections: socio-demographic, experience, satisfaction and barriers. **Results:** The response rate was 75%. Majority (90.2%) of the respondents were satisfied with the hybrid teaching. Among the barriers that sometimes encountered by our students were inability to adjust learning style, lack of technical skills, mental health difficulties, emotional difficulties, unreliable internet access and an unconducive study environment. Among all the demographic data studied, only ethnicity showed a significant association with the satisfaction of the students. **Conclusion:** Our study found that majority of students were satisfied with hybrid teaching with minimal barriers experienced. Hence its practice can be continued as it can be utilised at any time as compared to traditional teaching.

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INTRODUCTION

The Covid-19 pandemic has affected the education and learning process throughout the world including Malaysia. The higher education sector was disrupted since March 2020 when Malaysia was locked down and students were suspended from entering faculty and training areas. Where most disciplines were able to be replaced with full online teaching, the majority of medical undergraduate teaching undergoing clinical training was put on hold as students were not allowed to enter hospitals and other clinical areas. This is to ensure the safety of students, educators and patients.

In normal circumstances, year 4 medical students in Universiti Putra Malaysia will undergo the Introductory

Obstetrics & Gynaecology (O&G) posting where it involves 9 weeks of experiential learning in clinical settings. Meanwhile, the Senior O&G posting is a 5-week posting in year 5, aims for students to gain experience in a more advanced procedural skills. Experiential learning is a process whereby knowledge is formed and gained through the transformation of experience (1). The traditional way of teaching undergraduate medical students is by involvement in the clinical team, clerking patients, performing procedural skills, planning and execution of planned investigation and management in the labour suite, clinics and operation theatre. Students are required to attach to the doctors in allocated areas, observe and assist in clinical procedures and are expected to apply their medical knowledge into clinical practice. Students would also participate in face-to-face (FTF) tutorials and workshops in the clinical skills lab.

As the lock-down period continues indefinitely, clinical educators must adopt online learning to sustain medical education. Online learning is defined as the use of

electronic technology or media to provide support and enhance both learning and teaching, involves communication between learners and educators by utilising online content (2). Traditional educators have doubted the quality of online teaching. However, with the current pandemic state, as the students are not allowed to enter the clinical area, the role of online teaching is of utmost importance. It was incorporated into FTF teaching when the students are allowed to enter faculty or clinical areas in minimum hours to achieve the learning outcomes outlined in the curriculum. Thus, the hybrid teaching method was formulated within our department to ensure continuity of learning among our students.

Our university in general, and our department specifically has adopted hybrid teaching where credit hours were amended according to the MMC (Malaysian Medical Council) guideline (3). Steps were taken to ensure the learning outcomes can be achieved similar to full FTF teaching. Lectures and case discussions were conducted via google meet or zoom. History taking sessions were conducted using both real and simulated patients via online sessions. With this method, it allowed observed clerking, hence indirectly this permitted improvement in feedback sessions. We utilised video resources to demonstrate examination technique. This has been adapted even before the pandemic began in most medical schools (4,5). To enhance this teaching method, the students were required to prepare their own video demonstrating the obstetrics and pelvic examination technique and clinical skills such as conducting vaginal delivery. This was either done using a teddy bear or using a mannequin in our clinical skills lab. Demonstration of procedural skills, communication skills and teamwork were also assessed using video sessions followed by online interaction between educators and students.

With the changes in our teaching delivery method, we conducted this study to determine the student's experience, satisfaction and barriers of hybrid undergraduate teaching in obstetrics & gynaecology posting during the COVID-19 pandemic era. We hope to improve the delivery of hybrid teaching and hope it can be used as a parameter for other medical schools in the future.

MATERIALS AND METHODS

Study Design

The study received institutional ethical approval from the Ethics Committee for Research Involving Human Subjects (JKEUPM-2021-691). A cross sectional study was conducted among all fourth and fifth year medical students of Universiti Putra Malaysia in Serdang, Selangor, undergoing hybrid teaching during obstetrics & gynaecology posting in the year 2020 and 2021. Students unwilling to give consent were excluded. Convenient sampling method was utilised. The ideal

sample size calculated was 108 students, taking the total eligible students as 149 and 10% as dropout rate. Online questionnaires through Google forms was distributed via email between 15th January 2022 till 31st January 2022 to 149 eligible students.

