

Original Research Article

A Study of Effectiveness of Near Peer Mentoring in Undergraduate Medical Students in a Government Run Medical College**Ranjana Bandyopadhyay¹, Ujjwal Bandyopadhyay^{2*}, Adarsh Lata Singh³**¹*Professor and Head, Department of Pathology, Raiganj Government Medical College and Hospital, West Bengal, India*²*Associate Professor, Department of Pathology, Raiganj Government Medical College and Hospital, West Bengal, India*³*Head of Department, Department of Dermatology, Venereology & Leprosy, Datta Meghe Institute of Medical Science, Deemed University, Sawange, Meghe, Wardha, Maharashtra, India***Received: 28-11-2021 / Revised: 24-12-2021 / Accepted: 08-01-2022****Abstract**

Background: There is growing evidence for the positive effects of mentoring programs in undergraduate medical education in professional and personal development. Peer mentoring is a type of mentoring program in which individuals are equal in age, experience, and rank. This project was taken to introduce an immediate support network for the students of fourth semester MBBS to facilitate learning and overall development. The long term goal is to cultivate a mentoring culture at our medical college that will engage all strata of students. **Methods:** Two hundred Undergraduate medical students of fourth semester batch were included as mentees. Undergraduate medical students of sixth and eighth semester batch were taken as near peer mentor. After the sensitization meetings, each mentee was allotted to a near peer mentor. At the end of the mentoring period, the perceptions of the mentors and mentees about the mentoring programme were recorded. Marks of third and fourth semester examinations were compared to look for any improvement in scores. **Results:** 42 % of the mentees felt that they enjoyed the mentoring sessions as the near peers could understand their problems very well. Comparison of pre mentoring and post mentoring academic performance was done by analyzing the third and fourth semester theory and practical examination marks. The mean of third semester theory was 23.14 % and the same for 4th semester was 26.14 % ($p < 0.001$). For the practical marks, the mean for third semester was 16.51 % and that of the 4th semester was 18.29 % ($p < 0.001$). The difference was more pronounced in cases of low achievers. **Conclusions:** Near-peer mentoring is a novel idea with beneficial effects on both mentee and mentors. Mentoring has some role in academic achievements of mentees, especially for low achievers. Mentors, in turn, benefit by honing of knowledge or acquiring communication and teaching skills critical for the development of a professional.

Keywords: Mentoring program, medical education, near peer mentor, mentor-mentee relationship

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Background

The earliest known use of the term 'mentor' is in Greek mythology where Athena disguised herself as Mentor for the purpose of looking after Odysseus' son Telemachus while Odysseus sailed against Troy[1]. Mentoring is a crucial factor in career success in medicine. There is growing evidence for the positive effects of mentoring programs in undergraduate medical education in professional and personal development[2]. Different designs of mentoring programs for medical students have been described in the literature[3,4]. Mentorship in medical school is important for professional development, fostering interest in research, and supporting personal growth[5,6]. Traditional faculty-based mentorship requires significant time commitments of faculty time for not only providing mentorship, but also obtaining mentorship skills[7]. Faculty time may be limited from competing commitments of clinical, teaching, and research responsibilities in increasingly constrained fiscal environments[8,9]. Additionally, while faculty mentors may be adept at career guidance and long term planning, they may not be best positioned to address day-to-day concerns. Faculty mentors may also not be equipped to give advice on studying for particular courses or succeeding in today's updated curricula. Yet guidance on these seemingly small matters (i.e. where to buy books or study after hours) can be important to students' daily

