



# Identifying Leadership Competencies in Medical and Dental Healthcare Professionals in Pakistan

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## Research Article

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## Abstract

To identify and empirically investigate the leadership competencies in medical and dental healthcare professionals in Pakistan. A quantitative, cross-sectional descriptive study with a survey was used to identify the perceived leadership competencies in medical and dental healthcare professionals in Pakistan. 142 medical and dental faculty members and clinicians were selected from four medical and dental colleges and hospitals in Rawalpindi/Islamabad and each participated in an in-person survey. The participants were educators and physicians who held academic positions in medical and dental education. A total of 142 completed the survey out of which 88 (62%) were women and 54 (38%) were men. Mean age of women was 38 years and mean age of men was 42 years. A 63-item survey measuring leadership competencies developed by Fadil Citaku, et al. [1], was administered in person to all participants. The five features recognized as leadership proficiencies required for healthcare professions were (1) social responsibility, (2) innovation, (3) self-management, (4) task management and (5) leading others. Cronbach's alpha values of all domains were above 0.7, indicating scale was reliable and items were stable and internally consistent. Cronbach alpha of the entire questionnaire was 0.961. The means of the Likert score for all the five major variables (scales) were between 3.57 (honesty and integrity) and 4.30 (personal decision quality). The results of Principal component analysis done on the questionnaire data yielded five competencies of leadership including task management, social responsibility, innovation, self-management, and leading others with high coherence and internal consistency. These identified leadership skills are considered important by all doctors, dentists, males, females, assistant professors and professors alike.

**Keywords:** Leadership competencies; Healthcare professionals; Doctors; Dentists; Academic performance

**Abbreviations:** GMC: General Medical Council; TMC: Task Management; SRC: Social Responsibility; SMC: Self-Management; LOC: Leading Others; IC: Innovation.

## Introduction

Leadership is defined by Fadil Citaku, Vroom and Jago [1,2], "as a process of motivating people to work together

collaboratively to accomplish great things". Health care institutions and medical/dental colleges require capable and efficient leaders to deal with the pressures and trials of the modern world [3,4]. Medical and dental educators are involved in various activities like teaching, designing curriculum, assessment, facilitating learning, mentoring, providing a right learning atmosphere and supervising departments and programs. All these activities need some

kind of leadership to achieve the goals [5]. We need effective medical education leaders to produce highly knowledgeable, skilled and socially accountable, empathic doctors. Drucker [6] proposes that competent leaders are those who do the right things and achieve their goals showing results, who are role models for their followers and take responsibility for their actions.

Medical and dental education leaders are challenged by factors like economic constancy, curriculum growth and change, research provision and degree of quality assurance [1]. Ineffective and incompetent leadership will rarely satisfy these demands. Hence, we need to examine several leadership competencies and practices required for fulfilling many responsibilities that are significantly and directly associated with student achievement. Past research has shown that leadership leads to improved productivity and performance [7]. Competent medical and dental leaders need to develop important individual qualities like self-awareness, self-management, continued personal growth, honor, ethics and honesty. They also need to demonstrate important qualities when working with others in collaboration for example building & maintaining relationships, encouraging involvement of other team members and working within teams [8]. They must effectively manage resources, people and their performance. Furthermore, they have to ensure patient safety by applying knowledge and making wise evidence-based decisions.

The major purpose of this study was to identify and empirically investigate the leadership competencies in medical and dental healthcare professionals in Pakistan. It was designed to replicate, extend and confirm the findings of Citaku, et al. [1].

### **Leadership competencies in Medical and Dental Education and Profession**

The literature related to medical education leadership is still in its beginning and developing phase. Bland, et al. [9] were among the pioneers to empirically study particular educational leadership competencies for effective university-community partnership in bringing about the change in curriculum. In an ever-changing medical education system, leaders need to have a shared vision with their followers and by good communication and role modeling, they can facilitate change that can be applied both to education and health care services.

