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Original Article

Education Section

Effects of Mentoring in First Year Medical Undergraduate Students using DASS-21

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ABSTRACT

Introduction: Medical students often require high level of specialised institutional and personal support to facilitate success. Distress is commonly observed in medical undergraduate students which leads to poor academic performances. The stress though looks reasonable it needs to be addressed with right amount of counseling. A good mentoring session helps in reducing depression, stress and anxiety.

Aim: To determine the effects of mentoring in first year medical students using Depression, Anxiety and Stress Scale - 21 Items (DASS 21).

Materials and Methods: It was an interventional study conducted in Seth GSMC, Department of Physiology, Mumbai, Maharashtra, India, from July 2019 to February 2020. Total 120, first-year medical undergraduates were recruited in the study. At the beginning, an orientation session was conducted for the faculty. Mentoring sessions were conducted for students once in a week. Data was collected using DASS-21 in the beginning in July 2019 to February 2019. Statistical analysis was done using Wilcoxon sign rank test. Five-point Likert scale was used for qualitative analysis of the feedbacks received from mentors as well as mentees. The p-value <0.05 was considered as significant.

Results: Out of 15 faculty members were eight were males and seven were females with mean age of 47±8 and 46±1 years, respectively. Among mentees, 64 were males and 56 were females with mean age of 17±8 and 17±6 years. A significant decrease was obtained in the levels of depression, anxiety and stress scores of students after mentoring. Wilcoxan sign rank sum test was used. The p-value before and after mentoring session was 0.00418 for Depression, 0.00033 for anxiety and 0.00805 for stress.

Conclusion: Mentoring was found to reduce stress, anxiety and depression in first-year medical undergraduate students. The mentoring program was found to be useful to students as well as faculty. It should be extended through all the years of under graduation.

Keywords: Anxiety and stress scale, Depression, Psychological, Psychometric parameters, Stress

INTRODUCTION

Excellent academic records and mental strength are must for medical students [1]. Academic excellence requires mental wellbeing, which is maintained through psychological support from institution, faculty and peers [2]. Mentoring is one such program which is designed to deal with the common hurdles faced by students in their overall personal and professional development. Mentoring helps students as well as faculty to a great extent [3,4]. It also helps to develop an apt workplace environment. Depression, Anxiety and Stress Scale 21 Items (DASS 21) is used as a tool to analyse the psychometric parameters like depression, anxiety and stress in students. It is one of the efficient scales which can be administered to detect early signs of depression, anxiety and stress. It is one of the sound testing tools in identifying individuals with elevated levels of psychological distress [4].

Mentoring is very well established in foreign countries but in India we do not find a structured mentoring program for medical professionals [5,6]. Mentoring programme at our institute exists but is of informal type. Students face varied problems and goes through plethora of psychosocial changes during the initial phase in a medical school [1]. Medical students often require high level of specialised institutional and personal support to facilitate success. Though mentoring has been an important part of the curriculum in most of the universities, it has not been utilised the way it is meant to be In addition to the above factors, other contributory factors could be introvert personalities, lack of peer groups, competition in academics and financial austerity [2,3].

The project was designed to introduce a structured mentoring programme. Mentoring was introduced as an anticipatory approach that would help students to overcome the stress, anxiety and depression. Its effect on psychological wellbeing of first-year medical students was studied using DASS-21.

MATERIALS AND METHODS

It was an interventional, non randomised, single arm, pre and postdesign study. It was carried over the period of eight months from July 2019 to February 2020. Institutional Ethics Committee approval was taken {IEC(II)/OUT/23/2019}. An announcement was made to all first-year undergraduate students about the mentorship programme, explaining all the details. Total 120, first-year medical students out of total 180 students were included in the study as study participants after obtaining informed consent.

Inclusion criteria:

- For students: First year medical students from regular batch with age 17 to 19 years.
- For faculty: All permanent faculty members of age 30-50 years were included in the study.

