

Perception of Second Professional MBBS students towards online teaching during COVID Pandemic: A cross sectional study of a Medical College in central India

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Background: COVID-19 Pandemic has changed the face of medical education globally. The implementation of infection control policies mandated shut down of medical colleges globally. This led to sudden shift towards online teaching platforms to ensure the continuity of learning. Therefore, this study was planned to assess the impact of online teaching from student's perspective.

Method: This is a cross sectional study conducted in an Indian medical college from March to August 2021 on 150 students of II Professional MBBS 2018 batch who were willing to give informed consent. The students were surveyed using google forms. The questionnaire comprised of closed ended questions based on student's perception towards various aspects of online teaching related to theory classes of II professional's subjects only. Total 98 responses were obtained and data was analyzed with the help of descriptive statistics.

Results: Overall 83.5% students preferred offline/regular classes over online mode. The drawbacks of online classes lied in being non interactive (65.3%), monotonous (13.2%), boring (10.2) and difficult to understand (10.2%). The major advantages perceived were no risk of COVID exposure (57.1%). 63% of students liked uploaded over live lectures. Students found Pharmacology (42.8%) classes to be most useful and Microbiology to be least useful (38.7%). 70% of students experienced pandemic related stress due to problems regarding online lectures (42.6%) while 30% were happy due to no risk of COVID exposure (50%).

Conclusion: Overall the students reported negative impact of online teaching during COVID-19 pandemic. The only advantage perceived was safety from COVID exposure. So, there is need of pandemic preparedness for continued medical education.

Key words: COVID-19, Online teaching, Medical students

ادراک دانشجوین پزشکی حرفه ای نسبت به تدریس آنلاین در طی همه گیری کووید: مطالعه ای مقطعی از یک کالج پزشکی در مرکز هند

زمینه و هدف: همه گیری کووید ۱۹ چهره آموزش پزشکی را در سطح جهانی تغییر داده است. اجرای سیاست های کنترل عفونت، الزاماً باعث تعطیلی برخی کالج های پزشکی در سطح جهان شد. این امر منجر به تغییر ناگهانی به سمت پلتفرم های آموزش آنلاین برای اطمینان از تداوم یادگیری شد. این مطالعه به منظور ارزیابی تأثیر آموزش آنلاین از دیدگاه دانشجویان صورت گرفت.

روش: این پژوهش یک مطالعه مقطعی است که در یک کالج پزشکی هند از ماه مارس تا اگوست ۲۰۲۱ بر روی ۱۵۰ دانشجوی پزشکی حرفه ای با اعلام رضایت آگاهانه از سوی آنها انجام شد. دانشجویان با استفاده از فرم های گوگل مورد بررسی قرار گرفتند. این پرسشنامه شامل سوالات بسته بر اساس ادراک دانشجو نسبت به جنبه های مختلف تدریس آنلاین مربوط به کلاس های تئوری دروس پزشکی حرفه ای است. در مجموع ۹۸ پاسخ به دست آمد و داده ها با آمار توصیفی تجزیه و تحلیل شد.

یافته ها: ۸۳/۵ درصد دانش آموزان کلاس های آنلاین/عادی را به کلاس های آنلاین ترجیح دادند. اشکالات کلاس های آنلاین در غیر تعاملی بودن (۶۵/۳٪)، یکنواختی (۱۳/۲٪)، خسته کننده (۱۰/۲٪) و درک دشوار (۱۰/۲٪) بود. مزیت اصلی، عدم خطر قرار گرفتن در معرض کووید (۵۷/۱٪) بود. ۶۳ درصد از دانشجویان سخنرانی های زنده بارگزاری شده را ترجیح می دادند. دانشجویان، کلاس های فارماکولوژی (۴۲/۸٪) را مفیدترین و میکروبیولوژی را کم سودترین (۳۸/۷٪) یافتند. ۷۰ درصد از دانشجویان به دلیل مشکلات مربوط به سخنرانی های آنلاین (۴۲/۶٪) استرس مرتبط با بیماری کووید را تجربه کردند در حالی که ۳۰ درصد به دلیل عدم قرار گرفتن در معرض کووید (۵۰٪) از این وضعیت راضی بودند.

