

## *Knowledge and Awareness about Community-Based Dental Education on Undergraduates Dental Students and Their Interest to Treat Underserved Populations*

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### **ABSTRACT**

Community-based dental Education (CBDE) is an innovative approach to dental training that integrates academic learning with real-world experiences in community settings. Unlike traditional dental education, which primarily occurs in institutional settings, CBDE places dental students in underserved communities, where they provide essential oral health services under supervision. This model enhances students' clinical skills, cultural competency, and understanding of public health challenges while addressing disparities in dental care access.

CBDE fosters community partnerships, improves preventive care, and encourages students to consider careers in public health or community dentistry. It also strengthens the link between academic institutions and local healthcare systems, promoting holistic, patient-centered care. Research indicates that CBDE enhances students' confidence, problem-solving abilities, and adaptability by exposing them to diverse patient populations and complex oral health issues.

Despite its advantages, CBDE faces challenges such as logistical constraints, funding limitations, and the need for standardized curricula. However, with proper support and integration into dental education programs, CBDE has the potential to transform dental training and improve oral health outcomes, particularly for vulnerable populations. The main motto is to treat underserved populations.

This article highlights the significance, benefits, challenges, and future prospects of CBDE in shaping the next generation of dental professionals committed to community health.

#### **Aim**

**To evaluate impact:** Assess how community-based dental education influences undergraduates dental students' readiness and motivation to serve underserved communities.

Understand the factors contributing to changes in students' attitudes and skills regarding treatment for underserved populations.

**Objectives:** Measure preparation levels: Determine how community-based experiences affect students' perceived preparedness to treat underserved populations

Assess intent to serve: Analyze changes in students' intent to work in underserved areas before and after participating in community-based dental education.

Identify specific aspects of community-based education that contribute most to students' readiness and commitment.

**Method:** A cross-sectional survey was conducted among 201 dental students, comprising 63 males (31.3%) and 138 females (68.7%) including 101 intern students and 100 final-year BDS students. The survey included 13 questions exploring Knowledge and Awareness about community-based dental education on dental students and their interest to treat underserved populations. Responses were analyzed based on gender and year of study using chi-square tests to identify statistically significant differences.

**Keywords:** Dental Training, Essential Oral Health Services, Healthcare Access, Public Health.

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### Introduction

Community-based dental education (CBDE) is a vital aspect of contemporary dental training, offering students practical experience in various community environments. This approach not only hones their clinical abilities but also allows them to serve populations with limited access to oral healthcare.

CBDE programs are diverse, differing in student participation levels, rotation lengths, services provided, and the structure of community collaborations. These initiatives expose students to authentic dental care settings, deepening their comprehension of community health requirements and the ethical dimensions of dental practice.

Studies have shown that CBDE positively shapes dental students' perspectives toward underserved communities. For example, research at the University of Michigan School of Dentistry revealed a positive correlation between a curriculum centered on treating underserved patients and students' intentions to work in diverse communities.

In India, the Indian Dental Association (IDA) has launched community education initiatives to raise oral health awareness. The IDA's National School Dental Health Education Programme educates schoolchildren about dental diseases, prevention, and treatment, reaching thousands of students each year.

### Methodology

**A) Study design and area:** A cross-sectional study was carried out at the tertiary care teaching hospital Khammam.

**B) Study Population:** The health care students including those of Final year and Interns who responded to the Offline questionnaire survey.

**C) Study instrument:** A self-administered questionnaire was designed based on Knowledge and Awareness of the topic "community-based dental education on dental students and their interest to treat underserved populations" and had total 13 questions. Each participant has to fill in their demographic data like Name, age, and year of study. Participant has to select one option from the answers provided against questions. The questions were based on Knowledge and awareness among dental students.

**D) Pilot study:** A pilot study was conducted on a group of students to assess the validity and reliability of the study.

**E) Sampling method:** The sampling method used is the convenience method.

**F) Inclusion criteria:** The students who were interested in the study and who are willing to participate.

**G) Exclusion criteria:** Students who are not willing to participate are excluded.

**H) Organizing the study:** The study was designed in an offline-based version of the self-administered questionnaire of 13 questions focusing on knowledge and awareness. Includes the sections of demographic data: Name, Age, Sex and Year of Study demographic information and asked to answer all questions by selecting one option from the provided answers.

**I) Statistical analysis:** Data from the filled questionnaire was conducted in a tabular form in an Excel worksheet and evaluated for analysis. The analysis was performed by SPSS version 29.

### Results

A total of 201 students took part in this with females (68.7%) and males of (31.3%). Age of participants ranging from 19-24 years. In this study females have more knowledge than males and Intern students have more knowledge followed by final-year students.