Exclusion criteria:

- For students: It was not specified. Students those who skipped more than three sessions were excluded. Each participant was allotted a mentor using simple random technique by lottery method.
- For faculty: Temporary/contract basis faculty was excluded, as study duration was longer.

An orientation and training programme was conducted for faculty. It was a well-designed sensitisation programme conducted by Medical Education Unit (MEU) faculty members through Focused Group Discussion (FGD). Information about the project was given and role of mentor was explained. It was conducted in the department of Physiology.

Total 15 faculty members were sensitised and trained for the mentorship programme. All Professors, Associate Professors and Assistant Professors were included in the study. Each mentor was allotted eight students. Feedback forms were prepared and validated by senior faculty members and members of Medical Education Unit (MEU) through Focus Group Discussion (FDG) with Cronbach's alpha value of 0.70.

Each mentorship session was conducted after the Physiology Practical during college hours. Minimum one such session per week was conducted. It was conducted between from July 2019 to November 2019. Though one meeting per week was made compulsory for mentors and mentees both, they could plan as many sessions as needed by the mentees. Mentoring session included introductory session, peer mentoring, experiences sharing, about academics, hobbies, sports etc. Sessions were taken in groups as well as individual counselling was done. The DASS-21 was used to assess student's level of depression, anxiety and stress.

Procedure

These tests were conducted before and after the mentoring sessions to assess the change in the levels of anxiety, depression and stress levels of students [6,7]. The DASS-21, was originally developed for the purpose of measuring the distinctive aspects of depression and anxiety. The scale was development to measure psychological stress. A DASS 42-item scale is a questionnaire with three subscales, each with 14 item subscales that measure depression, anxiety and stress. The DASS-21 was developed as a short form of the DASS-42 and has been reported to have slightly improved psychometric properties compared to the full DASS [7,8]. Hence, DASS-21 was used in this study. Feedback of students and faculty was taken at the end of the study period.

Total duration of session conducted was minimum eight hours and maximum 12 hours. In the first session, mentors provided general introduction to students about the mentorship program. Information about the program was given and roles of mentor and mentee were described. Doubts were clarified. One mentoring session per week was conducted. Minimum eight and maximum 12 sessions were conducted by the faculty and content validation was done for questions to be discussed in every session. Mentors were provided with all the statistics regarding attendance, marks and progress of students. Subsequent sessions were conducted regarding peer mentoring, hostel issues, studies, special interest other than medicine, sports, family, friends, postgraduation and interest in higher studies. Though the general guidelines were provided beforehand, mentors were free to discuss any issues or topics. Feedback forms were collected from students and faculty at the end of the session. A qualitative analysis of the feedback was done using 5-point Likert scale and open-ended questions.

Feedback was taken on approach of mentor, availability and guidance and help provided. Feedback of faculty was taken on issues faced by students, frequency of contact sessions, personal guidance and about their interest in continuation of the programme.

Preparation: Feedback questionnaire was constructed and validated by three senior faculty members of Physiology and members of MEU unit during FGD. Training module of faculty was developed and validated by experts in MEU.

STATISTICAL ANALYSIS

The statistical analysis was done using the Statistical Package for the Social Sciences (SPSS) software. The data was collected and statistically analysed by Wilcoxon sign rank test. A qualitative analysis of feedback was done. The numerical data before and after intervention questionnaire was expressed in terms of mean standard deviation and it was compared. The p-value of less than 0.05 was taken as statistically significant levels using Wilcoxan sign rank test.

RESULTS

Out of 15, faculty members were included males (8) and females (07) with mean age of 47±8 and 46±1 years, respectively. Among mentees, 64 were males and 56 were females with mean age of 17±8 and 17±6 years, respectively [Table/Fig-1,2].

Variables	Male (n=8)	Female (n=7)
Mean age (in years)	47.88	46.14
Years of experience		
<5	1	1
5-10	3	2
>10	4	4

[Table/Fig-1]: Baseline data of faculty.