Data collection procedure

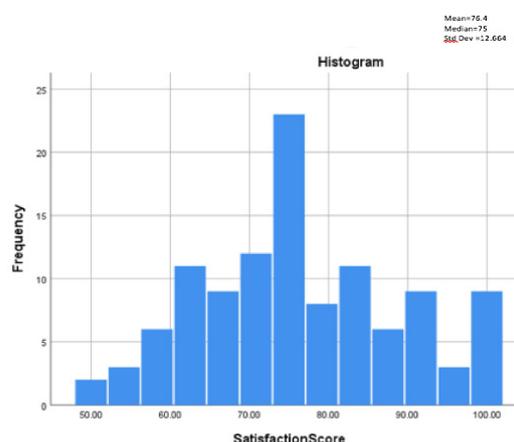
The questionnaire consists of four sections: socio-demographic, experience, satisfaction and barriers. The questionnaire was adapted from the study by Baticulon et. al and Zalut et.al (6,7). Permission was obtained from the authors to adapt their questionnaires. A 4-point Likert scale was used to measure satisfaction (very satisfied, satisfied, dissatisfied, very dissatisfied) and barrier (never, sometimes, often, always). Online consent form was filled by the respondents prior to answering the online questionnaire.

Evaluation of validity

Content validation was done by expert panels consisting of the university academicians and face validity was carried out among 10 medical students prior to the distribution of the questionnaire. The obtained data was collected, tabulated and results analysed using Statistical Package for Social Sciences (SPSS), version 26.0. Descriptive analysis presented as frequency (n) and percentage (%) for all the variables. Kolmogorov-Smirnov and Shapiro-Wilk tests were used to test the normality of data. Associations between the independent variables (socio-demographic factors) and dependent variables (satisfaction and barrier) were measured and a P-value of less than 0.05 was considered a significant level.

Measures of satisfaction and barriers

A scoring system was used to assess students' satisfaction using a 4-point scale (1 = "very dissatisfied", 2 = "dissatisfied", 3 = "satisfied", 4 = "very satisfied"). The total score <60% is considered an unsatisfactory agreement level; while a score of 60% and more is considered a satisfactory agreement level (6). For the list of barriers to hybrid learning, we computed the frequencies and percentages of responses.



Graph 1: Satisfaction score of respondents

RESULT

Table I: Sociodemographic Characteristics of Respondents

Characteristics	Frequency, n	Percentage (%)
Age		
23	70	62.5
24	34	30.4
25	8	7.11
Year of study		
4	94	83.9
5	18	16.1
Marital Status		
Single	1	0.9
Married	111	99.1
Choice of Pursuing Medicine		
Own Choice	80	71.4
Parent Choice	4	3.6
Both	28	25.0
Previous Secondary School		
Boarding School	27	24.1
Day School	85	75.9
Has experience repeat year of study?		
Yes	20	17.9
No	92	82.1
Monthly Household Income		
<RM4849 (B40)	51	45.5
RM4850-RM10959 (M40)	44	39.3
>RM10959 (T20)	17	15.2
Any medical illness?		
No	101	90.2
Yes	11	9.8

Respondents Demographics

Table I summarises the respondents' socio-demographic data. A total of 112 out of 149 eligible students (75%) participated in this study. Majority aged 23 years old (68%) and were in the fourth year (83.9%) of study. 51.8% were Malay, followed by Chinese (29.5%) and Indian (18.8%).

Nearly one fifth (17.9%) of the respondents are repeat year students. Majority chose to study medicine due to their own choice (70.5%). Most of the respondents came from B40 group (45.5%), followed by M40 (39.3%) and T20 (15.2%) as shown in Table I.

Majority of them (75.9%) were previously from day school as compared to only 24.1% of respondents who went to boarding school. Among the 112 respondents, only 1 was married while others were single.

Experience

During the lockdown period, the majority (65.2%) of the respondents access their online class from their home. Only 27.7% of respondents stayed in the hostel during this period due to logistic reasons. The rest of the respondents access from both their home and hostel. Up to 92% of respondents own a personal computer or laptop with 61.6% own a smartphone and use it to access the online class. Table II summarises the experience of respondents.