نتیجه گیری: دانشجویان تأثیر منفی آموزش آنلاین در همه گیری کووید ۱۹ گزارش کردند. تنها مزیت درک شده، ایمنی از قرار گرفتن در معرض کووید بود. بنابراین، نیاز به آمادگی همه گیر برای ادامه آموزش پزشکی وجود دارد.

واژه های کلیدی: کووید ۱۹، آموزش آنلاین، دانشجویان پزشکی

تصور طلاب MBBS محترفين الثاني تجاه التدريس عبر الإنترنت أثناء جائحة COVID: دراسة مقطعية لكلية الطب في وسط الهند

الخلفية: غير جائحة COVID-19 وجه التعليم الطبي على مستوى العالم. فرض تنفيذ سياسات مكافحة العدوى إغلاق الكليات الطبية على مستوى العالم. أدى ذلك إلى تحول مفاجئ نحو منصات التدريس عبر الإنترنت لضمان استمرارية التعلم. لذلك، تم التخطيط لهذه الدراسة لتقييم تأثير التدريس عبر الإنترنت من منظور الطالب.

الطريقة: هذه دراسة مقطعية أجريت في كلية الطب الهندية من مارس إلى أغسطس ۲۰۲۱ على ۱۵۰ طالباً من مجموعة II Professional MBBS 2018 الذين كانوا على استعداد لإعطاء موافقة مستنيرة. تم مسح الطلاب باستخدام نماذج جوجل. يتكون الاستبيان من أسئلة مغلقة تستند إلى تصور الطالب تجاه جوانب مختلفة من التدريس عبر الإنترنت المتعلقة بالفصول النظرية لموضوعات المحترفين II فقط. تم الحصول على إجمالي الردود ۹۸ وتم تحليل البيانات بمساعدة الإحصاء الوصفي.

النتائج: بشكل عام، فضل ۸۳،۵٪ من الطلاب الفصول الدراسية غير المتصلة / العادية على وضع الاتصال بالإنترنت. تكمن عيوب الفصول عبر الإنترنت في كونها غير تفاعلية (۶۵،۳٪)، رتيبة (۳۸،۷٪)، مملة (۱۰،۲٪) وصعبة الفهم (۱۰،۲٪). المزايا الرئيسية المتصورة كانت عدم وجود خطر التعرض لـ COVID (57.1٪). من الطلاب أحبوا تحميل المحاضرات الحية. وجد الطلاب أن فصول علم الأدوية (42.8٪) هي الأكثر فائدة وأن الأحياء الدقيقة هي الأقل فائدة (38.7٪). عانى 70٪ من الطلاب من ضغوط مرتبطة بالوباء بسبب مشاكل تتعلق بالمحاضرات عبر الإنترنت (42.6٪) بينما كان 30٪ سعداء بسبب عدم وجود خطر التعرض لـ COVID (50٪).

الخلاصة: أبلغ الطلاب بشكل عام عن التأثير السلبي للتدريس عبر الإنترنت أثناء جائحة COVID-19. كانت الميزة الوحيدة المتصورة هي السلامة من التعرض لـ COVID. لذلك، هناك حاجة للتأهب للوباء مواصلة التعليم الطبي.

الكلمات المفتاحية: COVID-19، التدريس عبر الإنترنت، طلاب الطب

COVID وبائي امراض کے دوران آن لائن تدریس کے بارے میں سیکنڈ پروفیشنل MBBS طلباء کا تاثر: وسطی ہندوستان میں ایک میڈیکل کالج کا کراس سیکشنل مطالعہ