experiences and overall wellness[10]. Peer or "near-peer" mentoring has the capacity to meet these types of needs. Near-peer mentoring is a process in which an older or more able peer mentors a younger one. "Peer-mentoring" is a specific method to provide medical students with formal teaching experiences[11]. By definition, peer-mentors may be from the same or higher classes as the students whom they are mentoring. Roles range from facilitating small groups to serving as standardized patients. Domains span basic sciences, clinical skills, and students' well-being, to name but a few. Medical schools with formal peer-mentor programs have shown improvements in a range of outcomes including students' institutional and national board exam scores as well as communication and procedural skills[12,13]. Mentors have reported other benefits from these teaching experiences, including a sense of fulfillment and personal reward from helping fellow students[14,15]. Less is known about how well peer-mentors use the skills gained during their own preparation for their teaching role and to address the daily issues facing current medical students. Upperclassmen may also be perceived as more approachable for certain discussions. Faculty and upperclassmen can form a complementary alliance, each mentoring to their areas of expertise[8,9]. There is a body of evidence suggesting overall positive effects of mentoring programs in medical education. Few programs have been applied in academic medicine and nursing, though it has not been used widely in undergraduate medical education[16]. Data on peer or near-peer mentoring in medical school is limited. This project was taken to introduce an immediate support network for the students of fourth semester to facilitate learning and overall development. The long term goal is to cultivate a mentoring culture at our medical college that will engage all strata of students.

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Aim: To study the effectiveness of near peer mentoring in undergraduate medical students

Objectives

1. To sensitize the mentors regarding mentoring and their roles
2. To Sensitize the mentees to mentoring and their roles
3. To analyse the perception of mentees and mentors on mentoring
4. To assess the academic performance of the mentees

Methods

An observational analytical study was performed in the Department of Pathology, of a state run Medical College of West Bengal, from April 2018 to September 2018. Two hundred Undergraduate medical students of fourth semester batch were included as mentees. Undergraduate medical students of sixth and eighth semester batch were taken as near peer mentor. Regarding sample size, all the fourth semester students (200) were included.

The previous studies found in the literature search, are mainly qualitative and did not involve any sample size calculation.

Inclusion Criteria

1. All fourth semester students were included as mentees after taking proper consent.
2. Motivated sixth and eighth semester students with at least 60 % marks in 2nd professional examination and 80 % attendance were included as near peer mentor.

Lottery was performed with numbered chits bearing the roll numbers and batch number (i.e. 6th or 8th semester) of the peer mentors. The mentee picked up the chits and were allotted to the peer mentor. Thus, each of the fourth semester student was allocated to one volunteer near peer mentor. Informed consent was taken in a prescribed format. Institutional ethical committee approval was also taken to proceed with the project. The 4th semester students and the peer mentors from the 6th and 8th semester batch were called, informed and sensitized about the mentoring program and its expected advantages. Name and contact details of the mentors were provided to the mentees. Student's contact details were passed on to the respective mentor. The students were explained about the expected roles of mentors and mentees through student-mentor interactive sessions of one hour duration. Feedback questionnaires were prepared for the mentor and mentee groups with the help of the available references. It was modified and validated by the Medical Education Unit (MEU) faculty. Likert scale was used for analysis of feedback questionnaire. The scores of the third semester theory and practical. Examination (which was taken as

objective structured practical examination, OSPE) were recorded. Finally, after a period of six months, mentors and mentees were requested to complete the questionnaires on their experience with the mentoring programme. The marks of the 4th semester theory and practical examination (which was taken as OSPE) were also noted. The mark sheets of 3rd and 4th semester examination were compared to find any difference in performance of the students in theory or practical examination.