	Strongly disagree n(%)	Disagree n(%)	Neutral n(%)	Agree n(%)	Strongly Agree n(%)	Mean	SD.	Median
Generally, I am able to engage in my online classes similar to the face to face classes	10(8.9)	30(26.8)	41(36.6)	24(21.4)	7(6.3)	2.89	1.043	3.00
My online experience has increased my opportunity to access and use information on my own	2(1.8)	14(12.5)	44(39.3)	36(32.1)	16(14.3)	3.45	0.948	3.00
I have more opportunities to reflect on what I have learned during online classes	9(8.0)	26(23.2)	34(30.4)	30(26.8)	13(11.6)	3.11	1.134	3.00
I am more likely to ask questions in an online class	18(16.1)	36(32.1)	30(26.8)	16(14.3)	12(10.7)	2.71	1.211	3.00
I can manage my own learning better with the hybrid teaching	7(6.3)	28(25.0)	38(33.9)	28(25.0)	11(9.8)	3.07	1.071	3.00
I felt that online teaching was adequate to equip me with the knowledge before entering face-to-face teaching	14(12.5)	32(28.6)	36(32.1)	19(17.0)	11(9.8)	2.83	1.154	3.00

Table II: Experience of Respondents

Satisfaction

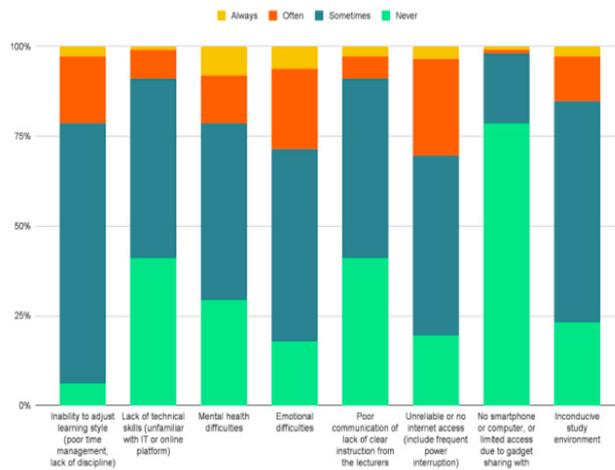
Based on table IV the majority (90.2%) of the respondents were satisfied with the hybrid teaching as they scored more than 60%. Overall respondents were satisfied with the clinical posting, the content of the posting and the interaction they had with the lecturers with median score of 75%. However, for interaction with other students and participation during online class, the mean score was lower compared to other areas (2.79 and 2.75 respectively). Table III summarises the satisfaction component.

Table III: Satisfaction of respondents

	Very Dissatisfied n(%)	Dissatisfied n(%)	Satisfied n(%)	Very Satisfied n(%)	Mean	S.D.	Median
Overall, how satisfied or dissatisfied were you with the posting?	1(0.9)	18(16.1)	62(55.4)	31(27.7)	3.1	0.684	3.00
How satisfied or dissatisfied were you with the content of the posting?	1(0.9)	4(3.6)	60(53.6)	47(42)	3.37	0.600	3.00
How satisfied or dissatisfied were you with the online interaction you had with the lecturer during online class?	1(0.9)	23(20.5)	54(48.2)	34(30.4)	3.08	0.737	3.00
How satisfied or dissatisfied were you with the amount of online interaction you had with other students during online class?	8(7.1)	34(30.4)	44(39.3)	26(23.2)	2.79	0.885	3.00
I participate actively during the online class	3(2.7)	40(35.7)	51(45.5)	18(16.1)	2.75	0.753	3.00
I participate actively during the face-to-face teaching	0(0)	9(8)	64(57.1)	39(34.8)	3.27	0.600	3.00

Table IV: Satisfaction Score

Satisfaction Score	Frequency	Percentage
Below 60 %	11	9.8
Above 60 %	101	90.2



Graph 2: Barrier Component

Barrier

This current study found all the barriers tested were mostly sometimes faced by our students. Among the barriers mentioned were inability to adjust learning style, lack of technical skills, mental health difficulties, emotional difficulties, unreliable internet access and an unconducive study environment. Graph 2 summarises the score for barrier component.

