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Original Research Article

Medical Teaching - Online or Offline

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Abstract

Background and Aim: With the emergence of technology, the method of delivering education has forever changed. While online education is not a new phenomenon, its importance was acknowledged after the recent pandemic. In addition, the recently introduced competency based medical curriculum has advocated virtual or online learning as an indispensable tool. This study aims to record and analyze the perceptions of multiple stakeholders including medical and paramedical students as well as medical faculty regarding offline and online approach of teaching and learning.

Methods: The study was conducted on MBBS and BSc paramedical students and teaching faculty of Government Medical College, Kathua, J&K using a self-designed questionnaire based on 5-point Likert scale for data collection.

Results: A total of 306 subjects participated in this study including 63 faculty members, 159 MBBS students and 84 BSc paramedical students. A higher proportion of medical faculty as well as medical students and paramedical students agreed that offline teaching as compared to online teaching was more convenient, had better concentration, less distraction, more clarity, more learning and retention, and increased motivation.

Conclusions: Our study results showed that despite reported benefits of online teaching, faculty as well as students (both medical and paramedical) preferred offline or traditional method of medical education over online method.

Keywords: Medical education, Online-teaching learning, Offline-teaching learning, Medical Faculty, Medical students, Paramedical students.

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Introduction

The Digital revolution has evolved innovative changes in the education landscape. The use of technology for online education and all the digital initiatives have the possibility to revolutionize complete education scenario in the coming future. As today every aspect of our life is going digital, the teaching methods used for educating and training medical school students should also be reconsidered[(1)]. Nevertheless, unprecedented situation of recent pandemic caused a sudden shift towards the exclusive adoption of online teaching, forming the primary source of medical education[(2)], it has left us to ponder upon its usefulness in future also.

Nowadays, the technical advances have made it possible to conduct virtual classes which could not have been possible a few years back[(3)]. Online teaching, learning and assessment in medical education are still relatively new, but has the potential to become mainstream in near future[(4)].

Traditional teaching methods required teaching and learning to occur at same time and place. On the other hand, online learning, also called web-based learning or internet-based learning, provides a flexibility pattern for the time and place constraints[(1)]. Distance between the teacher and learner, need of digital technology, lack of face-to-face interaction are the main differentiating features between traditional and online learning. One to one or face to face interaction with the teacher creates a social pressure and may also motivate the students better in their learning in traditional methods of teaching. With online teaching, students can devote time according to their academic needs and can learn anytime from anywhere[(3)].

The online health care information is continuously challenging medical as well as paramedical students to rapidly update and expand their existing body of knowledge. On the other hand, the information competency requirements of healthcare technology, such as utilizing electronic healthcare records, learning systems, aided-diagnosis systems and telemedicine, also present a new challenge for medical as well as paramedical students to update themselves[(5)].

Although some forms of information technology have already been utilized to assist teaching, online classes are not a standard teaching method across Indian medical institutions[(6)]. The efficacy of blended learning in preclinical subjects, for example, in anatomical teaching[(7)] has been shown but still there is limited understanding of the impact of exclusive online teaching. So clear cut superiority of either online or offline method couldn't be conclusively established yet by the available data and needs to be explored by the viewpoint of both students and teaching faculty. Most of the studies have concluded with perception of only faculty or MBBS students, so in our study we plan to record and analyze the perceptions of multiple stakeholders including medical faculty, MBBS students and BSc paramedical students regarding the mode of teaching and learning.

AIMS AND OBJECTIVES

1. To record the perception of medical and paramedical students about offline and online teaching.
2. To record the perception of medical faculty about offline and online teaching.

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MATERIALS AND METHODS

a) **Design of study**: cross-sectional study
b) **Study setting**: Govt. Medical College, Kathua, J&K
c) **Study population**: (i) Faculty= 63, (ii) MBBS students=159, (iii) BSc paramedical students=84

d) **Sample size**: 306

e) **Mode of selection of subjects**:

(**i) Inclusion criteria**:- All MBBS students, BSc paramedical students and faculty members of GMC, Kathua, J&K

(ii) Exclusion criteria:- MBBS students, BSc paramedical students and faculty members not willing to give voluntary consent for participation in the present study.

f) **Materials used**: Google form questionnaire/paper based questionnaire was used for the survey containing questions for both online and offline modes of teaching and learning. Questions were in three formats- rating questions on a five point Likert scale, multiple choice questions. The responses of rating questions were collected using Likert scale from 1-5 where 05-Strongly Agree, 04-Agree, 03- Uncertain, 02-Disagree, 01-Strongly Disagree.

g) **Method for data collection**: After taking approval from institutional ethical committee, the responses of subjects were recorded over a period of one month with the help of questionnaire (printed forms/google forms) sent via Whatsapp groups. A pilot study was done beforehand on 5 faculty members and 10 MBBS and BSc paramedical students to validate the questionnaire and these subjects were excluded from our study. Participation was voluntary, and consent was taken at the beginning of the survey questionnaire

h) **Statistical analysis**: The statistical analysis was performed using SPSS 20.0 version. Results were expressed by frequency and percentages. Statistical significance was determined at the $p<0.05$ level using Chi-square test.

