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Perception of dental students regarding possible career challenges and associated factors towards working in rural areas: A questionnaire based survey

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Abstract

OBJECTIVE: The shortage of health care professionals in rural areas contributes toward discriminatory health care delivery. The present study was planned with a similar intent and aimed to evaluate the perception of dental students regarding their future in rural areas.

MATERIALS AND METHODS: The present study was designed as a cross-sectional study comprising of a 30-item questionnaire survey instrument distributed among a total of 550 dental students while the results obtained were subjected to statistical analysis. Statistical analysis was done using SPSS version 12.0 (SPSS Inc., Chicago, IL, USA). Independent student's *t*-test and one-way analysis of variance (ANOVA) were used for comparison among the variables while the Chi-square test was used to determine the association between the variables. $P < 0.05$ was considered statistically significant.

RESULTS: No significant difference was observed in the attitude based on gender ($P = 0.43$), although, a statistically significant difference was observed in the attitude of students based on the year of their education with a positive attitude toward rural dental practice generally noted in the first year Bachelor of Dental Surgery (BDS) students which significantly declined with the increasing level of education ($P = 0.01$).

CONCLUSIONS: Dental students were more influenced by the negative aspects of rural dental practice though they had, in their mind, a positive approach for the same at the beginning of their education, but this significantly declined with the increasing level of their education.

Keywords:

Career and educational advancement, census, dental health care crisis, dental health care professionals, dental health care services, discriminatory health care delivery, employment prospects, health care community, rural areas

Introduction

Health care professionals are people engaged in actions whose primary intent is to enhance health.^[1] At present, the scarcity of health care professionals and their inequitable distribution in

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urban and rural areas has been reported by many developing and developed countries.^[2] These shortages contribute to discriminatory health care delivery. Typically, from an Indian census point of view, the word "rural" has been defined with a "deprivation" orientation with the rural population being devoid of majority

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of the advanced facilities.^[3] Accessibility of health services is a multidimensional concept that refers to geographical, economic (affordability), organizational, and cultural factors that can either facilitate or hinder the use of services (and development) in rural areas.^[4] Large metropolitan regions, on the other hand, are centers of development since they offer plenty of opportunities for career and educational advancement, better employment prospects, and lifestyle-related services and amenities.^[5] In addition, the low status often conferred to those working in rural areas, further, contributes to health care professionals' preference for settling in urban areas.^[6]

Oral health is an integral part of general health. Microbial infections in the oral cavity affect the overall health status of an individual. In addition to diseases such as dental caries, a growing body of research suggests that poor oral health is linked to destabilization of the general health in conditions such as type II diabetes mellitus, cardiovascular diseases, bacterial pneumonia and related complications, and complications during pregnancy.^[7] Oral diseases are, in fact, the most common chronic diseases among all age groups, although, accessing help from dental health care professionals is particularly hard for people from underserved and rural areas. The impact of this dental health care crisis has been and continues to be even greater in rural areas. The major factors behind this worsening situation include lack of adequate access to dental health care services in rural areas, a general lack of appreciation for the importance of maintaining good oral health by other members of the health community, and lack of knowledge or, realization of the significance and clinical implications of good oral health by the general masses.^[8] To further worsen this situation is the paucity of dental health care professionals practicing in the rural areas with the preference of upcoming professionals to locate their practices in urban areas.^[9]

The willingness of dental students toward practice in rural areas and their perception regarding the future in rural areas play an important role in determining the future dental work force in rural areas, and this can best be described in three major types of concerns that they might have including the professional, personal, and general concerns.^[10-14] With this background, the present study aimed to evaluate the perception of dental students regarding their future in rural areas.

Materials and Methods

The present study was a descriptive, observational study which was based on a cross-sectional study design comprising a 30-item questionnaire survey instrument distributed among a total of 550 under- and post-graduate dental students from an institution in

Central India who were enrolled in the study using simple randomization method. For the present study, all the participants who expressed their willingness to participate in the study voluntarily with written informed consent were included in the study while the research protocol was approved by the Institutional Review Board and ethical clearance was obtained from the Institutional Ethics Committee before the conduct of the study. Furthermore, the 30-item questionnaire survey instrument used in the present study was validated before being used for the study and comprised four parts of closed-ended questions including a first part that focused on information regarding the demographic details and opinions of the participants regarding the rural dental practice, a second part which dealt with the professional concerns of the participants (Item Nos 1–16) perceived regarding the rural dental practice while the third and fourth parts which dealt with the personal and general concerns (Item Nos 17–27) of the participants, respectively. The Cronbach's alpha coefficient for the questionnaire, also, came out to be 0.71 which was considered to be acceptable. The data obtained were entered into the excel sheets and subjected to statistical analysis. Anonymity and confidentiality of the participants were duly taken care of and given the utmost priority for ensuring correct and unbiased results while participating in the study was kept voluntary.