پس منظر: COVID-19 وبائی مرض نے عالمی سطح پر طبی تعلیم کا چہرہ بدل دیا ہے۔ انفیکشن کنٹرول پالیسیوں کے نفاذ کے لیے عالمی سطح پر میڈیکل کالج کو بند کرنا لازمی قرار دیا گیا ہے۔ اس کی وجہ سے سیکھنے کے تسلسل کو یقینی بنانے کے لیے آن لائن تدریسی پلیٹ فارمز کی طرف اپنا تکیہ تبدیل کیا۔ لہذا، اس مطالعہ کا منصوبہ طالب علم کے نقطہ نظر سے آن لائن تدریس کے اثرات کا جائزہ لینے کے لیے بنایا گیا تھا۔

طریقہ: یہ ایک کراس سیکشنل مطالعہ ہے جو ایک ہندوستانی میڈیکل کالج میں مارچ سے اگست ۲۰۲۱ بیچ کے ۱۵۰ طلباء پر کیا گیا تھا جو باخبر رضامندی دینے کے لیے تیار تھے۔ طلباء کا گوگل فارم استعمال کرتے ہوئے سروے کیا گیا۔ سوالنامہ صرف II پروفیشنل کے مضامین کی تھیوری کلاسز سے متعلق آن لائن تدریس کے مختلف پہلوؤں کے بارے میں طالب علم کے تاثرات پر مبنی بند ختم شدہ سوالات پر مشتمل ہے۔ کل ۹۸ جوابات حاصل کیے گئے اور وضاحتی اعداد و شمار کی مدد سے فیٹا کا تجزیہ کیا گیا۔

نتائج: مجموعی طور پر ۸۳.۵٪ طلباء نے آن لائن موڈ پر آف لائن/باقاعدہ کلاسز کو ترجیح دی۔ آن لائن کلاسز کی خرابیاں غیر متعامل (65.3٪)، نرس (13.2٪)، بورنگ (10.2٪) اور سمجھنے میں مشکل (10.2٪) میں جھوٹی تھیں۔ 63٪ طلباء نے لائیو لیکچرز پر اپ لوڈ کیے جانے کو پسند کیا۔ طلباء نے فارماکولوجی (42.8٪) کلاسز کو سب سے زیادہ مفید اور مائیکرو بائیولوجی کو کم مفید پایا (38.7٪)۔ آن لائن لیکچرز سے متعلق مسائل کی وجہ سے 70٪ طلباء نے وبائی امراض سے متعلق تناؤ کا سامنا کیا (42.6٪) جبکہ 30٪ کووڈ ایکسپوزر کا کوئی خطرہ نہ ہونے کی وجہ سے خوش تھے (50٪)۔

نتیجہ: مجموعی طور پر طلباء نے COVID-19 وبائی امراض کے دوران آن لائن تدریس کے منفی اثرات کی اطلاع دی۔ سمجھا جانے والا واحد فائدہ COVID کی نمائش سے حفاظت تھا۔ لہذا، طبی تعلیم کو جاری رکھنے کے لیے وبائی امراض کی تیاری کی ضرورت ہے۔

کلیدی الفاظ: COVID-19، آن لائن تدریس، طبی طلباء

INTRODUCTION

Coronavirus outbreak spread rapidly across the world and was declared Pandemic by WHO on 11 March 2020 (1). It had tremendous impact on all aspects of life including social, physical, mental, and financial well being. The world economy, education, and health care system suffered greatly. The implementation of infection control policies including social distancing (2), forced sudden shut down of medical colleges globally. The medical students faced sudden interruption in their training due to national lockdown (3). Pandemic also had a significant impact on medical student's physical and psychological well being (4). The increased burden on health care services further led to lower priority for medical student's teaching.

These institutions reacted to this academic crisis by switching to online teaching platforms which was the most convenient and feasible method at that time, to ensure continuity of teaching and learning (5). This unexpected abrupt transition to online teaching was challenging for the faculty as well as students (6).

Several novel virtual methods such as online lectures, tutorials, and webinars had replaced traditional face to face teaching during the pandemic (7). The impact of these novel methods to train medical students was largely unknown (8). There are previous studies highlighting the challenges of online education related to students' online assessment, communication, technical barriers, lack of peer interaction, pandemic and study related anxiety etc (9). In contrast, there are studies which advocate online education to be equally effective to conventional face to face teaching (10) and associated with positive learning outcomes (11).

