Original Research Paper

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Development and Validation of Professionalism, Perception, Fear, and Anxiety Assessment Scale of Dental Students about Dentistry After Outburst of Covid-19 And Its Variant.

Abstract:

Introduction: The rapidly spreading COVID-19 via respiratory droplets and aerosol made dentists treat only emergencies during this period as they deal with most of the aerosol-generating procedures. Not only day-to-day practice but even the education system has also been affected, leading to a new educational system through on line teaching and learning.

Methodology: The study was divided in to three phases: first, item tool development using Focus Group Discussion; second, content and face validation by a panel of experts; and third, psychometric testing (internal consistency, stability, and construct validity).

Results: The faculty Focus Group Discussion (FGD) produced three scale domains, whereas the dentistry students' FGD yielded 28 items. A group of experts certified the tools' content using LAWSHE's Scale.

Two items were eliminated due to the content analysis, witha (CVR) critical of < 0.538. Using factor analysis, the researchers discovered many sub scales in each domain: Professionalism: Empathy and Humanism, and Responsibility: Perception: for learning and clinical training, academic and social self-perceptions, and perceived infect ability, as well as Covid-19 Phobia in Fear and Anxiety. It has a high level of internal consistency, as seen by the overall Cronbach's coefficient values. The content, face, construct validity, and retest reliability of the three domains of the instrument, as well as its sub scales, were all found to be relatively stable.

Conclusion: The new tool was found to be valid and trust worthy. It may be used to evaluate dental students in both under graduate and post graduate programs in various institutions Pan India and different Countries.

Key-words: Professionalism, Perception a boutdentistry, perception a bouton line dental education, Fearand Anxiety Assessment.

Introduction:

Dental health care providers are required to deliver a comprehensive range of dental services that improve their patients' quality of life. Dental schools strive to train undergraduates and postgraduates not just in dental sciences but also in professionalism which is a necessity for uplifting moral and professional standards. Professionalism is part of a concealed aim at many levels of the medical and dental graduation program. This means it isn't taught as a separate subject, but rather is inadvertently incorporated into other disciplines - frequently without explicit learning objectives [1]. During their clinical years, students who engaged with consultants, colleagues, and clinical staff were found to

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[1]DEEPIKA R.S. BAIS, [2]NEHA AGRAWAL, [3]SANDHYA MAHESHWARI

[1,3]Department of Orthodontics and Dentofacial Orthopedics, Dr. Ziauddin Ahmad Dental College Aligarh Muslim University, Aligarh

[2]Department of Periodontology and Community Dentistry, Dr. Ziauddin Ahmad Dental College Aligarh Muslim University, Aligarh

Address for Correspondence: Dr. Neha Agrawal MDS, Professor, Department of Periodontology and Community Dentistry, Dr. Ziauddin Ahmad Dental College Aligarh Muslim University, Aligarh, India. Email: dr.n_agrawal@yahoo.co.in

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develop a feeling of professionalism, which may be lacking in the current scenario owing to E-learning and teaching [2]. The dental practice is at high risk in the COVID-19 pandemic era from 2019 to date, due to the virus's high virulence and increased dissemination through the modes of salivary droplets produced during sneezing or coughing have an increased tendency to be transmitted among health care workers who work close to patients' mouths, using air rotors that contain aerosol and thus have a higher risk of infection [3]. Small aerosol particles that float in the air before settling as larger droplets on the ground can transmit the virus. As a result, all deferrable treatments were postponed by dental colleges, hospitals, and offices except for dental emergencies, to avoid the transmission of the dangerous infection. To prevent the spread of the contagious virus, all offline activities (i.e., teaching and clinical training) at dental colleges and hospitals had been temporarily halted, leading to online learning and preclinical training. As previously stated, dental practice is in great danger because of the virus. Dentists and dental students are justifiably concerned about the infection rate, which is quite high, and the somewhat high fatality rate [4]. On a personal level, it has evoked feelings of powerlessness, disease, and mortality. Fear is linked to the incidence of illness and mortality, as well as the pace of transmission and the environment. As a result, dental students' fear of COVID-19 may have an impact on their perception of dentistry as a profession [5].

