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Factors Associated With Employment Preferences for Government and Private Dental Sectors Among Newly Graduated Dental Professionals: A Cross-Sectional Study

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Abstract

Introduction: Dental graduates face important career decisions regarding government and private sector employment. Understanding the factors underlying these preferences may help dental institutions and policymakers develop appropriate career pathways and improve the workforce distribution. This study aimed to identify factors associated with government- and private-sector employment preferences among newly graduated dental professionals and to compare these factors between Bachelor of Dental Surgery (BDS) and Master of Dental Surgery (MDS) graduates.

Materials and methods: This cross-sectional study included 400 newly graduated dental professionals, including 200 (50.0%) BDS and 200 (50.0%) MDS graduates. Data were collected using a structured questionnaire assessing demographic characteristics, career motivations, employment-related factors, and perceptions of government- and private-sector employment. Differences between participants with exclusive government and private sector preferences were assessed using independent t-tests and Pearson's chi-square tests. Multivariable binary logistic regression was performed to identify the independent predictors of government sector preferences.

Results: Government employment was preferred by 170 (42.5%) participants, private employment by 150 (37.5%), both equally by 50 (12.5%), and 30 (7.5%) were undecided. Government-preferring participants reported higher importance of job security (4.6 ± 0.6 vs. 4.1 ± 0.9; $p < 0.001$), pension benefits (4.7 ± 0.5 vs. 3.8 ± 1.0; $p < 0.001$), and rural/underserved service (4.0 ± 0.9 vs. 3.2 ± 1.1; $p < 0.001$). Private-preferring participants reported higher importance of financial returns (4.3 ± 0.8 vs. 4.0 ± 0.9; $p = 0.002$), autonomy (4.2 ± 0.8 vs. 3.8 ± 0.9; $p < 0.001$), and self-employment (4.4 ± 0.7 vs. 3.6 ± 1.0; $p < 0.001$). Factors independently associated with government-sector employment preference included job security (adjusted odds ratio (aOR) = 1.85, 95% CI: 1.32-2.60), pension benefits (aOR = 2.10, 95% CI: 1.53-2.88), and perceived government-sector security (aOR = 2.60, 95% CI: 1.80-3.75).

Conclusion: Employment preferences reflect distinct priorities, with government preference driven mainly by security and stability, and private preference driven mainly by financial and professional autonomy.

Categories: Public Health, Dentistry
Keywords: career choice, dentistry, employment, health personnel, job satisfaction

Introduction

Dentistry in India has undergone substantial expansion over the past several decades, resulting in a growing number of dental graduates entering an increasingly competitive employment environment [1]. Newly qualified dental professionals may pursue diverse career pathways, including government services, private dental practices, private hospitals, corporate dental chains, academic positions, higher education, and opportunities abroad. The choice of an initial employment sector is influenced by multiple professional, socioeconomic, and personal considerations, and understanding these determinants is important for effective dental workforce planning [2,3].

Government dental employment is traditionally associated with job stability, regular salaries, retirement benefits, structured working conditions, and opportunities to serve both rural and underserved populations. These characteristics may be particularly attractive for graduates seeking long-term professional and

financial security. In contrast, private sector employment and practice may offer greater professional autonomy, flexible working arrangements, opportunities for self-employment, financial incentives, and broader clinical exposure [4,5]. Differences in perceived career progression, administrative responsibilities, work-related stress, and work-life balance may further influence sectoral preferences.

The transition from dental education to employment is shaped by individual and family characteristics. Educational qualifications, academic performance, childhood residence, socioeconomic background, family occupation, and the presence of dental professionals within the family may contribute to career decision-making [6]. In addition, graduates' perceptions of employment availability and their willingness to work in rural or semi-urban areas may influence their preference for government service [7]. The relative importance assigned to job security, salary regularity, pension benefits, promotion opportunities, professional independence, and clinical development may differ substantially among individuals [4].

Despite the expansion of dental education and increasing number of dental graduates in India, there remains a need to better understand the factors underlying their employment choices. Such information can assist policymakers and dental institutions in developing career guidance strategies, improving workforce distribution, and designing employment policies that are responsive to the expectations of newly qualified professionals [1]. Although previous studies have explored dental career choices and professional motivations, limited attention has been given to the factors distinguishing government- and private-sector employment preferences among newly graduated dental professionals in India [3,7]. The present study addresses this gap by jointly evaluating demographic, socioeconomic, career-related, and employment-specific factors and identifying independent predictors of sector preference. Its findings may inform evidence-based recruitment policies, career counselling, and strategies to improve dental workforce distribution, particularly in rural and underserved areas.

This study aimed to identify factors associated with government versus private sector employment preferences among newly graduated dental professionals. The objectives were to determine the distribution of employment preferences among Bachelor of Dental Surgery (BDS) and Master of Dental Surgery (MDS) graduates; assess the association of demographic, academic, socioeconomic, and employment-related factors with sector preference; evaluate differences in career motivations, job-factor priorities, and perceptions of government- and private-sector-preferring graduates; and identify independent predictors of government-sector employment preference.

Materials And Methods

Study design

This single-center, cross-sectional, questionnaire-based analytical study was conducted in 2022 at Bharati Vidyapeeth (Deemed to be University) Dental College and Hospital, Sangli, India, between July and October 2022. Ethical approval was obtained from the Institutional Ethical Committee before the commencement of the study (Reference no.: BVDU/DCH/02/2021-22/S12; dated February 18, 2022). Participation was voluntary, and informed consent was obtained from all participants before the questionnaire administration. The questionnaire was anonymous, and the confidentiality of the collected information was maintained throughout the study.

Study population

The study population comprised newly graduated dental professionals who had completed either a BDS or MDS and were considering their initial employment or career pathway. A total of 400 participants, including 200 BDS and 200 MDS graduates, were included. The eligibility of study participants is summarized in Table *1*.