RESULTS

The present study was conducted among MBBS students, BSc paramedical students and faculty members of GMC, Kathua, J&K. A total of 306 responses were received. Of these, 159 responses were from MBBS students, 84 were from BSc paramedical students and 63 were from faculty members. The result are presented in Tables 1‑6. For deriving results and computational purpose, the Likert scale options of strongly agree and agree were merged into a single option as agree while, in a similar fashion, the options of strongly disagree and disagree were merged into a single option as disagree[8].

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Table 1: Perception of the MBBS students regarding online and offline teaching

Variables	Strongly agree n (%)		Agree n(%)		Neither agrees nor disagree n (%)		Disagree n(%)		Strongly disagreed n(%)	
	Online	Offline	Online	Offline	Online	Offline	Online	Offline	Online	Offline
Felt more enthusiastic about attending the session	14 (8.8)	23 (14.5)	34 (21.4)	64 (40.3)	32 (20.1)	41 (25.8)	38 (23.9)	13 (8.2)	41 (25.8)	18 (11.3)
Did not require much of the preparation for attending the session	24 (15.1)	13 (8.2)	41 (25.8)	35 (22.0)	36 (22.6)	32 (20.1)	31 (19.5)	42 (26.4)	27 (17.0)	37 (23.3)
Cost effective	21 (13.2)	25 (15.7)	38 (23.9)	46 (28.9)	35 (22.0)	39 (24.5)	30 (18.9)	23 (14.5)	35 (22.0)	26 (16.4)
Better concentration	11 (6.9)	37 (23.3)	29 (18.2)	61 (38.4)	29 (18.2)	35 (22.0)	45 (28.3)	10 (6.3)	45 (28.3)	16 (10.1)
Less distraction	12 (7.5)	34 (21.4)	28 (17.6)	66 (41.5)	30 (18.9)	26 (16.4)	39 (24.5)	13 (8.2)	50 (31.4)	20 (12.6)
More clarity about the topic taught	8 (5.0)	32 (20.1)	26 (16.4)	65 (40.9)	29 (18.2)	37 (23.3)	39 (24.5)	11 (6.9)	47 (29.6)	13 (8.2)
Less interactive session	26 (16.4)	16 (10.1)	38 (23.9)	30 (18.9)	29 (18.2)	34 (21.4)	39 (24.5)	41 (25.8)	27 (17.0)	38 (23.9)
Clearing doubts and queries from teachers difficult	22 (13.8)	14 (8.8)	36 (22.6)	38 (23.9)	38 (23.9)	37 (23.3)	30 (18.9)	44 (27.7)	33 (20.8)	23 (14.5)
More attention needed	27 (17.0)	35 (22.0)	38 (23.9)	49 (30.8)	37 (23.3)	35 (22.0)	29 (18.2)	20 (12.6)	28 (17.6)	15 (9.4)
More comfort and convenience for attending the session from home environment	43 (27.0)	32 (20.1)	51 (32.1)	29 (18.2)	21 (13.2)	42 (26.4)	26 (16.4)	40 (25.2)	18 (11.3)	16 (10.1)
Missed the small group teaching methods and face to face interactions	39 (24.5)	38 (23.9)	43 (27.0)	34 (21.4)	41 (25.8)	26 (16.4)	20 (12.6)	37 (23.3)	16 (10.1)	24 (15.1)
Frequent disruption of session due to network issues and technical faults	52 (32.7)	42 (26.4)	49 (30.8)	32 (20.1)	31 (19.5)	45 (28.3)	15 (9.4)	27 (17.0)	12 (7.5)	13 (8.2)
Provides more learning and more retention	12 (7.5)	27 (17.0)	32 (20.1)	62 (39.0)	40 (25.2)	37 (23.3)	41 (25.8)	15 (9.4)	34 (21.4)	10 (6.3)
More involved towards self-study after the session	32 (20.1)	28 (17.6)	40 (25.2)	56 (35.2)	34 (21.4)	38 (23.9)	24 (15.1)	18 (11.3)	25 (15.7)	17 (10.7)
Increased motivation towards the subject	14 (8.8)	28 (17.6)	28 (17.6)	60 (37.7)	46 (28.9)	34 (21.4)	35 (22.0)	12 (7.5)	33 (20.8)	16 (10.1)
Decreased motivation towards the subject	25 (15.7)	14 (8.8)	45 (28.3)	17 (10.7)	45 (28.3)	48 (30.2)	28 (17.6)	40 (25.2)	16 (10.1)	40 (25.2)
Experienced more	39 (24.5)	29 (18.2)	50 (31.4)	40 (25.2)	35 (22.0)	42 (26.4)	16 (10.1)	29 (18.2)	19 (11.9)	19 (11.9)

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of physical problems like headache, backache, eye pain etc. after attending the session										

Table 2: Perception of the Paramedical students regarding online and offline teaching