Data Analysis: Statistical analysis was done using SPSS version 12.0 (SPSS Inc., Chicago, IL, USA). Independent student's *t*-test and one-way analysis of variance (ANOVA) were used for comparison among the variables while the Chi-square test was used to determine the association between the variables. $P < 0.05$ was considered statistically significant.

Results

From a total of 550 under- and post-graduate dental students who were enrolled in the present study, 428 students responded completely to the questionnaire with a total response rate of 77.8% while 67 students (12.2%) were absent during the survey and 55 students (10%) returned incomplete questionnaires. Table 1 lists the demographic details of the students (respondents) in terms of gender and the year of study which were the two most important criteria in the present study. Table 1, also, highlights the general perception of the respondents in terms of the meaning they implied from the word "rural" and the "additional opportunities" they associated and assumed in practicing in rural areas. More number of females (75.9%) participated in the present study with the maximum response obtained from the students who were in their first year (19.9%) of professional education. The next, in order, were the second year (15.9%) Bachelor of Dental Surgery (BDS) students while the least number

Table 1: Demographic details and opinion about rural dental practice

Variable	No. of respondents n (%)
Gender	
Male	103 (24.1)
Female	325 (75.9)
Year of study	
I BDS	85 (19.9)
II BDS	68 (15.9)
III BDS	43 (10.0)
IV BDS	61 (14.2)
V BDS	60 (14.0)
Interns	50 (11.7)
PGs	61 (14.3)
Perception of the term "rural"	
Distance	24 (5.6)
Local facilities	79 (18.5)
Type of people	43 (10.0)
Size of population	15 (3.5)
All the above	267 (62.4)
Perception for additional opportunities??	
Community involvement	65 (15.2)
Continuity of care	29 (6.8)
Both	334 (78.0)
Total	428 (100.0)

of responses came from the third year (10%) students. The mean age of the respondents was 20.94 ± 2.75 years. Among these, 62.4% of the respondents considered "distance, local facilities, type of people and the size of population" as the important determinants to describe a population "rural" while 78% of the respondents believed both the "community involvement and continuity of care" as the additional opportunities present in a rural scenario.

Table 2 represents the perception of dental students regarding professional concerns based on gender wherein a significant number of female respondents (78.2%) agreed that rural areas provided opportunities to practice a variety of skills while only 21.8% of the male respondents agreed that such opportunities are there in rural practice with the difference being statistically significant ($P = 0.01$). Also, a significant number of female respondents (70.3%) had the belief that there are good opportunities for employment in rural areas as compared to the male respondents (29.7%) ($P = 0.03$). The majority of female respondents (80.7%) also felt that staff is more supportive in rural areas while only 19.3% of the male respondents had a similar opinion ($P = 0.00$). Furthermore, 79.0% of the female respondents believed that rural dental practice offered more diverse working experience than as compared to practice in urban areas as against only 21.0% of the male respondents who had a similar opinion ($P = 0.04$).

Longer working hours and poor working conditions were the major deterrents perceived by around 73.7%

of the female respondents against rural dental practice which were, also, the reason cited by 26.3% of the male respondents as to why they did not want to opt for rural practice ($P = 0.00$). To add to this, 71.5% of the female respondents expressed worries about their future career prospects in entering into rural practice in the early stages of their career. Likewise, 28.5% of the male respondents, too, had a similar worry for their future and career advancement ($P = 0.06$). A significant fact that was highlighted in the present study was that 71.1% of the female respondents assumed that remote and rural option prepares a student better for rural practice while 28.9% of the male respondents had the similar opinion ($P = 0.01$).

Table 3 compares the perception of dental students regarding professional concerns based on the year of education wherein 21.2% of the first year BDS students presumed that working in a rural area provided more opportunity to practice a variety of skills whereas 21.6% of the interns disagreed with this statement. Again, 19.1% of the post-graduate students accepted that there are good opportunities for employment in rural areas in dental profession while 19.1% of the first year BDS students considered that rural dental practice provided greater opportunity for autonomy in work practice as against 13.5% of the interns and 12.5% of post-graduate students ($P = 0.01$). The study found 20.5% of the first year BDS students worried that entering into rural practice in the early stages of their career could negatively impact their status as health care practitioners while similar concern was expressed by 16.0% of the post-graduate students and 10.7% of the interns ($P = 0.01$).