Inclusion criteria	Exclusion criteria
Participants who had completed a BDS or MDS from a recognized dental institution.	Participants who had graduated outside the study period.
Participants who had graduated during the study period.	Participants who were unwilling to participate or did not provide informed consent.
Participants who had completed the questionnaire adequately for analysis.	Questionnaires with substantial missing responses.
Participants without an established independent private dental practice or permanent long-term employment beyond the predefined eligibility period.	Duplicate questionnaire submissions.

TABLE 1: Inclusion and exclusion criteria for study participants.

BDS: Bachelor of Dental Surgery; MDS: Master of Dental Surgery.

Sample size estimation

Sample size calculations were performed using G*Power version 3.2.9 (Heinrich Heine University Düsseldorf, Düsseldorf, Germany). To estimate the proportion of dental graduates preferring government-sector employment, the sample size was calculated using the single-population proportion formula:

$$n = \frac{Z^2_{1-\alpha/2}\, p(1-p)}{d^2}$$

Where $Z_{1-\alpha/2} = 1.96$ (at 95% confidence) and an expected proportion (p) of 50% was assumed, with a 5% margin of error (d) and a 95% confidence level. The minimum required sample size was 385 participants. The final sample size was increased to 400 participants to increase the robustness of the study. The final sample comprised 200 BDS and 200 MDS graduates, based on the availability of eligible participants during the study period.

Participants were recruited by convenience sampling of recent BDS and MDS graduates affiliated with the study institution (through alumni networks, on-site contact during the study period, and institutional lists) until equal quotas of 200 per qualification group were reached. Equal numbers of BDS and MDS graduates were deliberately enrolled to enable a balanced and adequately powered comparison of employment preferences between the two qualification levels, as one of the study objectives was to examine whether factors associated with sector preference differed by educational qualification. The single-center design and convenience sampling limit generalizability to graduates from other regions or institutions in India; multicenter studies are needed to confirm the findings.

Questionnaire development

A structured, self-administered questionnaire was developed specifically for the present study through collaborative input from study authors affiliated with different dental institutions and representing diverse clinical, academic, and public health disciplines (Appendices). The multidisciplinary author group included experts in general dentistry, pediatric and preventive dentistry, oral and maxillofacial surgery, head and neck oncology, prosthodontics, oral and maxillofacial pathology and oral microbiology, and public health and health administration. The questionnaire was developed following a review of relevant literature on dental career preferences, employment motivations, professional expectations, and dental workforce considerations. The questionnaire was prepared in English and was designed to require approximately 10-12 minutes to complete.

The questionnaire consisted of four sections. Section A collected demographic and academic information, including age, sex, highest educational qualification, academic performance, childhood residence, socioeconomic status (SES), occupation of the family head, and presence of a dental professional in the family. Section B assessed career choice and motivation, including the primary reason for choosing dentistry, satisfaction with the decision to pursue dentistry, the perceived characteristics of dentistry, and the initially preferred career pathway. Section C assessed current employment preferences and the importance of specific job-related factors for government- and private-sector employment. Section D assessed perceptions and attitudes toward government and private sector dental employment.

Questionnaire validation

The questionnaire underwent face and content validation before its use in the main study. Five experts rated

each item's relevance on a four-point scale. All items achieved an item-level Content Validity Index (I-CVI) ⩾ 0.80, and the scale-level Content Validity Index (S-CVI/Ave) was 0.91, indicating excellent content validity. Internal consistency was satisfactory (Cronbach's α = 0.82 for career motivations, 0.85 for employment-related factors, and 0.79 for perceptions). Inter-rater agreement on coded open-ended responses was excellent (Cohen's κ = 0.87). The revised questionnaire was pilot tested among 30 newly graduated dental professionals who fulfilled the eligibility criteria but were not included in the final study sample. The pilot test assessed the clarity and comprehensibility of the questions, response patterns, questionnaire flow, and approximate completion times. Minor linguistic refinements were incorporated into the final questionnaire.

Questionnaire distribution and data collection

Following validation and pilot testing, the final questionnaire was distributed to eligible newly graduated BDS and MDS dental professionals. The questionnaire was administered in a self-completed format, either electronically or on paper, using standardized instructions. Participants were requested to complete the questionnaire independently, without discussion with other participants. Informed consent was obtained before the questionnaire was administered. The completed questionnaires were reviewed for completeness prior to data entry. Duplicate responses were identified and removed, and questionnaires with substantial missing information were excluded from the analysis.

The finalized questionnaire was distributed to eligible newly graduated BDS and MDS dental professionals in both electronic (via institutional email and online form) and paper formats, according to participant preference, using standardized instructions. A total of 465 questionnaires were distributed. Of these, 428 were returned (response rate = 92.0%). After excluding 18 duplicate submissions and 10 questionnaires with substantial missing data, 400 complete responses were included in the final analysis (200 BDS and 200 MDS). The high response rate and exclusion of only incomplete or duplicate forms suggest that nonresponse bias is unlikely to have materially affected the results; however, the possibility of residual selection bias cannot be entirely excluded.

Questionnaire scoring

The career motivation and perception statements were assessed using a five-point Likert scale ranging from 1 to 5, where 1 represented "strongly disagree," 2 represented "disagree," 3 represented "neutral," 4 represented "agree," and 5 represented "strongly agree." Higher scores indicated greater agreement with the respective statements. The importance of employment-related factors was assessed using a five-point scale ranging from 1 to 5, where 1 represented "not at all important," 2 represented "slightly important," 3 represented "moderately important," 4 represented "very important," and 5 represented "extremely important." Higher scores indicated greater perceived importance of the corresponding employment factor. The primary employment-preference question included four response categories: government sector, private sector, both equally, and undecided. Participants selecting the government or private sector were considered to have an exclusive sector preference. Participants selecting "both equally" or "undecided" were retained for descriptive analyses but excluded from the primary government-versus-private-sector comparative analysis and binary logistic regression.

In Section C2, participants rated the importance of each employment-related factor separately for government-sector and private-sector employment. For the comparative analyses presented in the results, the rating corresponding to the participant's exclusive employment preference was used: government-preferring participants contributed their government-sector rating of the factor, and private-preferring participants contributed their private-sector rating of the factor. This yielded one score per participant per factor and allowed comparison of the importance assigned to each factor within the sector the participant preferred. Participants selecting "both equally" or "undecided" were excluded from these comparisons.