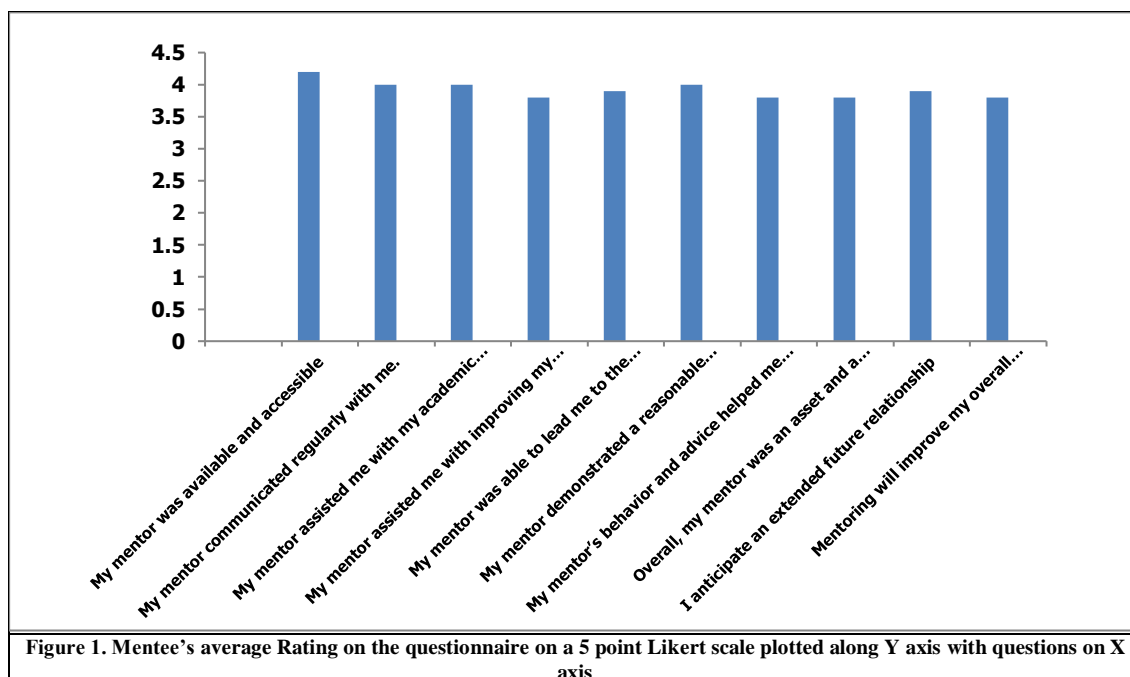
Statistical Analysis

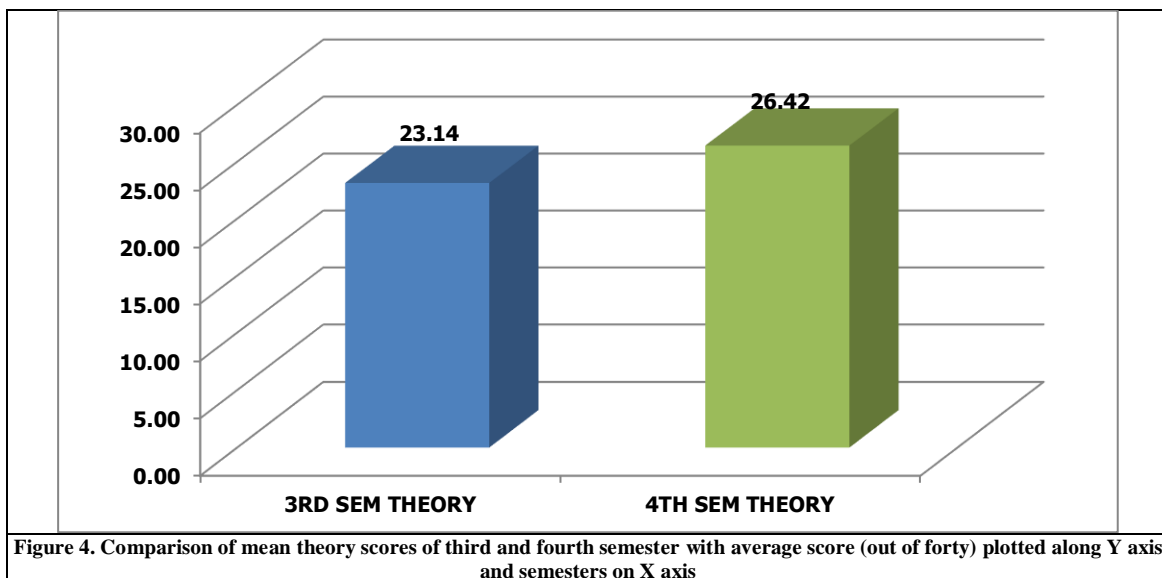
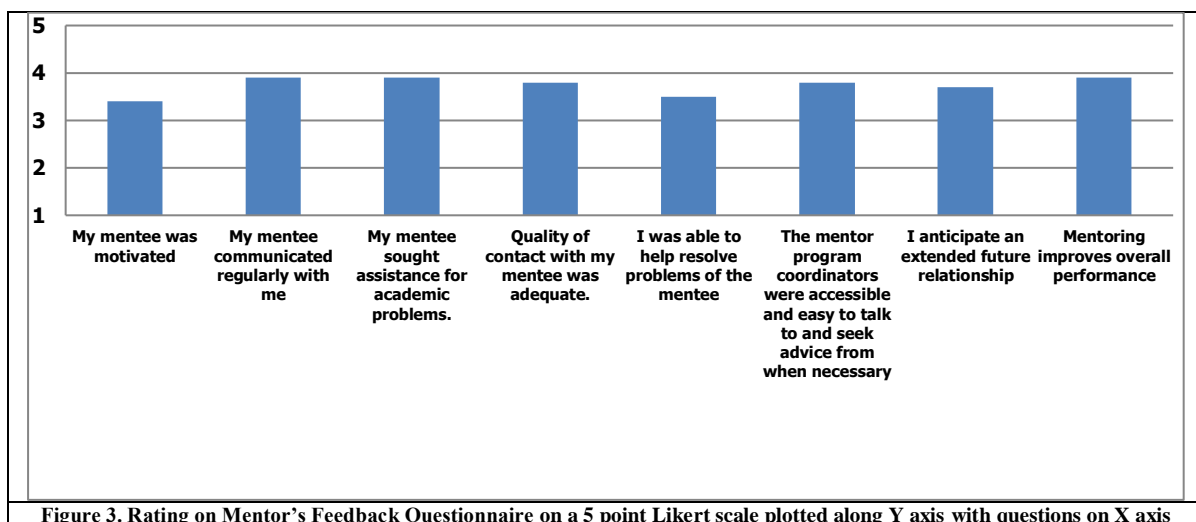
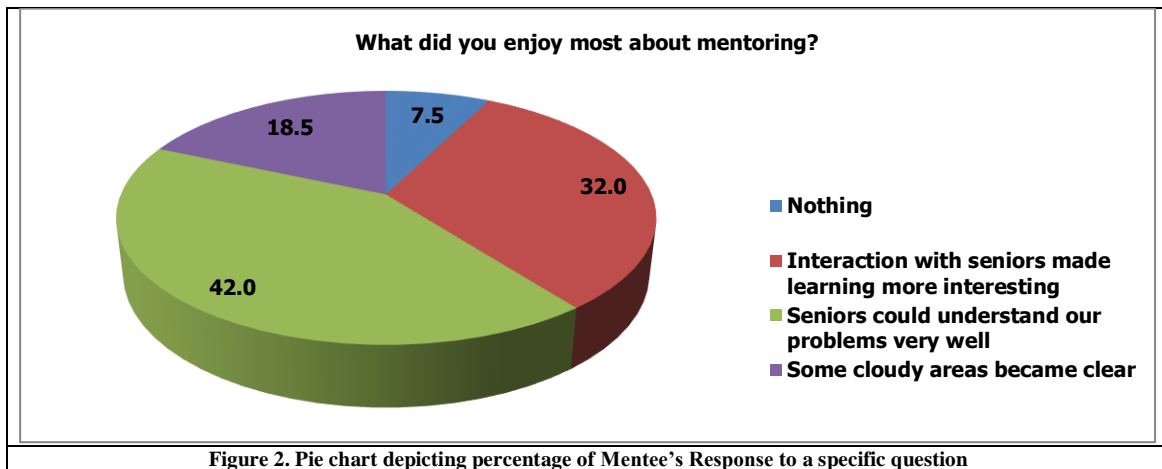
Likert scale was used for analysis of feedback using descriptive statistics. Wilcoxon Signed Ranks Test was performed for analysis of theory and practical marks in third and fourth semester examinations. SPSS 19 software was used for statistical analysis.

