

Correlation of Cultural Intelligence and Communication Skills of Pre and Post Covid Cohort Dental House Officers at Tertiary Care Hospital in Pakistan

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ABSTRACT

Objective: The present study aims to determine the correlation between cultural intelligence & communication skills of Pre and Post Covid Cohort of Dental House officers (DHOs) at Tertiary Care Hospital, Lahore Pakistan.

Materials and Methods: The two-phase self-completion validated questionnaire-based correlational study was conducted on 120 dental house officers in two phases which includes Cultural Intelligence Scale (CQS) and Galasko Communication Skills Scale (GCSS) followed by dental house officer CQ & CS assessment via dentist-patient interaction done on ACIR communication skills scale. 60 DHOs were those who were given face-to-face patient interaction there was no COVID lockdown restriction are considered as Pre Covid Cohort. However, 60 DHOs were those who didn't get the opportunity of face-to-face interaction with the patients due to COVID lockdown thus considered as Post Covid Cohort. Data were collected and entered in the excel sheet and transferred to SPSS for statistical analysis. SPSS 26.0 version was used.

Results: Statistically significant differences between pre and post covid HOs responses and later their interaction with patients was found. The Pearson collection of CQ & CS in pre covid was 0.687 whereas the Pearson collection of CQ & CS in post covid was 0.549.

Conclusion: Overall results indicate that face-to-face patient interactions, professional education on these competencies, reflective practice, and role modeling, with clearly associated learning objectives and assessments, will improve future cultural intelligence and communication skills curricula in oral and dental health programs thus emphasizing the need to include CQ & CS contents in formal dental curricula.

Keywords: Cultural intelligence, Communication skills, dental house officers, virtual learning

OPERATIONAL DEFINITIONS:

Cultural Intelligence (CQ): "Individuals' capability to function and manage effectively in culturally diverse settings is consistent with Schmidt & Hunter."^[1-2]

Communication Skill (CS): "The transmission of a message that involves the shared understanding between the contexts in which the communication takes place."^[3-4]

INTRODUCTION

House Job period is considered the most significant clinical experience year under the supervision of proficient teachers before the start of one's own practice where one encounters culturally and linguistically diverse patients during their professional life. In Pakistan, Dental House Officers (DHOs) grow up immersed in urban culture and encounter culturally diverse patients with diverse educational milieu.^[5] The challenge posed when covid era appeared during the academic year and students were unable to have face-to-face clinical exposure which affected their CS and CQ with the patient and further influenced their clinical performance when they became dental house officers.

Communication is the fundamental instrument by which dentists and patients relate to each other and try to achieve adequate patient care.^[4] Essentially, the whole process of history and clinical assessment in dental settings may be affected by ineffective CS and CQ. As Badenoch stated that patients belonging to different cultures or different languages can describe pain differently.^[6]

Cultural intelligence is a soft skill and probably subordinate to communication skills. Dental students may come across different cultures and languages in addition to race and personality. Further, literature asserts that cultural beliefs, practices, and communication both impacts heavily on the health-seeking behaviors of the patients, their compliance to treatment, and its outcome.^[7] Communication without cultural intelligence and

sensitivity may not be fluent and probably lead to miscommunication and lack of trust.^[8]

The ethnocentric mindset (which is defined as an inclination to visualize and comprehend other cultures from the very perception of one's own culture) of all health care professionals may hinder the perception of a patient description of pain or symptoms. For example, people from different ethnic backgrounds and cultures can report pain in a very different way. Importantly, the whole process of clinical assessment including from observation, history-taking to physical examination and ultimately laboratory testing may be impacted by culture. It also impacts how patient answers the questions to the dentists and explain the sign and symptoms they are facing.^[9]

Unfortunately, due to the ossified curriculum, this comes under the domain of hidden curriculum. Intervention can be devised to make a difference in this regard. Determining this correlation may help stakeholders to design interventions and set the ground for action research.^[10]