Outcome measures

The primary outcome was the participant's preference for government sector versus private sector dental employment. Secondary outcomes included the distribution of employment preferences according to BDS and MDS qualifications and the associations between employment preference and demographic, academic, socioeconomic, career motivation, and employment-related factors. Additional outcomes included differences between government- and private-sector-preferring participants in the perceived importance of job characteristics and their perceptions and attitudes toward government and private-sector dental employment.

Statistical analysis

Statistical analyses were performed using IBM SPSS Statistics for Windows version 25.0 (IBM Corp., Armonk, NY, USA). Continuous variables were summarized as mean ± standard deviation (SD), whereas categorical variables were presented as frequencies and percentages. Independent-samples t-tests were used to compare continuous variables between participants preferring government-sector and private-sector employment. Pearson's chi-square test was used to assess associations between categorical variables. Cohen's d was reported as the effect size for continuous variables, and Cramer's V was used as the effect size for categorical variables.

Univariable and multivariable binary logistic regression analyses were performed to identify factors independently associated with government-sector employment preference. The dependent variable was coded as government-sector preference = 1 and private-sector preference = 0. Results are presented as odds ratios (ORs) and adjusted odds ratios (aORs) with 95% confidence intervals (CIs). Variables entered into the multivariable model were selected on the basis of clinical relevance (a priori inclusion of key demographic and academic factors) and a univariable association of $p < 0.20$. Multicollinearity among predictors was examined using variance inflation factors (VIFs); all VIFs were < 2.5, indicating no substantial multicollinearity. Model fit was assessed using the Hosmer-Lemeshow goodness-of-fit test. Model discrimination was assessed using the area under the receiver operating characteristic curve (AUC), and explanatory performance was summarized using Nagelkerke's R^2 and overall classification accuracy. All statistical tests were two-tailed, and $p < 0.05$ was considered statistically significant.

Results

A total of 400 newly graduated dental professionals were included, comprising 200 (50.0%) BDS graduates and 200 (50.0%) MDS graduates. MDS respondents were significantly older than BDS respondents (27.3 ± 3.0 vs. 26.5 ± 2.8 years; $p = 0.006$). No significant differences were found for sex ($p = 0.106$), college type ($p = 0.980$), academic score ($p = 0.087$), residence ($p = 1.000$), SES ($p = 0.985$), family member dental professional ($p = 0.911$), family dentist sector ($p = 0.941$), or employment preference ($p = 0.086$) (Table *2*).

Parameter		Total (N = 400)	BDS (n = 200)	MDS (n = 200)	Test statistic	df	p-value	Effect size
Age, mean ± SD	Years	26.9 ± 2.9	26.5 ± 2.8	27.3 ± 3.0	t = −2.75	396	0.006*	Cohen's d = 0.27
Sex, n (%)	Male	172 (43.0)	78 (39.0)	94 (47.0)	χ^2 = 2.61	1	0.106	Cramér's V = 0.08
	Female	228 (57.0)	122 (61.0)	106 (53.0)				
Type of college, n (%)	Government	125 (31.3)	62 (31.0)	63 (31.5)	χ^2 = 0.04	2	0.980	Cramér's V = 0.01
	Private	206 (51.5)	103 (51.5)	103 (51.5)				
	Deemed	69 (17.3)	35 (17.5)	34 (17.0)				
Academic score, mean ± SD	Percentage	69.4 ± 7.0	68.8 ± 6.9	70.0 ± 7.1	t = −1.71	398	0.087	Cohen's d = 0.17
Residence, n (%)	Rural	200 (50.0)	100 (50.0)	100 (50.0)	χ^2 = 0.00	1	1.000	Cramér's V = 0.00
	Urban	200 (50.0)	100 (50.0)	100 (50.0)				
SES, n (%)	Higher	119 (29.8)	60 (30.0)	59 (29.5)	χ^2 = 0.03	2	0.985	Cramér's V = 0.01
	Middle	206 (51.5)	103 (51.5)	103 (51.5)				
	Lower	75 (18.8)	37 (18.5)	38 (19.0)				
Family member dental professional, n (%)	Yes	113 (28.3)	56 (28.0)	57 (28.5)	χ^2 = 0.01	1	0.911	Cramér's V = 0.01
	No	287 (71.8)	144 (72.0)	143 (71.5)				
Family dentist sector (among yes, n = 113)	Government	44 (38.9)	22 (39.3)	22 (38.6)	χ^2 = 0.01	1	0.941	Cramér's V = 0.01
	Private	69 (61.1)	34 (60.7)	35 (61.4)				
Employment preference, n (%)	Government sector	170 (42.5)	80 (40.0)	90 (45.0)	χ^2 = 6.59	3	0.086	Cramér's V = 0.13
	Private sector	150 (37.5)	70 (35.0)	80 (40.0)				
	Both equally	50 (12.5)	30 (15.0)	20 (10.0)				
	Undecided	30 (7.5)	20 (10.0)	10 (5.0)				

TABLE 2: Basic characteristics of the study participants (n = 400).

Values are presented as mean ± SD for age and n (%) for categorical variables. Between-group comparisons used an independent samples t-test for age and a chi-square test for categorical variables. * p < 0.05 was considered statistically significant.

BDS: Bachelor of Dental Surgery; MDS: Master of Dental Surgery; SES: socioeconomic status; df: degrees of freedom.

Among participants with exclusive government or private-sector preferences, government-preferring respondents were older (27.2 ± 3.0 vs. 26.5 ± 2.8 years; p = 0.032), had lower academic scores (68.5 ± 7.2 vs. 70.2 ± 6.8; p = 0.031), and more often had a rural childhood residence (p = 0.025). No significant differences were found for sex (p = 0.060), qualification (p = 0.944), college type (p = 0.185), SES (p = 0.358), family member dental professional (p = 0.073), or family dentist sector (p = 0.109) (Table 3).