Table V: Association between socio-demographic factors and satisfaction

Socio-demographic factors	N	Mean Rank	Kruskal-Wallis Test		Mann-Whitney U Test	
			P	Z Score	P	
Age			0.467	-	-	
23	70	53.76				
24	34	60.07				
25	8	65.31				
Ethnicity			0.004	-	-	
Malay	58	47.65				
Chinese	33	61.38				
Indian	21	73.29				
Year of Study			-	-1.671	0.095	
Year 4	94	54.27				
Year 5	18	68.14				
Have you ever required to repeat the year of study?			-	-0.631	0.528	
Yes	20	60.63				
No	92	55.60				

CONTINUE

Table V: Association between socio-demographic factors and satisfaction (cont)

Socio-demographic factors	N	Mean Rank	Kruskal-Wallis Test	Mann-Whitney U Test	
			P	Z Score	P
Choice of pursuing medicine			0.590	-	-
Own choice	80	57.18			
Parent choice	4	40.25			
Both	28	56.89			
Previous secondary school			0.370	-	-
Boarding school	27	51.65			
Day school	85	58.04			
Monthly household income			0.794	-	-
<RM4849 (B40)	51	56.95			
RM4850-RM10959 (M40)	44	57.83			
>RM10959 (T20)	17	51.71			
Marital status			0.358	-	-
Married	1	27.00			
Single	111	56.77			
Divorced					
Do you have any medical illness?			-	-1.172	0.241
No	101	55.32			
Yes	11	67.32			

*significant p < 0.05

DISCUSSION

The transition from FTF teaching to hybrid teaching in medical school is a fairly new dimension of education. Advancement is required to adopt the hybrid teaching method in accommodating the pandemic. The data from our study reported the majority of our students do not encounter problems in accessing online class, evidence by majority have access to devices and scored above median score for satisfaction. This was similar to studies done among students in Hawaii (8) and Israel (9) where there was no problem in terms of technology. With the current generation who are more exposed to technology, this correlates to the finding where the majority (85.7%) feel that they have more opportunity to use the information they access on their own. More than 50% of respondents also agreed that they have

more opportunities to reflect on what they have learned during online class and are able to manage their own learning time better. This could be due to more available time spent on their own, where they are able to use it to reflect on what they have learned and search for more information about a topic. This opportunity may be limited when they are attached to clinical areas when most of their learning time will be spent on observing or performing the procedures, thus limited time to reflect or to search for knowledge online. This finding was similar to the study done among medical students and residents of Hawaii medical schools who feel that the alteration provides them more opportunities to read, expand their knowledge and even complete their research projects (8).

Literature suggested there may be several factors in online teaching that will increase student's perceived quality of online teaching. Our current study found that two third of the students were satisfied with the posting and its content despite being delivered via hybrid method. In this posting, briefing from the course coordinator were given during the first session and students were divided into small groups and given a supervisor. The supervisor is responsible to provide feedback to the students for their coursework. Course introduction, timely feedback, consistency in the delivery of information and technical support included in an online education to ensure a quality course may have contributed to this result.

Similar number of students feel that interaction with the lecturers during online classes were satisfying. This could be due to the educator's attitude, motivation, and commitment in delivering the best teaching to the students regardless of the method of delivery. The findings mimicked the study by Deubel in 2003. It was also stressed that social presence, course materials, and technical support were related to online course quality (10). Only about 61% of students agreed that they participate actively during the online class. In contrary, more than 90% of students agreed they participated actively during FTF teaching. The difference could be due to better understanding towards the topic during FTF teaching which may increase the students interest and thus better participation (11). In contrast to online teaching, whereby attention span maybe limited, and may have less understanding towards the topic, the students may be less involved or may not even comprehend what was the topic about.

Not surprisingly, only half of the students agreed that they are more likely to ask questions during an online class. This could be due to several factors such as inability to concentrate during online class, loss of focus due to surrounding distraction, poor understanding of the topic or probably loss of interest due to limited interaction. Similarly, half of the students feel dissatisfied with the amount of online interaction they had with other students. This could be due to limited class duration,

which mainly involved interaction between educators and students, rather than among students. Study by Armon et.al described lack of eye contact during online teaching as one of the challenges encountered by both educators and medical students during online O&G teaching, although other technical difficulties were not identified as major challenges (9). Due to the nature of this clinical posting, there was less interaction among students except during group discussion. With this finding, educators should find a way to allow more interaction between educators and students and among students to engage them with the session.

