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Original Article

Dentistry Section

An Insight into Health Care Setup in National Capital Region of India using Dimensions of Learning Organizations Questionnaire (DLOQ)- A Cross-Sectional Study

JISHNU KRISHNA KUMAR[1], RITU GUPTA[2], PATTHI BASAVARAJ[3], ASHISH SINGLA[4], MONIKA PRASAD[5], VENISHA PANDITA[6], RAVNEET MALHI[7], VAIBHAV VASHISHTHA[8]

ABSTRACT

Introduction: Over the past decades India, though being a developing country has progressed in multiple sectors but has not shown a substantial qualitative progress in healthcare. To be able to evaluate learning organization in a healthcare setup would thrust millennium development goals and infuse continuous learning model into health sector.

Aim: To assess health care context using the Dimensions of the Learning Organization Questionnaire (DLOQ) in a health care setting in National Capital Region of India.

Materials and Methods: DLOQ proforma were distributed among 315 employees at all levels of the hospital. Data was analysed using SPSS software version 19.0 and was subjected to quantitative analysis and non-parametric tests.

Results: The Kruskal-Wallis test indicated a significant difference between the means of the different professions where as Mann-Whitney tests compared the relation between each of the profession and a significant difference ($p < 0.05$) was noted, except dimension "systems connection".

Conclusion: The results provided sufficient inputs about the multidimensional learning organization capacity of a health care setting in a rapidly developing country.

Keywords: Accreditation, Developing countries, Hospital, Teaching

INTRODUCTION

Health care facilities provided in developing countries are not at par with the developed countries. Most of the developing countries have public/governmental sector organizations that take lead in delivering health care throughout the country. Despite decades of budgets and plans the actual health care systems in many countries are quite different. Current situation needs an extensive analysis of the long term strategy of the governmental and non-governmental health care institutions in the country [1]. There is great disparity in the quality of health care provided at different levels of health care settings in India [1,2]. But the health care organizations have progressed in an impressive manner since independence, the infant mortality has dropped three fold and the maternal mortality declined ten folds and the life expectancy has gone up to 65 years [3]. The number of hospital beds per 10,000 population has risen to 7 and the number of physicians per 1000 population is 0.7 [2]. Major problem still remains in the quality of health care provided at different primary, secondary and tertiary levels of health care systems in the country. That necessitates a system to assess the qualitative health care delivery in the country [4-6]. The health care working environment is ever chaotic with frequent necessity to update knowledge and to maintain healthy human relations. It has been a requisite of each and every medical professional to keep pace with current advances in medicine and to utilize the organizational culture of health care setting for the same. Every health care setting is learning cum teaching organization since updating knowledge is necessary for every individual.

Watkins and Marsick defined a learning organization as "an organization that has implemented structure, processes and organizational culture that continuously foster individual, team and organizational learning and which results with permanent changes in behaviour and organizational processes" [7-10].