Variables	Strongly agree n(%)		Agree n(%)		Neither agree nor disagree n(%)		Disagree n (%)		Strongly disagreed n(%)	
	Online	Offline	Online	Offline	Online	Offline	Online	Offline	Online	Offline
Felt more enthusiastic about attending the session	6 (7.1)	48 (57.1)	6 (7.1)	22 (26.2)	26 (31.0)	6 (7.1)	21 (25.0)	3 (3.6)	25 (29.8)	5 (6.0)
Did not require much of the preparation for attending the session	13 (15.5)	20 (23.8)	17 (20.2)	30 (35.7)	13 (15.5)	9 (10.7)	18 (21.4)	11 (13.1)	23 (27.4)	14 (16.7)
Cost effective	12 (14.3)	25 (29.8)	20 (23.8)	29 (34.5)	18 (21.4)	13 (15.5)	15 (17.9)	11 (13.1)	19 (22.6)	6 (7.1)
Better concentration	8 (9.5)	54 (64.3)	10 (11.9)	22 (26.2)	15 (17.9)	3 (3.6)	21 (25.0)	1 (1.2)	30 (35.7)	4 (4.8)
Less distraction	17 (20.2)	38 (45.2)	14 (16.7)	17 (20.2)	18 (21.4)	10 (11.9)	14 (16.7)	6 (7.1)	21 (25.0)	13 (15.5)
More clarity about the topic taught	15 (17.9)	45 (53.6)	11 (13.1)	22 (26.2)	22 (26.2)	9 (10.7)	15 (17.9)	2 (2.4)	21 (25.0)	6 (7.1)
Less interactive session	16 (19.1)	18 (21.4)	18 (21.4)	29 (34.5)	15 (17.9)	9 (10.7)	11 (13.1)	13 (15.5)	24 (28.6)	15 (17.9)
Clearing doubts and queries from teachers difficult	18 (21.4)	32 (38.1)	15 (17.9)	20 (23.8)	15 (17.9)	11 (13.1)	12 (14.3)	8 (9.5)	24 (28.6)	13 (15.5)
More attention needed	20 (23.8)	36 (42.9)	23 (27.4)	25 (29.8)	14 (16.7)	12 (14.3)	10 (11.9)	7 (8.3)	17 (20.2)	4 (4.8)
More comfort and convenience for attending the session from home environment	19 (22.6)	20 (23.8)	19 (22.6)	22 (26.2)	19 (22.6)	12 (14.3)	13 (15.5)	16 (19.0)	14 (16.7)	14 (16.7)
Missed the small group teaching methods and face to face interactions	19 (22.6)	26 (30.9)	25 (29.8)	17 (20.2)	19 (22.6)	19 (22.6)	10 (11.9)	12 (14.3)	11 (13.1)	10 (11.9)
Frequent disruption of session due to network issues and technical faults	34 (40.5)	29 (34.5)	20 (23.8)	18 (21.4)	14 (16.7)	15 (17.9)	8 (9.5)	15 (17.9)	8 (9.5)	7 (8.3)
Provides more learning and more retention	14 (16.7)	45 (53.6)	11 (13.1)	24 (28.6)	19 (22.6)	8 (9.5)	21 (25.0)	5 (6.0)	19 (22.6)	2 (2.4)
More involved towards self-study after the session	13 (15.5)	39 (46.4)	28 (33.3)	25 (29.8)	11 (13.1)	11 (13.1)	16 (19.0)	4 (4.8)	16 (19.0)	5 (6.0)
Increased motivation towards the subject	8 (9.5)	48 (57.1)	14 (16.7)	22 (26.2)	24 (28.6)	11 (13.1)	19 (22.6)	1 (1.2)	19 (22.6)	2 (2.4)
Decreased motivation towards the subject	19 (22.6)	15 (17.9)	23 (27.4)	17 (20.2)	12 (14.3)	14 (16.7)	11 (13.1)	14 (16.7)	19 (22.6)	24 (28.6)

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Experienced more of physical problems like headache, backache, eye pain etc. after attending the session	27 (32.1)	22 (26.2)	21 (25.0)	16 (19.0)	8 (9.5)	16 (19.0)	10 (11.9)	12 (14.3)	18 (21.4)	18 (21.4)

