

# Instilling leadership skills in undergraduate medical students



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## ABSTRACT

**Background:** Leadership is the behavior of an individual when directing the activities of a group toward a shared goal. In the health-care system, doctors' responsibilities extend beyond clinical treatment. They should be efficient to lead a team in the patient care setting and within the broader framework of health-care systems. Good medical leadership is vital in delivering high-quality health care. Incorporating leadership skills in medical undergraduates will help them act as leaders and members of the health-care team. **Aims and Objectives:** The aims and objectives of the study are to enhance leadership skills and to assess the improvement in leadership skills of the participating medical undergraduate students. **Materials and Methods:** In this prospective study, medical undergraduate students posted in otorhinolaryngology clinics took part in various activities in two subsequent community otorhinolaryngology programs. Students were given different roles and responsibilities in the community programs to improve their leadership skills. Students filled out a pre- and post-activity self-assessment leadership trait questionnaire form for each community program. **Results:** 88 students participated in the study. The overall percentage leadership score increased significantly from the first pre-activity questionnaire (Q1) to the first post-activity questionnaire (Q2) ( $P < 0.001$ ) and from the first pre-activity questionnaire (Q1) to the second post-activity questionnaire (Q4) ( $P < 0.001$ ). All 14 traits showed significant grade changes from pre-activity to post-activity questionnaire. **Conclusion:** Well-designed and well-evaluated leadership curricula are necessary to help undergraduate medical students develop leadership skills. Undergraduate medical education provides an ideal setting to introduce leadership competencies. This study highlights community engagement as a potent method for the delivery of medical leadership training.

**Key words:** Leadership; Medical education; Community engagement

## INTRODUCTION

Leadership is described as the behavior of an individual when directing the activities of a group toward a shared goal. The key aspects of the leadership role involve influencing group activities and coping with change.<sup>1</sup> Leaders motivate, inspire, and align strategy to establish direction for individuals and the systems in which they work.<sup>2</sup> In the health-care system, doctors' responsibilities extend beyond clinical treatment. They should be efficient to lead a team in the patient care setting and

within the broader framework of health-care systems. In addition, doctors must possess the required abilities for cooperation and collaboration with other health-care professionals.<sup>3</sup> Good medical leadership is vital in delivering high-quality healthcare, and yet, medical career progression has traditionally seen leadership lack credence in comparison with academic and technical ability.<sup>4</sup> As a part of the curriculum, medical undergraduates do participate in various activities with multi-professional teams, however, their roles are merely observational and no demands are made in terms of taking responsibility

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for their actions or interacting formally with other team members.<sup>5</sup>

Organizations are now acknowledging the need for an increase in the leadership capabilities of future physicians. The revised Indian Graduate Medical Education regulations recognized “leader and member of the health care team and system” as one of the roles of the Indian medical graduate.<sup>6</sup> The new competency-based curriculum recognized the importance of leadership skills in physicians and has outlined competencies that would lead to attaining this goal.<sup>7</sup>

Incorporating leadership skills in undergraduates will help students act as leaders and members of health-care teams so that they can (a) work effectively and appropriately with colleagues in an inter-professional health-care team, (b) recognize and function effectively, responsibly, and appropriately, (c) educate and motivate other members of the team and work in a collaborative and collegial fashion, (d) access and utilize components of the health-care system and health delivery, (e) participate appropriately and effectively in measures that will advance quality of health care and patient safety, and (f) recognize and advocate health promotion, disease prevention, and health-care quality improvement.<sup>8</sup>

Leadership and management education are not well developed at the undergraduate level and there is limited literature on how to incorporate them into the undergraduate curriculum.<sup>9</sup> In the current module, we asked medical students to participate in otorhinolaryngology-related community programs to develop their leadership abilities and raise awareness of those programs. We utilized the leadership trait questionnaire, developed by Peter Northouse, an expert in the field of leadership research, to evaluate leadership development in medical students participating in the study (Annexure).<sup>10</sup>

### Aims and objectives

The aim of the study was to enhance leadership skills and to assess the improvement in leadership skills of the participating students.

## MATERIALS AND METHODS

This was a prospective study carried out in the Department of Otorhinolaryngology at Era’s Lucknow Medical College. Medical undergraduate students posted in otorhinolaryngology clinics were eligible to take part in the study. Undergraduate students with <75% attendance in otorhinolaryngology clinical postings were excluded from the study. Anchoring lectures regarding leadership skills, community otorhinolaryngology programs, and a leadership skills sensitization module were given.

Students took part in various activities in two subsequent community otorhinolaryngology programs – World Hearing Day and World No Tobacco Day. Students filled out a pre-activity self-assessment leadership trait questionnaire form before each community program and a post-activity self-assessment leadership trait questionnaire form after each community program. A total of four questionnaire forms were filled out by each student. Students were given different roles and responsibilities in the community programs to improve their leadership skills. The community otorhinolaryngology program’s activities were centered on goal-setting, team engagement, group development, patient safety, quality improvement, and efficient communication. The leadership trait questionnaire was used in its original format with the five-point Likert scale for the 14 traits. At the end, students wrote their reflections about participation in the program.