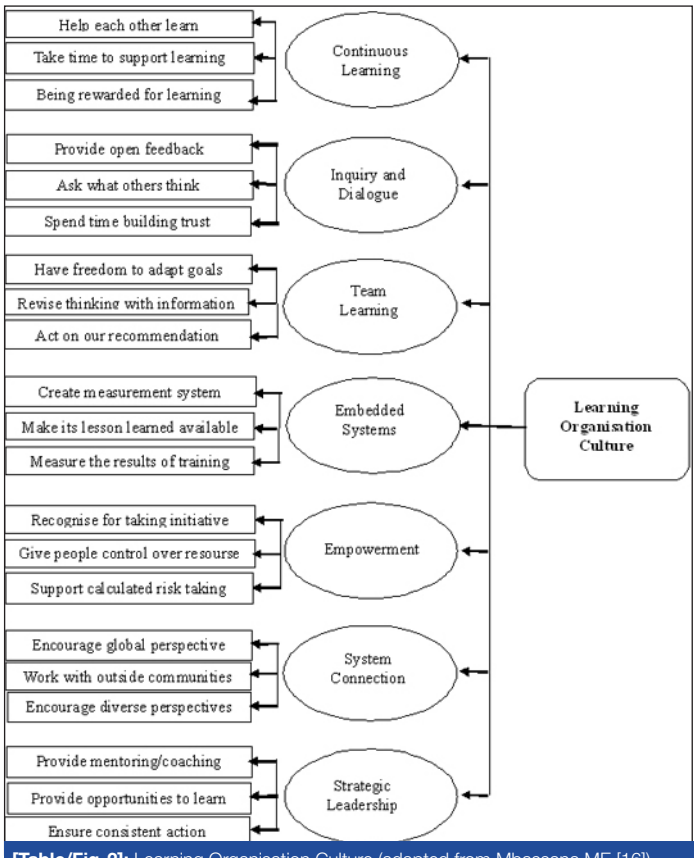
All the learning organizations, especially health care settings are now-a-days characterized by permanent change and growing complexity [10-12]. Being flexible and able to adapt to habitat, if not creating them, is requisite of a "learning organization". Learning organization is not a new subject of research in fields other than medical sciences. Learning results with permanent changes in behaviour and organizational processes; these changes cause improvement in all aspects of health care delivery and services [13,14]. So, it becomes a necessity even in a health care setting to evaluate its teaching quality and shortcomings since learning in a healthcare Institution is a day to day routine. In order to enable the development of a learning organization, many authors and scientists have developed concepts and defined specific activities that can help organization to assess the learning organization in different dimensions [15,16]. The successful venture of Watkins and Marsick to develop a quantification probe has acted as a progressive building block in various segments of learning organization [17]. Their approach encompassed comprehensive components of learning organization construct; in turn, to define the construct of learning organization, provided an integrative concept of the learning organization based on three amalgamated approaches:

1) For systems thinking, organizational generativity; 2) For a learning perspective, comprehensive aspects of learning; and 3) For strategic perspective, managerial practices [7,10]. Dimensions of Learning Organizations Questionnaire (DLOQ) appraises the learning strength and weakness of quality, innovation, participation, flexibility and commitment of an individual or the organization as a whole of which the individual is a functional component in a user-friendly that is easy to interpret objectively [10,13,14,18]. The original version of the DLOQ consisted of 43 items to measure the seven dimensions; later on, throughout empirical validation of the instruments, shorter version of the questionnaire consisting of 21 items was introduced [9].

A learning organization should imbibe work and learn proactively under the same shelter [13,19]. In this view, seven interdependent

Dimension	Definition
Create continuous learning opportunities	Learning is designed into work so that people can learn on the job; opportunities are provided for ongoing education and growth.
Promote inquiry and Dialogue	People gain productive reasoning skills to express their views and the capacity to listen and inquire into the views of others; the culture is changed to support questioning, feedback, and experimentation.
Encourage collaboration and team learning	Work is designed to use groups to access different modes of thinking; groups are expected to learn together and work together; collaboration is valued by the culture and rewarded.
Create systems to capture and share learning	Both high- and low-technology systems to share learning are created and integrated with work; access is provided; systems are maintained.
Empower people toward a collective vision	People are involved in setting, owning, and implementing a joint vision; responsibility is distributed close to decision making so that people are motivated to learn toward what they are held accountable to do.
Connect the organization to its environment	People are helped to see the effect of their work on the entire enterprise; people scan the environment and use information to adjust work practices; the organization is linked to its communities.
Provide strategic leadership for learning	Leaders model, champion, and support learning; leadership uses learning strategically for business results.
Key results Financial performance	State of financial health and resources available for growth.
Knowledge performance	Enhancement of products and services because of learning and knowledge capacity (lead indicators of intellectual capital).

[Table/Fig-1]: Dimensions of learning organization (adapted from Marsick and Watkins, 2003 [10]) .



[Table/Fig-2]: Learning Organisation Culture (adapted from Mbassana ME [16]) .

action imperatives characterize an organization that aims to become a learning organization according to Marsick and Watkins, which was initially developed by Peter Senge: the organization should (1) create an environment that continuously supports learning; (2) promote inquiry and dialogue; (3) encourage collaboration and team learning; (4) establish systems to capture and share learning; (5) empower people to have a collective vision; (6) connect the organization to its environment; and finally (7) leaders should provide strategic support for learning [13,14] [Table/Fig-1,2].

