

## SUMMARY OF THE FINDINGS

### 5.0 Introduction:

This chapter provides an in-depth summary of the main findings and their implications, leading smoothly into the recommendations section. It offers a thorough recap of the study, emphasizing the principal research results and their importance. The chapter also addresses the limitations of the study and proposes areas for further investigation to fill these knowledge gaps. In summary, this chapter acts as a complete conclusion to the study's aims, results, and future research implications in the field. It underscores the key insights derived from the study and stresses the importance of the findings. This section should specify the particular conclusions made from the study's results and offer detailed recommendations for future research pathways.

### 5.1 Statement of the Problem:

Standardization of Scale to measure professionalism in postgraduate dental students. Currently, there is no specific framework in India outlining the essential competencies required for professionalism among dental students. While some international frameworks exist, none comprehensively address the societal, personal, professional, and ethical aspects relevant to India. This study aims to develop a thorough framework for assessing professionalism among Indian postgraduate dental students, considering Indian social values and the expectations of various stakeholders.

Although assessing professionalism is best achieved through a combination of

established methodologies, this study seeks to identify the minimum components of professionalism expected from postgraduate dental students. Once these foundational values are established, strategies can be developed to effectively teach these ideals within the Indian context.

## **5.2 Objectives of the Study:**

- 1 To analyze and identify the concepts and domains of professionalism for Indian postgraduate dental students.
- 2 To prepare and standardize the scale of professionalism for Indian postgraduate dental students.
- 3 To implement the scale of professionalism in the context of Indian postgraduate dental students to develop norms.
- 4 To study the relationship of the professionalism scale with various demographic factors.

### **In this study, the concept of professionalism was operationalized as**

Professionalism is described as the integration of various essential skills of an individual to act ethically in both their personal and professional lives, while also advocating for and contributing to societal benefits.

## **5.3 Hypotheses:**

Ho1: There will be no significant difference in the mean professionalism score of male and female students

Ho2: There will be no significant difference in the mean professionalism score of married and unmarried students

Ho3: There will be no significant difference in the mean professionalism scores of students of parents with health care or no healthcare backgrounds.

Ho4: There will be no significant difference in the mean professionalism score between students who opted by interest or by compulsion

Ho5: There will be no significant difference in the mean professionalism score between students having siblings or no siblings

Ho6: There will be no significant difference in the mean professionalism scores of students of urban and rural environments.

Ho7: There will be no significant differences in the mean professionalism scores of students according to I, II, and II years of postgraduation

Ho8: There will be no significant difference in the mean professionalism scores of students according to various Family incomes

Ho9: There will be no significant difference in the mean professionalism scores of students according to whether they attended any formal training /courses on professionalism and ethics or not

## **5.4 Methodology**

**Source of Data:** Dental Colleges in India offering postgraduate courses were included as sources of data. All three years of postgraduate students with nine branches of specialization willing to participate in the study comprised for the source of data.

### **5.4.1 Population:**

The population consisted of all postgraduate dental students in India who were enrolled in various dental colleges offering postgraduate courses. There are approximately 200 colleges in India that provide doctoral programs, but the number of available seats is subject to change

every year based on annual inspections and the availability of faculty. Additionally, not all seats are filled in either private or government dental colleges.

#### **5.4.2 Sample:**

In this study, we aimed to develop and standardize a tool to measure the professionalism of postgraduate students. This was the first phase of the research, which required two separate sample groups for standardization and subsequent implementation of the tool.

#### **Phase-1 sample**

##### **Pilot study with 100 postgraduate students**

Data was collected between December 2020 and August 2023. Due to the significant restrictions during the COVID-19 pandemic, the standardization phase of the scale began under challenging conditions. The researcher was only able to conduct a pilot study through direct physical interaction at two dental colleges with postgraduate programs in Vadodara.

In the first phase of constructing the tool, 100 postgraduate students participated in a pilot study. For the pilot study, all post-graduates from two dental colleges in Vadodara were selected.

College Name	Students number
K M Shah Dental College	64
Manubhai dental college	36
Total	100

A total of 25 experts contributed their insights and expertise in the finalization of various constructs and items for the scale. Initially, 15 specialists were involved in the development phase before the pilot test, helping to refine a comprehensive 35-item questionnaire.

Following this, 10 additional experts participated in the validation process, meticulously evaluating and confirming the relevance and efficacy of an updated 20-item questionnaire.

## **Phase- 2 sample**

Implementation of scale with 410 postgraduate students

30 students participated separately for the test and retest reliability of the scale

The formula used for sample size determination is as per Slovin's formula, and available data obtained from the DCI site for dental postgraduates in India.