Table 3: Perception of the faculty regarding online and offline teaching

Variables	Strongly agree n(%)		Agree n (%)		Neither agree nor disagree n(%)		Disagree n (%)		Strongly disagreed n(%)	
	Online	Offline	Online	Offline	Online	Offline	Online	Offline	Online	Offline
Felt more enthusiastic about attending the session	15 (23.8)	27 (42.9)	16 (25.4)	25 (39.7)	16 (25.4)	7 (11.1)	6 (9.5)	0 (0.0)	10 (15.9)	4 (6.3)
Adequate preparation time for the session	11 (17.5)	17 (27.0)	22 (34.9)	29 (46.0)	18 (28.6)	11 (17.5)	7 (11.1)	2 (3.2)	5 (7.9)	4 (6.3)
Require more preparation time for the session	14 (22.2)	19 (30.2)	19 (30.2)	24 (38.1)	16 (25.4)	15 (23.8)	7 (11.1)	1 (1.6)	7 (11.1)	4 (6.3)
Did not require additional IT Knowledge for preparing the session	10 (15.9)	26 (41.3)	21 (33.3)	12 (19.0)	8 (12.7)	14 (22.2)	10 (15.9)	6 (9.5)	14 (22.2)	5 (7.9)
Did require additional IT training for preparing the session	20 (31.7)	12 (19.0)	20 (31.7)	13 (20.6)	9 (14.3)	19 (30.2)	5 (7.9)	8 (12.7)	9 (14.3)	11 (17.5)
Study material should be shared with student prior to the session	23 (36.5)	14 (22.2)	17 (27.0)	16 (25.4)	13 (20.6)	19 (30.2)	4 (6.3)	6 (9.5)	6 (9.5)	8 (12.7)
Able to handle the session easily	16 (25.4)	27 (42.9)	19 (30.2)	20 (31.7)	14 (22.2)	9 (14.3)	3 (4.8)	3 (4.8)	11 (17.5)	4 (6.3)
Not able to handle the session easily	6 (9.5)	7 (11.1)	15 (23.8)	15 (23.8)	21 (33.3)	16 (25.4)	3 (4.8)	5 (7.9)	18 (28.6)	20 (31.7)
Felt improved delivery during the session	10 (15.9)	28 (44.4)	22 (34.9)	16 (25.4)	18 (28.6)	12 (19.0)	7 (11.1)	3 (4.8)	6 (9.5)	4 (6.3)
Did not feel satisfied while delivering the session	8 (12.7)	9 (14.3)	21 (33.3)	18 (28.6)	14 (22.2)	10 (15.9)	12 (19.0)	9 (14.3)	8 (12.7)	17 (27.0)
The session was more interactive with the students	5 (7.9)	32 (50.8)	26 (41.3)	18 (28.6)	13 (20.6)	8 (12.7)	13 (20.6)	0 (0.0)	6 (9.5)	5 (7.9)
Students more attentive during the session	3 (4.8)	35 (55.6)	16 (25.4)	16 (25.4)	15 (23.8)	9 (14.3)	18 (28.6)	0 (0.0)	11 (17.5)	3 (4.8)
Not able to monitor students during the session	9 (14.3)	12 (19.0)	26 (41.3)	14 (22.2)	9 (14.3)	11 (17.5)	11 (17.5)	4 (6.3)	8 (12.7)	22 (34.9)
Increase in ghost attendance of the students	24 (38.1)	8 (12.7)	20 (31.7)	18 (28.6)	9 (14.3)	12 (19.0)	3 (4.8)	9 (14.3)	7 (11.1)	16 (25.4)
Frequent Disruption of session due to network issues and technical faults	30 (47.6)	6 (9.5)	17 (27.0)	13 (20.6)	7 (11.1)	16 (25.4)	3 (4.8)	10 (15.9)	6 (9.5)	18 (28.6)
Not satisfied with the Impact of teaching on the learner	15 (23.8)	7 (11.1)	22 (34.9)	10 (15.9)	16 (25.4)	16 (25.4)	3 (4.8)	14 (22.2)	7 (11.1)	16 (25.4)
Session more teacher centric	17 (27.0)	17 (27.0)	21 (33.3)	14 (22.2)	10 (15.9)	14 (22.2)	7 (11.1)	9 (14.3)	8 (12.7)	9 (14.3)
Session more learner centric	11 (17.5)	24 (38.1)	11 (17.5)	13 (20.6)	17 (27.0)	11 (17.5)	13 (20.6)	4 (6.3)	11 (17.5)	3 (4.8)

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Formative assessments better undertaken	7 (11.1)	19 (30.2)	19 (30.2)	22 (34.9)	17 (27.0)	16 (25.4)	11 (17.5)	2 (3.2)	9 (14.3)	4 (6.3)
Difficult to teach practical aspect of the syllabus	22 (34.9)	12 (19.0)	20 (31.7)	15 (23.8)	7 (11.1)	12 (19.0)	8 (12.7)	12 (19.0)	6 (9.5)	11 (17.5)
Student assessment and feedback limited	25 (39.7)	9 (14.3)	18 (28.6)	20 (31.7)	9 (14.3)	19 (30.2)	5 (7.9)	9 (14.3)	6 (9.5)	6 (9.5)

Table 4: Group comparison for MBBS and Paramedical students for overall rating with regard to online and offline teaching

Overall rating	Online n (%)		Offline n (%)	
	MBBS (N = 159)	Paramedical (N = 84)	MBBS (N = 159)	Paramedical (N = 84)
50% & less	54 (33.96)	32 (38.10)	5 (3.14)	2 (2.38)
50 – 60 %	26 (16.35)	14 (16.67)	13 (8.18)	3 (3.57)
60 – 70 %	26 (16.35)	12 (14.29)	17 (10.69)	3 (3.57)
70 – 80 %	28 (17.61)	13 (15.48)	54 (33.96)	9 (10.71)
80 – 90 %	12 (7.55)	7 (8.33)	35 (22.01)	22 (26.19)
90 % & above	13 (8.18)	6 (7.14)	35 (22.01)	45 (53.57)
χ^2 value	0.99		31.11	
p-value	0.634		<0.0001	