Variables	Male (n=64)	Female (n=56)
Mean age (in years)	17.8	17.6
8-10 sessions	38	41
>10-12 sessions	26	15

[Table/Fig-2]: Baseline data of students.

Data was gathered using a self-reported hard-copy questionnaire (DASS-21) that was distributed and collected twice i.e., first before the start of the session and followed up after five months. Data was reviewed and analysed. The scores before and after intervention were compared. Decreased scores in DASS-21 scale showed a positive effect of mentoring. There was significant change in levels of depression, anxiety and stress in students after mentoring [Table/Fig-3].

Variable		Mean score±SD	p-value
Depression score	Pre mentoring	9.78±8.06	0.00418*
	Post mentoring	7.82±7.48	
Anxiety score	Pre mentoring	10.18±7.48	0.00033*
	Post mentoring	7.95±7.21	
Stress score	Pre mentoring	11.88±6.76	0.00805*
	Post mentoring	10.2±6.98	

[Table/Fig-3]: Comparison between pre-test and post-test scores (DASS-21).
*p-value <0.05 was taken as significant value

Around 73% of the mentees agree that mentors were approachable and 80% of the mentees found peer mentoring to be very helpful [Table/Fig-4]. An 82% faculty admitted that mentor-mentee program promotes better teacher-student relationship and around 60% faculty admitted that communication was improved with the mentees and some of them still needed an extra effort to do so. A 53% faculty

Variables	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
1. Mentor was easily approachable	32%	41%	7%	15%	5%
2. Mentor was emotionally supportive.	27%	55%	10%	5%	3%
3. I feel encouraged after mentoring.	33%	60%	5%	1%	1%
4. I feel motivated for peer mentoring.	42%	38%	9%	6%	5%
5. My mentor gave ideas to improve my studies.	27%	53%	15%	3%	2%
6. Mentoring sessions should be continued up to final year.	35%	55%	8%	1%	1%
7. After the sessions I could cope up with changing things.	25%	46%	14%	8%	7%
8. Mentorship program is needed for welfare of students.	45%	42%	5%	5%	3%

[Table/Fig-4]: Perception of mentees towards mentorship program.

anticipated an extended future relationship with the mentees. A 68% faculty showed interest to volunteer as a mentor for future batches [Table/Fig-5].

Variables	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
1. Mentor-mentee program promotes better teacher-student relationship.	34%	48%	12%	5%	1%
2. Mentees communicate regularly with mentor.	23%	37%	20%	15%	15%
3. I anticipate an extended future relationship with my mentee.	20%	33%	15%	20%	12%
4. I would like to volunteer as a mentor for future batches.	31%	37%	22%	6%	4%

[Table/Fig-5]: Perception of faculty towards mentorship program.

DISCUSSION

Mentoring is a process where multi-dimensional factors come into picture, Different authors have explained mentoring in different aspects of student -faculty relationship [10-12]. Frei E et al., explains many key elements and objectives of student faculty mentoring. It involves direct interaction and communication between mentors and mentees [2]. Mentoring is a complex phenomenon and numerous definitions exist in the literature [13]. As described by Meinel FG et al., mentoring is a process which helps the overall development of a mentee. Mentors solve the specific problems that mentees come across in their personal and professional life [4].

Students from under-represented area those who survived by self-reliance in academics, find themselves isolated in professional education. The struggle mostly is at individual and personal level. Students find it difficult to cope up with peers. Different ethnicity, cultural background, language barrier makes the academic journey difficult and unpleasant. This can hinder their path in extraordinary achievements [14-16]. Medical students often require high level of specialised institutional and personal support to facilitate success [17,18]. The awareness is needed for easily administration of psychometrically sound screening tools to identify individuals with elevated levels of psychological distress. DASS-21 is one of the efficient scales which can be administered to detect early signs depression, anxiety and DASS, was originally developed for the purpose of measuring the distinctive aspects of depression and anxiety. The scale was development to measure physiological stress. A 42-item scale with three subscales, each with a 14 item subscale, that measure depression, anxiety and stress. The DASS-21 was developed as a short form of the DASS-42 and has been reported to have slightly improved psychometric properties compared to the full DASS [9].