After going through the literature we found that there are ample studies on impact of online teaching on medical students as a whole but there are limited such studies focusing on II professional (preclinical year) medical students who rely more on pedagogical methods of teaching as compared to their seniors who follow andragogy (12). Moreover the present researchers found it prudent to assess the usefulness of online teaching methods subject wise (Pathology, Pharmacology, Microbiology, Forensic medicine). Therefore, the present study was planned to assess the perception of Second Professional MBBS students towards online teaching during COVID Pandemic, with the help of a relevant questionnaire.

METHODS

This cross sectional study was conducted from March to August 2021. A total batch of 150 students of II Professional MBBS year 2018 of M.G.M. Medical College, Indore, (M.P.) India were included in the study. The entire batch of 150 students of II Professional MBBS year 2018 of this institute was the sampling frame. The desired sample size was calculated using the following formula where power (1-β) is 84% (.84)

$$n = (Z_{1-\alpha} + \beta)^2 pq/d^2$$

$$= (1.96 + 0.84)^2 \times 12 \times 88 / 10 \times 10$$

$$= (2.8)^2 \times 12 \times 88 / 100$$

$$n = 82$$

where p = prevalence * (12% as calculated from previous

similar studies)

$$q = 100 - p$$

$$d = \text{error}(10\%)$$

$$Z_{1-\alpha} = 1.96 \text{ (confidence interval)}$$

$$1 - \beta = .84$$

So the minimum sample size calculated was 82 but due to consideration of non response or factors of exclusion criteria, the sample size was considered as 140 students (after excluding 10 students participated in pilot study).

A self administered online questionnaire was created in English using Google forms (Google LLC, Mountain View, CA) which was relevant to answer the study objectives. The questionnaire comprised of closed ended questions based on student's perception towards various aspects of online teaching of their theory classes and excluding their clinical posting experience. The nature and aims of study were explained to the participants and informed consent was taken, ascertaining confidentiality of their responses and power to withdraw to answer any question or from the entire study altogether.

Inclusion criteria: 1. II medical students of both gender batch 2018 of the institute

2. Those who were willing to participate in the study.

Exclusion criteria: 1. Students who participated in the pilot testing of questionnaire

2. Incomplete questionnaires

3. Duplicate responses

For questionnaire validation process and to test its internal consistency, ten students were requested for pilot testing. The final questionnaire was drafted based on their feedback. The link for Google form was shared through social media platform to 140 students (excluding those participated in pilot study). A gentle reminder was sent to maximise their responses. Completed questionnaires were analysed with the help of descriptive statistics. Chi square test was applied to determine the association of some variables with gender groups using (IBM) SPSS version 25.0

RESULTS

A total of 98 students responded to the survey out of which most of the respondents were male students 62.3% (n=63) and 35.7% (n=35) were female students. Among the respondents, 83.5% of students preferred offline/regular classes over online mode. (Figure 1). The gender wise

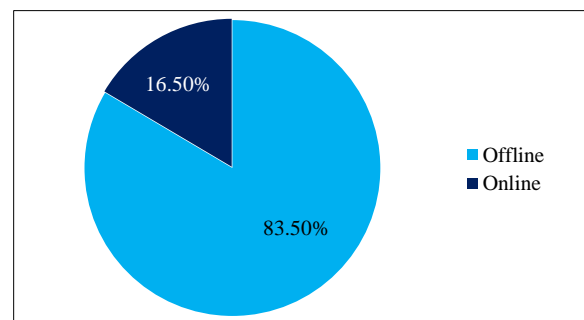


Figure 1. Online Vs offline preference of students

preference for both the modes was found to be spastically insignificant (P value=0.89) using chi square test. In this study, the students found online classes non interactive (65.3%),monotonous(13.2%), boring (10.2%), and difficult to understand(10.2%)(Figure-2).These drawbacks had no significant association when compared in terms of gender using chi square test(P value=0.80)The major advantages of online classes perceived by the students in this study were no risk of COVID exposure (57.1%) followed by feasibility (25.5%), convenience (8.1%) and no time boundation (5.1%)(Figure 3). In this study, 63% of students liked pre recorded lectures over live online sessions. (Figure 4) Students found Pharmacology (42.8%) online classes to be most useful and Microbiology to be least useful (38.7%). In

this study the researchers also gathered information about the thought process of students regarding learning, during pandemic.68% of students experienced pandemic related stress or anxiety mainly due to various types of problems regarding online lectures (67.6%). They were also concerned about completion of syllabus (22%) and lack of clinical and practical training (10.3%).