In this context, an extensive search in six renowned electronic databases such as PubMed, Medline, Cochrane, Science Direct, Google Scholar, and EMBASE revealed that no standardized questionnaire was available to assess Professionalism, Perception, Fear, and Anxiety among Dental Students regarding dentistry After Outburst of Covid-19 and its variants.

Only a few studies have looked at individual aspects of dental professionalism, such as Covid-19 Knowledge and Perceptions Among Dental Specialists [6], perceptions, and knowledge on the implementation of problem-based learning in UG dental curriculum design [7], and a scale for assessing attitudes toward e-professionalism among medical and dental students[8], Dental professionalism and influencing factors: patients' perception [9], challenges encountered by dental undergraduates during clinical training [10], The Fear of COVID-19 Scale [11], and the Scale for Attitudes Related to Dental Competencies [12] were available in the works of literature of both western and Indian countries, but there was no exclusive evaluation questionnaire for the assessment of Professionalism, Perception, Fear, and Anxiety among Dental Students Regarding Dentistry After COVID-19 Outburst. The current study was undertaken to create, validate, and pilot-test the questionnaire in a dental institution to fill this gap. The questionnaire may then be used to research regional dental colleges across India, perhaps serving as a predecessor to a nationwide study.

Objectives:

To develop and validate a scale for the assessment of Professionalism, Perception, Fear, and Anxiety among Dental Students regarding dentistry After Outburst of Covid-19 And Its Variant.

Methodology:

Design:

The cross-sectional qualitative research was conducted in a Department of Orthodontics and Dentofacial Orthopaedics in collaboration with a Department of Periodontics and Community Dentistry, at Dr. Ziauddin Ahmad Dental College and Hospital, Aligarh Muslim University, Aligarh from 28/9/2021 To 9/2/2022 Students who were enrolled in a BDS (3rd, 4th, or intern) or MDS program at the time of COVID-19's commencement (2019-till date), had attended at least two clinical training sessions and had experience treating at least one patient were included in the study. The Institutional Review Board gave its permission, and the Institutional Ethical Committee gave its ethical approval. Informed consent was obtained from all participants before the study. The research was divided into three phases: first, item tool development using Focus Group Discussion; second, content and face validation by a panel of experts; and third, psychometric testing (internal consistency, stability and construct validity).

Focus Group Discussion:

The criterion sampling was used (a type of purposive nonprobability sampling), to recruit four groups of participants from the dental institution. The study began with a focus group discussion (FGD) among the authors and Six more faculty members with at least three years of teaching experience to identify themes and build a conceptual framework for the development of the new questionnaire, all of the participating faculty members signed a written informed consent form. The focus group lasted 60 to 90 minutes. The participants were given an identifying number

and were told that they had to provide their number before they could remark, to retain their anonymity. An audio recorder was used to record the entire conversation. The focus group interviews were personally transcribed and evaluated. The Professionalism, Perception, Fear, and Anxiety of Dental Students After the Outburst of Covid-19 And Its Variant were primarily considered to conceptualize the content of the scale's domains.

Following that, a focus group discussion was held with students fulfilling the inclusion criteria. Students were chosen to have 6–12 participants in each focus group. Purposive nonprobability sampling was used to select the number of participants for the FGD, with eight in the first group, six in the second, and ten in the third group, based on the number of interested and eligible participants. We took a phenomenological method to our research because we wanted to know more about how students and postgraduates dealt with their clinical training, feelings, and thoughts about dentistry during the covid-19 pandemic. Focus groups were used to collect data because they allowed participants to comment on their experiences while also allowing others to offer their perspectives. The FGD for students followed the same method as the FGD for faculty [13].

A qualitative research team was created which include-trained moderator, note-taker, and observer for data gathering. The creation of the initial pool of items relating to the various domains was an important step in the scale's development. A total of 50 items were gathered by the data collection team. To evaluate, they were asked to remark on omissions, misconceptions, repetitions, and extraneous elements, leaving 28 items for content validation, including 9 in the professionalism domain, 10 in the perception of dentistry area, and 9 in the Fear and anxiety domain. The main goal at this phase was to organize all of the data in a scientific, sequential manner that was potentially relevant to each section of the new questionnaire [14]. The study team developed a focus group guide that addressed dental students' professional knowledge, their impressions of dentistry after commencement of COVID-19, and their fear and anxiety levels throughout clinical training for the same.