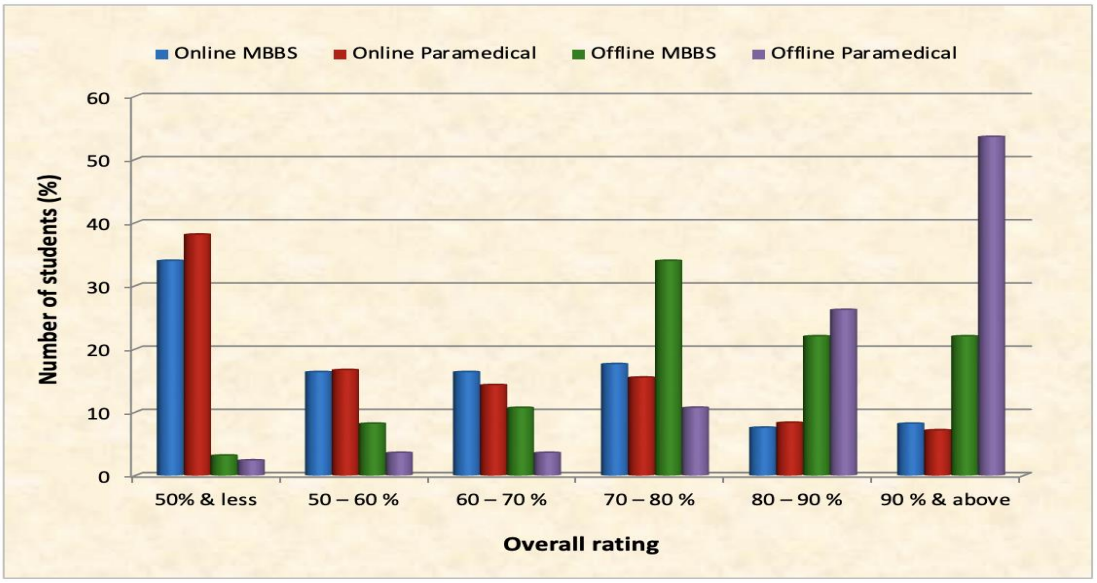

Fig. 1 Group comparison for MBBS and Paramedical students for overall rating with regard to online and offline teaching

Table 5: Faculty comparison for overall rating with regard to online and offline teaching

Overall rating	Faculty	
	Online n(%)	Offline n (%)
50% & less	10 (15.87)	1 (1.59)
50 – 60 %	10 (15.87)	0 (0.00)

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60 – 70 %	9 (14.29)	1 (1.59)
70 – 80 %	11 (17.46)	4 (6.35)
80 – 90 %	10 (15.87)	21 (33.33)
90 % & above	13 (20.63)	36 (57.14)
χ^2 value	66.22	
p-value	<0.0001	

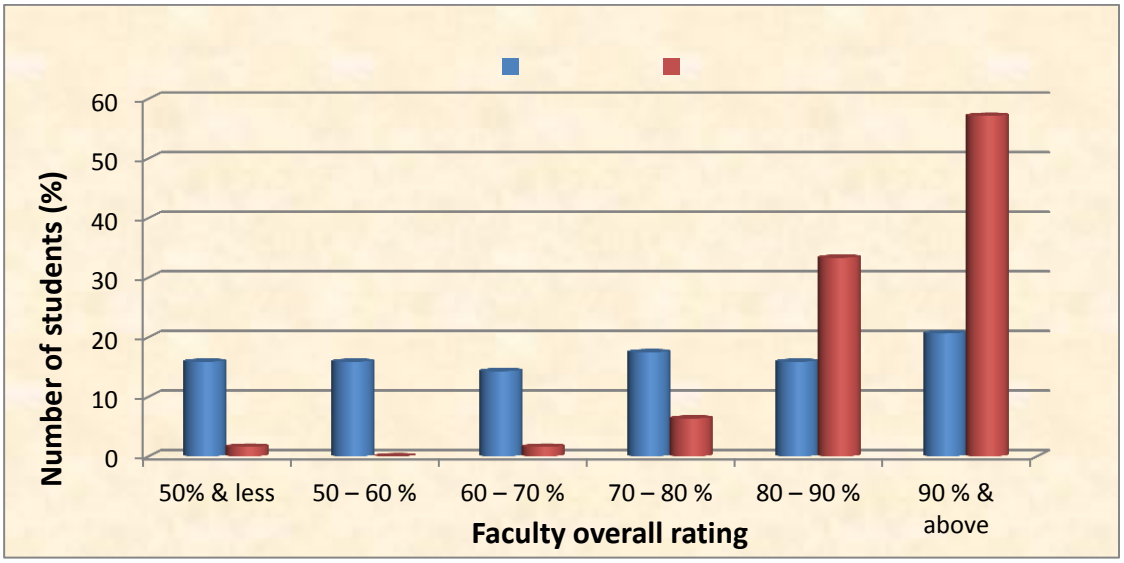

Fig. 2 Faculty comparison for overall rating with regard to online and offline teaching