As a contradictory finding, 19.9% of the first year BDS students while 16.7% of the post-graduate students and 10.7% of the interns considered remote and rural option prepares a student better for rural practice while a similar number of first year BDS students (19.8%), also, disagreed with this statement ($P = 0.07$). Shockingly, 21.8% of the post-graduate students and 17.9% of the first year BDS students as well as an equal number of interns (17.9%) had a fear that they will not be able to easily move from rural practice back to an urban practice highlighting the main fear why most of the dental professionals are reluctant to take on with their rural postings ($P = 0.00$).

Table 4 gives an overview of the perception of dental students regarding personal and general concerns based on gender and the year of education wherein 21.4% of the first year BDS students considered people in rural areas were very friendly and that settling in rural areas was easy because of this ($P = 0.00$) while 18.2% of the first year BDS students and 17.5% of the post-graduate students, also, had a fear that working in rural settings carried a negative impact on spouse/children ($P = 0.02$).

Table 2: Perception of dental students regarding professional concerns based on gender

Item No.	Professional Concerns	Gender n (%)			P
		Response	Male	Female	
1.	Working in a rural area provides more opportunities to practice a variety of skills.	Yes	77 (21.8)	277 (78.2)	0.01*
		No	26 (35.2)	48 (64.8)	
2.	There are good opportunities for employment in rural areas.	Yes	48 (29.7)	114 (70.3)	0.03*
		No	55 (20.7)	211 (79.3)	
3.	There are more opportunities for career advancement in rural areas.	Yes	30 (24.3)	93 (75.7)	0.92
		No	73 (24)	232 (76.0)	
4.	Staff is more supportive in rural areas.	Yes	50 (19.3)	210 (80.7)	0.00*
		No	53 (31.5)	115 (68.5)	
5.	Rural dental practice provides greater opportunities for autonomy in work practice.	Yes	79 (23.8)	253 (76.2)	0.80
		No	24 (25.0)	72 (75.0)	
6.	Desirability of employment in rural areas.	Yes	48 (27.3)	129 (72.8)	0.21
		No	55 (22)	196 (78.0)	
7.	Local people are more supportive in rural areas.	Yes	83 (25.7)	241 (74.3)	0.18
		No	20 (19.3)	84 (80.7)	
8.	Health care professionals working in rural areas are able to establish better relations with patients.	Yes	67 (25.0)	204 (75.0)	0.67
		No	36 (23.0)	121 (77.0)	
9.	Rural dental practice offers diverse work experience than urban areas.	Yes	60 (21.0)	224 (79.0)	0.04*
		No	43 (29.8)	101 (70.2)	
10.	Rural dental practice offers more rewarding work experience than urban areas.	Yes	63 (24.51)	194 (75.5)	0.79
		No	40 (23.3)	131 (76.7)	
11.	Financial rewards are higher for health care professionals working in urban than rural areas.	Yes	86 (24.9)	260 (75.1)	0.43
		No	17 (20.8)	65 (79.2)	
12.	Longer working hours and poor working conditions in rural areas.	Yes	66 (26.3)	263 (73.7)	0.00*
		No	37 (27.4)	62 (62.6)	
13.	Worry regarding career prospects in entering into rural practice in early stages of career.	Yes	50 (28.5)	125 (71.5)	0.06
		No	53 (20.9)	200 (79.05)	
14.	Rural dental practice will be different from that in urban areas.	Yes	82 (23.7)	265(76.3)	0.66
		No	21 (25.9)	60 (74.1)	
15.	Remote and rural option prepares a student better for rural practice than practice in urban areas.	Yes	71 (28.9)	175 (71.1)	0.01*
		No	32 (17.6)	150 (82.4)	
16.	Worry regarding ability to move back from rural to urban practice.	Yes	41 (26.3)	115 (73.7)	0.41
		No	62 (22.8)	219 (77.2)	

Likewise, poor recreational facilities were considered to be the major hindrance while free accommodation was considered to be a major advantage for working in a rural set-up, and the results were found to be statistically significant both gender- and year-wise. Pair-wise comparison of the perception of dental students toward working and living in rural areas according to the year of education revealed significant differences in the personal concerns among the first and fifth year BDS students ($P = 0.01$) and interns with third ($P = 0.00$) and fifth year BDS students ($P = 0.00$). Similarly, significant difference was noted for general concerns among the post-graduate students with third year ($P = 0.01$) and fifth year BDS students ($P = 0.04$).