Content validity:

The items were sent to 11 Professional Experts and two sociologists through email and WhatsApp to verify item clarity and content validity, and they were informed of the metrics and ideas involved. On a three-point Lawshe's scale (i.e., Essential/ Useful but, not essential/ Not required), each expert was asked to rate each Scale item in terms of clarity and relevance to the construct underpinning the investigation, as defined by the theoretical definitions of the construct and its dimensions [15][16]. Items deemed essential by the critical number of panel members were then included in the final questionnaire, with items failing to achieve this were removed from the final questionnaire. 2 items obtained score < 0.538, were discarded from the tool [17].

Descriptions of instrument:

The instrument consists of 3 scale which includes, Professionalism, Perceptions, and Fear and Anxiety with 9, 10, and 7 items in each domain respectively with a total of 26 items on the questionnaire. The responses were obtained on a five-point Likert scale. For Professionalism (Extremely important to Not important at all), for the perception of dental students about dentistry (from Strongly agree to Strongly disagree), for Fear and anxiety (To a very high degree to a very low degree).

Face validity:

The face validity of the items relates to whether they seemed to be measuring what they claim to be measuring. Repeat interviews with a panel of students were used to test face validity first. Following that, a second pilot research was conducted on 50 dental students, including BDS (3rd year, 4th year, and Interns) and MDS. A four-point ordinal scale was used to rate the questions' level of comprehension: very easy, somewhat easy, somewhat difficult, and very difficult to understand [18][19].

Psychometric Evaluation:

A pilot study was conducted to assess the Psychometric properties including internal consistency, stability, and construct validity [20], the survey was applied using an electronic Google form and distributed online by WhatsApp and email. A welcome message was sent to the participant, along with complete research information

Internal Consistency:

Item analysis was used to choose items in each scale that were strongly related to one another, as well as to keep the number of items in each scale to a minimum while maintaining internal consistency. Internal consistency may be a necessary condition for a scale's homogeneity or uni-dimensionality, but even if it fulfills Cronbach's alpha (0.75 to 0.83), the scale may not be unidimensional. Cronbach's a should not drop considerably when an item is eliminated [21][22].

Stability:

The stability of the scale was determined using the test-retest reliability method. Two weeks later, the same instrument was emailed to the respondents in this research, along with an offer to complete it again. Using a code that each responder gets, data from the first and second measurements were identified and matched. The interclass correlation was used to calculate test-retest reliability [20].

Construct Validity:

The data were analyzed using factor analysis. To get the best-fitting structure and the right number of factors, the following criteria were used: eigenvalues >1.0, factor loadings > 0.4, and the so-called elbow criterion for eigenvalues. Before commencing the factor analysis, the Kaiser–Meyer–Olkin measure of sampling adequacy (KMO) and Bartlett's test of sphericity were employed to evaluate if the sample was large enough to execute a good factor analysis. The sample size is large enough for factor analysis if the KMO value is greater than 0.5. The instrument's factor structure was investigated using exploratory factor analysis (EFA). EFA utilizes facts rather than theory to establish the factor structure for a set of variables [22].

Result:

Focus Group Discussion:

The FGD themes were used to create the conceptual foundation for the new instrument's development. Professionalism-10, Perceptions-8 (a] Teaching and Learning & b] Dentistry as Career), and Fear and Anxiety-8 were the three groups of the questionnaire that made up the framework. Following the exposure Covid-19 pandemic and its variant versions, 29 questions were discovered, adjusted, and compiled to develop a scale to assess dental students' professionalism, perspective, fear, and anxiety.

Content validity:

The 29-item scale was assessed by the expert panel for its application and item wording. The researchers deleted two questions with a score of <0.538 (critical CVR), according to the experts' opinions. As a result, a total of 26 items were remaining for the final draft [Table 1].