Variable		Government (n = 170)	Private (n = 150)	Test statistic	p-value	Effect size
Age, mean ± SD	Years	27.2 ± 3.0	26.5 ± 2.8	t = 2.16	0.032*	d = 0.24
Sex, n (%)	Male	75 (44.1)	82 (54.7)	χ^2 = 3.54	0.060	Cramér's V = 0.105
	Female	95 (55.9)	68 (45.3)			
Qualification, n (%)	BDS	80 (47.1)	70 (46.7)	χ^2 = 0.005	0.944	Cramér's V = 0.004
	MDS	90 (52.9)	80 (53.3)			
Type of college, n (%)	Government	60 (35.3)	40 (26.7)	χ^2 = 3.37	0.185	Cramér's V = 0.073
	Private	80 (47.1)	85 (56.7)			
	Deemed	30 (17.6)	25 (16.7)			
Academic score, mean ± SD	Percentage	68.5 ± 7.2	70.2 ± 6.8	t = −2.17	0.031*	d = −0.24
Childhood residence, n (%)	Rural	95 (55.9)	65 (43.3)	χ^2 = 5.02	0.025*	Cramér's V = 0.125
	Urban	75 (44.1)	85 (56.7)			
Socioeconomic status, n (%)	Lower	35 (20.6)	25 (16.7)	χ^2 = 2.05	0.358	Cramér's V = 0.057
	Middle	90 (52.9)	75 (50.0)			
	Higher	45 (26.5)	50 (33.3)			
Family member dental professional, n (%)	Yes	55 (32.4)	35 (23.3)	χ^2 = 3.21	0.073	Cramér's V = 0.100
	No	115 (67.6)	115 (76.7)			
Family dentist sector (among yes, n = 90)	Government	25 (45.5)	10 (28.6)	χ^2 = 2.57	0.109	Cramér's V = 0.169
	Private	30 (54.5)	25 (71.4)			

TABLE 3: Demographic and academic characteristics according to employment preference (n = 320).

Values are presented as mean ± SD for age and n (%) for categorical variables. Between-group comparisons used an independent samples t-test for age and a chi-square test for categorical variables. Effect sizes: Cohen's d (age) and Cramér's V (categorical variables). * p < 0.05 was considered statistically significant.

BDS: Bachelor of Dental Surgery; MDS: Master of Dental Surgery; SES: socioeconomic status; df: degrees of freedom.

Career motivation differed significantly between the groups. Government-preferring participants reported higher scores for stable employment (4.2 ± 0.8 vs. 3.9 ± 0.9; p = 0.002), prestige (4.1 ± 0.8 vs. 3.9 ± 0.9; p = 0.036), service to society (4.3 ± 0.7 vs. 3.8 ± 0.9; p < 0.001), and work-life balance (4.0 ± 0.9 vs. 3.7 ± 1.0; p = 0.005). Private-preferring participants scored financial returns (4.3 ± 0.8 vs. 4.0 ± 0.9; p = 0.002), professional autonomy (4.2 ± 0.8 vs. 3.8 ± 0.9; p < 0.001), flexible working hours (4.0 ± 0.9 vs. 3.5 ± 1.0; p < 0.001), and self-employment opportunities (4.4 ± 0.7 vs. 3.6 ± 1.0; p < 0.001) higher (Table 4).

Item	Government job (n = 170), mean ± SD	Private job (n = 150), mean ± SD	t value	p-value	Cohen's d
B3.1 Dentistry offers stable employment.	4.2 ± 0.8	3.9 ± 0.9	3.13	0.002*	0.35
B3.2 Dentistry provides good financial returns.	4.0 ± 0.9	4.3 ± 0.8	−3.16	0.002*	−0.35
B3.3 Dentistry offers professional independence/autonomy.	3.8 ± 0.9	4.2 ± 0.8	−4.21	< 0.001*	−0.47
B3.4 Dentistry allows flexible working hours.	3.5 ± 1.0	4.0 ± 0.9	−4.71	< 0.001*	−0.53
B3.5 Dentistry is a prestigious profession.	4.1 ± 0.8	3.9 ± 0.9	2.11	0.036*	0.24
B3.6 Dentistry allows me to serve society.	4.3 ± 0.7	3.8 ± 0.9	5.49	< 0.001*	0.62
B3.7 Dentistry offers opportunities for self-employment.	3.6 ± 1.0	4.4 ± 0.7	−8.36	< 0.001*	−0.94
B3.8 Dentistry was my only available option after entrance exams.	2.5 ± 1.2	2.7 ± 1.3	−1.42	0.156	−0.16
B3.9 Family pressure influenced my choice.	2.8 ± 1.1	2.6 ± 1.2	1.55	0.122	0.17
B3.10 Dentistry offers work-life balance.	4.0 ± 0.9	3.7 ± 1.0	2.81	0.005*	0.32

TABLE 4: Career motivations according to employment preference.

Responses were recorded on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree); values are presented as mean ± standard deviation (SD). Comparisons between participants with exclusive government-sector and private-sector employment preferences were performed using independent-samples t-tests (df = 318). Cohen's d was used to quantify the standardized between-group difference, and * $p < 0.05$ was considered statistically significant.

The employment-related factors showed similar patterns. Government-preferring participants assigned greater importance to job security ($p < 0.001$), regular salary ($p < 0.001$), pension benefits ($p < 0.001$), low work-related stress ($p < 0.001$), and opportunities to serve rural or underserved populations ($p < 0.001$). Private-preferring participants placed greater importance on promotion opportunities ($p < 0.001$). Working hours and social status did not differ significantly ($p = 0.264$ for both) (Table *5*). Importance ratings used in the comparisons were those given by participants for the sector they exclusively preferred (government-preferring participants' government ratings versus private-preferring participants' private ratings).