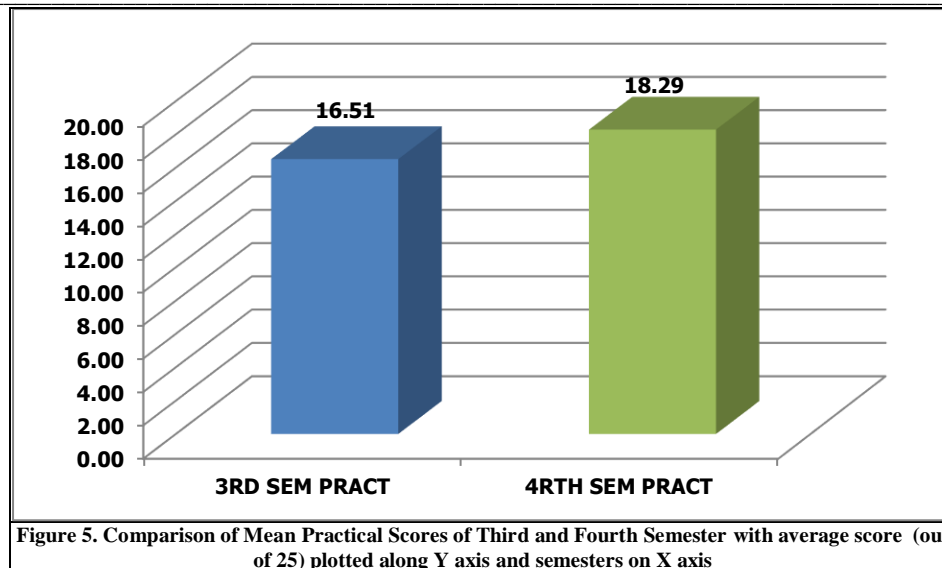
Results

Two hundred mentees of fourth semester MBBS batch and 200 near peer mentors of 6th and 8th semester MBBS students participated in the present study. Analyzing the feedback data on a Likert scale, we found that the overall response was good with the scale rating for most of the parameters nearing the value of 4 that is towards the side of agreement. (Table 1, 2) (figure: 1, 2). Analyzing the open ended questions, we found that 42 % of the mentees felt that they enjoyed the mentoring sessions as the near peers could understand their problems very well. Another 32 % felt interaction with senior peers made learning more interesting (figure 3). The most important barrier suggested by the mentees was the issue of time adjustment (figure 4). The mentees were very enthusiastic about the mentoring program and about 62 % expressed concern whether this will continue in future (figure 4). Sixty nine percent of the mentees felt that this program should be made available throughout the curriculum (figure 5).

Analyzing the mentor's response on Likert scale, we found that the mentors strongly felt that mentoring improves overall performance. The mentors were also satisfied with the communication with their mentees (table 3, figure 6). The main barrier as suggested by the mentors was time adjustment which was also suggested by the mentees. 73.5 % of the mentors agreed that mentoring is a good idea. The mentors realized that mentoring enhanced their communication skill and teaching ability (figure 7). One of the most important suggestions which came from mentors was to include some faculties in the group so that they can consult him whenever they found difficulty.