From this study it was confirmed that a good mentoring session helps in reducing stress and anxiety. As scores in DASS-21s were reduced significantly after the mentoring sessions. It was found in our study a trained mentor and early mentoring sessions help in reducing depression, anxiety and stress.

There was significant change in levels of depression, anxiety and stress in students after mentoring. Students admitted they could stay focused, deal efficiently with difficult situations; they could share their feelings and cope up in a better way [7]. Faculty found a better way to help and guide students in need. Benefits of mentoring included improvement in personality, providing an immediate guidance on personal and professional issues [15-17]. Due to the positive effects of mentoring on the professional development of medical students and young physicians, formal mentoring programs have gained popularity within academic medicine [18,19].

Peer mentoring was also discussed in one of the sessions influencing the students to volunteer for peer mentoring. It influenced their overall behaviour with the fellow peers and found that 80% of the mentees found peer mentoring to be very helpful.

One of the mentees admitted that he felt low and could not catch up with his studies, mentoring have improved his outlook and he could study well. 80% of the mentees admitted that mentoring improved their academic performance. The other mentee accepted that he was getting more withdrawn and disconnected with the peers. He was homesick and could not go home due to routine assignments; mentoring has helped him a lot. Mentor counselled him for the same which improved his social well-being. A 71% of the mentees accepted that they could cope up better with changes around them. An 82% of the mentees found the mentoring program useful. They accepted that the mentorship programme had made them emotionally stable. A 93% of the mentees accepted that they felt encouraged after mentoring.

Mentoring is a key factor for professional success in medicine [20]. In a US study by Aagaard EM and Hauer KE, the most common functions of mentors were personal support, role modeling and career advising. They have emphasised the impact of mentoring on specialty and residency choice [13].

In the above study, feedback from mentees was overwhelming. A 73% of the mentees agree that mentors were approachable. A 46% of the mentees requested for more mentoring sessions. A 90% of mentees were inclined to continue mentoring program further. And 87% of the mentees admitted that mentoring is much needed for the welfare of students.

In present study, 82% Faculty admitted that mentor-mentee program promotes better teacher-student relationship. Jayalakshmi L et al., in their study found that mentoring resulted in an increase in academic achievement by 78% students, 28% showed an improvement in behaviour and 55% felt that mentoring should go beyond academics and marks [21]. In our study, it was found that the general efficacy of the students improved a lot after mentoring with a significant p-value. The score of depression, anxiety and stress decreased after the mentoring session and it was statistically significant.

Students attribute mentoring for the psychosocial wellbeing. The program was very well perceived by students and the faculty. Students found a better platform where they could discuss their problems with someone who would guide and help them. Mentoring provided support and guidance to students to reduce stress, anxiety and depression. A good mentor-mentee relationship helps in emotional stability. Students found mentors easily approachable, motivating and interactive. Mentors helped them in time management and with studies which helped in alleviating anxiety during exams. Mentoring was found to be beneficial to the students as mentors provide support and advice which helped in personality development and career exploration [22,23]. Faculty found it useful to monitor students' progress. It was a type of an informal interaction, which helped in better bonding [11]. Faculty found a better way to help and guide students in need. Faculty showed interest in further continuation of the programme and volunteer for the same [14,15].

Limitation(s)

Involvement of all the faculty across the first-year subjects could have been done for better mentor mentee ratio. Mentoring can be staged at all the levels of graduation; as it was done only at the level I i.e., in first-year in this study. The study did not include statistical correlation of the academic performance of students and mentoring.

CONCLUSION(S)

From this study, it was concluded that mentoring reduces depression, alleviates anxiety and relieves stress to a significant level in medical undergraduate students. Mentoring should be implemented right from the first year of graduation.

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