There is lack of pertinent documented literature to evaluate the learning organization behaviour in context of healthcare setting, particularly in India [9,20]. Additionally, there have been no empirical studies in India that support the learning organization concept in a health care institution or that validate the construct. Taking into account the necessity of every healthcare framework to be a learning institution, it's important to reckon the concept of learning organization in any specialty of healthcare in India [16]. Thus, the study was designed and executed to track the positive and negative performance of such an organization in the country.

MATERIALS AND METHODS

A tertiary health care center located in the National Capital Region of India was considered for the study since, it's a teaching hospital for nursing students, and medical interns enrolled every year from nearby colleges. It's a major referral hospital covering eastern part of Delhi and western part of Uttar Pradesh, India. The hospital has a nursing college attached to it with 38 teaching staff and 277 nurses, doctors and paramedics working in the main hospital amounting to a total of 315 staff capacity.

More than 100 nursing and 40 medical interns are enrolled each year according to the nursing and medical council mandates in India. Both the medical and nursing interns are posted for one month to a new ward every month so that they get well accustomed to the working environment of the department. It is 300 bedded, out of which 286 is allocated for inpatient admissions homogeneously categorized according to the requirements of each department. It caters super-specialty care to over 1 lac patients in the OPD and almost 5000 indoor patients every year, through its 63 specialists and senior residents, 16 super specialty consultants, 180 staff nurses and assistants, paramedical staffs and the interns posted, on rotatory basis.

Reliability and Validity

A pilot study was undertaken on 10% of the total population (n=32). It served as a preliminary study to check the feasibility and relevance of the study. The questionnaire was checked for its validity and reliability. Criterion and construct validity of questionnaire was assured using Spearman`s correlation coefficient ($p<0.001$). The construct validity was calculated for each dimension that is continuous learning, inquiry and dialogue, team learning, embedded systems, empowerment, system connection and strategic leadership included by calculating Spearman correlation between individual items for the particular construct and overall score of that construct. The internal reliability for the responses to questions was assured using Cronbach`s alpha coefficient (0.85).

DATA COLLECTION

The prime assessment technique used in this study is derived from the original version developed by Marsick and Watkins [12]. For this study the modified version of DLOQ developed by Leufvén et al., was used [9]. The seven dimensions of DLOQ were measured on a 5-point Likert scale ranging from 1- almost never with the lowest score to 5- almost always with the highest score.

Informed consent was individually obtained from every participant after explaining the study by the first investigator. Ethical approval was obtained from institutional review committee at Modinagar, India.

The questionnaire forms were distributed personally among all the medical, nursing and paramedics namely; interns, junior and senior residents, consultants, super specialty consultants, staff nurse, nursing assistants, para-medical staffs and lab technicians serving the institution during the period of 6 months from December 2014 to May 2015 by the principal investigator. Out of the 315 proformas distributed, only 286 completed forms were considered and analysed, denoting a response rate of 91%.

STATISTICAL ANALYSIS

The collected data was analysed using SPSS software (version 16.0); Chicago; IL, USA. Shapiro-Wilks test was performed to check its normality. The data was subjected to quantitative analysis and non-parametric tests were used. Kruskal-Wallis test was used to test the difference between the three groups of professionals each and Mann-Whitney to compare the groups assessed with Kruskal-Wallis.

Variable	Number	Percentage
Age (years)		
20-30	142	49.65%
31-40	86	30.07%
41-50	37	12.94%
51-60	21	7.34%
Gender		
Male	129	45.10%
Female	157	54.90%
Profession		
Doctors	85	29.72%
Nurses	164	57.34%
Paramedics	37	12.94%

[Table/Fig-3]: Demographic characteristics of the study subjects.

RESULTS

Of the 315 proformas distributed, 286 completed forms were considered, corresponding to a response rate of 91%. The respondents were 30% doctors and medical interns, 57% nurses, nursing assistants and nursing interns, 13% paramedical staffs and technicians with a mean age of 33.5±8.65 years [Table/Fig-3].

The descriptive statistics for the responses of proposed statements related to the dimensions as per each question were presented in [Table/Fig-4]. The mean score was highest for responses for the dimension Dialogue and inquiry stating the question regarding the people giving open and honest feedback to each other scoring a mean of 4.27.