P= 6693, d =0.05, p= as per data available on DCI Year 2021-22

$$N = P/ (p \times d^2) + 1$$

$$= 6696/ (6696 \times 0.05 \times 0.05) + 1$$

$$= 6696/ (6696 \times 0.0025) + 1$$

$$= 6696/17.74$$

$$= 377.45$$

Therefore, the minimum sample size required was 378 postgraduate students for the implementation of the scale. Out of 415 students who participated in the online mode with consent, the data from five students who didn't complete the questionnaire properly was excluded, leaving a total of 410 students for data evaluation.

*Final sample -100 postgraduate students for a pilot study*

*410 for implementation of scale*

*30 students for test-retest reliability*

## **Sampling method**

Random sampling method was utilized for the selection of colleges offering post graduate courses in India. The purposive sampling method was undertaken for postgraduate students.

## **Setting and Participants**

After conducting a pilot study and finalizing a 20-question questionnaire, data was collected using an online survey created with Google Forms. Students were informed about the study's purpose and scope, and the link to the online survey was shared in various postgraduate WhatsApp groups available across India.

The questionnaire also included information about the purpose of the study, and participants were asked to give consent to the statement, "I consent to participate in the study." This permitted online consent from all the participants.

### **5.4.3 Tool for data collection: Scale of Professionalism**

Initially, a total of 50 items were created after a comprehensive review of the literature. Following in-depth discussions and analysis, the researcher who has a personal expertise in dentistry and a deep interest in professionalism collaborated with two senior experts from the Departments of Education and Psychology to narrow the statements down to 35. An in-depth examination of the elements that constitute Professionalism reveals a noteworthy lack of consensus among researchers regarding a singular definition of the term. As a result, efforts have been made to enhance clarity while operationalizing the concept of Professionalism. However, it has been observed that crucial components such as sustainability, personal upliftment, lifelong learning, and work-life balance are frequently overlooked in many existing scales within the literature. Furthermore, no existing scale has successfully integrated all four essential domains: Ethical, Personal, Professional, and Societal. To address this gap, the researcher developed a comprehensive set of 35 statements, ensuring an equitable distribution of focus across the four domains, with 5 statements dedicated to Ethical aspects and 10 each to Personal, Professional, and Societal dimensions. This approach aimed to deliver a more holistic view of Professionalism.

A total of 25 experts contributed their insights and expertise in the finalization of various constructs and items for the scale. Initially, 15 specialists were involved in the development phase before the pilot test, helping to refine a comprehensive 35-item questionnaire.

The validation process included participation from 25 dental practitioners and faculty members from various colleges across India. These participants comprised both academicians and private practitioners who graduated from dental school between 1965 and 2005. The average

age of the experts was around 45 years, with a standard deviation of  $\pm 10$  years. The group included 12 males and 13 females.

This exercise was performed to collect the insights of specialists on the highlighted components concerning their suitability, significance, and capacity to represent the concept of professionalism. A copy of the correspondence sent to the specialists and the roster of experts can be found in Appendices I and II, respectively.

The majority of the specialists who replied to the correspondence agreed that the identified components and statements accurately captured the core of professionalism, considering them both suitable and significant. However, several experts suggested merging some of the components due to their similarities, proposing that a more streamlined approach could improve clarity and focus.

Following a comprehensive pilot study, 15 statements were eliminated, (the procedure of which is given in chapter 4), leaving only 20 for further evaluation. A panel of 10 experts highlighted the critical importance of simplicity in the scale's design. They strongly recommended removing any negative statements to ensure a consistently positive framework throughout the assessment.

Every remaining statement was carefully rephrased to adopt a positive tone, aligning with the experts' suggestions for clarity and straightforwardness. As a result, the scale evolved into a purely positive format, leading to the decision to exclude all negative polarities. Consequently, this revised scale can no longer be classified as a traditional Likert scale; instead, it is best described as a five-point rating scale, designed to provide clearer, more affirmative feedback.

Following this, 10 additional experts participated in the validation process, meticulously evaluating and confirming the relevance and efficacy of an updated 20-item questionnaire obtained after the pilot study.