Effective leadership is linked with improvement in teaching effectiveness and enhancing educational quality and excellence [10]. Leithwood, et al. [11] discovered that effective school leaders exhibit four main competencies: developing people and teams, setting direction for the

future, reforming the organization and supervising the educational program. Bordage, et al. [12] conducted a study to identify skills and qualities of educational directors and they found five significant personal traits which were open-mindedness, vision, flexibility, trustworthiness and led by values. McKimm's study results also identified the same qualities but added a few more including self-awareness, self-management, strategic skills, analytical thinking, tolerance and being willing to take risks.

In order to manage the challenges in the new health care systems, specialists and organizations feel the need to improve doctors'/dentists' leadership abilities. As a result, physician leadership programs are developing and growing, appealing to all levels of experience and training. Leadership is an important aspect of physicians' specialized job regardless of field and setting. It is considered necessary for all physicians as mentioned in the General Medical Council's (GMC) publications, Good Medical Practice and Tomorrow's Doctors [8].

Doctors need to develop leadership skills like emotional intelligence, conflict resolution, negotiation, situational sensitivity and style flexibility, strategic planning, stress management, communication skills, team building, solving problems, managing change and acting with integrity. As effective physician leaders, they must have strong morals, ethical values and take responsibility of the public health [13]. Physician leaders have responsibility for training their students and trainees by role modeling, coaching and mentoring [14]. A change in traditional educational methods in healthcare is extremely important to fulfill the requirements of an updated medical service and community expectancy. Academic change cannot be achieved without competent leadership, and the lack of leadership in the past has actually hindered change [15]. It is very important for the leadership to create a favorable educational atmosphere/culture, which not only emphasizes learning but also assessment, analysis and improving education. Hence leadership is critical to bringing about improvement in educational outcomes.

Leadership can be learned, however, identifying, and defining the central competencies of leadership remain elusive. There is an abundance of literature written about leadership, but significant research in area of medical education is lacking. The study done by Citaku, et al. is one of the few which has provided empirical evidence for the most important leadership competencies in medical education [1]. These researchers have developed a leadership competencies model, empirically investigating the core leadership competencies.

This model comprises 63 leadership competencies within five domains:

1. Social responsibility;
2. Innovation;
3. Self-management;
4. Task Management;
5. Justice orientation.

This empirical model of leadership competencies offers a foundation for developing curricula of training programs to teach and develop leadership competencies in any domain, including medical and dental healthcare professions.

## Methods

Participants a final sample of 142 participants from four medical and dental colleges in Rawalpindi/Islamabad completed the questionnaire survey. The sample of physicians and dentists was achieved by simple random sampling technique. There were 88 women and 54 men, 84 were assistant professors (59%), 35 associate professors (24.6%) and 23 professors (16%), 79 doctors and 63 dentists. The average age for females was 38 years and for males was 42 years. The mean years of work experience was 13 years.

The professors, associate professors and assistant professors of the above-mentioned institutes were included in the study. They all held either MCPS, FCPS or master degrees. Simple BDS and MBBS with more than five years of work experience were also included.

## Survey Procedures

Survey participants were from four private and public medical colleges, dental colleges and teaching hospitals of Rawalpindi and Islamabad. A 63-item questionnaire measuring leadership competencies designed by Fadil Citaku, et al. [1] was administered in person to all participants. Four

institutes were visited, ethical review committee approval was obtained and the questionnaire about leadership was distributed among the faculty members. The data collected was entered in SPSS version 23 for further analysis.

## Data Analysis

SPSS version 23 was used for statistical analysis. Reliability of the survey scores was evaluated by using Cronbach's  $\alpha$  and sampling adequacy test by K-M-O test. Descriptive statistics of the survey items was done. Evidence of factorial validity was evaluated by using exploratory factor analysis. Principal component analysis (PCA with 63 items) was done.

One-way ANOVA for 5 extracted factors was conducted. It was performed separately for females and males, doctors and dentists, and finally for assistant professors, associate professors and professors. The mean Likert score and SD (standard deviation) for each item were calculated. This was used to calculate the mean Likert score and SD for each scale by taking the mean of all the items that comprise the scale. Correlation coefficient for each scale and its items was calculated using Pearson's test.