Face Validity:

During the research, face validity was assessed to discover some problematic or confusing regions in terms of the text employed. The language of the instruments was found to be simple, with a high level of understanding and sensitivity to each scale area. During the research, the majority of participants had no trouble comprehending the questions (96.67 % and 93.33 %, respectively). Furthermore, there was no statistically significant difference in knowledge and reaction to questions when the ratings assigned by each group of 50 students were compared (P > 0.05).

Psychometric testing:

Internal Consistency:

The data were analyzed with the statistical computer software SPSS 16, (IBM Corporation, New York, USA) and Cronbach's a was calculated using the reliability option. The value of Cronbach's a and range of Pearson product-moment correlation for Professionalism scale was 0.856 and 0.417 to 0.799, for Perceptions scale it was 0.768 and 0.279 to 0.615, and for Fear and Anxiety scale it was found to be 0.784 and 0.216 to 0.664 respectively shown in [Table 2].

Stability:

Fifty of the research participants consented to complete the scale again after two weeks. The final 26-item questionnaire assessed the test-retest reliability of the overall scale and subscales. The test-retest correlation for the Professionalism scale was r = 0.95, P <0.01, for Perception's scale r = 0.91, P <0.01 and Fear and Anxiety scale r = 0.92, P <0.01.

Construct Validity (Factor Analysis):

The underlying structure of the questionnaire was examined using exploratory factor analysis. To explore interrelationships among the survey questionnaires and establish the number and kind of components created by the data, a principal component analysis with orthogonal (Varimax) rotation was performed. In the current research, which was undertaken for the first time, this approach was proved to be appropriate. Before conducting this study, assumptions in the correlation matrix among performances were checked. The partial correlations among items were small, according to the Keyser–Meyer–Olkin measure of sampling adequacy for students' professionalism, perception, fear, and anxiety scales, which were 0.874, 0.674, and 0.732, respectively, and Bartlett's test of sphericity revealed that the correlation matrix was different from an identity matrix (P < 0.001). The factor analysis of the instrument's three domains yielded two, three, and two factors with eigenvalues larger than one. It was (4.832 and 1.122) for the Professionalism domain, (3.314, 1.812, and 1.162) for the Perception domain, and (3.235 and 1.446) for the Fear and Anxiety domain, respectively, that explained the total variation is 66.160 % in professionalism domain, percent of the variation in Student

answers (36.802% and 29.358% respectively); 62.884 in Perception domain, percent of the variation in Student answers (27.222 %, 20.441%, and 15.220%, respectively)&52.013% in Fear and anxiety domain percent of the variation in Student answers (28.534% and 23.478 % respectively). Different subscales were discovered based on factorial analysis in three scales were: Professionalism: Empathy and Humanism and Responsibility; In Perception, there seem to be representations of learning and clinical training, academic self-perceptions, and social self-perceptions; in Fear and Anxiety, there are representations of perceived infectability and Covid-19 Phobia Shown in [Table 3].

Discussion:

In the present study, the development and validation of a tool to assess professionalism, perception, fear, and anxiety related to dentistry among dental undergraduate and postgraduate students have been performed during the Covid-19 pandemic. The instrument's initial draft was developed in English for assessing its psychometric properties among a sample of dental students. The novel measure was found to be trustworthy and valid when used. A variety of subscales are linked to three domains: empathy/humanism and responsibility in professionalism, In Perception, there seem to be representations of learning and clinical training, academic self-perceptions, and social self-perceptions; in Fear and Anxiety, there are representations of perceived infectability and Covid-19 Phobia/anxiety and Stress appeared as the scales' major components. Gender, age, and educational level appear to influence dental students' views about dentistry. When evaluating an instrument's psychometric properties, item homogeneity or uni-dimensionality is an important issue to consider. Our tool proved to be internally reliable. It also has strong construct validity, since the adjusted item correlation for each item was greater than 0.40. The content, face, and retest reliability of the instrument's three domains, as well as its subscales, were all determined to be quite stable. The final scale, developed via validation, is composed of 26 variables and organized into three domains, each having 7 factors (2,3,2) that described 66.160%,62.884% & 52.013% of the total variation respectively. Each factor's dependability was examined individually, with values ranging from r = 0.95 for the Professionalism scale to r = 0.91 for the Perception scale and r = 0.92 for the Fear and Anxiety scale. On a five-point Likert scale, the responses were gathered. For the sake of professionalism (Extremely important to Not important at all). for dental students' attitudes about dentistry (ranging from strongly agree to strongly disagree) for fear and anxiety (To a very high degree to a very low degree) [23].