## **5.5 Discussion**

Teamwork and collaboration are essential for promoting innovation, efficiency, success, better communication, and problem-solving. Health promotion and disease prevention aim to provide individuals and communities with the tools they need to make healthy decisions and reduce chronic diseases. Solidarity fosters a sense of belonging and collective identity among groups

or classes that share common interests, goals, values, and empathy. Sustainable living involves managing daily needs and activities to safeguard the environment and its possessions for future generations. Ethical use of social media requires respecting individuals' dignity, privacy, and confidentiality, while resilience and adaptability enable individuals to bounce back quickly from difficult situations. Work-life balance is critical for maintaining physical and mental health, enhancing productivity, and achieving overall life satisfaction. Honesty and personal integrity involve being truthful, transparent, and fair in all interactions, while self-discipline allows individuals to push through encounters and difficulties. Reflection helps learners understand the subject, develop metacognitive skills, and promote lifelong learning. Overall, the research offers a valuable understanding of the dimensions of professionalism among dental students. Proficiency in communication is crucial for personal and professional relationships, involving active listening, empathy, professionalism, lifelong learning, accountability, autonomy, equitable justice, beneficence, nonmaleficence, and confidentiality. Effective listeners and communicators are essential for nurturing long-lasting relationships and fostering trust. Compassion is a complex emotion that drives individuals to alleviate the pain of others, leading to a sense of fulfillment and purpose. Professional integrity promotes ethical conduct by treating everyone with respect and taking responsibility for their actions. Lifelong learning involves pursuing knowledge for personal or professional growth, enhancing competitiveness and employability in an ever-changing job market. Accountability involves owning one's actions and conduct, while autonomy allows individuals to make decisions based on their values, beliefs, and desires. Equitable justice is built on meeting the needs of every individual, regardless of their status or background. Healthcare professionals must ensure positive outcomes, such as maintaining good health and preventing or alleviating detrimental conditions in their patients. Nonmaleficence is an ethical standard in healthcare that demands healthcare providers abstain from causing injury to their patients. Because of confidentiality, any information that clients share is kept completely private.

**5.5.1 Content Validity:** The content validity of a test refers to how well it evaluates what it's supposed to assess. 25 highly experienced experts from nine branches of dentistry validated the Scale. The content validity of the final questionnaire was deemed 'Acceptable' for all 20 items or questions included because the CVR value was  $> 0.42$ . This critical value was based on validation among subject experts. The overall test's content validity index (CVI) was 1.0, which is more than the critical value of 0.42, demonstrating all the questions are considered acceptable.

**5.5.2 Reliability:** The reliability of the scale of professionalism was assessed using the Cronbach alpha coefficient, which produced values ranging from .64 to .84. These values indicate a generally high-reliability coefficient, suggesting good internal consistency of the scale. Specifically, the test reliability of the scale for professionalism was found to be Cronbach's alpha of 0.75 for a sample consisting of 30 students.

**5.5.3 Cronbach's alpha** is a commonly used indicator of internal consistency or reliability, especially for multiple rating items that comprise a scale in surveys or questionnaires. In our particular analysis, we found a Cronbach's alpha of 0.935, which demonstrates a strong level of internal consistency for our scale. This indicates that the scale is dependable and uniformly measures the intended construct within this sample.

**5.5.4 KMO and Bartlett's Test:** the Kaiser-Meyer-Olkin (KMO) measure of sample adequacy was determined to be 0.938, indicating that the sample size was appropriate for the Professionalism Scale for Dental Students. This figure is regarded as adequate when it exceeds 0.50 and is categorized as "excellent" within the range of 0.80-0.90. The KMO values for each item were also at their lowest, 0.930, further validating that the sample was adequate. Additionally, Bartlett's Test revealed  $\chi^2(190) = 5138; P < 0.001$ . This result indicated that the correlations among the items were sufficiently significant for the Professionalism scale for dental students

**5.5.5 Exploratory Factor Analysis (EFA):** An Exploratory Factor Analysis (EFA) was performed to assess the construct validity of Professionalism among dental students and to uncover the factor structure. In this analysis, principal components and direct oblimin rotation techniques were applied. This choice was made because the principal components method is the most commonly used and efficient approach in practice, while the direct oblimin rotation is employed when factors are believed to be interconnected.

The discussion highlights the assessment of content validity and reliability of the Professionalism Scale for Dental Students. The scale demonstrated strong content validity, with a content validity index (CVI) of 1.0, indicating that all 20 items were acceptable according to expert validation. The internal consistency, evaluated through Cronbach's alpha, ranged from .64 to .84, with a specific value of .75 for a sample of 30 students, suggesting a reliable measure of professionalism. Additionally, the calculated Cronbach's alpha of 0.935 in the larger sample reflects a high level of internal consistency. The Kaiser-Meyer-Olkin (KMO) value of 0.938, considered excellent, confirmed the adequacy of the sample size for the scale.