Table 6: Group comparison of students for feeling any difficulty during teaching session

Difficulty during teaching	**Online n(%)**		**Offline n(%)**	
	MBBS (n = 159)	**Paramedical (n = 84)**	**MBBS (n = 159)**	**Paramedical (n = 84)**
Yes	148 (93.08)	70 (83.33)	123 (77.36)	19 (22.62)
No	11 (6.92)	14 (16.67)	36 (22.64)	65 (77.38)
χ^2 value	4.57		59.93	
p-value	0.031		<0.0001	

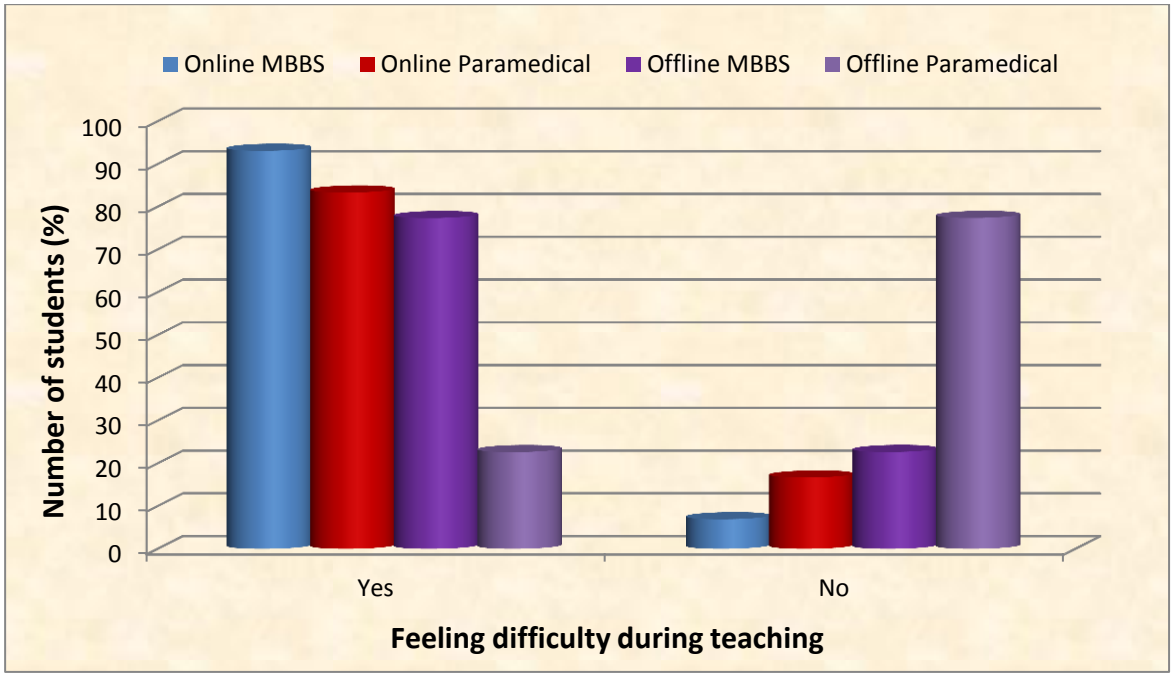

Fig. 3 Group comparison of students for feeling any difficulty during teaching session

Table 1 shows that higher proportion of MBBS students agreed that they were more enthusiastic to attend offline sessions as compared to online sessions [(40.3+14.5=54.8%) > (21.4+8.8=30.2%)] and offline sessions in contrast to online sessions were more cost effective [(15.7+28.9=44.6%) > (13.2+23.9=37.1%)], have better concentration [(23.3+38.4=61.7%) > (6.9+18.2=25.1%)], have less distractions [(21.4+41.5=62.9%) > (7.5+17.6=25.1%)], give more clarity about topic taught [(20.1+40.9=61%) > (5+16.4=21.4%)], provide more learning and more retention [(17+39=56%) > (7.5+20.1=27.6%)], involve more towards self-study after the session [(17.6+35.2=52.8%) > (20.1+25.2=45.3%)] and increases motivation towards the subject [(17.6+37.7=55.3%) > (8.8+17.6=26.4%)], but need more attention [(22+30.8=52.8%) > (17+23.9=40.9%)].