## Results

### Descriptive Statistics of the Survey Items

Descriptive statistics of the items are summarized in Table 1. A large number of respondents rated each item as important (4) or very important (5). For remaining items, the whole scale was used. The calculated means of the items ranged from 3.57 (#18 honesty and integrity) to 4.30 (#3 personal decision quality). The SDs are either less than or equal to 1 for five-point items, showing that data points are gathered closely around the mean.

Items	Minimum	Maximum	Mean	SD
Maintain quality	1	5	4.19	0.88
Succession planning/recruiting	1	5	4.18	0.76
Personnel decision quality	1	5	4.31	0.84
Maintaining safety	1	5	4.09	0.94
Enhancing task knowledge	1	5	4.23	0.9
Eliminating barriers to performance	1	5	4.17	0.8
Strategic task management	1	5	4.09	1
Communication with community	1	5	3.81	0.99
Providing good example	1	5	3.85	1.19

Knowledge of organization justice	1	5	3.8	1.06
Legal regulations	1	5	3.88	1.05
Open-door policy	1	5	3.66	1.1
Explaining decision respect	1	5	4.03	1.01
Servant leadership	1	5	3.74	1.1
Distributing rewards fairly	1	5	3.98	0.97
Responsibility for others	1	5	3.8	1.03
Financial ethics	1	5	4.03	0.95
Honesty and integrity	1	5	3.57	1.47
Being accountable	1	5	3.63	1.27
Time management	1	5	4.18	0.97
Goal orientation	1	5	4.19	0.8
Taking initiatives	1	5	4.01	1.04
Effort	1	5	4.1	1.03
Persistence	1	5	3.97	1.07
Self-control	1	5	3.83	1.28
Self-tolerance	1	5	3.82	1.19
Adaptability	1	5	3.78	1.17
Self-reliance	1	5	4.12	1.04
Continuous learning	1	5	4.06	0.97
Seeking feedback	1	5	3.95	1.04
Communicating with coworkers	1	5	3.92	1.03
Active listening	1	5	3.71	1.16
Facilitating discussion	1	5	3.81	1.05
Developing external contacts	1	5	3.9	1.03
Psychological knowledge	1	5	3.84	1.1
Social perceptiveness	1	11	3.66	1.2
Nurturing relationships	1	5	3.66	1.15
Taking charge	1	5	4.21	0.81
Orienting others	1	5	3.83	0.95
Setting goals for others	1	5	4.12	0.95
Reinforcing success	1	5	4.11	0.84
Developing teams	1	5	4.2	0.82
Knowing principles of learning	1	5	4.1	0.93
Assessing others	1	5	4	0.83
Coaching, developing, instructing	1	5	4.27	0.84
Cooperating	1	5	3.76	1.23
Resolving conflicts	1	5	3.93	1.07

Empowerment	1	5	3.95	0.98
Political savvy	1	5	3.72	1.09
Critical thinking	1	5	4.23	0.9
Creative problem solving	1	5	4.28	0.95
Identifying problems	1	5	4.05	0.96
Seeking improvement	2	5	4.28	0.76
Openness to ideas	1	5	3.64	1.29
Collaborating	1	5	3.74	1.11
Perceiving systems	1	5	3.92	0.93
Evaluating consequences	1	5	4.23	0.9
Visioning	1	5	4.13	0.94
Managing the future	1	5	4.28	0.89
Sensitivity to situations	1	5	3.9	0.98
Challenging the status quo	1	5	3.98	1.17
Intelligent risk taking	1	5	4.12	0.94
Reinforcing change	1	5	4.25	0.93

**Table 1:** Descriptive Statistics.

### Principal Component Analysis and Reliability

Numerous explanatory principal component analyses were conducted. It was established that the best solution was five factors as they rated for more than 50% of the variance, were consistent and logical. The five factors identified as leadership competencies were social responsibility, innovation, self-management, task management and leading others.