Overall,28% of students were happy mainly due to the fact that there was no risk of COVID exposure to them due to online teaching(50%). 39.28% of students found online teaching to be more convenient and 10.71% were happy because they could devote more of their time for self study. 2% of students were indifferent to this transition of online teaching and learning process. (Figure 5, 6, 7)

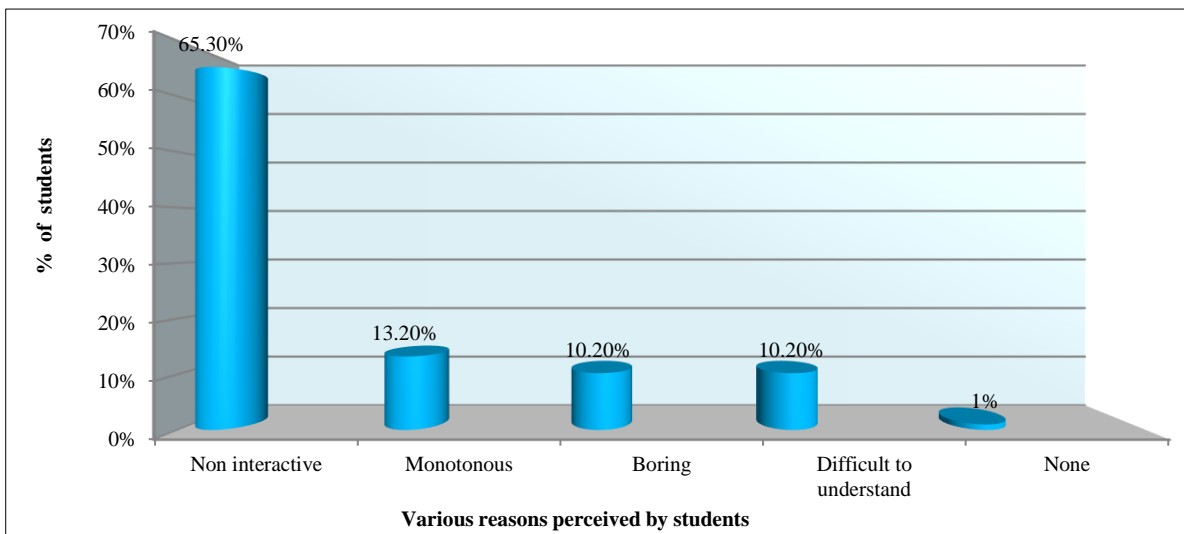


Figure 1. Drawbacks of online teaching

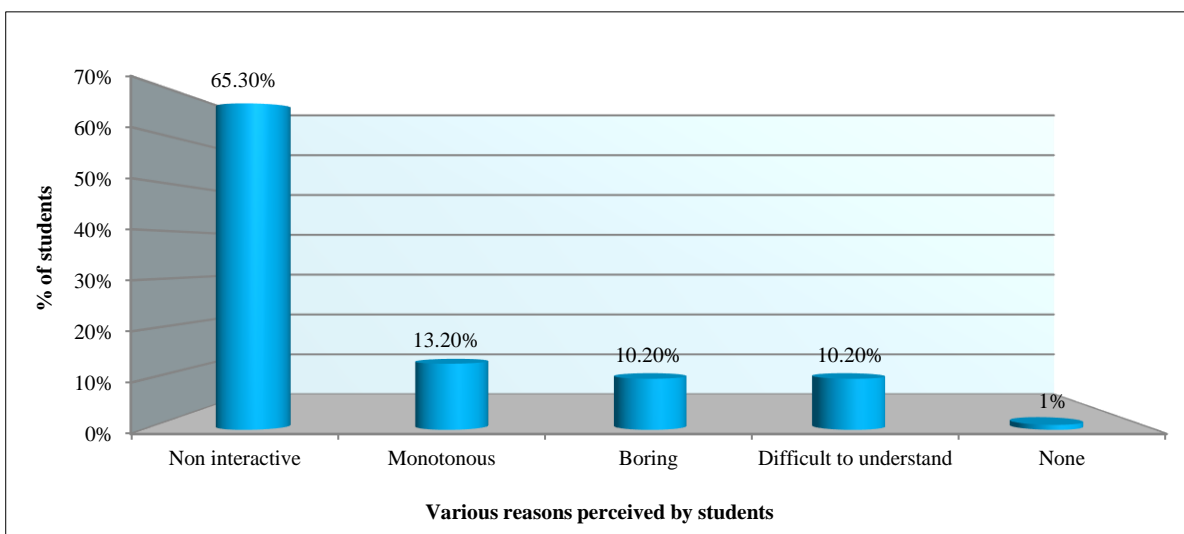


Figure 2. Advantages of online classes

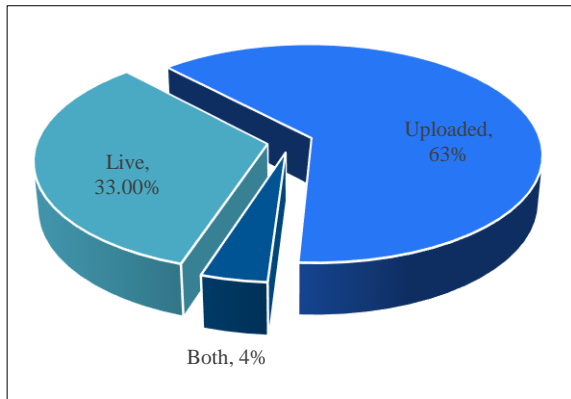


Figure 4. Live Vs Pre recorded lectures

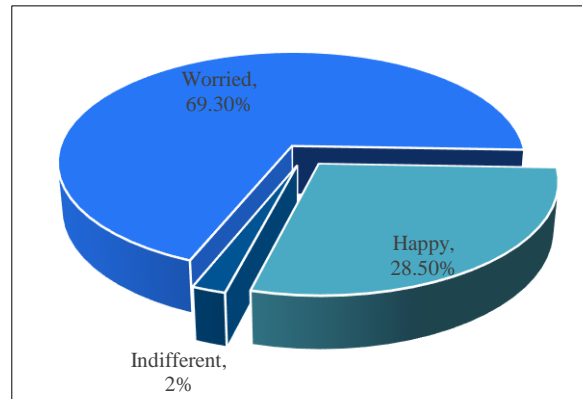


Figure 5. Thought process regarding learning during pandemic