Study by Baticulon et.al among medical students in Phillipines has shown that among the barriers that preclude online teaching are availability of reliable internet connection, suitable space for studying and difficulty of students in adjusting their learning styles (6). Some students were even distracted by having to perform other responsibilities at home and some feel there was poor instruction or communication by the educators (6). Another study done in a university in Pahang, Malaysia found three significant challenges that influence online learning: unreliable internet coverage, unconducive study environment and poor family support (12). Surprisingly, up to 90% of our students did not have problem in possessing a suitable device to assess their class as having a smartphone has been perceived as an important item in their life (12). Our study however showed that less than 30% of students encountered such problems: technical skills, gadget availability, unreliable internet access and unconducive study environment. This difference could be due to the geographical location whereby our students are either accessing their class from hostel, or they live in an urban area with good internet connection. With the government and university initiatives in ensuring all students have suitable gadget to access their class, the students were likely to feel more responsible towards their study and find a way to avoid distraction during their class.

Older students were found to be more likely to choose online education compared to younger students (13). This could be influenced by the experience, accessibility and responsibility of senior students where they are able to adapt to the online learning environment better than their younger counterparts. Older students were found to give higher ratings in terms of capability in terms of system functionality during blended learning (14). However, our study did not find any difference between older or younger students. This could have been due to the minimal differences in age between the students who participate in this study. There were limited studies looking into the ethnicity and the association with online or blended learning, none of these were performed in Malaysia setting. Our study found a

significant association between different ethnicities and the satisfaction of the students. As majority of our study were Malays, having to clerk a simulated patient fully in English during an observed clerking session could be a barrier to them, thus affecting their satisfaction on online teaching. Compared to FTF session, the students have an opportunity to explain their questions to the patients using the language they are comfortable with.

There was no study looking at whether the choice for pursuing medicine influenced the satisfaction in learning, specifically online or hybrid education. Current study did not find any association between the choice of pursuing medicine with experience or satisfaction of the students. Students who previously attended boarding school were found to have higher motivation, engagement and psychological well-being as compared to day school students (15). Our study showed there was no significant association between students who previously attended boarding school or day school. This could be due to small number of students participated have attended boarding school and may not represent the population.

Household income may affect the capability of students to attend online classes should there be problems in accessing devices and decent internet connection. Being married is another factor that may influence the student experience and satisfaction as online learning may impede their concentration of learning while juggling with home and family environment. Both these factors found no significant association among our students. This could have been due to the small sample size, majority students have no problem with devices or accessing internet and there was only one student who was married.

Limitations

The limitations of the study include its small sample size of students since it involved only current batch whom pioneered the hybrid teaching. A larger sample size should examine the experience, satisfaction and barriers across multiple groups of students and various medical school for more result. As this study only examine O&G hybrid teaching, similar study can also be conducted and compared with other clinical posting who conducted a different way of hybrid teaching method. By doing this, different hybrid approach can be examined and the best way of approach can be adopted in future.

CONCLUSION

Our study indicates that majority of students were satisfied with hybrid teaching with minimal barriers experienced. Hence this method can be continued and further improved by incorporating it with the traditional method.