[Table/Fig-5] represented overall distribution of mean scores and responses statistics as per dimension. The Kruskal-Wallis test

Dimension 1. Continuous Learning	N	Never (1)	Almost Never (2)	Sometimes (3)	Almost Always (4)	Always (5)	Mean (S.D)*	Median
Dimension 1. Continuous Learning								
Q1. In my organization, people help each other learn.	286	13	61	98	43	71	3.35 (1.20)	3
Q2. In my organization, people are given time to support learning.	286	23	103	69	9	82	3.09(1.37)	3
Q3. In my organization, people are rewarded for learning.	286	27	58	102	42	57	3.16(1.23)	3
Dimension 2. Dialogue and inquiry								
Q4. In my organization, people give open and honest feedback to each other.	286	0	18	31	94	144	4.27(0.89)	3.5
Q5. In my organization, whenever people state their view, they also ask what others think	286	0	14	111	70	91	3.84(0.94)	3.5
Q6. In my organization, people spend time building trust with each other.	286	0	15	31	106	134	4.26(0.85)	3.5
Dimension 3. Team learning and collaboration								
Q7. In my organization, teams/groups have the freedom to adapt their goals as needed.	286	35	86	58	50	57	3.03(1.33)	3
Q8. In my organization, teams/groups revise their thinking as a result of group discussions or information collected.	286	24	60	119	41	42	3.07(1.14)	3
Q9. In my organization, teams/groups are confident that the organization will act as their recommendations.	286	26	67	99	43	51	3.10(1.21)	3
Dimension 4. Embedded systems								
Q10. My organization creates systems to measure gaps between current and expected performance.	286	8	26	67	91	94	3.84(1.07)	3
Q11. My organization makes its lessons learned available to all employees.	286	1	16	134	85	50	3.59(0.86)	3.5
Q12. My organization measures the results of the time and resources spent on training.	286	0	33	120	63	70	3.60(0.99)	3.5
Dimension 5. Empowerment								
Q13. My organization recognizes people for taking initiatives.	286	19	18	70	74	105	3.80(1.20)	3
Q14. My organization gives people control over the resources they need to accomplish their work.	286	13	30	104	52	87	3.60(1.16)	3
Q15. My organization supports employees who take calculated risks.	286	19	24	63	104	76	3.68(1.15)	3
Dimension 6. Systems connections								
Q16. My organization encourages people to think from a global perspective.	286	0	28	96	126	36	3.60(0.83)	3.5
Q17. My organization works together with the outside community to meet mutual needs.	286	0	7	125	139	15	3.57(0.64)	3.5
Q18. My organization encourages people to get answers from across the organization when solving problems.	286	0	7	111	135	33	3.69(0.71)	3.5
Dimension 7. Strategic leadership								
Q19. In my organization, leaders mentor and coach those they lead.	286	0	29	92	62	103	3.84(1.03)	3.5
Q20. In my organization, leaders continually look for opportunities to learn.	286	0	56	72	71	87	3.67(1.11)	3.5
Q21. In my organization, leaders ensure that the organization's actions are consistent with its values.	286	0	41	71	63	111	3.86(1.09)	4

[Table/Fig-4]: Distribution of responses and mean scores for each questionnaire of the dimensions of learning organizations.
S.D* = Standard Deviation

Dimension	Mean	Standard Deviation
Continuous learning (1)	3.20*	1.05
Inquiry and Dialogue (2)	4.12*	0.68
Team Learning (3)	3.07*	0.87
Embedded Systems (4)	3.68*	0.75
Empowerment (5)	3.69*	1.03
System Connection (6)	3.62*	0.51
Strategic Leadership (7)	3.79*	0.98

[Table/Fig-5]: Overall distribution of mean scores and responses statistics as per dimension.
*Statistically significant at p ≤0.05