Discussion

The quality and availability of specialist health care vary greatly among the different socio-economic groups and by geographical variations like urban versus rural areas. Despite a high annual output of specialist

graduates, specialist care has traditionally been very poor in India due to a persistent phenomenon of highly educated Indians emigrating to Western countries.^[9] Unsatisfactory employment opportunities in rural areas further add to this problem with most health care professionals migrating to urban areas in search of better opportunities.^[10] In this context, when access to dental services is already limited and has become a grave issue, the present students or upcoming dental health care professionals should offer benefits to the community.^[11] The present questionnaire-based study was based on the previous international research which shed light on the perception of students regarding their future in rural areas.

In the present study, data demonstrated that there was no significant difference in the attitude of the male and female respondents based on gender. This finding, though, was not found to be consistent with the previous studies where females were less likely than males to indicate their preference for practice in rural areas.^[15] The

Table 3: Perception of dental students regarding professional concerns based on the year of education

Item No.	Professional Concerns	Response	Year of study n (%)						P	
			I BDS	II BDS	III BDS	IV BDS	V BDS	Interns		PGs
1.	Working in a rural area provides more opportunities to practice a variety of skills.	Yes	75 (21.2)	54 (15.1)	32 (9.0)	55 (15.5)	54 (15.2)	34 (10.0)	50 (14.1)	0.01*
		No	10 (13.2)	14 (19.0)	11 (14.9)	6 (8.1)	6 (8.1)	16 (21.6)	11 (14.9)	
2.	There are good opportunities for employment in rural areas.	Yes	25 (15.4)	23 (14.2)	18 (11.1)	27 (16.7)	25 (15.4)	13 (8.0)	31 (19.1)	0.07
		No	60 (22.6)	45 (20.0)	25 (9.4)	34 (12.8)	35 (15.4)	37 (14.0)	30 (11.3)	
3.	There are more opportunities for career advancement in rural areas.	Yes	26 (21.1)	49 (15.5)	11 (9.0)	25 (20.3)	18 (14.6)	11 (9.0)	13 (10.6)	0.26
		No	59 (19.4)	19 (16.1)	32 (10.5)	36 (11.8)	42 (13.8)	39 (12.8)	48 (15.8)	
4.	Staff is more supportive in rural areas.	Yes	589 (22.1)	39 (15.0)	22 (8.5)	39 (15.0)	35 (13.5)	30 (11.5)	3 (14.3)	0.62
		No	279 (16.1)	29 (17.3)	21 (12.5)	22 (13.1)	25 (14.9)	20 (12.0)	24 (14.3)	
5.	Rural dental practice provides greater opportunities for autonomy in work practice.	Yes	64 (19.1)	44 (13.3)	37 (11.1)	51 (15.3)	50 (15.5)	37 (11.1)	49 (14.8)	0.07
		No	21 (21.9)	24 (25.0)	6 (6.3)	10 (10.4)	10 (10.4)	13 (13.5)	12 (12.5)	
6.	Desirability of employment in rural areas.	Yes	34 (20.3)	23 (13.0)	16 (9.0)	24 (13.6)	25 (14.1)	28 (15.8)	27 (15.2)	0.34
		No	51 (19.2)	45 (18.0)	27 (10.7)	37 (10.4)	35 (14.0)	22 (8.8)	34 (13.5)	
7.	Local people are more supportive in rural areas.	Yes	73 (11.5)	49 (15.1)	30 (9.3)	46 (13.6)	37 (11.4)	39 (12.0)	50 (15.4)	0.03*
		No	12 (22.5)	19 (18.3)	13 (12.5)	15 (14.2)	23 (22.1)	11 (10.6)	11 (10.6)	
8.	Health care professionals working in rural areas are able to establish better relations with patients.	Yes	58 (21.4)	47 (13.4)	23 (8.5)	43 (11.4)	34 (12.5)	27 (10.0)	39 (14.4)	0.23
		No	27 (17.2)	21 (17.3)	20 (12.7)	18 (14.8)	26 (16.6)	23 (14.6)	22 (14.2)	
9.	Rural dental practice offers diverse work experience than urban areas.	Yes	59 (20.8)	42 (18.1)	26 (9.2)	42 (13.2)	40 (14.9)	35 (12.3)	40 (14.1)	0.90
		No	26 (18.1)	26 (14.8)	17 (11.8)	19 (13.6)	20 (13.9)	15 (10.4)	21 (14.6)	
10.	Rural dental practice offers more rewarding work experience than urban areas.	Yes	61 (23.7)	45 (17.5)	19 (7.8.0)	35 (15.2)	30 (11.7)	29 (11.3)	38 (14.8)	0.03*
		No	24 (14.0)	23 (13.5)	24 (14.0)	26 (13.6)	30 (17.5)	21 (12.3)	23 (13.5)	
11.	Financial rewards are higher for health care professionals working in urban than rural areas.	Yes	68 (20.7)	55 (16.0)	35 (10.1)	47 (17.1)	51 (14.7)	40 (11.6)	50 (14.4)	0.96
		No	17 (19.6)	13 (15.9)	8 (9.1)	14 (16.1)	9 (11.0)	10 (12.2)	11 (13.4)	
12.	Longer working hours and poor working conditions in rural areas.	Yes	65 (20.2)	54 (16.4)	34 (10.3)	53 (8.1)	42 (12.8)	36 (17.1)	45 (13.7)	0.37
		No	20 (19.8)	14 (14.1)	9 (9.1)	8 (8.6)	18 (18.2)	14 (7.9)	16 (16.5)	
13.	Worry regarding career prospects in entering into rural practice in early stages of career.	Yes	33 (20.5)	28 (16.0)	29 (8.0)	15 (18.2)	27 (15.4)	30 (10.7)	28 (16.0)	0.01*
		No	52 (18.9)	40 (15.8)	14 (11.5)	46 (15.3)	33 (13.0)	20 (16.0)	33 (13.0)	
14.	Rural dental practice will be different from that in urban areas.	Yes	68 (21.0)	51 (14.7)	37 (10.7)	53 (9.9)	52 (15.0)	37 (9.3)	49 (14.1)	0.35
		No	17 (19.6)	17 (21.0)	6 (7.4)	8 (15.3)	8 (9.9)	13 (14.8)	12 (14.8)	
15.	Remote and rural option prepares a student better for rural practice than practice in urban areas.	Yes	49 (19.9)	44 (17.9)	25 (9.9)	27 (18.7)	37 (15.0)	23 (10.7)	41 (16.7)	0.07
		No	36 (19.8)	24 (13.2)	18 (10.2)	34 (11.0)	23 (12.6)	27 (16.0)	20 (11.0)	
16.	Worry regarding ability to move back from rural to urban practice.	Yes	28 (17.9)	17 (10.9)	12 (11.4)	16 (16.6)	21 (13.5)	28 (17.9)	34 (21.8)	0.00*
		No	57 (21.0)	51 (18.8)	31 (7.7)	45 (10.3)	39 (14.3)	22 (8.1)	27 (9.9)	