Professionalism:

Our test appears to encompass several professional themes, which are connected to two factors: empathy/humanism and responsibility. Patient welfare (altruism, trust, and patient interest), patient autonomy (honesty, and patient empowerment), and social justice were defined in a professional code of ethics published in the United States in 2002 [24]. In addition to these ideas, our instrument recognized medical students' need for and comprehension of continuing professional education. The number of components discovered by other tools' factor analysis ranged from three to eight. The number of elements does not appear to have a bearing on the tools' comprehensiveness, since some of the tools have fewer items while still covering the bulk of professionalism features. Internal consistency of a variety of variables used to judge professionalism varied from 0.71 to 0.86 in previous studies [25][26].

The first factor in the professionalism domain, which includes empathy and humanism, explained the bulk of the variation. On the interior, it was fairly reliable. Other research has discovered empathy and humanistic qualities such as sustaining ideals of integrity, respect, and connections with others, honor/integrity, equity, devotion to care, patient-centered concerns, and respect for others [27-31]. One of the most crucial qualities of medical professionalism is empathy and humanity. Most professionalism assessment scales appear to include empathy and humanism items, albeit in different factors; however, this suggests that these professionalism characteristics are fundamental and are always recognized by students, and should thus be included in every professionalism assessment scale [32].

The responsibility element was the second factor in the professionalism domain. It had a reasonable internal consistency. To recognize responsibility, other approaches such as responsibility, accountability, altruism, righteousness, and rule-abiding were applied [27-31]. Responsibility is one of the most crucial attributes of a professional doctor. Even though these factors were eventually determined to be the least important, the students admitted this in the survey's qualitative section [32].

Perception:

Little is known about how the abrupt change in dental education has impacted students, or whether e-learning is as effective as traditional face-to-face tutorials and should continue to exist post-pandemic as dental schools adjust. The

survey focused on online education, clinical dental education problems, and students' perceptions of dentistry as a career. The underlying constructs obtained in this domain were learning and clinical training, academic self-perceptions, and social self-perceptions which investigated how the COVID-19 pandemic affects students' academic and clinical performance, as well as their online learning experience [33]

In the Academic self-perceptions factor, it was found that Most participants' academic performance was affected by COVID-19 pandemic lockdown to varying degrees, according to the current data, and only a small percentage of participants said the pandemic did not affect their academic performance. This research backs up earlier findings that the COVID-19 pandemic had a major influence on medical [34], dental [35], and veterinary students [36].

Online learning and clinical training factor, the advantages of online learning have been reported in a recent study as the availability of educational resources, the flexibility of learning with the opportunity to repeat information, and the possibility for students to build their study regimens. In a poll released in 2021, dental students in the United States assessed their online curriculum favorably, with 87.6 percent expressing a high degree of comfort adjusting to technology [37]. A comprehensive evaluation of 59 research also revealed that online education is similar to traditional instruction in terms of information gained, skills developed, and student satisfaction. In contrast to conventional classroom courses, many students claimed that the shift to online platforms as a result of the COVID-19 epidemic had reduced their clinical performance, with the limited exposure to patients hampering their development of clinical skills and professionalism [38].

Social self-perceptions included questions regarding opinions about a career and its social ramifications. Use of protective equipment leading to extra cost and discomfort, reduced clinical abilities, aerosol-generating procedures increasing the risk of infection leading to the closure of dental clinics affecting income and instability of professional life might have changed the perception of students and their family members towards the negative side [39]. COVID-19 pandemic might have influenced personal hygiene routines, social habits, and subjective worries about the dentistry profession. According to Ahmed et al's study, 66 percent of study participants do not want to practice clinical medicine until the number of COVID-19 patients starts to decline [40][41].

Fear and anxiety:

The Scale's Fear and Anxiety domain reveal a stable unidimensional structure with strong psychometric qualities. When the mean interitem correlations were explored factors using Exploratory Factor Analysis. This test appears to include two components that are linked to the themes of perceived infectability and Covid-19 Phobia/anxiety and Stress.