Dimensions	Doctors (Mean and S.D*)	Nurses (Mean and S.D*)	Paramedics (Mean and S.D*)
Continuous learning (1)	4.45(0.39)	2.87(0.61)	1.78(0.57)
Inquiry and Dialogue (2)	3.96(0.89)	4.38(0.41)	3.35(0.29)
Team Learning (3)	3.12(0.66)	2.67(0.51)	4.68(0.36)
Embedded Systems (4)	4.35(0.72)	3.50(0.57)	2.89(0.47)
Empowerment (5)	4.73(0.27)	3.63(0.46)	1.57(0.36)
System Connection (6)	3.59(0.27)	3.65(0.62)	3.57(0.38)
Strategic Leadership (7)	3.40(0.38)	4.54(0.39)	2.52(0.28)

[Table/Fig-6]: Profession wise distribution of mean scores and response statistics as per dimension.
S.D* = Standard Deviation

indicated a significant difference between the means of the different professions. In the next step, Mann-Whitney tests comparing the relation between each of the profession were performed and a significant difference ($p \leq 0.05$) between nurses, doctors/medical interns, medical technicians/paramedics was noted while the dimension "systems connection" came insignificant on statistical analysis [Table/Fig-6].

DISCUSSION

The present study was conducted to assess various dimensions of learning organization in a health care setting in India. The total sample comprised of 286 employees of a tertiary care hospital in National Capital Region. The mean age of the employees was 33.5±8.65 years, of which 45.1% were males and 54.9% were females.

Assessment of the dimension of continuous learning had a mean score of 3.20, which is similar to study conducted in Nepal by Leufvén et al., (3.24) [9]. Doctors scored the highest in the dimension of "continuous learning" with a mean of 4.45, with paramedics having the score of 1.78, this could be due to various opportunities provided for the doctors to upgrade their knowledge and growth through continuing medical education programmes, conventions, symposium, webinars etc., [19].

For the sub scale inquiry and dialogue the highest overall score of 4.12 of the entire dimension was observed. The score is higher when compared to study conducted by Leufvén et al., [9] in Nepal (3.14). This can be attributed to the fact that trust is an essential component of medical profession and there could be sharing of open feedback in our study setting.

The mean score for team learning (3.12) was least of all the dimension, which is similar to the score of 3.29 found in the study of Leufvén et al., [9]. The paramedics in our study showed a score of 4.68 for the team learning dimension, this may be due to the fact that paramedics work in collaboration and are expected to learn and work together. Learning must be captured and embedded in ongoing systems, practices and structures so that it a can be shared and regularly used to improve knowledge performance [21,22]. A mean score of 3.68 for the dimension embedded systems was noted in the present study, which is higher compared to study done in Nepal by Leufvén et al., [9]. Also, the mean score for embedded was found to be highest among doctors (4.35) which is in contrast to the finding among doctors (3.02) in the study conducted in Nepal. This could be due to creation of necessary system to share learning in the hospital. These systems are maintained and integrated with work and employees have access to these technology and systems [22,23].

Empowerment enables involvement of people in setting, owning a joint vision; responsibility is close to decision making so that people are motivated to learn towards what they are held accountable to do [24]. A high score on the Empowerment dimension has been observed in this study (3.69), with doctors having the highest mean score of 4.73 whereas paramedics had a mean score of 1.57, this could be due to the hierarchical structure in most health care organizations where lower level employees have limited authority to make decision. Decision making is centralized and probably only doctors participate in decision making with others having little or no influence. The findings are in contrast with study conducted by Leufvén et al., where dimension empowerment had a mean score of 3.09, the difference could be due to traditional hospital management bureaucratic structure giving a narrow aperture for employee participation in Nepal [9].

The organization is linked to its communities; people understand the overall environment and information and use it to adjust work practices" [24,25]. The dimension system connection showed a mean score of 3.59 similar to the score 3.21, conducted by previous health care learning organization study by Leufvén et al., [9] in Nepal.

In a country like India efforts are mediated by the hospital management provide strategic leadership for learning, which is generally not questioned by the employees. Therefore dimension strategic leadership had a score of 3.79 similar to the score of 3.75 found in the study conducted by Leufvén et al in Nepal.

Our study assessed the paramedics as they are deemed important in a medical management team for effective treatment delivery. They showed highest score in team learning dimension (4.68) and least in empowerment dimension (1.57).