present study also revealed that first year BDS students showed a significant positive attitude toward rural dental practice as compared to the other years of education in accordance with the findings of similar other studies conducted by Deaville *et al.*^[15] and Kaye *et al.*^[16] The reason behind this could be due to a more ethical approach for profession and limited prior exposure to rural health facilities and other associated factors. On the whole, the perceptions of dental students in the present study about rural dental practice, at first glance, were not found to be very encouraging. Most of the students appeared to have quite traditional views of what the term “rural” exactly meant and had their own perception of distance, connectivity, overall facilities available, and the type and size of the population residing in rural areas. The major factors that made dental students reluctant to work in

rural areas included poor recreational facilities, longer working hours, and poor working conditions along with difficulty in moving back from rural to urban practice and negative impact on spouse/children and career.

Despite these restrictions, the students were found positive about the accommodation provided, more diverse work experience, the rural locations, and community support with kind people and staff as the most important positive aspects of practicing in rural areas in accordance with the findings obtained in the study conducted by Mullei *et al.*^[17] However, another study conducted by Johnson and Blinkhorn^[18] reported missing friends, partners, and the number of available job opportunities as the major barriers cited to working in rural locations. Kotzee and Couper^[19] reported that professional development, ongoing training,

Table 4: Perception of dental students regarding personal and general concerns based on gender and the year of education