## RESULTS

A total of 88 students, of which 49 were female (55.7%) and 39 were male (44.3%), participated in the study.

A total of 14 questions were included in the leadership trait questionnaire and responses in the form of grading from 1 to 5 were noted.

Results were obtained in terms of overall percentage leadership score and response grading for leadership trait questionnaires.

The overall percentage leadership score increased significantly from the first pre-activity questionnaire (Q1) to the first post-activity questionnaire (Q2) ( $P < 0.001$ ), from the first pre-activity questionnaire (Q1) to the second pre-activity questionnaire (Q3) ( $P < 0.001$ ), and from the first pre-activity questionnaire (Q1) to second post-activity questionnaire (Q4) ( $P < 0.001$ ) (Table 1 and Figure 1).

All 14 traits showed significant grade changes from Q1 to Q2 ( $P < 0.05$ ), Q1 to Q3 ( $P < 0.05$ ), and Q1 to Q4 ( $P < 0.05$ ). Changes in questionnaire response grades for different leadership traits are summarized in Table 2.

## DISCUSSION

It is indisputable that the delivery of high-quality care consistently to patients requires, among many other factors, good medical leadership. However, leadership skills have traditionally not being prominent in either the curricula or the assessment systems of medical students. Undergraduate medical education concentrates on disease diagnosis and management, with little emphasis on health-care delivery and teamwork. This lack of focus and emphasis has led to

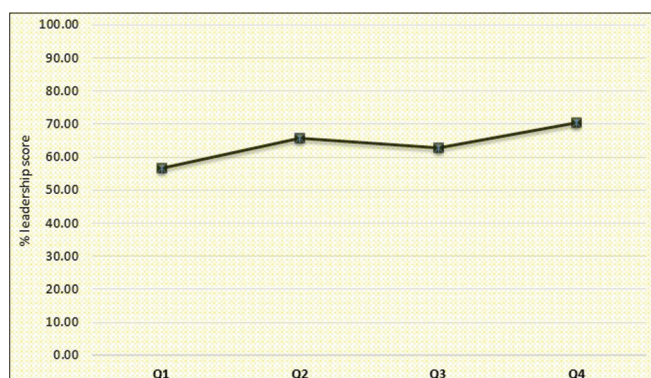
**Table 1: Changes in overall percentage leadership score**

Record	Overall % leadership score		Change in % score		Comparison from Q1	
	Mean	SD	Mean	SD	t-value	P-value
1 <sup>st</sup> Pre-activity questionnaire (Q1)	56.82	16.01	-	-	-	-
1 <sup>st</sup> Post activity questionnaire (Q2)	65.79	14.49	16.40	12.18	-12.63	<0.001
2 <sup>nd</sup> Pre-activity questionnaire (Q3)	62.81	16.50	14.18	13.12	-10.14	<0.001
2 <sup>nd</sup> Post-activity questionnaire (Q4)	70.40	14.78	14.98	11.84	-11.86	<0.001

SD: Standard deviation

**Table 2: Changes in questionnaire response grades for different leadership traits**

S. No.	Leadership trait	Q1 to Q2 Chi-square and P-value (significance)	Q1 to Q3 Chi-square and P-value (significance)	Q1 to Q 4 Chi-square and P-value (significance)
1	Articulate	44.08 <0.001	38.03 <0.001	42.89 <0.001
2	Perceptive	16.60 0.004	10.71 0.046	11.54 0.032
3	Self-confident	18.31 0.002	15.50 0.006	15.57 0.006
4	Self-assured	10.93 0.027	12.29 0.015	10.31 0.036
5	Persistent	18.82 <0.001	11.21 0.037	15.64 0.004
6	Determined	21.98 <0.001	16.57 0.002	19.34 <0.001
7	Trustworthy	11.20 0.024	19.15 <0.001	11.59 0.021
8	Dependable	17.30 0.002	14.50 0.006	14.57 0.006
9	Friendly	22.42 <0.001	16.48 0.002	22.76 <0.001
10	Outgoing	15.59 0.004	9.71 0.046	10.54 0.032
11	Conscientious	12.20 0.024	20.16 <0.001	12.59 0.021
12	Diligent	28.23 <0.001	18.95 <0.001	24.68 <0.001
13	Sensitive	18.45 0.001	13.41 0.009	17.91 0.001
14	Empathic	19.20 <0.001	19.48 <0.001	20.94 <0.001



**Figure 1:** Changes in overall percentage leadership score

significant variation in the standards of medical leadership and has impacted on the standard of patient care, resulting in reports of clinical negligence. Leadership development should be an essential component of the education of all

medical students.<sup>4</sup> Leadership training in medical education must begin early for it to be effective.