Perceived infectability:

Dentists account for one of the groups of healthcare workers most susceptible to this disease, as established by the evidence of transmission of the virus through fomites, aerosols, and droplets. The viral load of SARS-CoV2 in human saliva, which was proven to be very high along with transmission even by asymptomatic carriers, places dentists into high-risk groups [42]. Dentists' psychological well-being may be compromised, expressing fear of becoming infected from co-workers or patients who exhibit increased levels of anxiety while providing treatment. The outcomes of our survey reflect the results of the previous study, with 80 percent of dentists responding affirmatively to the questions Are you worried about becoming infected with COVID-19 from a patient or co-worker and Are you concerned when administering treatment to a patient who is coughing or suspected of having COVID-19 [5][43] Similarly, in a worldwide survey that measured dentists' anxiety and fear and Anxiety across 30 countries, about 90% of respondents indicated worry of becoming infected from patients or co-workers [43].

Covid-19 Phobia:

Key criteria were excessive or unreasonable persistent fear, immediate anxiety provoked by, a large amount of correct and incorrect information about the disease, and the risk of contracting it is easily available on the internet. This can add to people's confusion, resulting in a lack of control over the situation, negative experiences, and exaggerated judgments about the disease risk. Another aspect that contributes to COVID19 dread is ignorance and a lack of adequate awareness about the condition can also cause Corona-phobia [44]. Considering the important role healthcare professionals serve in patient education and the fact that many healthcare professionals also face substantial mental health challenges, educational interventions may be incremental in addressing infodemic-induced challenges these frontline workers face [45][46].

Therefore, after evaluation of psychometric properties, the current tool was found to be a standardized and validated tool

that can be used in different languages, cultures, health systems, and different populations and allows comparisons between them after translations and adaptation based on native language. The next phase of the study will be going for the Pan India surve.

Conclusion:

Based on current psychometric standards, the 26-item Professionalism, Perception, Fear, and Anxiety Assessment Scale was designed and validated. It appears to be a reliable, thorough, and practical tool for assessing undergraduate and postgraduate understanding of professionalism, attitudes toward teaching and learning, and dentistry as a profession, as well as fear and anxiety about the profession. During this period, the scale can detect knowledge, interest, and views about dentistry as a career, which will aid in the design of relevant curricular revisions for the future post COVID era. It will be used to compare scores across genders, years of study, institutions, and even within a single institution when curricular modifications have been implemented. More study involving comparisons between specialists and students is required with the larger population.

Table 1: Evaluation of Content validity.

Items		Content Validity Ratio (CVR)
Professionalism:		
1.	When dealing with patients, the dentist should set his or her prejudice aside.	.846
2.	A dentist's interaction with their patients and co-workers should be respectful.	846
3.	The dentist should adjust to the patient's level of comprehension and do all possible to assist the patient at all times.	.692
4.	In your opinion, how important is being responsible and punctual for dental professionals?	.846
5.	Dental professionals should continue to pursue advanced professional education on a regular basis.	.530
6.	In your opinion, should dental professionals be aware of the current SARS-COv-2 pandemic and management guidelines?	.846
7.	Dentists should always take an interdisciplinary approach to patient care.	.692
8.	A dentist should be empathic and humane.	.846
9.	The dentist should always maintain and protect the patient's confidentiality.	.692
Perception about Dentistry:		
1.	Do you think online learning meets the theoretical requirements of a dental school?	.846
2.	Do you think online learning meets the clinical requirements of a dental school?	.846
3.	Do you believe that performing clinical training tasks on a simulation model such as a typodont or mannequin may satisfy the demand for a patient-based clinical task?	.692
4.	Do you feel satisfied and confident enough to deal with patient in future with your online and preclinical learning?	.846
5.	Do you enjoy your clinical dentistry tasks, after knowing about SARs-COv-2 infection and its spread through aerosol-generating procedures?	.846
6.	Do you enjoy treating dental patients and meeting their needs with increased number of personal protective equipment's after the outburst of Covid-19 pandemic?	.692
7.	Would you change your dental profession to other, if there were enough opportunities, as dentist are at higher risk of the Sars-COv-2 Covid19 infection and after the outbreak of this pandemic, resulted in a long-term nationwide lockdown, forcing all the dental offices to temporarily closed?	.846 .692

8.	After observing the current circumstances, do you think your parents are happy and comfortable with the career path you've chosen?	.692
9.	Do your co-workers and family members from other fraternities, in your opinion, show respect for your job or discriminate towards you because of the high risk of infection spreading?	
10.	Do you recommend dentistry as a career choice to your juniors and siblings in the future, having in mind the Covid and post-covid era?	