Factor	Government job (n = 170), mean ± SD	Private job (n = 150), mean ± SD	t value	p-value	Cohen's d
C2.1 Job security/permanence	4.6 ± 0.6	4.1 ± 0.9	5.77	< 0.001*	0.66
C2.2 Regular fixed salary	4.5 ± 0.7	4.2 ± 0.8	3.55	< 0.001*	0.40
C2.3 Pension and retirement benefits	4.7 ± 0.5	3.8 ± 1.0	9.98	< 0.001*	1.16
C2.4 Paid leave and holidays	4.4 ± 0.7	4.0 ± 0.9	4.40	< 0.001*	0.50
C2.5 Working hours	4.2 ± 0.8	4.1 ± 0.8	1.12	0.264	0.12
C2.6 Opportunities for promotion	4.0 ± 0.9	4.3 ± 0.7	−3.35	< 0.001*	−0.37
C2.7 Social status and prestige	4.1 ± 0.8	4.0 ± 0.8	1.12	0.264	0.12
C2.8 Low work-related stress	4.3 ± 0.7	3.6 ± 1.0	7.16	< 0.001*	0.82
C2.9 Accommodation/facilities	3.9 ± 0.9	3.5 ± 1.0	3.74	< 0.001*	0.42
C2.10 Opportunities to serve rural/underserved populations	4.0 ± 0.9	3.2 ± 1.1	7.06	< 0.001*	0.80
C2.11 Freedom from administrative pressures	4.1 ± 0.8	3.9 ± 0.9	2.09	0.037*	0.24
C2.12 Family-work balance	4.5 ± 0.6	4.2 ± 0.8	3.75	< 0.001*	0.42

TABLE 5: Importance of employment-related factors according to employment preference.

Responses were recorded on a five-point scale ranging from 1 (not at all important) to 5 (extremely important); values are presented as mean ± standard deviation (SD). Comparisons between participants with exclusive government-sector and private-sector employment preferences were performed using independent-samples t-tests. Cohen's d was used to quantify the standardized between-group difference; positive values indicate higher scores in the government-preference group, whereas negative values indicate higher scores in the private-preference group. * $p < 0.05$ was considered statistically significant.

Perceptions also differed significantly between groups. Government-preferring participants more strongly agreed that government dental jobs provide better long-term security ($p < 0.001$) and that government service is more respected ($p < 0.001$). Private-preferring participants more strongly agreed that private practice provides greater clinical rewards ($p < 0.001$), better clinical exposure ($p < 0.001$), and better patient-doctor relationships ($p < 0.001$). Government-preferring participants also showed a stronger willingness to recommend government service ($p < 0.001$) (Table *6*).

Statement	Government job (n = 170), mean ± SD	Private job (n = 150), mean ± SD	t value	p-value	Cohen's d
D1.1 Government dental jobs offer better long-term security than private jobs.	4.5 ± 0.6	3.6 ± 0.9	10.38	< 0.001*	1.19
D1.2 Private dental practice offers greater financial rewards than government service.	3.5 ± 0.9	4.4 ± 0.7	−10.04	< 0.001*	−1.11
D1.3 Government dental jobs have an excessive administrative burden.	3.8 ± 0.9	3.9 ± 0.8	−1.05	0.294	−0.11
D1.4 The private sector provides better clinical exposure and skill development.	3.7 ± 0.9	4.2 ± 0.8	−5.26	< 0.001*	−0.53
D1.5 Government service is more respected in Indian society.	4.0 ± 0.8	3.6 ± 0.9	4.18	< 0.001*	0.47
D1.6 Private practice allows a better patient-doctor relationship.	3.4 ± 1.0	3.9 ± 0.9	−4.71	< 0.001*	−0.53
D1.7 The growing number of dental graduates has made government jobs more competitive.	4.2 ± 0.7	4.3 ± 0.7	−1.28	0.201	−0.13
D1.8 Private dental practice involves high financial risk.	4.1 ± 0.8	3.9 ± 0.9	2.09	0.037*	0.24
D1.9 Government dental jobs offer limited scope for specialization.	3.3 ± 1.0	3.7 ± 0.9	−3.77	< 0.001*	−0.42
D1.10 I would recommend government service to a newly graduated dentist.	4.4 ± 0.7	3.5 ± 1.0	9.21	< 0.001*	1.05

TABLE 6: Perceptions of government and private-sector employment according to employment preference.

Responses were recorded on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree); values are presented as mean ± standard deviation (SD). Comparisons between participants with exclusive government-sector and private-sector employment preferences were performed using independent-samples t-tests. Cohen's d was used to quantify the standardized between-group difference; positive values indicate higher scores in the government-preference group, whereas negative values indicate higher scores in the private-preference group. * $p < 0.05$ was considered statistically significant.

In the multivariable logistic regression, government preference was independently associated with having a government-employed head of family (adjusted odds ratio (aOR) = 1.75, $p = 0.032$), job security (aOR = 1.85, $p < 0.001$), pension benefits (aOR = 2.10, $p < 0.001$), willingness to work in rural areas (aOR = 2.35, $p = 0.002$), and perceived government-sector security (aOR = 2.60, $p < 0.001$). Perceived greater financial rewards in private practice were inversely associated with government preference (aOR = 0.55, $p < 0.001$). The model showed good discrimination (area under the curve (AUC) = 0.84) (Table 7).