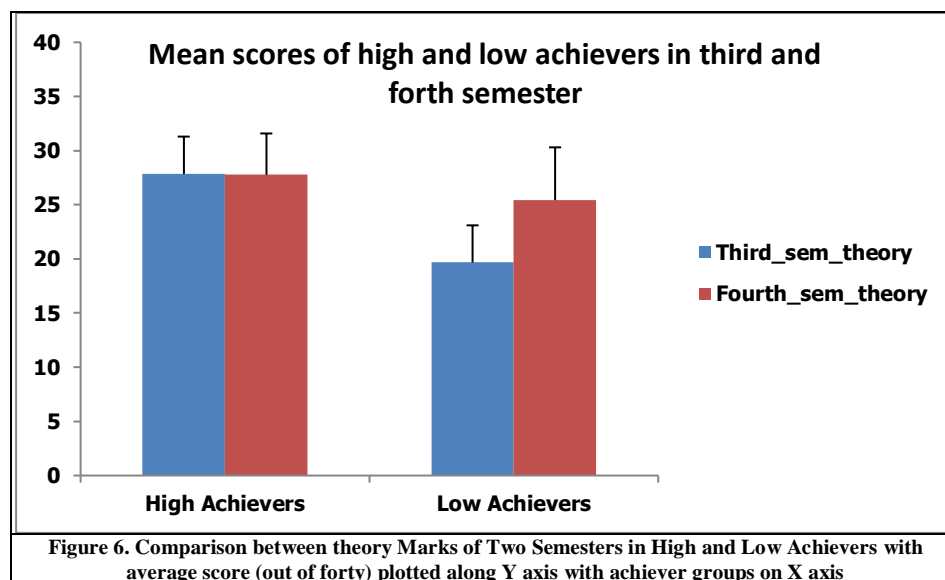




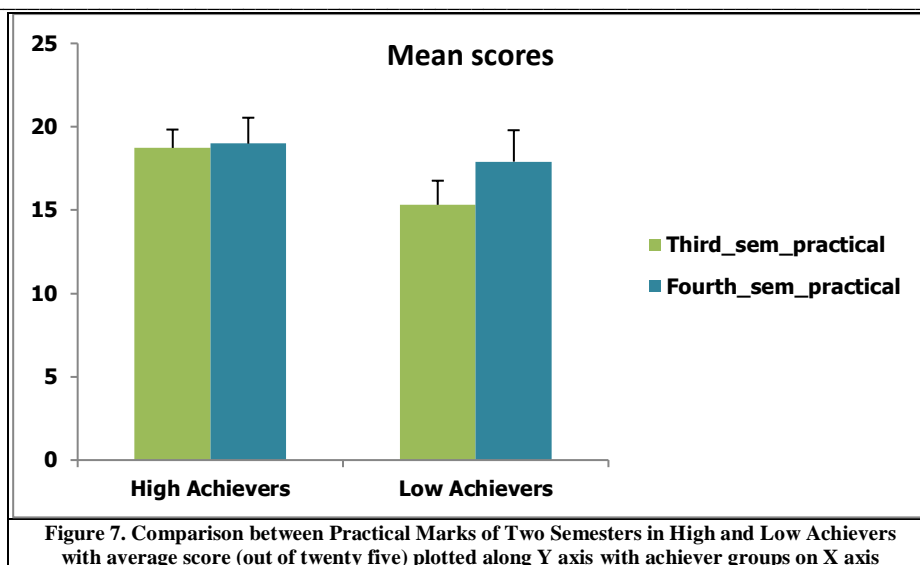


Comparison of pre mentoring and post mentoring academic performance was done by analyzing the third and fourth semester theory and practical examination marks. The test for normality was performed. The mean of third semester theory was 23.14 % and the same for 4th semester was 26.14 %. Wilcoxon Signed Ranks Test showed significant difference ($p < 0.001$). For the practical marks, the mean for third semester was 16.51 % and that of the 4th semester was 18.29 %. Significant difference was shown using Wilcoxon Signed Ranked Test ($p < 0.001$) (figure 4, 5, 6).