The results of our study indicate that there was a significant improvement in overall percentage leadership score and there was also significant improvement in all the 14 leadership traits. Self-assessment of leadership traits was used as the measurement tool in the study, as in most of the studies assessing the development of leadership.<sup>11-13</sup> The concept of self-leadership has attracted a significant amount of attention over the past few decades.<sup>14</sup> Self-leadership is a process of behavioral and cognitive self-evaluation and self-influence whereby people achieve the self-direction and self-motivation needed to shape their behaviors in positive ways to enhance their overall performance.<sup>14,15</sup> Some studies have reported the use of faculty supervisor assessment and/or assessment by peers as the measurement tool.<sup>16-18</sup> This

study quantified the changes in student's behavior, which was missing in previous studies, as concluded by Allison *et al.*,<sup>19</sup> in their systematic review.

Similar to our module Hargett *et al.*,<sup>20</sup> designed a leadership model specific to health care using concept mapping. The model was based on the core principle of patient-centeredness and core competencies of emotional intelligence, integrity, selfless service, critical thinking, and teamwork. They found this model useful for teaching leadership skills. An explicit leadership curriculum including role play, team training, community experiences, student leadership opportunities, participation in quality improvement projects, and mentored leadership development plans is potential ways to enhance leadership training. Our leadership module is based on multiple needs assessments and consideration of a wide range of leadership theories that are relevant to health care and appropriate to the student curriculum. Reflection by students suggested it was experiential learning for them. Reflection provides insight into what students are actually learning and offers guidance for curricular reform. Reflections are the source for gaining a deeper understanding of how the curriculum shapes medical trainees.<sup>21</sup> The additional outcome of the study was the increased awareness regarding community otorhinolaryngology programs in medical undergraduates.

There is no formula or direct path to a leadership position and becoming an effective leader is an evolutionary process. Although some may aspire to these positions, many are thrust into roles of leadership. The key to success is early involvement and adequate preparation to develop those skills and qualities that will make us true leaders. In our leadership module challenges in the form of assignments offered important developmental opportunities, requiring the individual to work outside their comfort zone and learn new skills to achieve the desired results. To prepare the Indian medical graduate as an effective health-care leader, there is no universal approach; it is desirable that the institutes organize the leadership competencies into an institutional framework and integrate these vertically and horizontally in their curriculum in a longitudinal manner.

Leadership training is not just meant to prepare students for particular leadership roles; instead, it is targeted to develop strong personal and professional values and a range of non-technical skills such as communication skills, strong emotional intelligence, and negotiation skills, which will allow them to lead across professional boundaries. True leadership lies in coping with change and transforming a compelling vision into reality. Physicians have an obligation to learn as much as possible about effective leadership so that when an opportunity to lead comes, they will make

optimal use of it and feel empowered to contribute to solutions and improvements at all levels of health care.

Leadership curricula and interventions are delivered in a wide variety of formats and the lack of standardization makes it difficult to evaluate them and their outcomes side by side.<sup>4</sup> Our leadership module is unique in its method of delivery and focuses on communication, teamwork, group development, patient safety, quality improvement, and otorhinolaryngology-related national programs. This study has incorporated all the necessary leadership skills as mentioned in the latest competency-based medical education curriculum that has helped students to evolve their leadership qualities. It is acknowledged that management and leadership skills are crucial components of undergraduate medical education. Of the different leadership methodologies available, each individual will find some more pertinent to them than others, but mentoring relationships, strong professional networks, and experiential learning are all excellent ways for future medical leaders to start developing the requisite skills and experience. Incorporation and assessment of leadership qualities in medical undergraduates, as in our study, are the need of the hour in the field of medical education and research. If we want more of tomorrow's doctors to engage in leadership and management, it is necessary to educate today's medical students.<sup>2</sup>

#### Limitations of the study

We analyzed results from one cohort of 88 students from our institution and recognized that the result obtained from this student sample may have been different had additional cohorts being studied. Moreover, students recruited in the study had a good attendance record, which may involve an inclusion bias related to individual motivation. The leadership traits were determined by self-assessment which might over or underestimate the true trait characteristics due to the inherent subjective nature and might also depend on the mood, context, and other peer factors while filling up the questionnaire.

## CONCLUSION

The provision of health care is dynamically evolving and it is critical that physicians develop leadership skills to help guide this change. To meet this need, well-designed and well-evaluated leadership curricula are necessary. Undergraduate medical education provides an ideal setting to introduce leadership competencies. Different delivery methods for leadership curricula include community engagement, as used in our study, extracurricular activities, clinical experience, assessments, and projects, medical students as educators, mentoring, interactive sessions, and didactics lectures. This study highlights community engagement as a potent method for the delivery of medical leadership training.



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### Authors Contribution:

**AB**- Concept and design of the study; **FSM**- Prepared first draft of the manuscript; **SS**-statistical analysis and interpretation; **RKG**- Literature survey and manuscript preparation; **HS**- Data collection and data analysis; **AB**- Implementation of the study protocol and manuscript revision; **FM**- Implementation of the study protocol and Manuscript revision.

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