Item No.	Personal Concerns	Gender			Year of Education								
		Male	Female	P	I BDS	II BDS	III BDS	IV BDS	V BDS	Interns	PGs	P	
17.	Limited things to enjoy in rural areas.												
	Yes	66 (23.1)	220 (76.9)	0.49	55 (19.3)	42 (14.7)	27 (9.44)	41 (14.3)	42 (14.7)	34 (11.9)	45 (15.7)	0.82	
	No	37 (26.1)	105 (73.9)		30 (21.1)	26 (18.3)	16 (11.2)	20 (14.9)	18 (12.7)	16 (11.2)	16 (11.2)		
18.	Limited scope of socializing in rural areas.												
	Yes	74 (24.7)	226 (75.3)	0.68	60 (20.0)	42 (14.0)	23 (7.7)	48 (16.0)	44 (14.7)	38 (12.7)	45 (15.0)	0.06	
	No	30 (23.4)	105 (76.6)		24 (18.9)	26 (20.5)	20 (15.8)	13 (10.3)	16 (12.6)	12 (9.5)	16 (12.6)		
19.	Limited places for socializing in rural areas.												
	Yes	73 (22.9)	245 (77.1)	0.36	67 (21.1)	54 (17.0)	27 (9.8)	46 (14.5)	42 (12.3)	38 (12.0)	43 (13.5)	0.51	
	No	30 (27.3)	80 (72.7)		18 (16.2)	14 (12.6)	31 (11.0)	15 (13.7)	18 (19.1)	12 (11.0)	18 (16.4)		
20.	Poor recreational facilities.												
	Yes	67 (19.5)	276 (80.5)	0.00*	75 (21.9)	58 (17.0)	11 (9.3)	52 (15.2)	44 (13.4)	38 (11.1)	42 (12.2)	0.05	
	No	36 (42.3)	49 (57.7)		10 (11.8)	10 (11.8)	35 (13.0)	9 (11.0)	16 (16.5)	12 (14.1)	19 (22.5)		
21.	People in rural areas are very friendly.												
	Yes	81 (25.5)	237 (74.5)	0.24	68 (21.4)	53 (16.7)	8 (11.1)	42 (13.2)	39 (9.8)	38 (12.3)	50 (15.7)	0.00*	
	No	22 (20.0)	88 (80.0)		17 (15.5)	15 (13.7)	14 (7.3)	19 (17.3)	21 (26.4)	12 (10.0)	11 (10.0)		
22.	Relaxed lifestyle.												
	Yes	36 (23.1)	120 (76.9)	0.71	35 (22.4)	25 (16.1)	29 (9.0)	15 (9.6)	46 (7.7)	39 (17.3)	28 (18.0)	0.00*	
	No	67 (24.6)	205 (75.4)		50 (18.4)	43 (15.8)	11 (10.6)	46 (17.0)	14 (17.7)	11 (8.5)	33 (12.1)		
23.	Isolation from family and friends.												
	Yes	73 (25.6)	212 (74.4)	0.29	57 (20.0)	50 (17.5)	30 (10.5)	38 (13.3)	31 (12.3)	27 (12.0)	41 (14.4)	0.66	
	No	30 (21.0)	113 (79.1)		28 (19.6)	18 (12.6)	13 (9.1)	23 (16.1)	29 (17.5)	23 (11.2)	20 (14.0)		
24.	Difficult career enhancement prospects in rural areas.												
	Yes	74 (26.4)	206 (73.6)	0.11	63 (22.5)	41 (14.6)	28 (10.0)	33 (11.8)	12 (13.2)	34 (12.5)	43 (15.4)	0.19	
	No	29 (19.6)	119 (80.4)		22 (14.9)	27 (18.2)	15 (9.1)	28 (19.0)	48 (15.5)	16 (10.1)	18 (12.5)		
25.	Negative impact on spouse/children.												
	Yes	62 (23.1)	207 (76.9)	0.52	49 (18.2)	41 (15.2)	26 (9.8)	34 (12.6)	35 (12.2)	35 (14.5)	47 (17.5)	0.02*	
	No	41 (25.8)	118 (74.2)		36 (22.6)	27 (17.0)	17 (10.7)	27 (17.0)	25 (17.0)	15 (6.92)	14 (8.81)		
26.	Strong interest for working for a cause by working in rural areas.												
	Yes	39 (24.5)	120 (75.5)	0.86	24 (15.1)	29 (18.2)	12 (7.5)	30 (18.9)	37 (12.0)	39 (13.2)	24 (15.1)	0.10	
	No	64 (23.8)	205 (76.2)		61 (22.7)	39 (14.5)	31 (11.5)	31 (11.5)	23 (15.2)	11 (10.8)	37 (13.7)		
27.	Accommodation facilities in rural areas.												
	Yes	53 (20.0)	212 (80.0)	0.01*	58 (21.9)	22 (17.4)	18 (6.8)	35 (13.2)	33 (13.6)	34 (12.9)	38 (14.3)	0.08	
	No	54 (30.7)	113 (69.3)		27 (16.6)	46 (13.5)	25 (15.3)	26 (16.0)	27 (14.7)	16 (9.8)	23 (14.1)		