Numerous quotations are cited in substantiation that patients who are treated by physicians with decent interpersonal CS & CQ seem to benefit in various aspects like recognizing patients' problems more precisely. They have greater job satisfaction and have to be seen struggling less work stress. Not only it benefits the doctors, but their patients have been seen impacted positively as they adapt well psychologically and are more satisfied with their given care.^[9]

Thus, the research aims to serve as a need analysis and further inform future improvements to fulfill student needs on these aspects which are explicit in dental education. Therefore, the acquisition and development of these domains should begin with history taking and clinical assessments of the patient to provide good health care delivery.^[11-12]

As with various other organs systems in our body, core cultural beliefs and habits of a community or a person affect the

condition of oral cavity. This could be seen in care-seeking actions of a community, through their diet preferences, and the usage of home remedies for their problems. These practices among this part of the world would deem strange in the Western culture. Various examples can be quoted in terms of oral hygiene practices (using a tree branch twig for cleaning of teeth), chewing tobacco and betel nut quid habits (which can not only be harmful to the oral mucosa, but also results in various types of pre-cancerous or cancerous lesions) tooth blackening done at puberty as a mean to safe the teeth for old age, to name a few.^[12-13] There are also various cultural impacts on expectations, interaction, and behavior during the interaction between the patient and the dentist, which influence the effectiveness and quality of care given to the patients.^[9]

In a study between a correlation of CQ and CS content in the BDS curricula, revealed a reduced amount of time was devoted to teaching how culture can affect the perception of oral health care compared to traditional subjects. It has also been found that the problem can be solved indirectly via clinical placements of the DHOs and with various interactive approaches of learning programs.^[13-14] This could be through clinical mentoring, role modeling and student reflective practices. Dental colleges usually use the least effective methodology which comprises of delivering lectures (passive learning). However, the inadequacy and inconsistency of current dental curricula in Pakistan indicates significant curricular revision with the standardized framework through inclusion of these competencies.^[15]

With Pakistan, as it is one of the most culturally and anthropologically diverse countries in the world, it is indispensable to have oral health caregivers with cultural and communication skills competency. This will not only help address the oral health care discrepancies amongst DHOs while treating their patients but also support establishing a trustworthy interaction with patients which belongs to various ethnic backgrounds.

Since there were many studies done separately on cultural intelligence and communication skills. But no correlational studies were being done on pre and post Covid cohorts of DHOs which has further emphasized the need for its implementation in dental education. Therefore, the purpose of this study is to determine the correlation between cultural intelligence & communication skills of pre and post covid cohort of DHOs at tertiary care hospital.

METHODOLOGY

The two-phase correlational study extended over 6 months in duration. The probability sampling was done. A total of 120 DHOs and patients were included in the study. DHOs were selected as they are directly interacting with the patients and soon, they will be stepping towards their practical life ahead where they would be interacting with patients widely. It was also believed that COVID has greatly impacted the OPDs/clinics. Therefore, the selection of such a cohort allows the possibility to assess the cultural intelligence and communication skills of DHOs for two consecutive years. The Pre covid cohort data was gathered during August 2020-2021 and post-covid cohort data were collected during January 2021-2022. The sampling was conducted in two phases survey-based questionnaire and dentist-patient interaction.

A total of 60 DHOs were given face-to-face patient interaction opportunities during their final year as there was no COVID lockdown restriction that interfered with their clinical rotations thus as they proceeded for House jobs were considered as Pre Covid Cohort. However other 60 DHOs who didn't get the opportunity of face-to-face interaction with the patients during the final year due to the COVID lockdown thus considered as Post Covid Cohort.