Predictor	Reference category	Univariable binary logistic regression OR (95% CI)	p-value	Multivariable binary logistic regression aOR (95% CI)	p-value
Age (per year)	Per one-unit increase	1.08 (0.99–1.18)	0.073	1.06 (0.96–1.17)	0.245
Sex (female vs. male)	Male	1.53 (0.99–2.36)	0.056	1.45 (0.91–2.31)	0.118
Qualification (MDS vs. BDS)	BDS	0.98 (0.63-1.52)	0.944	1.18 (0.73–1.91)	0.502
College type (private vs. government)	Government	0.63 (0.39–1.02)	0.061	0.68 (0.40–1.15)	0.150
Percentage (per unit)	Per one-unit increase	0.97 (0.94–1.00)	0.032*	0.98 (0.95–1.01)	0.198
Childhood residence (urban vs. rural)	Rural	0.60 (0.39–0.93)	0.023*	0.65 (0.41–1.04)	0.071
SES (middle vs. lower)	Lower	0.86 (0.48–1.54)	0.610	0.90 (0.48–1.69)	0.742
SES (higher vs. lower)	Lower	0.64 (0.34–1.21)	0.170	0.71 (0.35–1.44)	0.340
Head occupation (government vs. other)	Other	1.93 (1.21–3.08)	0.006*	1.75 (1.05–2.92)	0.032
Family dentist (yes vs. no)	No	1.58 (0.96–2.60)	0.071	1.42 (0.83–2.43)	0.200
B3.1 Stable employment (yes vs. no)	No	1.48 (1.14–1.92)	0.003*	1.32 (0.98–1.78)	0.068
B3.2 Good financial returns (yes vs. no)	No	0.71 (0.56–0.90)	0.005*	0.78 (0.60–1.02)	0.071
C2.1 Job security (yes vs. no)	No	2.10 (1.55–2.84)	< 0.001*	1.85 (1.32–2.60)	< 0.001*
C2.2 Regular salary (yes vs. no)	No	1.65 (1.25–2.18)	< 0.001*	1.42 (1.04–1.94)	0.027*
C2.3 Pension benefits (yes vs. no)	No	2.45 (1.85–3.24)	< 0.001*	2.10 (1.53–2.88)	< 0.001*
C3 Willing rural (yes vs. no)	No	2.80 (1.72–4.56)	< 0.001*	2.35 (1.38–4.00)	0.002*
D1.1 Government better security (yes vs. no)	No	3.20 (2.30–4.45)	< 0.001*	2.60 (1.80–3.75)	< 0.001*
D1.2 Private greater financial rewards (yes vs. no)	No	0.45 (0.33–0.61)	< 0.001*	0.55 (0.39–0.78)	< 0.001*

TABLE 7: Factors associated with government-sector employment preference in univariable and multivariable logistic regression analyses.

The dependent variable was exclusive employment preference, coded as government-sector preference = 1 and private-sector preference = 0. Participants who preferred both sectors equally or were undecided were excluded. Univariable odds ratios (ORs) and multivariable adjusted odds ratios (aORs) are presented with 95% confidence intervals (CIs). Continuous variables were modeled per one-unit increase unless otherwise specified. Categorical variables were entered using the reference categories indicated in parentheses. Variables considered clinically relevant and/or associated with employment preference in preliminary analyses were included in the multivariable model. Model fit was assessed using the Hosmer–Lemeshow test, and * $p < 0.05$ was considered statistically significant.

Model statistics: N = 320; events = 170; Hosmer–Lemeshow $\chi^2 = 8.42$, df = 8, $p = 0.393$; AUC = 0.84 (95% CI, 0.79–0.89); Nagelkerke $R^2 = 0.48$; correct classification = 78.4%.

BDS: Bachelor of Dental Surgery; MDS: Master of Dental Surgery; SES: socioeconomic status; AUC: area under the curve.

In the qualification-stratified analyses, job security, pension benefits, and perceived government sector security remained significant predictors in both groups. Among BDS graduates, the corresponding aORs were 1.70 ($p = 0.031$), 1.95 ($p = 0.003$), and 2.30 ($p < 0.001$), respectively. Among MDS graduates, the

corresponding aORs were 2.00 (p = 0.004), 2.25 (p < 0.001), and 2.85 (p < 0.001), respectively (Table 8).

Predictor	Reference category	BDS, aOR (95% CI)	p-value	MDS, aOR (95% CI)	p-value
Age (per year)	Per one-unit increase	1.04 (0.91–1.19)	0.560	1.08 (0.95–1.23)	0.240
Sex (female vs. male)	Male	1.22 (0.61–2.44)	0.580	1.65 (0.88–3.10)	0.120
College type (private vs. government)	Government	0.72 (0.35–1.48)	0.370	0.65 (0.33–1.28)	0.210
Percentage (per unit)	Per one-unit increase	0.98 (0.93–1.03)	0.420	0.97 (0.92–1.02)	0.250
Residence (urban vs. rural)	Rural	0.68 (0.34–1.36)	0.270	0.62 (0.31–1.24)	0.180
SES (higher vs. lower)	Lower	0.80 (0.32–2.00)	0.630	0.65 (0.27–1.56)	0.340
Family dentist (yes vs. no)	No	1.50 (0.72–3.13)	0.280	1.35 (0.66–2.76)	0.410
C2.1 Job security (yes vs. no)	No	1.70 (1.05–2.75)	0.031*	2.00 (1.25–3.20)	0.004*
C2.3 Pension benefits (yes vs. no)	No	1.95 (1.25–3.04)	0.003*	2.25 (1.45–3.49)	< 0.001*
D1.1 Government better security (yes vs. no)	No	2.30 (1.45–3.65)	< 0.001*	2.85 (1.80–4.51)	< 0.001*

TABLE 8: Factors associated with government-sector employment preference according to dental qualification.

Adjusted odds ratios (aORs) with 95% confidence intervals (CIs) were obtained from multivariable logistic regression models stratified by qualification. The BDS subgroup comprised participants with exclusive government-sector (n = 80) or private-sector (n = 70) preferences, whereas the MDS subgroup comprised participants with exclusive government-sector (n = 90) or private-sector (n = 80) preferences. Participants who preferred both sectors equally or were undecided were excluded. Government-sector employment preference was coded as the outcome (1 = government; 0 = private). Reference categories are indicated in parentheses, and * p < 0.05 was considered statistically significant.

BDS: Bachelor of Dental Surgery; MDS: Master of Dental Surgery; SES: socioeconomic status; aOR: adjusted odds ratio.

Discussion

This study examined the factors associated with government- and private-sector employment preferences among newly graduated dental professionals. Government sector employment was the most frequently selected option, followed by private sector employment, although the distribution did not differ significantly between BDS and MDS graduates. This relatively balanced preference suggests that newly qualified dentists do not perceive career development exclusively through an employment model. Aggarwal et al. [6] reported that stable work, financial prospects, and control over working hours are important considerations for Indian dental students. The present findings extend these observations by demonstrating that these considerations influence not only the choice of dentistry but also the preferred employment sector. From a workforce perspective, career counselling during the transition from dental school to employment should therefore present government and private practices as distinct career pathways rather than assuming a uniform preference among graduates [8].