P<0.05: Statistically Significant*

and style of health service management were important factors influencing retention of health care professionals in underserved areas in South Africa while in another study in Viet Nam by Dieleman *et al.*,^[12] low salaries and poorer working conditions were found to be the major deterrents that discouraged public health workers to work in rural areas.

Schofield *et al.*^[20] concluded based on the findings of their study that the decision to practice in rural areas was the

result of a complex interaction between a number of factors including ethnicity, discipline, age, sex, type of work followed by career opportunities and challenges. Most of the other similar studies noticed a strong relationship between a student's rural background and the student's subsequent intention to train and work in rural areas.^[21,22] Agyepong IA^[23] identified lack of essential equipment, non-availability of resources like electricity, safe water, communication system, and isolation from other units as the major hardships of working in a rural area. Similar

observations were made by Lehmann *et al.*^[24] who concluded that extremely demanding working conditions, substandard medical equipment and facilities, inadequate opportunities for personal and professional growth, safety concerns, and lack of job opportunities for spouse and educational opportunities for children were the major constraints of practicing in rural areas.

Some experts like Khattak FH^[25] have also suggested remedies, though, to the situation, including establishment of a rural health academy at divisional level to impart training and refresher courses to doctors working in rural areas, priority in post-graduate education and training, grant of rural and non-practicing allowance and regular linkages with administration, management, and academic activities for the upliftment of the professionals posted in rural areas. Kristiansen and Førde^[26] also advocated the need for a proper education facility for the children of the doctors and staff working in rural areas as one of the priority concerns.

In a similar context, Anderson and Rosenberg^[27] emphasized the role of governments to solve the situation in this regard by using the government machinery to improve the geographical distribution of health care professionals. It has been suggested that a country's ability to retain health care professionals in rural areas ultimately depends upon the provision of a stable, rewarding, and fulfilling personal and professional environment. Taking all these measures of differential rewards and provision of relief from the hardships involved, the health care professionals might accept to work in rural areas providing solution to the discriminatory health care delivery in the rural backdrops which is a standing problem worldwide despite the availability of health care resources in the present scenario.

Limitations of the Present Study

One of the major limitations of the present study was that data were obtained from students of a single institution which may not be representative of the perception of students from various parts of the country in its entirety. This mandates further studies in this regard with multi-institutional data from all across the country. Furthermore, though, dental students may have had limited experience in the underserved and rural areas, during their college education years, once acquainted to rural practice, *per se*, might have an impact on their opinion. Also, background information was not taken into consideration which plays a major role in decision making about rural practice.

Conclusions

Dental students were more influenced by the negative aspects of practicing in underserved and rural areas

since they had many unattended queries and fears for rural dental practice, especially, for the long working hours and poor working conditions as well as difficulty in moving back from rural to urban practice. Also, a negative impact on spouse/children and their own and spouse's/children's career were, also, the major concerns. It was also clear from the present study that many dental students, even, had a poor understanding of what the term "rural" actually meant and of the actual situation there. The present study, thus, adds to the understanding of the challenges faced by dental professionals in rural practice highlighting the reasons responsible for this grave problem of discriminatory health care delivery, especially, in the underserved and rural areas and mandates the need for the issues to be resolved so as to have an equitable distribution of the health care professionals and upgrading health care facilities in the underserved and rural areas.

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Conflicts of interest

There are no conflicts of interest.