Before conducting this study, we performed the survey on the already validated tool. In both pre and post-covid phases, two steps were followed: Step one which included self-completion survey questionnaires adapted from Cultural Intelligence Scale (CQS) by Ang et. al. and Van Dyne et. al.^[2] For assessing cultural intelligence of these DHOs we used 19 questions based on

Sternberg's contribution.^[16] DHOs were given the questionnaire sheet and asked to read each statement carefully. They were then asked to select the answer that best described their aptitudes. The other tool was based on the Galasko Communication Skills Scale (GCSS) comprised of 14 questions. In both surveys, DHOs were asked to answer the best that describes their capabilities using a 5-point Likert scale (5= Strongly agree; 1= Strongly disagree). Necessary adaptations were created to deliver Pakistani cultural context and a focus on dental health care (like language barrier etc.).

Step two of this research included the interaction of DHOs with the patients during which all those DHOs who have already shared their responses in step 1 surveys, CS, and CQ were assessed individually based on their performance while interacting with the patient. This was assessed via the ACIR communication skills scale comprised of 20 items of performance assessment anchored on the Likert scale (5=Excellent to 1=Poor) followed by a combined CQ & CS global rating scale based on 3 Likert scales (5=Excellent to 1=Poor) anchored on 5 rubrics.

For both survey forms modification, formal permission was taken from the principal author for its utilization. The CQ and CS assessment was done by 3 raters including Principal Investigator, and an Additional Rater (near peer), and the global rating was done by the Patient to measure Inter-Rater reliability. For this part of the instrument's development, three raters independently observed and recorded the performance of pre and post-covid cohort of DHOs during history taking of the patient in the oral diagnostics department. All rater responses were considered independent including the principal investigator, additional rater, and patient. Internal consistency was determined via Cronbach's alpha.

Data were collected and entered in the excel sheet and transferred to SPSS for statistical analysis. SPSS 26.0 version was used. Data were cleaned by categorizing them.

The analysis involved the dependent variables represented by age, gender, urban vs rural brought up of DHOs whereas the cultural intelligence was as an independent variable in the study.

The statistical analysis provided a straightforward descriptive information on the variables such as the distribution of demographical, cultural intelligence, and communication skill variables. These variables were useful to explore the patterns of responses for each cultural intelligence and communication skills subscale. This helped us to determine if there were any similarities between cohorts belonging to different ethnic backgrounds living at the same place.

The correlation between cultural intelligence and communication skills was determined via Pearson's correlation. The Prob < W value listed in the output is the p-value. The p-value of pre and post covid data both were 0.0001 which is less than 0.05, therefore the null hypothesis that the data was normally distributed was rejected.

RESULTS

A total of 120 DHOs participated in the study divided into pre and post-covid cohorts. DHOs interacted with patients presented in the outdoor clinic as part of their normal duties. Regarding the cultural background of the DHO's cohort self-identified as Punjabi (60%), Saraiki (3.3%), Pushto (21.7%), Sindhi (6.7%), Urdu speaking (6.7%), Balochis (1.7%). However, in the post covid cohort, the cultural background of the DHO's group self-identified as Punjabi (45%), Saraiki (3.3%), Pushto (21.7%), Sindhi (13.3%), Urdu speaking (6.7%), Balochis (6.7%), Chitrali (3.3%), Hunza (1.7%), Gilgiti (1.7%). Socio-demographic characteristics of the participating patient in the hospital with mean and standard deviation cohorts are shown in table 1.

All rater responses were considered independent including the principal investigator, additional rater, and patient. Internal consistency of the data was determined using the reliability coefficient Cronbach's alpha between Principal Investigator & Additional Rater. (Table 2)

Table 1: Socio-demographic characteristics of participating patients with mean and standard deviation cohort wise

Cohort	Pre Covid %	Post-Covid %
Mean Age (Years)	39.96±14.87	38.92±15.27s
Male	27(45.0)	27(45.0)
Female	33 (55.0)	33 (55.0)
Ethnic Groups		
Punjabi	36 (60.0)	27 (45.0)
Saraiki	2 (3.3)	2 (3.3)
Pusho	13 (21.7)	13 (21.7)
Sindhi	4 (6.7)	8 (13.3)
Urdu Speaking	4 (6.7)	2 (3.3)
Balochi	1 (1.7)	4 (6.7)
Gilgiti	None	1 (1.7)
Hunza	None	1 (1.7)
Chitral	None	2 (3.3)