Finally, significant correlations among the items were supported by Bartlett's Test ( $p < 0.001$ ), and exploratory factor analysis (EFA) was utilized to explore the factor structure, further establishing the construct validity of the scale. Overall, the findings affirm the scale's reliability and validity in measuring professionalism among dental students.

The data collected underwent qualitative and quantitative analysis. Statistical analysis was conducted using IBM SPSS 20.0 Version (IBM Chicago). Factor analysis was carried out using Varimax's principal component and rotation methods. Content validation involved 25 experts from various colleges in India. A five-point rating scale was created for its simplicity and time efficiency. This method provides a high-reliability coefficient even with fewer items. Ultimately, twenty items belonging to four domains were finalized. The scale used a 5-point rating ranging from strongly disagree (1) to strongly agree (5). Each scale item was scored between 1 and 5 points, with no reverse-scored items. The scale measured four dimensions: 1) Societal, 2) Professional, 3) Ethical, and 4) Personal. The total score ranged from 0 to 100, with maximal scores indicating more positive attitudes toward professionalism.

Scale to measure professionalism in post-graduate dental students was standardized and later data was collected by implementation. The data collection contained Sociodemographic questions such as age, gender, marital status, post-graduation year, opted for profession willingly or by compulsion, siblings' status, environmental settings, i.e., urban or rural, family income, parents in health care, etc., were taken. They were also asked whether they had attended any formal course /training on professionalism and ethics.

### **5.5.6 Discussion on Demographics**

The demographic values of the participants in the study are diverse and provide a comprehensive representation of the target population. Out of the 410 participants, 66.1% were female, and 33.9% were male. The mean age of participants was 26.42 years with SD 2.44 ( $26.42 \pm 2.44$ ) with a range of 22 to 44 years. Mean age of female participants was 26.11 years with SD 1.99 ( $26.11 \pm 1.99$ ) with a range of 23 to 44 years. The mean age of male participants was 27.01 years with SD 3.04 ( $27.01 \pm 3.04$ ) with a range of 22 to 41 years. The majority of the participants were unmarried (83.9%) and had opted for the profession by interest (92.9%). In terms of post-graduation year, 43.4% were in their second year, followed by 37.3% in their first year and 19.3% in their third year. The study also encompassed participants from both

rural (21.7%) and urban (78.3%) environments. Additionally, the distribution of family income among the participants varied, with 56.1% having a family income between 8 lakhs to 30 lakhs. The sample demographics accurately represented postgraduate dental students in India. The analysis of these factors helped in understanding the characteristics of the sample and ensured that the study's results were not biased based on any particular demographic factor.

### **5.5.7 Discussion on Hypotheses**

The investigation into the professionalism scores of various demographic groups among students has yielded significant insights into how factors such as gender, marital status, parental background, motivations for choosing their field of study, environmental background, years of post-graduation, and family income impacted the perceived professionalism in their academic environment. Each hypothesis explored a different dimension of this relationship, and the results shed light on the complexities of professionalism development among postgraduate students. Each hypothesis was tested using relevant statistical analyses and the findings provide insights into the factors influencing professionalism among students.

#### **Hypothesis 1: Gender Differences in Professionalism Scores**

The analysis revealed no significant difference in the mean professionalism scores between male and female students ( $p = 0.21$ ). This result suggests that both genders perceive and embody professionalism in similar ways within the academic context considered in this study. It indicates progress toward gender equality in professional attitudes, reflecting a potentially more integrated educational environment where both male and female students are equally motivated and prepared to exhibit professionalism.

#### **Hypothesis 2: Marital Status Impact on Professionalism Scores**

Similar to the first hypothesis, the results showed no significant difference in professionalism scores between married and unmarried students ( $p = 0.40$ ). This finding may imply that marital status does not influence students' perception of professionalism, perhaps pointing to a mature academic culture where personal life circumstances do not interfere with professional attitudes. It also suggests that both demographic groups may equally prioritize their academic and professional commitments regardless of marital status.

### Hypothesis 3: Parental Background in Healthcare

The third hypothesis investigated the influence of parents' occupational backgrounds on students' professionalism scores. With results yielding no significant difference ( $p = 0.81$ ), it appears that whether a student comes from a healthcare-related background or not does not significantly influence their professionalism scores. This outcome could suggest that professional development in students is influenced more by their educational experiences rather than familial professional backgrounds, emphasizing the importance of academic atmosphere and peer influence.

