

Job Satisfaction of Dental Prosthesis Technicians in Iran

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Abstract

Objectives: Job satisfaction in dentistry plays a crucial role in treatment success. Evaluating job satisfaction among dental professionals is essential in recognizing the impact of work environment factors on performance quality. Dental prosthesis technicians are integral members of the dental treatment team. The present study aimed to assess the job satisfaction of dental technicians in Iran through a questionnaire.

Methods: A questionnaire was distributed among 200 dental technicians participating in the Congress of Iranian Dental Technician Association. Descriptive statistics, including relative frequencies, means, and standard deviations, were utilized to determine job satisfaction levels. The relationship between satisfaction and independent variables was analyzed using independent t-tests and analysis of variance (ANOVA).

Results: In this study, 190 people, including 110 (57.6%) men and 80 (42.4%) women, were evaluated in terms of satisfaction. The mean satisfaction score was 129 ± 15.09 . A significant relationship was observed between satisfaction and age ($p < 0.001$), i.e., higher satisfaction was observed in younger participants.

Conclusion: Despite the moderate and high job satisfaction levels among dental prosthesis technicians in Iran, there is an urgent need for special planning by policymakers in the field of oral health to enhance their knowledge, improve their job conditions, and elevate their academic status.

Keywords: Dental technician; Job satisfaction; Prosthesis

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Introduction

Job satisfaction is defined as an individual's attitude toward his/her job. Individuals with high job satisfaction tend to have longer job tenure. The work environment's quality also plays a significant role in increasing job longevity. Furthermore, job satisfaction is linked to overall life satisfaction and work-related performance. Examining job satisfaction is crucial as it impacts both physical and mental well-being, enhances employee commitment, and boosts teamwork success rates, which are vital in the healthcare system.^{1,2}

Dental prosthesis technicians play a critical role in the dental treatment team. Alongside dentists and specialists in prosthodontics, orthodontics, and pediatric dentistry, they fabricate intra-oral and extra-oral prostheses such as dental veneers, implants, full and partial dentures, and orthodontic appliances. Their work requires a blend of scientific knowledge and artistic skill. The advancements in dentistry have led to significant progress in the field of dental prostheses worldwide, placing technicians in diverse situations to meet dentists' expectations.^{3,4}

The global status of dental technology is often obscure, and some dental patients are unaware of the processes involved in creating their dental prostheses. Generally, dental technicians are not widely recognized by nations and governments. Government policies dictate that professionals in this field either possess a university education or have received training at technical colleges. In some countries with high demand for dental laboratory services, laboratory owners may provide on-the-job training to applicants lacking relevant education and certification.⁵

One of the influential factors affecting job satisfaction levels is the quantity and distribution of employees. According to a report by the Chinese Dental Association in 2009, there were approximately 99.2 dental technicians per million individuals in China.⁶ Contrasting this with the United States, the ratio stands at one dentist per 1,640 people, one laboratory founder per 28 dentists, and five technical workers for every dentist (resulting in a total ratio of 1 to 7). In Indonesia, the ratio is one dentist for every 17,100 people and approximately one technician for every 13 dentists. Additionally, the WHO reports that 64% of dentists in Indonesia work in public centers, highlighting the need for one dentist per 8,000 people.^{7,8}

The average technician-to-dentist ratio in the mentioned countries is estimated to be 10 to 1. Based on the statistics of 43,000 dentists in Iran as of 2023, approximately 4,300 laboratory founders are required in Iran. Each laboratory founder necessitates a workforce that varies depending on various factors. Therefore, determining the total number of required technicians needs further investigation.

The workspace of dental technicians, known as a laboratory, necessitates adequate equipment, making its setup costly, particularly with the recent advancements in digital technologies. Many newly graduated technicians begin their careers in established laboratories. Financial constraints, environmental stress, and communication challenges with dentists or patients can impact work environment's quality and job satisfaction.⁹

To date, no study has been conducted on the job satisfaction of Iranian dental technicians, and there is a lack of coherent and published information regarding their job and educational status in the country. Therefore, the current study aimed to assess the job satisfaction of dental technicians in Iran through a

questionnaire survey.