Globally published studies that look into learning organization concept in a health setting other than the study by Leufvén et al., are conducted by Al-Abri and Ratnapalan S in Oman but have evaluated learning organization in a health setting subjectively. So, they lack comparability with our present study [26,27]. Al-Abri in Oman conducted a study taking into account learning organization in a health care setting but the said study cannot be compared to our study due to lack of objective and dimension wise descriptive analysis of the setting. In the study the author has pointed establishment skills that can aid individual along with the organization attain better professional and intellectual levels. Traditional hierarchical structure of management was noticed as a major constraint to learning, while equal representation from all segments of employees in decision making can be very helpful in prospective inter and intra organizational learning character [26].

Ratnapalan S also conducted a study in which they suggest the relevance of a learning organization in a health care setting. In their study strategic leadership along with patient safety and advocacy was noted as key requisites to successful healthcare setup with multidimensional learning habitat. The author also noted the utilization of right kind of space and to transform according to the needs of the different classes of patients was an effective modality to develop patient friendly healthcare institution [27].

The DLOQ can be used to go beyond academic research by assessing the learning culture of an organization [9,13]. A culture oriented towards supportive learning can improve the performances of the employees in a health care setting. The movement towards

a learning organization is a long term process and this study can act as a stepping stone for the hospital administrations to assess their organization and the areas that need improvement [24].

LIMITATIONS

1. The study was based on self-reporting and reflected recollection of indicators of the constructs by the employees who volunteered their participation. Because of the perception nature of the data and the desire to please their employers, could be a possibility of a perception bias.

2. Bias regarding personal attitude, job tenure with the organization, also no background data other than profession was collected.

3. As this study was a cross-sectional survey it leaves room for speculation with regard to causality among the variability, therefore a longitudinal research would substantiate the conclusions of the study.

This study can act as a baseline for assessment of a learning organization in a healthcare system. But, before its utilization by ministry of health or any authority this template has to be further researched and elaborated on a larger scale comparing different healthcare levels and setups.

CONCLUSION

The results from the present study would provide ample inputs about the multidimensional learning organization capacity of a health care setting in a rapidly emerging country like India. The net outcome of the study answers the favorable optimism of health-care learning organizations in India. Concurrent utilization of internal and external resources to learn and flexibly handle the treatment needs of the society can be noticed in the results. This reliable probe can be utilized by University Grant Commissions and National Assessment and Accreditation Councils to efficiently asses a health care institution or a learning organization in the near future. Since, this study was the first technically salient study conducted in a single representative health care organization with limited sample size, further comparative and assessment studies encircling dimensions of health care systems is necessary. Research such as this reflects the fact that learning organization is a concept that is growing in popularity and use. Additional studies in Indian and international context is needed to point out the week spots in the health organization, which can be addressed through refinement and development of the research theory and practice of the learning organization.

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PARTICULARS OF CONTRIBUTORS:

1. Tutor, Department of Public Health Dentistry, D. J College of Dental Sciences and Research, Modinagar, Ghaziabad, India.
2. Senior Lecturer, Department of Public Health Dentistry, D.J College of Dental Sciences and Research, Modinagar, Ghaziabad, India.
3. Professor and Head, Department of Public Health Dentistry, D.J College of Dental Sciences and Research, Modinagar, Ghaziabad, India.
4. Reader, Department of Public Health Dentistry, D.J College of Dental Sciences and Research, Modinagar, Ghaziabad, India.
5. Tutor, Department of Public Health Dentistry, D.J College of Dental Sciences and Research, Modinagar, Ghaziabad, India.
6. Tutor, Department of Public Health Dentistry, D.J College of Dental Sciences and Research, Modinagar, Ghaziabad, India.
7. Tutor, Department of Public Health Dentistry, D.J College of Dental Sciences and Research, Modinagar, Ghaziabad, India.
8. Tutor, Department of Public Health Dentistry, D.J College of Dental Sciences and Research, Modinagar, Ghaziabad, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:

Dr. Jishnu Krishna Kumar,
Tutor, Department of Public Health Dentistry, D.J College of Dental Sciences and Research,
Ajit Mahal, Niwari Road, Modinagar, Ghaziabad-201 204, India.
E-mail: jishnukrishnakumar@gmail.com

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