### Hypothesis 4: Interest versus Compulsion in Choosing Field of Study

The findings for this hypothesis indicated a significant difference in professionalism scores between students motivated by interest (mean = 87.67) and those who chose their field out of compulsion (mean = 83.76,  $p = 0.01$ ). This is perhaps one of the most striking outcomes of the study, suggesting that intrinsic motivation is a critical factor in developing a strong sense of professionalism. Students driven by genuine interest may be more engaged, resilient, and willing to embrace the nuances of their professional roles, leading to higher professionalism scores.

### Hypothesis 5: Influence of having siblings on professionalism scores

This analysis explored the mean professionalism scores between two groups of students: those with siblings and those without. The mean professionalism score for students with siblings was 87.48 (SD = 9.11), while the mean score for students without siblings was slightly lower at 86.91 (SD = 8.75). These findings may indicate that the occurrence or absence of siblings does not significantly affect students' levels of professionalism, at least in the context of the measurement used in this study. This could imply that other factors—such as personality traits, parenting styles, socio-economic status, or educational experiences—might play a more essential role in shaping professionalism, rather than familial relationships alone.

### Hypothesis 6: Urban vs. Rural Environments

The results indicated that there was no significant difference in the mean professionalism scores between students from urban and rural environments ( $P$  value = 0.76). This implies that, despite

different backgrounds, both groups possess similar levels of professionalism. This finding might suggest that the educational systems or professional training in both urban and rural settings are effectively equipping students with comparable skills and values necessary for professionalism. It challenges the stereotype that urban students might have better exposure or training opportunities and highlights the potential for rural environments to foster equally capable professionals.

#### Hypothesis 7: Different Years of Post-Graduation

Similarly, the analysis for the years of post-graduation (also resulted in no significant differences in professionalism scores ( $P$  value = 0.709). This indicates that the transition through the three years of postgraduate education did not significantly affect the professionalism ratings among students. This could suggest that students, regardless of their progression in the postgraduate curriculum, may experience similar opportunities for professional development. It is noteworthy that as students advance in their studies, they may be exposed to varied experiences that could enhance skills; however, this data reflects that such experiences do not necessarily translate into measurable differences in professionalism.

#### Hypothesis 8: Family Income

The analysis regarding family income yielded a similar outcome where no significant differences were found ( $P$  value = 0.865). This result challenges the expectation that higher family income might correlate with better professionalism scores, potentially due to access to resources, training, or networking opportunities. It suggests that the evident disparities in economic background may not be as influential in developing professionalism as previously thought. Other factors, such as personal motivation, institutional support, and individual experiences, might play a more crucial role in shaping professional attitudes and behaviors.

#### Hypothesis 9: students who attended/did not attend any formal courses on dental professionalism and ethics

This study sought to determine if formal courses on dental professionalism and ethics significantly influence students' professionalism scores. The results showed similar mean scores for those who attended (87.36) and those who did not (87.43), with a  $t$ -value of 0.07 and a  $p$ -value of 0.94. Since the  $p$ -value exceeded 0.05, we failed to reject the null hypothesis, indicating no significant differences between the groups. These findings suggest that attending

formal courses may not substantially impact professionalism development. Possible explanations include the course content not translating effectively into practical skills, students possibly already possessing inherent professionalism before taking such courses, and potential variances in course quality and engagement.

Overall, the lack of significant differences raises questions about how dental schools can improve their curricula. Emphasizing interactive and practical learning experiences, rather than traditional lectures, may better cultivate professionalism among students. Ongoing evaluation of educational strategies is essential to encounter the growing needs of future dental professionals.

The study underscores the significance of intrinsic motivation as a pivotal factor in professional development while suggesting that demographic factors such as gender, marital status, and parental background may have less influence than previously assumed. The results from the hypotheses collectively demonstrate that neither socioeconomic factors nor educational progression significantly influence the professionalism scores of students in this study. Overall, the study underpins the importance of focusing on the quality of educational experiences rather than solely on external factors such as environment, economic status, or academic progression. These findings suggest that fostering an environment that promotes students' genuine interest in their fields could be crucial for enhancing professionalism across educational contexts.

This insight emphasizes the need to explore additional variables that may contribute to professional development, such as personal attributes, mentorship opportunities, or extracurricular engagements. The dynamics of sibling relationships and how they may influence personality development, responsibility, and competition can provide additional layers to understanding professionalism in students.

Future research could also expand on these findings by incorporating qualitative assessments to understand the underlying reasons behind similar professionalism scores across different demographics. Further research could explore additional variables and longitudinal studies to assess how these factors interact over time. The sample size, diversity of backgrounds, and the specific context of the measurements could all affect the outcomes. Future research could benefit from a larger, more varied sample and might consider incorporating other variables that could provide a more nuanced understanding of professionalism among students.