Fear and Anxiety :		
1.	How do you rate your anxiety and stress before covid 19?	.846
2.	How do you rate your anxiety and stress during 2nd wave?	.846
3.	After watching news and stories on social media about covid Variant do you become nervous and anxious?	.692
4.	Do you feel afraid that people are dying because of covid 19?	.846
5.	How do you rate your fear, stress and anxiety of being unable to learn dentistry during your under-graduation or post-graduation programme due to reduce patient work and clinical work exposure?	.846
6.	After hearing about the resurgence of the Covid-Omicron variant, do you feel anxious and stressed about thinking about returning to clinical training in college?	.692
7.	How do you rate your nervousness about talking to patients in close proximity?	.846
8.	How do you rate your fear of getting infected with covid-19 from patients and colleagues as you work in close vicinity to mouth and most dental procedure is aerosol generating?	.692
9.	How do you rate your fear of carrying the infection from your dental practice to your family?	.692

Table 2: Professionalism, Perception about dentistry, Fear and Anxiety assessment scale: item analysis.

.Domain	Items	Corrected item-total correlation	Cronbach's alpha if item deleted	Cronbach's
Professionalism	1. When dealing with patients, the dentist should set their prejudice aside.	.631	.838	.856
	2. A dentist's interaction with their patients and co-workers should be respectful.	.757	.830	
	3. The dentist should adjust to the patient's level of comprehension and do all possible to assist the patient at all times.	.549	.845	
	4. In your opinion, how important is being responsible and punctual for dental professionals?	.717	.830	
	5. Dental professionals should continue to pursue advanced professional education regularly.	.529	.846	
	6. In your opinion, should dental professionals be aware of the current SARS-COv-2 pandemic and management guidelines?	.799	.827	
	7. Dentists should always take an interdisciplinary approach to patient care.	.617	.868	
	8. A dentist should be empathic and humane.	.483	.851	
	9. The dentist should always maintain and protect the patient's confidentiality	.762	.829	

Professionalism	1. Do you think online learning meets the theoretical requirements of a dental school?	.477	742	.768
	2. Do you think online learning meets the clinical requirements of a dental school?	.581	.721	
	3. Do you believe that performing clinical training tasks on a simulation model such as a typodont or mannequin may satisfy the demand for a patient-based clinical task?	.379	.758	
	4. Do you feel satisfied and confident enough to deal with a patient in the future with your online and preclinical learning?	.634	.704	
	5. After knowing about SARs-COv-2 infection and its spread through aerosol-generating procedures, do you enjoy your clinical dentistry tasks?	.422	.751	
	6. Do you enjoy treating dental patients and meeting their needs with an increased number of personal protective equipment after the outburst of the Covid-19 pandemic?	.577	.715	
	7. Would you change your dental profession to other if there were enough opportunities, as dentists are at higher risk of the Sars-COv-2 Covid19 infection. After the outbreak of this pandemic resulted in a long-term nationwide lockdown, forcing all the dental offices to temporarily closed?	.380	.767	
	8. After observing the current circumstances, do you think your parents are happy and comfortable with the career path you've chosen?	.680	.705	
	9. Do your co-workers and family members from other fraternities, in your opinion, show respect for your job or discriminate against you because of the high risk of infection spreading?	.309	.771	
	10. Do you recommend dentistry as a career choice to your juniors and siblings in the future, having in mind the Covid and post-covid era?	.535	.726	
Fear And Anxiety:	1. How do you rate your anxiety and stress before covid 19?	351	.758	.784
	2. How do you rate your anxiety and stress during 2nd wave?	.318	.760	
	3. After watching news and stories on social media about covid Variant, do you become nervous and anxious?	.664	.782	
	4. How do you rate your fear, stress, and anxiety of being unable to learn dentistry during your under-graduation or post-graduation program to reduce patient work and clinical work exposure?	.423	.756	
	5. After hearing about the resurgence of the Covid-Omicron variant, do you feel anxious and stressed about thinking about returning to clinical training in college?	.447	.762	
	6. How do you rate your fear of getting infected with covid-19 from patients and colleagues as you work close to mouth and most dental procedures are aerosol-generating?	.630	.779	
	7. How do you rate your fear of carrying the infection from your dental practice to your family?	.594	.770	