Methods

The questionnaire utilized in this study was adapted from Emrani et al.'s study and underwent modifications in content and wording. Subsequently, a panel of experts evaluated its validity and reliability.¹⁰ The questionnaire contained demographic information, such as gender, age, city, laboratory specialization, marital status, educational level, as well as other sections covering income, communication with colleagues and dentists, working hours, social recognition, work autonomy, work-related stress, abilities and skills, motivations for job selection, and the necessity for field and job enhancements.

This questionnaire was distributed among 200 dental technicians attending the Congress of the Iranian Dental Technician Association, an annual gathering of dental technicians nationwide. In accordance with the exclusion criteria, incomplete questionnaires were excluded, resulting in 190 valid responses. The questionnaire's validity was assessed using the content validity index (CVI) and content validity ratio (CVR), both achieving a score of 100%. The questionnaire's

reliability was confirmed through Cronbach's alpha test, yielding a coefficient of 0.84.

Following data collection, the information was entered into SPSS version 24 for analysis. Descriptive statistics, including relative frequencies, means, and standard deviations, were employed to assess satisfaction levels. Additionally, independent t-tests and analysis of variance (ANOVA) were conducted to explore the relationship between satisfaction and independent variables at a significance level of 0.05.

Results

In this study, 190 people, including 110 (57.6%) men and 80 (42.4%) women, were examined in terms of satisfaction. The mean satisfaction score was 129 ± 15.09 (ranging from 86 to 170).

Based on the findings of this research, a significant relationship was observed between satisfaction and age ($p < 0.001$). Thus, higher satisfaction was observed in younger participants. Also, satisfaction had no statistically significant relationship with other demographic variables and work-related variables ($p\text{-value} > 0.05$) (Tables 1,2).

Table 1 - Mean and standard deviation of satisfaction with demographic variable

Variable	N	Mean	Std. Deviation	Std. Error Mean
Age 20-30	101	124.4158	14.54460	1.44724
30-40	48	130.8333	14.04148	2.02671
40-50	20	135.6000	11.53211	2.57866
over 50	14	147.6429	10.33744	2.76280
Man	106	129.1132	16.72143	1.62413
Woman	78	128.9359	13.05268	1.47793
Single	99	129.7677	16.83766	1.69225
Married	85	128.1882	13.17510	1.42904
Master	139	128.2014	16.17709	1.37212
Diploma	43	131.6744	11.59992	1.76897
Tehran	113	128.4425	13.36903	1.25765
Fixed	104	127.6635	13.38642	1.31265
Removable	31	134.1935	11.97057	2.14998
Both	48	128.3958	19.83307	2.86266

Table 2- ANOVA analysis for age and satisfaction

Sum of Squares	df	Mean Square	F	Sig.	
Between Groups	8019.014	3	2673.005	13.934	.000
Within Groups	34337.216	179	191.828		
Total	42356.230	182	Mean Square	F	Sig.

Discussion

Job satisfaction in dental profession is an important factor in treatment success.¹¹ Evaluation of job satisfaction in dentistry as a stressful profession can be important to understand how work environment factors affect performance quality.¹²

A diversity in level of job satisfaction was observed in dentistry, such that more than 80% of Australian and Lithuanian dental

professionals were very satisfied, while Koreans and Egyptians had job satisfaction of 51% (10-14). Dentists in the private sector have higher satisfaction levels compared to the public sector.¹³

Also, according to many studies, income is a main determining factor for employment.¹⁴⁻¹⁹ The results of the present study showed moderate and high satisfaction levels, which is comparable to the studies by civil and bower.^{9,20} Regarding the

educational status of the participants, the present study revealed that 76% of participants had a bachelor's degree, while 24% had an associate's degree.⁴ In China, 64% of dental technicians graduated from technical schools, with only 3% having a bachelor's degree. The academic educational level in dental technology in China is relatively low due to instruction primarily offered in high schools, resulting in a significant disparity between China and other developed countries in this field.^{20,21}

The job satisfaction level of Chinese technicians has shown an increase with higher educational level and subsequent income increase.²² Hence, it can be inferred that elevating the educational standards enhances the quality of laboratory services, subsequently boosting income levels and job satisfaction for dental technicians.⁹

According to this study, 86% of participants expressed a desire to elevate the academic standards in this field to master's and doctorate levels. Additionally, 84% of participants wished to undergo retraining courses to enhance their knowledge. Bower's study indicated that nearly two-thirds of respondents refrained from attending training courses due to their high costs.⁹

Notably, the number of dental laboratories in Tehran, the capital of Iran, surpasses that of other cities.²³ However, the findings of this study demonstrated that the satisfaction levels among laboratories in Tehran and other cities were nearly identical.