The scores for the third semester were transformed into ranking and then a split median was done to divide the students into two groups — high achievers and low achievers. This method was followed for analyzing the performances in both theory and practical examinations. A Wilcoxon signed ranks test indicated that there was no statistically significant difference in the scores of the 3rd semester ($M = 27.84$, $SD = 3.5$) and 4th semester ($M = 27.76$, $SD = 3.8$) in high achievers ($z = -0.053$, $p = 0.957$). However, the difference between 3rd semester ($M = 19.7$, $SD = 3.4$) and 4th semester ($M = 25.4$, $SD = 4.9$) was significant in low achievers ($z = -7.961$, $p < 0.001$). (Figure 6)



Similarly for the practical examinations, no statistically significant difference was found in the scores of the 3rd semester ($M = 18.7$, $SD = 1.1$) and 4th semester ($M = 19$, $SD = 1.6$) in high achievers ($z = -1.414$, $p = 0.157$). However, the difference between 3rd semester ($M = 15.3$, $SD = 1.4$) and 4th semester ($M = 17.9$, $SD = 1.9$) was significant in low achievers ($z = -8.901$, $p < 0.001$). (Figure 6, 7)



Discussion

Near-peer mentoring is not a new concept. Harvey Cushing's relationship with William Osler is an early example; it is reported that they both benefited from the mentoring relationship[17]. Mentoring relationships have been reported to facilitate self-directed learning, career advancement, productivity, and a positive attitude towards another person's (mentee's) career[18,19].

Consistent with the findings of a previous research on mentoring of medical student[2,3,20] our results revealed that peer mentors could offer various academic and psychosocial support for the junior mentees. Medical students generally look for more experienced seniors who could help them comply with the new requirements during the transition time[21]. Our participants mentioned that formal peer mentor-mentee relationship is effective because of reciprocal commitment, and mentors' reliable, accurate, and specific guidance.

Most mentees in different studies mentioned that their mentors played an important role in providing some academic support for them, which was mainly focused on the way of studying for exams. According to the mentees' views, mentors provided information about different types of study methods and helped the mentees choose the suitable one that improved their study performance, and subsequently, their exam results at the early stage of the medical school (dual peer). In the present study it was reflected as some improvements in the academic performance of the students, especially in case of low achievers. This improvement is however may not be solely due to mentoring effect some other factors may have motivated the students in general like the approaching 2nd Professional examination. However, as suggested by the responses of the mentees, mentoring has helped them to solve academic problems. Thus mentoring may not be the sole factor for their academic improvement but it definitely played an important role.

There are more than 20 studies on mentoring of medical students available in the literature. But few sought to measure the degree to which the participants had acquired the intended knowledge, skills, attitude, confidence and commitment based on their participation in the mentoring programme. None also evaluated objectively for positive behavioural changes in the mentees; or the degree to which targeted outcomes had occurred as a result of the programme[22]. In the present study, we have tried to measure the change in level of acquired knowledge and skill. Though a time of only six months may not be enough to show measurable changes, we have got optimistic results. A more palpable change in all the aspects of learning including the ethical and professional issues may be obtained with widespread implementation of the mentoring programme. In a similar study from Chattisgarh, effectiveness of mentoring program was

assessed through academic performance. Low achievers were assessed through the performance in pre university examination. The distributions of marks before and after mentoring were compared which showed significantly higher mean scores post-intervention among 98.1 % low achievers[23].

Time has been suggested as the main barrier of mentoring both by mentees and mentors in the present study. Other studies have also suggested lack of time to meet as a major barrier to mentoring[24-27]. Since common free time to meet is difficult to arrange owing to the hectic academic, patient care, and research schedules of the parties concerned, mentors must be enthusiastic about their roles. They must make extra effort to make themselves available and approachable[28].

The lack of initiative from mentees has been suggested as a troubling barrier by the mentors. For proper implementation of mentoring programme, the mentee must be proactive so as to receive the most benefit from the relationship[3,25]. Keeping a bit more time for sensitization of mentees and mentors may be helpful in this regard.