After analyzing the values of factor loadings, communalities, and cross-loadings, 20 out of 63 variables were removed based on the following criteria:

Low communalities (i.e. having a value less than 0.3), such as LOC6\_SP (0.252), SMC9\_SR (0.294) and SRC10\_FE (0.312)  
Low factor loading (having a value less than 0.4).

Cross loadings having a difference of less than 0.2. The questions were removed from the following competency domains: four from Task Management, two from Social Responsibility, four from Self-Management, nine from Leading Others and one from Innovation.

To measure the reliability and internal consistency of each factor, Cronbach's coefficient alpha values were calculated for each extracted factor and for the complete data set. A value less than 0.7 is questionable, 0.7–0.8 is marginal, and 0.8–1 is acceptable [16]. Cronbach's alpha values of all five domains of competency model were found reliable to be used in our setting. All values of five domains were above

0.7 indicating scale's reliability. A reliable scale is internally consistent and stable overtime.

The results summarized in Table 2, also show very high reliability of items within each factor. Cronbach's  $\alpha$  was 0.78 for Task management, 0.87 for Social Responsibility and Innovation, 0.86 for Self-Management, 0.90 for Leading others and 0.88 for Factor 5 Innovation. All five factors were correlated with each other. The high internal consistency of each factor's items, the overall pattern of factor loadings indicates the coherence of the factors. The items having the highest loadings on Social Responsibility, for example, are honesty and integrity (0.81) and accountability (0.81). All the other loadings on social responsibility were moderate (eg, >0.40) to large (>0.80). Other four factors also showed a same pattern of loadings.

Task Management (TMC)	4.17 ± .87	0.78
Social responsibility (SRC)	3.81 ± 1.09	0.87
Self-management (SMC)	4.00 ± 1.05	0.86
Leading Others (LOC)	3.93 ± 1	0.9
Innovation (IC)	4.07 ± .97	0.88
Reliability of whole instrument	3.99 ± .99	0.85

**Table 2:** Means and Reliability scores of five domains.

Results indicate that there is agreement between the findings of the original study done by Citaku, et al. and the current study.

### Differences between Men and Women

Further descriptive analysis of the scales was done according to the gender (Table 3). In the subscale 1, "Task management" the mean scale was  $29.06 \pm 3.25$  for males and  $29.44 \pm 4.47$  for females. In the subscale 2, "Self-regulation" the mean scale was  $45.44 \pm 8.21$  for males and  $46.09 \pm 9.06$  for females. For subscale 3, "Self-management" the

mean scale was  $43.30 \pm 7.39$  for males and  $44.52 \pm 7.72$  for females. For subscale 4, "Leading others", males had mean scale of  $73.80 \pm 11.45$  and females had  $75.40 \pm 11.76$ . The last subscale 5, "Innovation" males had mean scale of  $56.22 \pm 8.09$  and females had  $57.63 \pm 8.91$ . There were no significant differences for leadership experience between men and women.

	gender	N	Mean	Std. Deviation	Std. Error Mean
TMC total	Male	54	29.06	3.25	0.443
	Female	88	29.44	4.47	0.477
SRC total	Male	54	45.44	8.21	1.118
	Female	88	46.09	9.06	0.966
SMC total	Male	54	43.3	7.39	1.006
	Female	88	44.52	7.72	0.823
LOC total	Male	54	73.8	11.45	1.559
	Female	88	75.4	11.76	1.254
IC total	Male	54	56.22	8.09	1.101
	Female	88	57.63	8.91	0.95