**5.5.8 Discussion on Norms** After implementing the scale on 410 students, the minimal score on the Professional Scale was 20, while the maximum score was 100. It was found that 200 students (48.78%) exhibited low professional commitment, meaning their scores were less than or equal to 87. Additionally, the professional scores of 13 students (3.17%) were categorized as average, with their professional commitment scoring 88. Finally, the professional commitment of 197 students (48.05%) was deemed high, as their scores were equal to or greater than 89.

The establishment of percentile norms for the Professionalism Scale serves as a critical tool for interpreting the professional commitment levels of the studied population. In this analysis, we derived important descriptive statistics from a sample of 410 individuals, revealing significant insights into their professional engagement.

The mean score of 87.40 indicates that, on average, participants exhibit a relatively high level of professionalism. However, the standard deviation of 9.06 suggests that there is considerable variability in scores, with some individuals deviating notably from the group average. This variation may reflect differences in professional experiences, motivation, or external factors influencing commitment levels among individuals in the sample.

The median score of 88 reinforces the idea that the majority of participants score around this value. This indicates that half of the students possess a professional commitment level that exceeds the mean, suggesting that a substantial proportion of the sample is highly engaged in their professional roles.

The percentile ranks provide further layers of interpretation. For instance, findings indicate that approximately 48.78% of students scored 87 or below, categorizing them as holding low professional commitment. This is particularly relevant for institutions aiming to enhance professional engagement, as interventions may be necessary to support this group and foster better professional behavior.

Conversely, the results show a small cluster of students—approximately 21.46%—achieving an average professional score of 88, while a large segment (48.05%) scored above this average level. This underscores a potential gap between low, average, and high levels of professional commitment, highlighting the need for tailored programs or educational strategies that address these differences.

The skewness value of -1.73 indicates a significant leftward skew in the distribution of scores, suggesting that there are more individuals with higher professionalism scores than lower ones. This could imply that while many students demonstrate decent professionalism, there exists a critical subset that may struggle with low commitment, warranting further investigation into the causes and potential remedial measures.

The kurtosis value of 10.75 indicates a leptokurtic distribution, suggesting that there are sharp peaks in the score distribution. This also points to the fact that while most students cluster around the higher levels of professionalism, there are outliers with either particularly high or low scores, further exemplifying the variability within the sample.

In summary, the percentile norms derived from this study offer a valuable understanding of the professional commitment levels of the studied population. By contextualizing these scores within the broader framework of norms and understanding the implications of variability, institutions can develop informed strategies to enhance professional commitment, ultimately contributing to higher levels of engagement and success within the professional landscape. Future research could further explore the underlying factors affecting these scores and investigate specific interventions to elevate professional commitment levels among those at the lower end of the spectrum.

#### **5.5.9 Discussion on related review of literature**

The comprehensive study conducted by Ketis and Vrecko in 2014 focused on assessing professionalism within the medical field, providing a foundational framework for understanding professional standards. Similarly, the dental scale for professionalism developed by Zijlstra et al. in 2005 added valuable insights specific to the dental profession. Furthermore, Langille's dental values scale from 2010 and Weis's value scale from 2000 was instrumental in shaping our understanding of the ethical principles and values that underpin professional behavior in healthcare. Drawing inspiration from these seminal works, the constructs of our professionalism scale were carefully crafted and refined through extensive group discussions, ensuring that they reflect both rigorous academic standards and the practical realities of the profession. This collaborative approach aimed to create a comprehensive tool that effectively captures the essence of professionalism across both medical and dental fields.

Furthermore, recent studies have explored the implications of professionalism on patient outcomes and healthcare quality. Htay et al. (2019) point out that professionalism directly correlates with higher patient satisfaction and improved treatment adherence. This finding aligns with the perspectives shared by Tanriverdi et al. (2023), who indicate that fostering professionalism in medical training can significantly enhance the overall quality of care provided.

Additionally, Ho et al. (2023) emphasize the role of continuous professional development in upholding standards of care, indicating that ongoing education is crucial for adapting to evolving healthcare needs and environments. Xin et al. (2024) further build on this by discussing the importance of mentorship programs that cultivate professionalism among novice practitioners, thereby ensuring that foundational values are transmitted effectively.

Htay et al. (2019), Tanriverdi et al. (2023), Ho et al. (2023), and Xin et al. (2024) have recently emphasized the importance of limiting survey questions to a range of 17 to 23. They advocate for keeping these questions simple and straightforward to ensure that respondents can complete them quickly, ultimately reducing survey fatigue and improving the reliability of the data collected. The work done by the existing study is in line with the work done by these authors.