References

1. World Health Organization. The World Health Report 2006: Working together for health. Geneva, Switzerland: World Health Organization; 2019.
2. Boule A. Rural health care and rural poverty-inextricably linked-policy in progress. *Health Syst Trust Update* 1997;28:6-7.
3. Rural, remote and metropolitan areas classification: 1991 Census Edition/Department of Primary Industries and Energy, Department of Human Services and Health. Canberra: Australian Government Publishing Service; 1994.
4. Frenk J. The concept and measurement of accessibility. In: White KL, Ordonez C, Paganini JM, Starfield B, editors. *Health Services Research: An Anthology*. Washington, DC: Pan American Health Organization; 1992. p. 858-64.
5. Chomitz KM, Setiadi G, Azwar A, Ismail N, Widiyarti. "What do doctors want? Developing incentives for doctors to serve in Indonesia's rural and remote areas," Policy Research Working Paper Series 1888. Washington, DC: The World Bank; 1998. p. 1-43.
6. Zaidi SA. Why medical students will not practice in rural areas: Evidence from a survey. *Soc Sci Med* 1986;22:527-33.
7. Li X, Kolltveit KM, Tronstad L, Olsen I. Systemic diseases caused by oral infection. *Clin Microbiol Rev* 2000;13:547-58.
8. Rural remedy. Alabama Rural Health Association 2003;9:1-8.
9. Tandon S. Challenges to the oral health workforce in India. *J Dent Educ* 2004;68:28-33.
10. Healthcare in India. Reports Highlights. Boston Analytics; 2009.
11. Richards L, Symon B, Burrow D, Chartier A, Misan G, Wilkinson D. Undergraduate student experience in dental service delivery in rural South Australia: An analysis of costs and benefits. *Aust Dent J* 2002;47:254-8.

12. Dieleman M, Cuong PV, Anh LV, Martineau T. Identifying factors for job motivation of rural health workers in North Vietnam. *Hum Resour Health* 2003;1:10.
13. Eley D, Baker P. Does recruitment lead to retention? Rural Clinical School training experiences and subsequent intern choices. *Rural Remote Health* 2006;6:511.
14. Adams ME, Dollard J, Hollins J, Petkov J. Development of a questionnaire measuring student attitudes to working and living in rural areas. *Rural Remote Health* 2005;5:327.
15. Deaville JA, Wynn-Jones J, Hays RB, Coventry PJ, McKinley RK, Randall-Smith J. Perceptions of UK medical students on rural clinical placements. *Rural Remote Health* 2009;9:1165.
16. Kaye DK, Mwanika A, Sekimpi P, Tugumisirize J, Sewankambo N. Perceptions of newly admitted under-graduate medical students on experimental training on community placements and working in rural areas of Uganda. *BMC Med Educ* 2010;10:47.
17. Mullei K, Mudhune S, Wafula J, Masamo E, English M, Goodman C, *et al.* Attracting and retaining health workers in rural areas: Investigating nurses' views on rural posts and policy interventions. *BMC Health Serv Res* 2010;10 Suppl 1(Suppl 1):S1. doi: 10.1186/1472-6963-10-S1-S1.
18. Johnson GE, Blinkhorn AS. Student opinions on a rural placement program in New South Wales, Australia. *Rural Remote Health* 2011;11:1703.
19. Kotzee TJ, Couper ID. What interventions do South African qualified doctors think will retain them in rural hospitals of the Limpopo province of South Africa? *Rural Remote Health* 2006;6:581.
20. Schofield D, Fletcher S, Fuller J, Birden H, Page S. Where do students in the health professions want to work? *Hum Resour Health* 2009;7:74.
21. Daniels ZM, Vanleit BJ, Skipper BJ, Sanders ML, Rhyne RL. Factors in recruiting and retaining health professionals for rural practice. *J Rural Health* 2007;23:62-71.
22. Dalton LM, Routley GK, Peek KJ. Rural placements in Tasmania: Do experiential placements and background influence undergraduate health science student's attitudes toward rural practice? *Rural Remote Health* 2008;8:962.
23. Agyepong IA. Reforming health service delivery at district level in Ghana: The perspective of a district medical officer. *Health Policy Plan* 1999;14:59-69.
24. Lehmann U, Dieleman M, Martineau T. Staffing remote rural areas in middle- and low-income countries: A literature review of attraction and retention. *BMC Health Serv Res* 2008;8:19.
25. Khattak FH. Health economics and planning in Pakistan. 3rd ed. Islamabad: 1996. Original from The University of Michigan. Khattak FH. Financing of health sector in health. In: Health economics and Planning in Pakistan. 3rd ed. Islamabad: Ad-Rays Publishers; 1996. p. 44-61.
26. Kristiansen IS, Førde OH. Medical specialists' choice of location: The role of geographical attachment in Norway. *Soc Sci Med* 1992;34:57-62.
27. Anderson M, Rosenberg MW. Ontario's underserved area program revisited: An indirect analysis. *Soc Sci Med* 1990;30:35-44.