Table 2: Cronbach's alpha, Mean, and Standard Deviation of ACIR score

Tool	Rater(s)	Cronbach's Alpha	Mean	
			Pre Covid	Post-Covid
Communication Skill ACIR score during Patient-HO interaction	Principal investigator	.922	4.0134±.07259	3.7357±.14024
			4.0167±.09331	3.6810±.14039

Mean of the response of the patients (as rater) in both pre and post covid cohort were measured and the responses of the rater were considered independent based on global rating scale.

Table 3: Results of Global rating given by Patient during Patient-Dental House Officer interaction.

Tool	Rater(s)	Cronbach's Alpha
Global rating scale	Patient	.930

Overall when comparing pre covid and post-covid cohorts, statistical significant differences were found between pre and post covid correlation. (Table 4)

Table 4: Correlation between Communication skills and cultural intelligence

Cohort	Pearson Correlation	P-Value
Pre Covid	0.687	0.0001
Post Covid	0.549	0.0001

Table 5: Cultural intelligence and Communication Skills score amongst Pre and Post Covid DHOs. Indicates the group comparison of communication and cultural intelligence score of Dental House Officers' responses

Group	Communication Skills	Cultural Intelligence
Pre Covid	3.52±0.706	3.39±0.700
Post Covid	3.62±0.065	3.60±0.082
p-value	0.308	0.0530

Furthermore, results indicated that DHOs scored significantly higher CQ & CS in pre-covid when compared to DHOs in post-covid cohort as during their final year these students did not get a chance to face-to-face patient exposure and training. This training in the undergraduate program leads DHOs into different dental specialties. Therefore, the clinical experience of the DHOs was seen varied on a scale regardless of their exposure to patients treated in the same clinical setup.

Overall results indicates that face-to-face patient interaction, professional education of these competencies, role modelling and reflective practice introduced in the curriculum with clearly aligned learning objectives, will improve future cultural intelligence and communication skills in dental and oral health programs. Therefore, these contents must be included in the formal dental curricula.

DISCUSSION

The objective of this research was to identify if there is a significant correlation between cultural intelligence and communication skills amongst pre covid and post covid cohorts of DHOs working at tertiary care hospital. This study emphasizes that DHOs must attain the skills within their program to efficiently interact with the

patients and deliver holistic, personalized care to people coming from various diverse ethnicities and backgrounds. DHOs should also recognize how deep can the structural, social, and cultural and communication impacts are seen on the oral health behavior that is shared in a multicultural society like Pakistan.

The current analysis of the cultural intelligence and communication scores amongst pre and post covid cohorts depicts that there is no significant difference between both cohorts, however, there is a relatively good correlation between cultural intelligence and communication skills. Moreover, the multivariate analysis suggested that those whose cultural intelligence was higher had greater communication skills thus indicating a good correlation between both. The findings in our recent study reflects the diverse culturally oriented nature of the population. This also emphasizes the idea that there is a huge difference in "culturally and linguistically diverse background" (CALD) and being culturally skilled in dealing with patients. It should never be assumed that a CALD personal holds cultural intelligence just because of the background or birthplace, or even on the number of languages that he/she can communicate in, but instead this is established from empathy, tolerance, and awareness of cross-cultural issues. Mariño and his collaborators challenged this concept who found that dental students described cultural beliefs that were mostly similar irrespective of one's ethnic and cultural backgrounds.^[17]

There is necessity to improve the mindsets of young DHOs in two ways. Firstly, they should hold differences proficiently when treating a patient and secondly has the capacity to communicate competently with people across various ethnicities and cultures. The result from this study proposes that dentistry and oral health pre covid and post covid DHOs cohorts have displayed disparate levels of self-perceived cultural intelligence and communication skills at various stages of their professional education due to lack of face-to-face patient exposure. Pakistan Medical Council must include compulsory requirements for DHOs' acquisition of core CQ & CS to offer culturally safe oral health care. Of course, further assessments of DHOs' CQ & CS need to be ensured by providing patient-centered treatment using multiple methodologies to feel convinced that learning outcomes in CQ & CS and safety have been met.