Demographic variables also play a significant role in this issue. The present data indicated that younger technicians exhibited higher satisfaction levels compared to their older counterparts. In Emrani et al.'s research on dentists' satisfaction, age was not significantly correlated with satisfaction levels, with older dentists slightly more satisfied. Similarly, marital status was not found to impact satisfaction levels based on the findings of both studies.¹⁰

In contrast to Bower's study, where technicians over 40 years old showed higher satisfaction levels than those below 40, Chaoyi's research highlighted that older technician displayed higher satisfaction levels.²¹ In the present study, no distinction was observed in satisfaction levels between genders, whereas in Emrani et al.'s study, men reported higher job satisfaction than women.¹³ Ayers' study; however, presented results inconsistent with those of Emrani et al.'s study.¹⁰

In this study, no significant relationship was observed between job satisfaction and income. However, according to Chaoyi's article in China, dental technicians face low-income levels, leading to financial dissatisfaction, causing young technicians to leave the profession after 3 to 5 years.²¹

The results of this study indicated that dental technicians in Iran derive satisfaction from having the authority to determine the number of doctors and working hours. They are particularly content with their ability to provide necessary services to those in need. Moreover, they seek acknowledgment and respect from the dental community, which enhances their satisfaction and reduces stress levels. The study did not find a significant

correlation between job satisfaction and the specific field of making removable or fixed prostheses.

In the present study, a notable percentage of technicians (86%) felt a sense of usefulness in the laboratory, with 73% expressing value and satisfaction in their work. In contrast, Bower's study in England revealed a direct link between technician's satisfaction and feeling valued as a treatment team member.⁹ Nevertheless, over half of the respondents in the present study did not feel adequately valued or recognized as vital team members alongside dentists due to factors like poor communication between technicians and dentists. Additionally, an inverse relationship was identified between job satisfaction and working hours.

In the present study, nearly 80% of participants demonstrated the ability to adapt to dental advancements. However, only 60% felt capable of solving sudden issues in the laboratory, and 73% believed that they could meet reasonable expectations. Approximately 70% of participants expressed a sense of engagement in their work environment, with 66% reporting overall satisfaction with their career, which is a positive indicator of job satisfaction.

Concerning societal perceptions, only 62% of individuals were content with the social standing associated with their occupation. Additionally, 70% expressed a desire for technicians to be included in the medical council, as it would elevate the profession's social status and shift some treatment responsibilities to the laboratory. The majority of participants (80%) chose this profession due to its independent nature and the requirement for high manual dexterity.

Maintaining schedules and meeting dentists' expectations are crucial aspects of this profession. Notably, 75% of participants experienced stress when falling behind schedule, while nearly 60% acknowledged that high expectations and dental errors contribute to stress. Interestingly, when asked if they would prefer to become a dentist given the opportunity, less than 50% agreed, indicating a higher level of job satisfaction within their current roles compared to dentistry.

Furthermore, only 45% of respondents supported the training of technical personnel in this field, reflecting the belief that the quality of services is closely linked to the level of scientific education.

One of the limitations of this study was the inability to obtain a uniform sample size from all workers in this field. This is primarily due to the absence of licensing or university education among some participants, resulting in a lack of detailed information about them. However, a notable strength of this study lied in its originality and significance. The findings hold relevance for future policy development and the addressing of crucial matters concerning the job satisfaction of dental technicians. These aspects will impact their interactions with dentists and the overall treatment of patients.

Conclusion

Job satisfaction among dental technicians in Iran ranged from moderate to high; nevertheless, dental technology in Iran requires special planning by policymakers to enhance both their professional and academic status.

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Supplementary Materials: The questionnaire used in this study is provided as supplementary material.

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Ethical Approval: The questionnaire used in this study was adapted from the study by Emrani et al. and was modified in terms of content and wording. A panel of experts reviewed and approved its validity and reliability.

Informed Consent Statement: Written informed consent was obtained from all participants, and a signed consent form is available.

Data Availability Statement: The data generated or analyzed during this study are available upon reasonable request.

Conflict of Interest: No Conflict of Interest Declared ■

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