There is a debate as to which type of mentoring is superior: the faculty mentoring or the near peer mentoring. Studies comparing the two have shown most measures of mentoring were comparable between faculty mentors and near-peer mentors[24]. The only reported difference was that mentees met more often with near-peers. Studies have shown that junior students reportedly prefer interacting and learning from near-peers because they are less intimidated by them than by their teachers[26]. Additionally, near-peers have recently passed through the same experiences and are, therefore, better able to understand the problems faced by new students[15,29]. Peer-mentors share a "cognitive congruence" by having a similar knowledge base and thus can help students better understand basic underlying concepts. Peer-mentors also have a "social congruence," which allows them to help alleviate students' anxieties around learning new material or with any transitional difficulties.³ Thus, peer-mentoring offers several educational benefits for both teachers and learners.

One of the suggestions of our mentees was to include some faculty member in the group of mentors. This will be a good practice as the faculty mentor would be able to resolve any problem faced by the peer mentor. In addition to that, some authors have suggested that close interpersonal relationship between mentor and mentee may sometimes blur ethical boundaries. The students in this study did not report any such issues. Perhaps the presence of faculty mentors in the equation can be of help if any such issue arises. Further, the mentoring manual and open house meetings may also serve to remind mentors about their roles and the need for high standards of role

modeling. So faculty mentoring and near peer mentoring can be complementary to each other.

Stress for medical students may be related to their academics. Medical students are traditionally known to be high achievers. Often times the valuation of their personal brightness and intelligence is first put to the test during their tenure in medical school. If their effort is not in cognizance with outcomes or results, the students experience a drop in self-worth and esteem[30,31]. Mentees in the Singh et al[24], study reported that the near-peer mentoring programme had a 'de-stressing and morale building' effect on them. In the study by Yusoff et al[32], 43 % of the mentees reported that they had experienced a reduction in stress, while just under 32 % reported that they developed resilience as a result of the mentoring programme. Mentees in the Abdolalizadeh et al[33] study reported that the mentoring programme helped them reduce stress, cope with new situations, and confront difficulties.

The near-peer mentors overwhelmingly felt that they were benefited from being mentors as it enhanced their communication skill. Other studies have also shown that serving as a mentor enhances personal satisfaction, professional success, and organizational and professional contributions[27]. The mentors in the present study also felt that mentoring refines their teaching skill. By reinforcing the near-peer mentor's own knowledge, mentoring has been reported to hone teaching skills[34,35,36], a distinct advantage for medical students who are future residents and potential faculty members. Improvement in communication skills has also been reported as a result of mentoring activities; communication is an essential aspect of physician-patient interaction, and all efforts to enhance it would be welcome[37].

Mentoring programme can be beneficial to both mentees and mentors reports suggest that there are long-term advantages as well. Mentoring causes a ripple effect, and persons who have participated in mentoring as either mentees or mentors are more likely to mentor in the future[38]. The mentee is also more inclined to teach, to develop strong professional relationships, and to thus help in advancing the profession[26].

Conclusion

In conclusion, mentoring is a dynamic process, and program evaluation is essential. Feedback can provide an impetus for evaluation and can enhance the success of the program. The feedback in this study reveals that in a fostering environment, near-peer mentoring is a novel idea with beneficial effects on both mentee and mentors. Mentoring has some role in academic achievements of mentees, especially for low achievers. It also helps in development of social skills in them. Mentors, in turn, benefit by honing of knowledge or acquiring communication and teaching skills critical for the development of a professional.

Practice Points

- Mentoring programme can be beneficial to both mentees and mentors
- Mentoring causes a ripple effect
- Mentoring has some role in academic achievements of mentees, especially for low achievers.
- Mentors, in turn, benefit by honing of knowledge or acquiring communication skills.
- Mentoring is a dynamic process, and program evaluation is essential.

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