On the other hand, majority of MBBS students agreed that online sessions as compared to offline sessions didn't require much of preparation [(15.1+25.8=40.9%) > (8.2+22=30.2%)], are less interactive [(16.4+23.9=40.3%) > (10.1+18.9=29%)], have difficulty to clear doubts and queries from teachers [(13.8+22.6=36.4%) > (8.8+23.9=32.7%)], have more comfort and convenience of home environment [(27+32.1=59.1%) > (20.1+18.2=38.3%)], but missed small group teaching and face to face interactions [(24.5+27=51.5%) > (23.9+21.4=45.3%)], have frequent disruptions of sessions due to network issues and technical faults [(32.7+30.8=63.5%) > (26.4+20.1=46.5%)], have decreased motivation towards the subject [(15.7+28.3=44%) > (8.8+10.7=19.5%)] and experienced more of physical problems like headache, eye pain etc. after attending the online session[(24.5+31.4=55.9%) > (18.2+25.2=43.4%)].

Table 2 shows that higher number of BSc paramedical students agreed that they felt more enthusiastic to attend offline sessions as compared to online sessions [(57.1+26.2=83.3%) > (7.1+7.1=14.2%)], did not require much preparation for attending the offline session [(23.8+35.7=59.5%) > (15.5+20.2=35.7%)], and offline sessions in contrast to online

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sessions were more cost effective [(29.8+34.5=64.3%) > (14.3+23.8=38.1%)], have better concentration [(64.3+26.2=90.5%) > (9.5+11.9=21.4%)], less distraction [(45.2+20.2=65.4%) > (20.2+16.7=36.9%)], give more clarity about the topic taught [(53.6+26.2=79.8%) > (17.9+13.1=31%)], provide more learning and more retention [(53.6+28.6=82.2%) > (16.7+13.1=29.8%)], involve more towards self study after the session [(46.4+29.8=76.2%) > (15.5+33.3=48.8%)] and increases motivation towards the subject [(57.1+26.2=83.3%) > (9.5+16.7=26.2%)], but disagreed that offline sessions were more comfortable and convenient to attend from home environment[(19+16.7=35.7%) > (15.5+16.7=32.2%)].

On the other hand, majority of BSc paramedical students agreed that online sessions do not provide more comfort and convenience for attending from home environment [(22.6+22.6=45.2%) < (23.8+26.2=50%)], they missed small group teaching and face to face interactions [(22.6+29.8=52.4%) > (30.9+20.2=51.1%)], had decreased motivation towards the subject [(22.6+27.4=50%) > (17.9+20.2=38.1%)], experience frequent disruptions of online sessions due to network issues and technical faults [(40.5+23.8=64.3%) > (34.5+21.4=55.9%)], and more of physical problems like headache, backache, eye pain etc. after attending online session[(32.1+25=57.1%) > (26.2+19=45.2%)]. However a higher number of them disagreed that online sessions were less interactive[(13.1+28.6=41.7%) > (15.5+17.9=33.4%)], and clearing doubts enquiry from teachers was difficult in online sessions[(14.3+28.6=42.9%) > (9.5+15.5=25%)].

Table 3 shows that majority of faculty members agreed that for offline sessions they felt more enthusiastic to attend the sessions [(42.9+39.7=82.6%) > (23.8+25.4=49.2%)], get adequate preparation time [(27+46=73%) > (17.5+34.9=52.4%)], did not require additional IT knowledge for preparing offline session [(41.3+19=60.3%) > (15.9+33.3=49.2%)], were able to handle offline session easily [(42.9+31.7=74.6%) > (25.4+30.2=55.6%)], felt improved delivery [(44.4+25.4=69.8%) > (15.9+34.9=50.8%)], were more interactive with students [(50.8+28.6=79.4%) > (7.9+41.3=49.2%)], the students were more attentive during offline sessions [(55.6+25.4=81%) > (4.8+25.4=30.2%)], were more learner centric [(38.1+20.6=58.7%) > (17.5+17.5=35%)] and formative assessment better undertaken by offline sessions[(30.2+34.9=65.1%) > (11.1+30.2=41.3%)]. But majority also disagreed that they were not able to handle offline sessions easily[(7.9+31.7=39.6%) > (4.8+28.6=33.4%)].

On the other hand, maximum number of faculty members agreed that for online sessions, they required additional IT knowledge for preparation of session [(31.7+31.7=63.4%) > (19+20.6=39.6%)], study material should be shared with students prior to online sessions [(36.5+27=63.5%) > (22.2+25.4=47.6%)], did not feel satisfied while delivery of online session [(12.7+33.3=46%) > (14.3+28.6=42.9%)], were not able to monitor students during online session [(14.3+41.3=55.6%) > (19+22.2=41.2%)], noticed increase in ghost attendance of students in online session [(38.1+31.7=69.8%) > (12.7+28.6=41.3%)], had frequent disruptions of sessions due to network issues and technical faults in online sessions[(47.6+27=74.6%) > (9.5+20.6=30.1%)] and were not satisfied with impact of teaching on the learner[(23.8+34.9=58.7%) > (11.1+15.9=27%)]. A majority of them also felt that online sessions were more teachers centric [(27+33.3=60.3%) > (27+22.2=49.2%)]and have difficulty to teach practical aspect of syllabus [(34.9+31.7=66.6%) > (19+23.8=42.8%)]and get limited student assessment and feedback [(39.7+28.6=68.3%) > (14.3+31.7=46%)], but they disagreed that online sessions require more preparation time[(11.1+11.1=22.2%) > (1.6+6.3=7.9%)].