Ashrani et al (2017) emphasized giving importance to patients' view of professionalism for dentists. Therefore, the aspects of the patient's viewpoint were also given importance in the present professionalism scale. The present study draws upon the foundational work of the Dental Values Scale developed by Langille in 2010 and the comprehensive research by Cruess et al. from 2006. These authors have extensively explored critical factors such as altruism, which emphasizes the importance of selfless concern for the well-being of others; personal satisfaction, reflecting the fulfillment derived from one's professional endeavors; and conscientiousness, which highlights responsibility and diligence in one's work. Furthermore, they have examined the quality of life as it relates to dental professionals, the development of essential skills for effective doctor-patient relationships, and the significance of reflective abilities that foster continuous improvement.

## **5.6 Conclusions:**

Standardizing a scale requires rigorous procedures to ensure that the evaluation instrument is reliable, valid, and consistent. The thorough standardization process ensures that the scale is effective across various contexts, creating a treasured resource for researchers and educators in

dentistry. By adhering to strict protocols, this scale enables the measurement and tracking of professionalism over time, contributing to improved dental education and practice.

Moreover, it can identify weaknesses in professionalism among dental students, allowing for targeted interventions. Overall, the professionalism scale is a vital tool for enhancing dental care quality. Its reliability promotes ethical behavior and accountability in the dental profession. By incorporating it into curricula and practice settings, stakeholders can foster a culture of professionalism that benefits both practitioners and patients. Ultimately, the scale's validation ensures that the data collected is accurate and reliable for making informed decisions in dental education. Therefore, it can be concluded that the Professionalism Scale for postgraduate dental students has been proven to be both valid and reliable. This is the first validated scale designed to measure attitudes towards professionalism in postgraduate dental students. However, there is always room for improvement, and further value additions can be made.

The percentile norms from this study provide insights into the professional commitment levels of the population examined. By placing these scores in a broader context, institutions can create strategies to boost commitment, leading to increased engagement and success. Future research should explore the factors influencing these scores and identify interventions to raise commitment among those at the lower end. The study highlights intrinsic motivation as a key factor in professional development, finding that demographic factors like gender, marital status, and parental background have less impact than expected. The results show that socioeconomic factors and educational progression do not significantly affect students' professionalism scores. Instead, the study emphasizes the need to focus on the quality of educational experiences and the importance of fostering genuine interest in students' fields to enhance professionalism. These findings imply that creating an environment that fosters students' genuine interest in their fields could be essential for improving professionalism within educational contexts. Standardizing a professionalism scale for dental students involves rigorous procedures to ensure reliability and validity. This scale provides insights into existing baseline post-graduate dental students' professionalism and tries to identify areas for improvement.

### **5.7 Strengths of study:**

The study's strengths include being the first scale to assess professionalism in Indian postgraduate dental students and being helpful for faculties to sensitize students regarding important domains and subfactors. It can also be helpful for faculties to keep these 20 subdomains in mind and sensitize the students regarding these factors because assessment drives teaching and learning.

The strengths of this study lie in its rigorous methodology and comprehensive approach to assessing professionalism among postgraduate dental students in India. The study's content validity was established through the content validation of 25 subject experts, ensuring the accuracy of the final questionnaire. Additionally, the scale demonstrated good internal consistency and reliability, as evidenced by high values from the Cronbach alpha coefficient and test-retest reliability analysis. The study also utilized a sufficient sample size and employed robust statistical methods, such as exploratory factor analysis, to validate the measurement tool and identify the factor structure. Overall, these strengths contribute to the study's credibility and make its findings reliable and applicable to the field of dental education and practice.

### **5.8 limitations of the study:**

This cross-sectional study aimed to examine the constructs of postgraduate dental students. The data was gathered via an online questionnaire, which is practical and can have a sizable sample size. However, it is essential to note that online surveys generally have lower response rates compared to in-person interviews and focus groups. More research on a larger sample is needed to fully understand the reliability and validity of the scale. Additionally, it is essential to consider that students from different socioeconomic and cultural backgrounds may have varying sensitivities and insights into what defines professionalism. Although the researcher has kept the scale short of encouraging better student responses, it is essential to acknowledge that the burden and attitudes of respondents in answering low in online surveys can still influence the results.

The study recommends more research on a broader sample to completely comprehend the scale's reliability and validity. Additionally, future studies may be needed to authenticate the use of this scale on undergraduate students after sensitizing them regarding important domains and subfactors. Overall, the study offers a valuable understanding of the standardization of a

professionalism scale for postgraduate dental students in India, serving as a basis for future research.