Government-preferring participants placed greater importance on stable employment, prestige, social services, and work-life balance, whereas private-preferring participants valued financial returns, professional autonomy, flexible working hours, and self-employment. These findings are consistent with evidence from a previous study, where new graduates associated public sector employment with mentoring, clinical skill consolidation, and work environment, while private sector employment was associated with broader clinical experience and practice-management opportunities [9]. Similarly, previous Indian literature has highlighted limited government vacancies alongside financial and competitive pressures within private practices [1]. The clinical implication is that recruitment strategies should address the specific motivation of each group. Government dental services may improve recruitment by emphasizing structured career progression, clinical development, and opportunities to serve underserved populations, whereas private practices may attract graduates through transparent remuneration, mentoring, continuing professional development, and opportunities to increase clinical autonomy.

Our findings are consistent with Freire et al. [10], who reported that personal views and perceptions of the dental profession had an important influence on career choice, with students expressing interest in both public and private practices. In the present study, these professional motivations were reflected in distinct preferences, with government-preferring participants emphasizing social services and stability, whereas private-preferring participants placed greater importance on financial returns, autonomy, and self-employment.

Government-preferring participants rated job security, regular salary, pension benefits, paid leave, lower perceived stress, accommodation, and opportunities to serve rural or underserved populations more highly. Pension benefits were among the largest between-group differences. These findings are important because employment security appears to represent more than income alone; it encompasses predictable remuneration, social protection, and long-term professional stability [11]. The findings are particularly relevant in the Indian context, where previous reports have described limited government dental positions and substantial employment competition among graduates [1]. The higher valuation of rural and underserved services among government-preferring participants also has implications for the oral health workforce distribution. Incentives such as accommodation, career progression, structured employment conditions, and continuing professional support may help make government and rural posts more attractive and sustainable.

Conversely, private-preferring participants placed greater emphasis on promotion opportunities, financial rewards, clinical exposure, patient-doctor relationships, and self-employment. These findings are consistent with a previous study in which private-sector employment was associated with broader clinical experience and practical management exposure [9]. These findings are also consistent with concerns reported regarding the Indian dental workforce, where newly graduated dentists face considerable competition for employment and relatively low remuneration in the private sector, contributing to financial uncertainty during the early stages of their careers [5]. The importance placed on financial rewards by private-sector-preferring participants is consistent with the evidence that remuneration structures can influence practitioners' incentives to participate in healthcare services. Zhou et al. [12] theoretically demonstrated that wage structures and performance-based financial incentives can affect practitioners' participation decisions, highlighting the importance of appropriate remuneration policies in workforce planning.

The multivariable analysis provided an important additional finding: job security, pension benefits, willingness to work in rural areas, perceived government-sector security, and having a government-employed head of family remained independently associated with government employment preference, whereas stronger perceptions of private-sector financial rewards were inversely associated. The persistence of these associations after adjustment suggests that government employment preference is influenced by multiple dimensions, particularly perceived employment security, family and socioeconomic context, and orientation toward service in underserved areas, rather than demographic characteristics alone.

This interpretation is consistent with previous dental workforce research showing that a rural background and service orientation are associated with greater interest in rural practice, while job stability and professional independence are important considerations in dental career decisions [7,13]. The similar pattern observed among BDS and MDS graduates in the present study further suggests that the importance of these employment-related factors may extend across different levels of dental qualifications. This has practical implications for workforce planning; government recruitment policies should emphasize long-term security while simultaneously strengthening rural incentives and professional development opportunities.

These findings also have broader implications for healthcare workforce motivation and retention. Aggarwal et al. [14] reported that remuneration mechanisms and both extrinsic and intrinsic incentives can influence participation and performance in primary care teams, with autonomy, social purposes, and professional development contributing to motivation. Similarly, De Vries et al. [15] identified supportive work environments, mentoring, professional development opportunities, adequate resources, and appropriate work organizations as important strategies for retaining healthcare workers. Thus, improving remuneration alone may be insufficient. Both government and private dental employers should consider career progression, professional development, workplace support, and opportunities for clinical growth when designing strategies to attract and retain newly graduated dental professionals.

Clinical and workforce implications

These findings have implications beyond individual career selections. Employment preferences can influence the distribution, retention, and motivation of the dental workforce and, consequently, access to oral healthcare. Government-sector planners should consider secure contracts, pensions and leave benefits, rural allowances, accommodation, mentoring, and clear promotion pathways. Private sector employers should focus on fair remuneration, clinical autonomy, continuing education, and supportive working environments. Dental institutions should incorporate structured career counselling, employment-market information, and rural/community dentistry exposure before graduation so that students can make informed career decisions. Such interventions may help align graduates' expectations with the available career pathways and improve workforce retention.

Limitations

This study had several limitations. Its cross-sectional design identifies associations but cannot establish causality or determine whether stated preferences translate into actual employment choices over time. Participants were recruited by convenience sampling from a single dental institution; the sampling strategy was not probability-based and may have introduced selection bias, limiting the generalizability of the findings to graduates from other regions, institutions, or educational settings. Employment preferences and

perceptions were self-reported and may therefore be affected by response and social-desirability bias. Some questionnaire items assessing related constructs (e.g., job security, pension benefits, and perceived long-term stability) showed conceptual overlap, which may have inflated associations among these predictors.

In addition, participants who preferred both sectors equally or were undecided were excluded from the comparative analyses and logistic regression models; this exclusion may have reduced the representativeness of the analytic sample and limited the ability to examine the full spectrum of preference patterns. Finally, the questionnaire captured preferences at one point in the early-career transition and may not reflect changes resulting from subsequent employment experience, postgraduate training, economic circumstances, or family responsibilities. These limitations should be considered when interpreting the associations observed and their implications for workforce planning. Longitudinal, multicenter studies involving graduates from diverse geographic and institutional settings are warranted to determine how these preferences evolve and which factors ultimately predict employment and retention.