Table 3. Factor analysis of Professionalism, Perception about dentistry, Fear and Anxiety assessment scale.

Domains	Item	Factor 1 Empathy and Humanism	Factor 2 Responsibilty	Factor 3
Professionalism	1. When dealing with patients, the dentist should set his or her prejudice aside.	.443	.613	
	2. A dentist's interaction with their patients and co-workers should be respectful.	.473	.723	
	3. The dentist should adjust to the patient's level of comprehension and do all possible to assist the patient at all times.	.147	.759	
	4. In your opinion, how important is being responsible and punctual for dental professionals?	.416	.699	
	5. Dental professionals should continue to pursue advanced professional education on a regular basis.	.184	.731	
	6. In your opinion, should dental professionals be aware of the current SARS-COv-2 pandemic and management guidelines?	.570	.649	
	7. Dentists should always take an interdisciplinary approach to patient care.		.789	
	8. A dentist should be empathic and humane.	.846		
	9. The dentist should always maintain and protect the patient's confidentiality	.673	.519	

Perceptions		Learning and Clinical training	Social Self-Perception	Academic Self-Perception
	1. Do you think online learning meets the theoretical requirements of a dental school?	.883		
	2. Do you think online learning meets the clinical requirements of a dental school?	.843	.215	.472
	3. Do you believe that performing clinical training tasks on a simulation model such as a typodont or mannequin may satisfy the demand for a patient-based clinical task?	.548		.281
	4. Do you feel satisfied and confident enough to deal with patient in future with your online and preclinical learning?	.807	.121	.252
	5. Do you enjoy your clinical dentistry tasks, after knowing about SARs-COv-2 infection and its spread through aerosol-generating procedures	.831	.588	
	6. Do you enjoy treating dental patients and meeting their needs with increased number of personal protective equipment's after the outburst of Covid-19 pandemic?	.857	.664	.185
	7. Would you change your dental profession to other, if there were enough opportunities, as dentist are at higher risk of the Sars-COv-2 Covid19 infection and after the outbreak of this pandemic, resulted in a long-term nationwide lockdown, forcing all the dental offices to temporarily closed?	.379	.879	.159
	8. After observing the current circumstances, do you think your parents are happy and comfortable with the career path you've chosen?	.159	.629	.402

Perceptions		Learning and Clinical training	Social Self-Perception	Academic Self-Perception
	9. Do your co-workers and family members from other fraternities, in your opinion, show respect for your job or discriminate towards you because of the high risk of infection spreading? 10. Do you recommend dentistry as a career choice to your juniors and siblings in the future, having in mind the Covid and post-covid era?			.332

Fear And Anxiety:		Percieved infectibili	COVID-19 Phobia	
	1. How do you rate your anxiety and stress before covid 19?	.130	.516	
	2. How do you rate your anxiety and stress during 2nd wave?			
	3. After watching news and stories on social media about covid Variant, do you become nervous and anxious?	.410	.642	
	4. How do you rate your fear, stress, and anxiety of being unable to learn dentistry during your under-graduation or post-graduation program to reduce patient work and clinical work exposure?	.206	.749	
	5. After hearing about the resurgence of the Covid-Omicron variant, do you feel anxious and stressed about thinking about returning to clinical training in college?	.822	.482	
	6. How do you rate your fear of getting infected with covid-19 from patients and colleagues as you work close to mouth and most dental procedures are aerosol-generating?	.792	.208	
	7. How do you rate your fear of carrying the infection from your dental practice to your family?	.617		

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