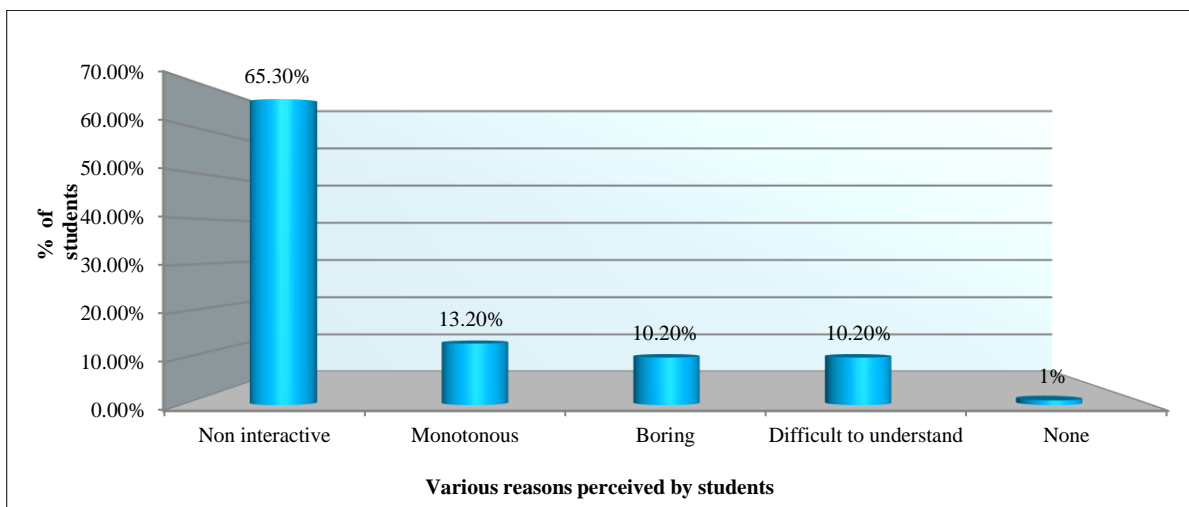


Figure 6. Frequency of responses regarding being worried related to learning during pandemic

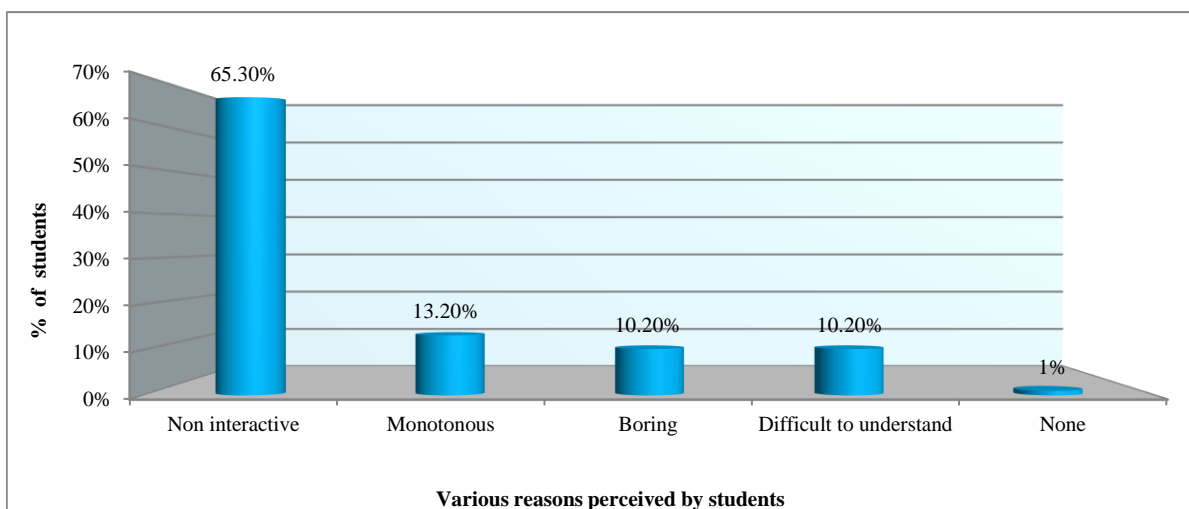


Figure 7. Frequency of responses regarding being happy related to learning during pandemic

DISCUSSION

COVID-19 Pandemic has shaken the foundation of medical education process which is based on lectures and face to face demonstrations. Many academic institutions are now in favour of hybrid (blended) type of learning (13) where some part of face to face teaching is replaced by online instructions (14) Hybrid learning method can play a pivotal role in recreating education for challenging times. However the success of hybrid learning depends on adequate faculty training, institutional support (15,16) and student's feedback (9).

Studies have emphasized that when PBL learning sessions are incorporated in hybrid curriculum, online teaching becomes more interactive and effective, leading to improvement in learning outcome (17-21).

During Pandemic, online education suddenly became an academic norm in the present institute to ensure continuous learning process. It was difficult for the faculty as well as students to adapt to new style of learning. Moreover teachers were inadequately prepared (22) and few were technophobic also (23). Therefore the present study was planned as it was prudent to assess the impact of online teaching from student's point of view.