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REFERENCES

1. Yardley, S., Teunissen, P. W., & Dornan, T. (2012). Experiential learning: AMEE Guide No. 63. *Medical Teacher*, 34(2). <https://doi.org/10.3109/0142159X.2012.650741>
2. Howlett, D., Vincent, T., Gainsborough, N., Fairclough, J., Taylor, N., Cohen, J., & Vincent, R. (2009). Integration of a case-based online module into an undergraduate curriculum: What is involved and is it effective? *E-Learning*, 6(4), 372–384. <https://doi.org/10.2304/elea.2009.6.4.372>
3. Malaysian Medical Council. (21st May 2020). Guideline For Conduct Of Online Examination For Undergraduate Medical Programme During And After Movement Control Order Due To Covid-19 Pandemic. https://mmc.gov.my/wp-content/uploads/2021/02/MMC_GUIDELINE-FOR-CONDUCT-OF-ONLINE-EXAMINATION-FOR-UNDERGRADUATE-MEDICAL-PROGRAMME-DURING-AND-AFTER-MCO.pdf
4. Brown, K., Orr, K., & Moffat, M. (2020). Covid-19 online pivot of an undergraduate obstetrics and gynaecology curriculum: Example from Dundee MBChB. *MedEdPublish*, 9(1), 220. <https://doi.org/10.15694/mep.2020.000220.1>
5. Fawns, T., Markauskaite, L., Carvalho, L., Goodyear, P. (2022). H2m Pedagogy: Designing for Hybrid Learning in Medical Education. In: Gil, E., Mor, Y., Dimitriadis, Y., Kuppe, C. (eds) *Hybrid Learning Spaces. Understanding Teaching-Learning Practice*. Springer, Cham. https://doi.org/10.1007/978-3-030-88520-5_5
6. Baticulon, R. E., Sy, J. J., Alberto, N. R. I., Baron, M. B. C., Mabulay, R. E. C., Rizada, L. G. T., Tiu, C. J. S., Clarion, C. A., & Reyes, J. C. B. (2021). Barriers to Online Learning in the Time of COVID-19: A National Survey of Medical Students in the Philippines. *Medical Science Educator*, 31(2), 615–626. <https://doi.org/10.1007/s40670-021-01231-z>
7. Zalat, M. M., Hamed, M. S., & Bolbol, S. A. (2021). The experiences, challenges, and acceptance of e-learning as a tool for teaching during the COVID-19 pandemic among university medical staff. *PLoS ONE*, 16(3 March), 1–12. <https://doi.org/10.1371/journal.pone.0248758>
8. Olson, H. L., Towner, D., Hiraoka, M., Savala, M., & Zalud, I. (2020). Academic clinical learning environment in obstetrics and gynecology during the COVID-19 pandemic: Responses and lessons learned. *Journal of Perinatal Medicine*, 48(9), 1013–1016. <https://doi.org/10.1515/jpm-2020-0239>
9. Armon, S., Benyamini, Y., Grisaru-Granovsky, S., & Avitan, T. (2021). Online Obstetrics and Gynecology Medical Students Clerkship During the Covid-19 Pandemic: a Pilot Study. *Medical Science Educator*, 31(2), 457–461. <https://doi.org/10.1007/s40670-020-01181-y>
10. Deubel, P. (2003). Learning from Reflections - Issues in Building Quality Online Courses. *Online Journal of Distance Learning Administration*, 6(2001), 1–7. <http://www.westga.edu/~distance/ojdla/fall63/deubel63.htm>
11. Weissmann, Y., Useini, M., & Goldhahn, J. (2021). COVID-19 as a chance for hybrid teaching concepts. *GMS journal for medical education*, 38(1), Doc12. <https://doi.org/10.3205/zma001408>
12. Mohamad, S. A., Hashim, H., Azer, I., Hamzah, H. C., & Khalid, R. A. H. (2020). Gender Differences in Students' Satisfaction and Intention to the Continuation of Online Distance Learning. *International Journal of Academic Research in Business and Social Sciences*, 10(9). <https://doi.org/10.6007/ijarbss/v10-i9/7855>
13. Amro, H. J., Mundy, M.-A., & Kupczynski, L. (2015). The effects of age and gender on student achievement in face-to-face and online college algebra classes. *Research in Higher Education Journal*, 27(January), 1–22.
14. Venkatesh, S., Rao, Y. K., Nagaraja, H., Woolley, T., Alele, F. O., & Malau-Aduli, B. S. (2020). Factors Influencing Medical Students' Experiences and Satisfaction with Blended Integrated E-Learning. *Medical Principles and Practice : International Journal of the Kuwait University, Health Science Centre*, 29(4), 396–402. <https://doi.org/10.1159/000505210>
15. Martin, A. J., Papworth, B., & Liem, G. A. D. (2014). Boarding School, Academic Motivation and Engagement, and Psychological Well-Being: A Large-Scale Investigation. *American Educational Research Journal*, 51(5), 1007–1049. <https://doi.org/10.3102/0002831214532164.0>