**Table 3:** Group statistics.

### Differences between Doctors and Dentists

Descriptive analysis of the scales according to the type of healthcare professional was completed revealing the following results (Tables 4 & 5). In the subscale 1, "Task management" the mean scale was  $29.34 \pm 4.12$  for doctors and  $29.24 \pm 3.97$  for dentists. In the subscale 2, "Self-

regulation" the mean scale was  $45.90 \pm 8.75$  for doctors and  $45.78 \pm 8.76$  for dentists. For subscale 3, "Self-management" the mean scale was  $44.29 \pm 7.20$  for doctors and  $43.76 \pm 8.10$  for dentists. For subscale 4, "Leading others", doctors had mean scale of  $75.20 \pm 10.69$  and dentists had  $74.27 \pm 12.78$ . The last subscale 5, "Innovation" doctors had mean scale of  $58.19 \pm 7.17$  and dentists had  $55.71 \pm 10.34$ .

	type	N	Mean	Std. Deviation	Std. Error Mean
TMC total	Doctor	79	29.34	4.12	0.465
	Dentist	63	29.24	3.97	0.5
SRC total	Doctor	79	45.9	8.75	0.985
	Dentist	63	45.78	8.76	1.104
SMC total	Doctor	79	44.29	7.2	0.811
	Dentist	63	43.76	8.1	1.021
LOC total	Doctor	79	75.2	10.69	1.203
	Dentist	63	74.27	12.78	1.61
IC total	Doctor	79	58.19	7.17	0.807
	Dentist	63	55.71	10.34	1.262

**Table 4:** Group statistics.

		N	Mean	Std. Deviation	Std. Error
TMC total	Assistant Professor	84	29.32	4.01	0.438
	Associate Professor	35	29.14	4.46	0.755
	Professor	23	29.43	3.62	0.757
	Total	142	29.3	4.04	0.339
SRC total	Assistant Professor	84	46.33	8.64	0.943
	Associate Professor	35	45.11	7.91	1.338
	Professor	23	45.17	10.36	2.161
	Total	142	45.85	8.72	0.732
SMC total	Assistant Professor	84	44.52	7.46	0.814
	Associate Professor	35	43.6	7.82	1.323
	Professor	23	43.04	7.91	1.651
	Total	142	44.06	7.59	0.637
LOC total	Assistant Professor	84	74.96	11.9	1.299
	Associate Professor	35	75.06	10.51	1.777
	Professor	23	73.74	12.64	2.637
	Total	142	74.79	11.63	0.976
IC total	Assistant Professor	84	56.61	8.76	0.956
	Associate Professor	35	57.89	8.62	1.457
	Professor	23	57.65	8.24	1.719
	Total	142	57.09	8.6	0.722

**Table 5:** Group statistics.

### Differences According to Professional Seniority

Descriptive analysis of the scales relative to professional seniority was completed revealing the following results. In the subscale 1, "Task management" the mean scale was  $29.32 \pm 4.01$  for Assistant Professors,  $29.14 \pm 4.46$  for Associate Professors and  $29.43 \pm 3.62$  for Professors. In the subscale 2, "Self-regulation" the mean scale was  $46.33 \pm 8.64$  for Assistant.

### Discussion

The objective of the current study was to detect and empirically inspect the perceived competencies of leadership in medical and dental healthcare profession and education. Citaku, et al. selected 63 of the most important leadership characteristics for medical education, from an inventory of 107 specific competencies established in a previous study conducted by Wagner, et al. [17]. Citaku leadership competency questionnaire was utilized in the current study to investigate the perceived leadership competencies of healthcare professionals of Pakistan, including only doctors and dentist.

Principal component analysis of the questionnaire data was conducted to acquire five competencies of leadership including Task Management, Social Responsibility, Innovation, Self-Management, and Leading others. Cronbach's alpha reliabilities of the factors were high, showing good coherence and internal consistency. Then differences between men and women, doctors and dentists, assistant professors, associate professors and professors were found for Social Responsibility, Innovation, Task management, Self-management and leading others. There were no significant gender differences on any of the factors, same is true for the different levels of professional seniority. There were no significant differences between doctors and dentists on the five dimensions in the present study. There were considerable differences between doctors and other healthcare professionals in the study done by Citaku, et al. in the domains of innovation, social responsibility and justice orientation. In the present study, only two healthcare professionals, doctors and dentists were included whereas in the Citaku, et al. study, physicians, nurses, midwives and physical therapists were included.