One of the limitations is the focus on a specific cultural context, in this case, dental education in India. The findings and implications of the study may not be universally applicable to dental education in other countries or cultural settings.

Another limitation is the dependence on self-reported data from students and educators. Self-reported data can be biased and may not precisely reflect the authentic behaviors and attitudes related to professionalism. Additionally, the study may not have captured the full spectrum of factors influencing the development of professionalism in dental education.

These limitations suggest the need for further research that includes diverse cultural contexts, uses a combination of qualitative and quantitative methods, and encompasses a broader spectrum of healthcare professions to gain a more wide-ranged thoughtfulness of professionalism in healthcare education.

## **5.9 Future studies:**

In light of the findings and limitations identified in the study, there are several potential avenues for future research in the field of professionalism assessment among dental students.

1. **Longitudinal Studies:** Conducting longitudinal studies to evaluate the development of professionalism among dental students over an extended period would provide treasured insights into the stability and evolution of professional behaviors. Tracking students from the early years of their dental education throughout their professional careers could offer an inclusive understanding of the factors influencing professional growth and the impact of educational interventions on long-term professional behavior.

2. **Comparative Studies:** Comparative studies that explore the differences in professionalism levels among dental students from various cultural, educational, and social backgrounds could add to the complete understanding of the determinants of professionalism. Comparing the attitudes, behaviors, and ethical reasoning of dental students in different educational systems or cultural contexts could shed light on the impact of contextual aspects on professional development.

3. **Intervention Studies:** Implementing and evaluating educational interventions designed to enhance professionalism among dental students could be a promising area for future research. Assessing the effectiveness of specific interventions, such as ethics courses, mentorship programs, or reflective practices, in promoting professional behavior and attitudes could provide evidence-based strategies for fostering professionalism in dental education.

4. **Multimethod Approaches:** Employing multimethod approaches, including qualitative research methods such as interviews, observations, and narrative analyses, alongside quantitative measures, could offer a more holistic understanding of professionalism in dental education. Combining quantitative assessments of professionalism levels with qualitative insights into students' perspectives and experiences could enrich the understanding of professional identity formation and ethical decision-making processes.

5. **Cross-Disciplinary Research:** Collaborative research involving multiple disciplines, such as psychology, sociology, and medical ethics, could advance the study of professionalism in dental education. Drawing from insights and methodologies across disciplines, researchers could explore interdisciplinary perspectives on professionalism, ethical dilemmas, and professional identity construction among dental students.

Overall, future studies in the field of professionalism assessment among dental students should aim to address the identified limitations, expand the knowledge base, and contribute to the development of evidence-based approaches for fostering professional development in dental education. Additionally, future research could explore the connection between professionalism and academic capabilities among dental students to further understand the impact of professionalism on overall success in dental education. Professional behavior in clinical settings influences success in the field and clinical practice. Future research could emphasize assessing the influence of professional training on students' clinical performance and patient outcomes.

Additionally, implementing the scale in dental education can help categorize areas for enrichment and tailor educational interventions accordingly. This proactive approach can ultimately lead to better patient outcomes and amplified trust in the dental profession as a whole. By utilizing validated scales in dental education, educators can also track student progress over time and make informed adjustments to their teaching methods.

This continuous feedback loop can lead to the overall success and growth of both students and the dental profession. Furthermore, incorporating validated scales in dental education can also

assist in standardizing assessment methods and ensuring consistency in evaluating student performance. This can help educators better identify trends and patterns among students, allowing for more targeted support and guidance to enhance learning outcomes. This ultimately leads to the production of competent and ethical dental professionals who are well-prepared for their future careers. Furthermore, utilizing validated scales can help dental schools meet accreditation standards and maintain high educational quality.

The findings of the studies have significant implications for both academic research and practical applications. From an academic perspective, the results provide ample scope for future studies in exploring the underlying mechanisms of the phenomenon. The findings could also add to the development of novel theoretical frameworks within the field.

The conclusion of the study highlighted the key findings and their implications, along with endorsements for future research in the field of professionalism in Indian postgraduate dental students. The study aimed to develop a comprehensive scale to assess professionalism in Indian postgraduate dental students considering Indian social values and expectations from various stakeholders. The findings of the study provided an understanding of the concepts and domains of professionalism for Indian postgraduate dental students, and the scale of professionalism was standardized and implemented. The study also established the validity of the professionalism assessment scale for measuring professionalism amongst postgraduate dental students. Additionally, the methodology section detailed the sample population, sampling method, setting, participants, and tools used for data collection. Overall, the study's conclusion emphasized the significance of the findings and provided comprehensive recommendations for future research directions.