Conclusions

Government-sector employment preference was independently associated with job security, pension benefits, willingness to work in rural areas, perceived long-term security, and having a government-employed head of family, whereas private-sector preference was associated with greater perceived financial rewards. These findings indicate distinct priorities among newly graduated dental professionals. Dental institutions and policymakers should strengthen career counselling and develop employment pathways that address these priorities while supporting recruitment and retention in underserved areas. Longitudinal multicenter research is warranted to determine whether stated preferences translate into actual employment choices.

Appendices

Section A	Demographic information	Response
A1	Age (in completed years)	_____Years
A2	Gender	□ Male □ Female
A3	Highest educational qualification	□ BDS □ MDS (Specialty: _____)
A4	What type of college from which you graduated?	□ Government Dental College □ Private Dental College □ Deemed University
A5	Percentage score obtained in highest qualification (BDS/MDS)	_____%
A6	Area of residence during childhood	□ Rural □ Urban
A7	Socioeconomic status	□ Lower socio-economic status □ Middle socio-economic status □ Higher socio-economic status
A8	Occupation of head of family	□ Government Employee □ Private Employee □ Business/Self-employed □ Retired
A9	Do you have a family member who is a dental professional?	□ Yes □ No
A10	If yes, what is their current employment sector?	□ Government □ Private □ Not applicable
Section B	**Career choice and motivation**	**Response**
B1	What was your primary reason for choosing dentistry as a career? (Select only ONE)	□ Passion for the profession □ Unable to secure an MBBS seat □ Family influence/parental aspiration □ Good earning potential □ Prestige and social status □ Stable employment prospects □ Flexible working hours □ Desire to serve people □ Other (specify): _____
B2	How satisfied are you with your decision to pursue dentistry?	□ Very satisfied □ Satisfied □ Neutral □ Dissatisfied □ Very dissatisfied
	Statement: Please indicate the extent to which the following factors influenced your decision to pursue dentistry as a career. Please use the scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree	Response

B3	B3.1 Dentistry offers stable employment.	
	B3.2 Dentistry provides good financial returns.	
	B3.3 Dentistry offers professional independence/autonomy.	
	B3.4 Dentistry allows flexible working hours.	
	B3.5 Dentistry is a prestigious profession.	
	B3.6 Dentistry allows me to serve society.	
	B3.7 Dentistry offers opportunities for self-employment.	
	B3.8 Dentistry was my only available option after entrance exams.	
	B3.9 Family pressure influenced my choice.	
	B3.10 Dentistry offers work-life balance.	
B4	After completing your BDS/MDS, which of the following career paths did you initially prefer? (Select only ONE)	□ Government service □ Private dental practice □ Private hospital/corporate dental chain □ Academic in a government dental college □ Academic in a private dental college □ Pursue higher studies (MDS/PhD/Fellowship) □ Move abroad for practice/higher studies □ Civil services (UPSC/State PSC) □ Other (specify): _____
Section C	**Factor**	**Response**
C1	What is your current employment preference?	□ Government sector □ Private sector □ Both equally □ Undecided
C2	How important are the following factors in your preference for a dental job? Please use the scale: 1 = Not at all important, 2 = Slightly important, 3 = Moderately important, 4 = Very important, 5 = Extremely important	Government / Private
	C2.1 Job security/permanence	
	C2.2 Regular fixed salary	
	C2.3 Pension and retirement benefits	
	C2.4 Paid leave and holidays	
	C2.5 Working hours	
	C2.6 Opportunities for promotion	
	C2.7 Social status and prestige	
	C2.8 Low work-related stress	
	C2.9 Accommodation/facilities	
	C2.10 Opportunities to serve rural/underserved populations	
	C2.11 Freedom from administrative pressures	
	C2.12 Family-work balance	
C3	Would you be willing to work in a rural or semi-urban government dental facility?	□ Yes □ No □ Maybe
C4	How do you perceive the availability of dental jobs in your state?	□ Ample opportunities □ Limited opportunities □ Very few opportunities □ Almost none □ Cannot say
Section D	**Statement for perceptions and attitudes. (Please use the scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree)**	**Response**

D1.1	Government dental jobs offer better long-term security than private jobs.	
D1.2	A private dental practice offers greater financial rewards than government service.	
D1.3	Government dental jobs have an excessive administrative burden.	
D1.4	The private sector provides better clinical exposure and skill development.	
D1.5	Government service is more respected in Indian society.	
D1.6	Private practice allows a better patient-doctor relationship.	
D1.7	The growing number of dental graduates has made government jobs more competitive.	
D1.8	Private dental practice involves high financial risk.	
D1.9	Government dental jobs offer limited scope for specialization.	
D1.10	I would recommend government service to a newly graduated dentist.	

TABLE 9: Study questionnaire developed by the authors.

BDS: Bachelor of Dental Surgery; MDS: Master of Dental Surgery; UPSC/State PSC: Union Public Service Commission/State Public Service Commission.

Additional Information

Author Contributions

All authors have reviewed the final version to be published and agreed to be accountable for all aspects of the work.

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Disclosures

Human subjects: Informed consent for treatment and open access publication was obtained or waived by all participants in this study. Institutional Ethical Committee of Bharati Vidyapeeth (Deemed to be University) Dental College and Hospital, Sangli issued approval BVDU/DCH/02/2021-22/S12. Ethical approval was obtained from the Institutional Ethical Committee before the commencement of the study on February 18, 2022. **Animal subjects:** All authors have confirmed that this study did not involve animal subjects or tissue. **Conflicts of interest:** In compliance with the ICMJE uniform disclosure form, all authors declare the following: **Payment/services info:** All authors have declared that no financial support was received from any organization for the submitted work. **Financial relationships:** All authors have declared that they have no financial relationships at present or within the previous three years with any organizations that might have an interest in the submitted work. **Other relationships:** All authors have declared that there are no other relationships or activities that could appear to have influenced the submitted work.

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