**Age**

	N	Minimum	Maximum	Mean	Std. Deviation
Age	201	19	24	21.99	1.202

Gender		Frequency	Percent
Valid	Male	63	31.3
	Female	138	68.7
	Total	201	100.0

Year of Study		Frequency	Percent
Valid	INTERNS	101	50.2
	IV BDS	100	49.8
	Total	201	100.0

**Distribution and comparison of responses based on gender:**

Item	Response	Males		Females		Chi-Square value	P value
		n	%	n	%		
Q1	1	53	32.3	111	67.7	2.637	0.451
	2	6	40	9	60		
	3	2	14.3	12	85.7		
	4	2	25	6	75		
Q2	1	3	14.3	18	85.7	6.336	0.096
	2	11	44	14	56		
	3	39	34.5	74	65.5		
	4	10	23.8	32	76.2		
Q3	1	3	30	7	70	4.898	0.179
	2	39	32.8	80	67.2		
	3	10	45.5	12	54.5		
	4	10	20.4	39	79.6		
Q4	1	6	50	6	50	2.656	0.448
	2	23	31.1	51	68.9		
	3	16	33.3	32	66.7		

	4	18	26.9	49	73.1		
Q5	1	9	47.4	10	52.6	2.995	0.224
	2	7	24.1	22	75.9		
	3	47	30.7	106	69.3		
	4	0	0	0	0		
Q6	1	18	28.6	45	71.4	3.023	0.221
	2	25	39.7	38	60.3		
	3	20	26.7	55	73.3		
	4	0	0	0	0		
Q7	1	6	31.6	13	68.4	0.754	0.860
	2	6	24	19	76		
	3	31	31	66	68		
	4	20	20	40	66.7		
Q8	1	6	60	4	40	4.558	0.205
	2	9	32.1	19	67.9		
	3	44	30.3	101	69.7		
	4	4	22.2	14	77.8		
Q9	1	16	60	37	40	13.310	0.001*
	2	47	31.8	101	68.2		
Q10	1	55	62.5	130	37.5	10.264	0.016*
	2	8	42.9	8	57.1		
Q11	1	6	66.7	42	33.3	6.915	0.075
	2	57	31.9	96	68.1		
Q12	1	13	66.7	8	33.3	8.745	0.03*
	2	50	21.8	130	78.2		
Q13	1	25	32.9	98	67.1	8.505	0.037*
	2	38	50	40	50		

**P≤0.05 is statistically significant**

### Discussion

Community-Based Dental Education (CBDE) is an innovative approach that extends dental training beyond traditional academic settings into real-world community environments. It plays a crucial

role in developing future dental professionals by providing exposure to diverse patient populations, promoting public health awareness, and improving clinical competencies.

## Key Aspects of CBDE

### 1. Enhancing Clinical and Practical Skills

- CBDE allows students to apply their theoretical knowledge in real patient interactions, helping them build confidence and competency in dental procedures.
- Exposure to a wide range of oral health conditions in community settings prepares students for practical challenges they may face in their professional careers.

### 2. Addressing Oral Health Disparities

- CBDE focuses on serving rural, low-income, and underserved communities, helping bridge gaps in oral healthcare access.
- Students gain firsthand experience in understanding social, economic, and cultural factors that influence oral health, enabling them to become more empathetic and patient-centered practitioners.

### 3. Interdisciplinary and Collaborative Learning

- Collaboration with other healthcare professionals (e.g., physicians, social workers, and public health specialists) helps dental students understand holistic patient care.
- It encourages teamwork, communication skills, and problem-solving in community health settings.

### 4. Public Health and Preventive Dentistry Focus -CBDE emphasizes preventive oral health measures, such as education on proper oral hygiene, fluoride application, and early disease detection.

- Students engage in outreach programs, school visits, and mobile dental units, promoting awareness and preventive care among populations with limited access to dentistry.
- Challenges of CBDE

### 1. Logistical and Administrative Issues

- Coordinating community placements, ensuring supervision, and managing

resources can be challenging for dental schools.

- Faculty involvement and mentorship require significant planning and funding.

### 2. Variability in Learning Experience

- The level of clinical exposure depends on the community's needs and available infrastructure, leading to inconsistencies in training quality.
- Some students may face limitations in performing complex procedures due to resource constraints.

### 3. Ethical and Legal Considerations

- Treating patients in community settings requires adherence to ethical guidelines, patient consent, and legal regulations regarding student involvement in clinical care.
- Ensuring patient safety and maintaining professional standards can be challenging in remote or under-resourced areas.

### Future of CBDE and Recommendations

- Strengthening University-Community Partnerships – Building long-term collaborations between dental schools and local healthcare organizations ensures sustainable community engagement.
- Integrating Technology – Using teledentistry, mobile apps, and digital case studies can enhance CBDE, especially in remote areas.
- Standardized Curriculum and Assessment – Establishing a structured framework for evaluating student performance and learning outcomes can improve the effectiveness of CBDE.
- Incentives for Participation- Offering scholarships, stipends, or credits for students engaged in CBDE can encourage participation and commitment.

### Conclusion

Community-Based Dental Education is a transformative approach that not only enhances clinical training but also promotes social

responsibility among future dentists. By immersing students in diverse real-world settings, CBDE prepares them to address oral health challenges holistically and contribute to reducing disparities in dental care. Despite its challenges, improving CBDE through better coordination, technological integration, and policy support can maximize its benefits and impact on both students and communities.

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