It was identified that all five factors were strongly intercorrelated indicating that they all can accurately evaluate

the same construct of leadership. These results suggest that the five leadership competences represent an articulate and reliable model of leadership in medical education. These five competencies are also integral in the description of leadership provided by Vroom and Jago, “a process of motivating people to work together collaboratively to accomplish great things” in medical education by practicing social responsibility, innovation and justice, and more monotonous activities of self- and task management.”

Social responsibility was detected as the most important competency by the doctors and dentists alike, showing empathic concern for the welfare of society. However, in a previous study done by Wagner, et al. [17], dealing with leadership competencies in general, (not specific to healthcare profession) social responsibility was found to be least important. Within the healthcare professions, there is more emphasis placed on collaboration, communication with coworkers and interdisciplinary practice. Citaku, et al. identified a Justice Orientation competency, which was not included in the Wagner, et al. model. It is indicated that maintaining safety, following legal regulations, and monitoring progress, are of utmost importance in the medical profession. Innovation was also identified as a dominant leadership competency in the present study, according to ratings of managing the future, seeking improvement, reinforcing change and creative problem solving.

Another important competency identified through results was leading others, showing high ratings of taking charge, developing teams and coaching. Self-management encourages goal setting and attaining goals in spite of barriers, time management and self-reliance. Task management involves enhancing task knowledge and quality of personal decision-making. These competencies, are all interconnected, theoretically significant and reliable.

The principal component analyses confirmed that medical educators, doctors and dentists do have a common vision of the effective leadership competencies for medical education. They are not fundamentally different regarding the identification of the core competencies of leadership and its importance in the medical and dental profession.

Leadership is faced with challenges of limited resources and high expectations for enhancement in teaching and learning. Hence leadership requires inventive strategies that are built on logical principles and human resources. These competencies are important for health promotion of community and developing leadership in health professionals [1]. If a leader practices high Social Responsibility, Innovation, Self-Management, Task Management and leading others effectively, these competencies will assist him or her to successfully lead others. The current study has various

practical implications. First, it has highlighted the importance of leadership in healthcare professions. Second, the Citaku questionnaire tool used in the study provides an in-depth understanding of leadership competencies. Third, the study offers a comprehensive methodology for data analyses that can be replicated in other regions of Pakistan.

Hence there is a need to include leadership in the curriculum of the higher education, which educates and trains future medical and health care professionals. Effective leadership can only be ensured by including it in the curriculum of medical and dental education and by teaching it, thus promoting a shift in the mindset of physicians and educators that leadership skills can be learned. This is how transformation of followers into leaders can be ensured and achieved.

### Limitations

Only a cross-sectional study was conducted due to time constraint. This study only represents doctors and dentists, not including other healthcare professionals like nurses and physiotherapists. The survey reply rate was high (91%), and it was done in four institutions of Rawalpindi and Islamabad only. This study should be replicated with more representative samples from other major cities of Pakistan to further explore leadership in healthcare professions.

### Conclusion

The current study proves that core competencies of leadership in medical and dental professions can be empirically identified and classified into five factors:

- 1) Task Management,
- 2) Social Responsibility,
- 3) Self-Management,
- 4) Leading others and
- 5) Innovation.

These factors are hypothetically logical, relevant and internally consistent in expressing the variance of the data. There are no considerable group differences in the factors, (doctors versus dentists, men versus women or between assistant professors, associate professors and professors). Therefore, the competencies seem to be steady, consistent and logical.

Future research should be conducted in other cities in Pakistan utilizing Citaku’s five-factor leadership competency model with bigger representative samples. Future studies could be hypothetically reinforced by using confirmatory factor analyses on a new set of data. In the meantime, I have employed the Citaku’s model of leadership competencies to investigate leadership in medical professions education in



Pakistan. This model can be used by other researchers in future to prove findings of the present study and expand on it.

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