It has also been recognized that CQ & CS can be built indirectly by clinical placements and by interactive learning programs through better clinical mentoring, role modeling and student reflective exercises.^[18] Dental colleges here favored less efficient and docile learning methods such as lectures. This insufficiency was also reported by DHOs who specified that insertion of cultural and communication awareness in the dental curricula was important. The communication among students should be enhanced to promote learning of cultures as the population they would be treating in future would belong to different cultures and backgrounds thus the current dental curricula needed a thorough revision to include ways that would develop their skills so the interaction with patients can be made fruitful in treating their symptoms.^[19] This is further backed by the discrepancy of the cultural intelligence and communication skills education in various nationwide dental schools' curricula in Pakistan.^[20-22] This is signaling towards a fundamental need for a basic framework that encompasses for cultural & communication competency education.

Clinical placements and rotations among the departments offer significant opportunities for DHOs to mature their cultural competency and communication skills first-hand by learning patient management. This is demonstrated by the most proficient dental practitioners, with direct communications to the patients and their families and by interaction with clinical mentors/teachers that are observing them during their communication with the patients. They can provide the DHOs with further insights on how to improve their communication skills. It has been already stated that DHOs who come across patients with various ethnic backgrounds can reflect upon these practices learned by observing their mentors which aids in refining DHOs' current attitudes about cultural factions and

prevents stereotyping. The growth of cultural intelligence and communication skills depends upon role modeling and feedback from supervisors for the DHOs.^[23] The emphasis should be laid on delivering the DHOs with prospects to consider not only their own cultural beliefs but others too. This would be very beneficial in appreciating the meaning of new experiences and consider on how these may relate to their own current and future experiences.

Continuous face-to-face education with a steady raise in intricacy has been deemed effective medium to educate the DHOs in cultural intelligence and communication skills. This exposure to new concepts in the prior undergraduate study may also add to variations between the courses.

Although this study offers significant understandings into the cultural intelligence and communication skills acquisition method among dentistry and DHOs, it has its own limitations. The most apparent limitation of this study was that this questionnaire relied on self-reported answers by the participant, which may or may not be an accurate indication of the correlation between self-perceived and actual culturally competent practice.^[24]

Another point is that contributors in this study were all DHOs at the tertiary care hospital so the assumptions described by this research may not represent the characteristic of the cultural and communication proficiency of all Pakistani dental professionals, or DHOs at nationwide dental schools. However, although a limitation but we believe that the current methodology was close to adequate given the experimental nature of this descriptive study.

CONCLUSION

The conclusion of this research reveals that there is a significant correlation between cultural intelligence and the communication skills of the DHOs. While their comparison amongst pre and post covid cohorts, former exhibited increasing levels of cultural intelligence and communications skills as they were given face-to-face patient exposure, as compared to latter cohort which did not get the patient exposure due to covid lockdown. Therefore, BDS curricula must include CQ & CS in their formal curricula and there is a dire need for dental curriculum reforms. In future, studies should include the compilation of longitudinal data to investigate if cultural intelligence and communication skills change over time for the same set of DHOs when they excel in career by becoming postgraduates' students. Furthermore, there is a need to discover embedded curriculum content in reflective practices, role modeling, and involuntary bias. This will help us clearly understand the learning objectives and evaluations leading to improved future cultural intelligence and communication skills curricula in dental and oral health programs. Alliance with other dental schools spread nationwide in Pakistan and overseas would be advantageous in verifying this study results. It will also help us understand the impact of cultural intelligence and communication skills education on DHOs as future dental practitioners in a more effective way.

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