Among the total 98 responses obtained, 83.5% of students preferred offline/regular classes over online mode. This finding is supported by a previous study which concluded that online education is not suitable for medical students and online teaching requires extensive training and cannot be adopted over night (24). The most important drawback of online lectures perceived by the students was its non interactive nature followed by monotony and understanding difficulties. Some previous studies done in the same context also found challenges related to technical barriers such as poor internet connection, availability of computers, communication and time related issues which adversely affected the quality of online lectures. Moreover the teachers lacked the required experience with online education and faced issues related to student's online assessment (25). The teachers of Para clinical subjects were also given responsibility of performing COVID duties in addition to online teaching, which further affected the lecture quality.

Protection from COVID infection was the most important concern for majority of students in the present study when there was limited knowledge about the transmission of virus and also non availability of vaccine at that time. Online teaching also seemed to be more comfortable, flexible, cost and time efficient as concluded by a national survey done on UK medical students (25). A study done by Rajab et al found that online teaching promotes self discipline and sense of responsibility as major advantage of online teaching (24).

In the present study, majority of students liked pre recorded lectures over live online sessions.

This finding might be due to the fact that they are not time bound, well structured and can be revised several times by the students. Live online classes tend to face more technical issues and are time bound, although they are more interactive and engaging. Other previous studies also found

pre recorded lectures of para clinical subjects to be more appreciated by the students due to their organized and aesthetic nature (26). On the contrary some studies found that Pre recorded lectures have a negative impact on learning because of limited opportunities to interact with the teacher and clarify their doubts (27,28). Students chose Pharmacology online classes to be most useful and Microbiology to be least useful out of all the subjects. This finding may be due to the fact that Pharmacology is a non clinical subject and is more theoretical, which can be effectively explained with the help of well prepared power points containing visually impactful flow charts and diagrams to explain the mechanism of action of drugs. Pathology, Forensic, and Microbiology being Para-clinical subjects, demand more practical approach and demonstrations, to be done by the students themselves. Moreover, the faculty of Microbiology was overburdened with the task of COVID sampling, testing and reporting. This might be the potential reason of such finding in the present study.

COVID 19 pandemic had a huge impact on mental health of students (29). In this study the researchers also gathered information about the thought process of students regarding learning, during pandemic. Most of the students experienced pandemic related stress or anxiety mainly due to various types of problems regarding online lectures. These problems might be related to difficulty in adapting to sudden change in pattern of teaching, lack of proper motivation due to familial distractions, and isolation from peer groups.

Overall, almost one third of students were happy mainly due to the fact that there was no risk of COVID exposure to them due to online teaching.

So, COVID pandemic paved way to complete digitalization of medical teaching in order to ensure continuity of learning.

The present researchers also found lack of satisfaction among students towards online teaching. A large bulk of students preferred offline or traditional face to face teaching over online one. Online sessions seemed to be non interactive and less interesting to the students and the only advantage perceived was, protection from COVID infection. Thus, it seemed to be mere continuity of teaching, without effective learning.

Future pandemic preparedness demands creation and implementation of an academically competent and effective "Hybrid curriculum" which blends the "best of both the worlds". Problem based or case based learning or other online innovative learning sessions using sophisticated technologies can be incorporated in it. The success of this type of learning requires adequate faculty training and regular feedback from students. Hence the time is ripe to revamp medical education for adequate preparedness of future pandemic and similar tough times, in the interest of students.

The present researchers included medical students from their institute. Moreover most of the data is expressed in terms of descriptive statistics. The findings of this study cannot be generalized and this needs to be validated by further longitudinal studies.

Ethical considerations

Ethical issues including plagiarism, informed consent,

misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc. have been completely observed by the authors.

Research committee approval: Ethical approval was requested from the Institutional Ethics Committee of

M.G.M. Medical College Indore, (M.P) India and was deemed not to be required as all data was anonymized and informed consent was taken from all the participants.

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Conflict of Interest: None

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