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Table 4 shows that majority of MBBS and paramedical students give higher overall rating to offline teaching (22.0% & 53.57% respectively).

Table 5 shows that maximum number of faculty members gave higher overall rating to offline teaching(57.14%).
Table 6 shows that majority of MBBS and paramedical students experienced some sort of difficulty during online teaching(93.08% & 83.33% respectively).

DISCUSSION

The purpose of our study was to have an insight into the perception of faculty and students with regard to online and offline medical teaching and learning.
In the present study, a majority of both medical and paramedical students agreed that in offline session as compared to online session, they were more enthusiastic, had better concentration, less distraction, more clarity about the topic taught, more learning and retention, and increased motivation towards the subject and self study. On the other hand, a higher proportion of students agreed that online session as compared to offline session had frequent disruptions due to network issues and technical faults, lacked small group teaching and face to face interactions, decreased motivation towards the subject and associated with more of physical problems like headache, backache, eye pain etc. In addition, most of the paramedical students agreed that offline session did not need much of preparation to attend them. These findings in our study reveal that a higher proportion of students favoured offline teaching is supported by Chauhan et al (2019)[9] who found in their study that the experience of students was slightly skewed in preference for the lecture method as compared to e-learning. It could be due to the fact that students are more accustomed to the traditional or offline teaching method right since their school days. Our results are also consistent with the study by Hanafy et al[10] who too found that students favored conventional over online teaching. This is however in contrast to the findings of Warnecke and Pearson (2011)[11] who reported in their study that majority of the students felt online learning as more enjoyable. Also, in our study, most of the students (both medical and paramedical) found offline sessions to be more cost effective. It can be due to the fact that our subjects belonged to a government institute where medical education is subsidized and many students belong to economically weaker section and far flung areas which can affect their technical resources like smartphones and internet availability[5]. Majority of paramedical students disagreed in our study that online sessions were less interactive and clearing doubts and queries was difficult in online sessions. There is not much literature found to compare our findings for paramedical students in particular, so this different result can be due to anonymity advantage for the students interacting or asking questions in online sessions.

Regarding the faculty perceptions about mode of teaching in this study, a higher proportion agreed to be more enthusiastic to attend online sessions and that the study material should be shared before the online session. The majority of faculty also agreed that for online session, they require additional IT knowledge, had frequent disruptions due to network problems, were not satisfied with delivery and impact of teaching, sessions being more teacher centric, not able to monitor students with increase in ghost attendance, had limited student assessment and feedback, and difficulty in teaching practical aspects of the syllabus. These findings support a study which reported online learning to be less effective in building skills and knowledge along with the acquisition of skills mainly due to the lack of peer-interaction and

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faculty-interaction[12] . For offline sessions, a greater number of faculty agreed to get adequate preparation time, easy handling of session without need for extra IT knowledge, more interaction with students being more attentive, ease to undertake formative assessment and more learner centric session. Like other similar studies[13,14], our subjects (both students and faculty) reported problems with the availability of infrastructure or technical issues with technology and the internet. These results are quite contrasting to the studies by Kashora and Charles[15], Lakbala[16] and Autti et al.[17], in which online education was highly supported (80%–90% of faculty and students). This can be explained due to better infrastructural support for online teaching and learning and high digital literacy in developed nations.
However to overcome the difficulties associated with online modality, both students and faculty scan be provided online training as a part of the medical university protocol[18]sssssss.

Strength of the study
The paramedical students were included in our study sample. To the best of our knowledge, there is not much evidence in literature regarding perceptions of paramedical students in online-offline education comparison.

Limitations of the study
- Sample taken from single institute
- Involved pre and paraclinical students only
- Postgraduate students not involved
- Inability to measure educational outcomes with both online and offline learning

CONCLUSION
From our study results it is evident that despite reported benefits, faculty as well as students (both medical and paramedical) preferred offline or traditional method of medical education over online method.

Offline classes provide students with a similar practical learning environment within the walls of a physical classroom and allows them to participate in recreational activities like art and physical education which contributes to the overall mental and physical development of the students. Offline education allows teachers to monitor the responses and behaviour of their students and accordingly address them as and when required. Hence, no matter how advanced online education is, offline education will continue to play a vital role in the overall development of medical students and it cannot be totally replaced, especially in medical education involving practical and clinical skills.

On the other hand, online learning is the future of education, and it cannot be outrightly rejected. One of the greatest advantages of online classes is their accessibility from anywhere to an unlimited number of educational resources. It needs to be upgraded by improving technical aspects like infrastructural support and digital literacy.

So, there is a need to recognize that both online or offline modes cannot be exclusively followed for medical education and demand innovations in teaching learning process. In the present times, blended or hybrid method involving both offline and online modalities appears to be a promising option, however, the proportion of each modality will require to be explored with ever changing times.

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