

Cultural competence in clinical dental training: implications for patient-centered care - a cross-sectional study

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Abstract

Background: As patient populations become increasingly diverse, cultural competence is recognized as a critical component of effective clinical care. In dental education, insufficient cultural awareness and skills may contribute to disparities in patient outcomes and communication barriers.

Aim: To evaluate cultural competence - across knowledge, skills, attitudes, and prior - clinical-phase dental students at a Georgian dental faculty.

Methods: A cross-sectional study was conducted using a self-administered online questionnaire distributed to dental students in clinical training (semester ≥ 6). The survey assessed four domains of cultural competence: knowledge, clinical skills, attitudes, and previous exposure to cultural competence training. Participants included both native Georgian-speaking and international English-speaking students, enabling representation of diverse educational and cultural backgrounds.

Results: The results demonstrated generally low to moderate levels of competence and knowledge in culturally sensitive dental care among participants. In the practice and skills domain, most respondents reported limited competence. For prescribing or negotiating culturally sensitive treatment plans, 44.44% indicated "Not at all" and 47.09% "Somewhat," with only 8.47% reporting higher competence. Similarly, in providing culturally sensitive patient education and counseling, 49.21% selected "Not at all" and 40.21% "A little," while fewer than 11% indicated moderate or higher competence. In the knowledge domain, awareness was also limited. Nearly all participants (98.94%) reported no awareness of ethno-pharmacology. Awareness of health risks among different ethnic groups was variable, with 58.20% indicating "A little" and 15.87% "Somewhat." In contrast, a majority (68.25%) demonstrated moderate awareness of the impact of socio-economic and cultural factors on oral health outcomes. Overall, the findings highlight gaps in both cultural competence and knowledge.

Conclusions: The findings reveal significant gaps in cultural competence among clinical dental students, particularly in applied clinical skills and confidence in managing culturally diverse patient interactions. These results highlight the need for structured, competency-based educational interventions within the dental curriculum. Strengthening cultural competence training may improve patient-provider communication and support more equitable, patient-centered care in diverse clinical settings. (TCM-GMJ August 2026; 11 (3): P55-P59)

Keywords: Cultural Competence; Patient-centered Care; Cultural Awareness

Introduction

Cultural competence has become an essential component of modern healthcare, particularly within dentistry, where effective patient-centered care relies on understanding the diverse cultural, social, and biological backgrounds of patients (1,2). Dental practitioners increasingly encounter individuals from varied ethnic and cultural groups, each with distinct health beliefs, behaviors, and responses to treatment (3). In this context, the development of cultural competence among dental students during their clinical training years is critical for reducing health disparities and improving

oral health outcomes (4).

One important yet often underemphasized aspect of cultural competence is ethno-pharmacology, which examines how genetic, cultural, and environmental factors influence drug metabolism, efficacy, and safety across different populations (5, 6). In dentistry, pharmacological agents are integral to routine care, including the administration of local anesthetics, prescription of antibiotics, and management of pain through analgesics. A growing body of evidence suggests that inter-individual and inter-ethnic variability in drug response is partly attributable to genetic polymorphisms affecting drug-metabolizing enzymes, particularly within the cytochrome P450 system (7). These variations may alter the effectiveness and safety profiles of commonly used dental medications, potentially leading to inadequate pain control or increased risk of adverse effects in certain populations. Furthermore, differences in prescribing patterns and access to medications among ethnic groups have been reported, raising

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concerns about equity in dental care (8). Collectively, these findings emphasize the importance of integrating ethno-pharmacological considerations into clinical decision-making to support safe, effective, and individualized treatment.

Beyond pharmacological considerations, cultural and ethnic factors play a significant role in shaping treatment planning and patient engagement. Variations in health literacy, cultural beliefs about oral health, pain perception, and communication styles may influence patients' acceptance of proposed treatments and adherence to clinical recommendations (9,10). For example, certain cultural groups may prioritize conservative or non-invasive approaches, while others may have differing expectations regarding pain management or esthetic outcomes (11). Failure to recognize and address these differences may result in miscommunication, reduced patient satisfaction, and suboptimal treatment outcomes. Therefore, culturally sensitive treatment planning is a fundamental component of comprehensive dental care (12).

Despite the recognized importance of cultural competence, there remains limited evidence regarding the level of preparedness among clinical-year dental students, particularly in relation to applied knowledge and clinical skills such as ethno-pharmacology and culturally responsive treatment planning (13,14). Understanding students' competencies in these domains is essential for identifying educational gaps and improving curricula (15). Therefore, this cross-sectional study aims to assess cultural competence among clinical-year dental students, with a focus on both knowledge and practice domains, and to explore its implications for patient-centered dental care.

Methods

A cross-sectional study was conducted among undergraduate dental students enrolled in the clinical phase of the dental program (semester 6 and above) at a dental faculty in Georgia. The study population included both native Georgian-speaking students and international students enrolled in English-language programs, ensuring representation of diverse cultural and linguistic backgrounds. Participation was voluntary and anonymous. Data were collected using a self-administered online questionnaire distributed via Google Forms through institutional communication channels. Electronic informed consent was obtained from all participants prior to survey completion, and no personally identifiable information was collected.

Cultural competence was assessed using online questionnaire. The instrument comprised multiple sections, including demographic characteristics and core domains evaluating different aspects of cultural competence. The demographic section collected information on age, sex, race/ethnicity, language proficiency, international exposure (travel or residence abroad), and educational background.

The knowledge domain includes several items assessing self-reported understanding of cultural and health-related concepts using a 5-point Likert scale ranging from "not at all" to "very." This domain evaluates knowledge of demo-

graphic and sociocultural characteristics of diverse populations, health risks and disparities among racial and ethnic groups, and sociocultural issues across various clinical contexts. It also includes items on ethno-pharmacology, awareness of different healing traditions, understanding of the impact of racism and discrimination in healthcare.

The skills domain consists of items measuring perceived ability to manage sociocultural aspects of patient care, using a Likert scale from "not at all" to "very." This domain covers culturally sensitive communication practices and developing and negotiating treatment plans. It also evaluates skills in providing culturally appropriate patient education, preventive care and managing cross-cultural conflicts related to diagnosis, treatment, adherence, and ethics, as well as addressing misunderstandings.

Most items in the questionnaire were measured using 5-point Likert-type scales tailored to each domain, while selected items used binary or open-ended response formats.

All procedures were conducted in accordance with ethical standards for research involving human participants.

Statistical analysis was performed using IBM SPSS Statistics (version 26.0; IBM Corp., Armonk, NY, USA). Descriptive statistics were applied, with categorical variables reported as frequencies and percentages, and Likert-scale responses summarized using frequency distributions.

Results and discussion

A total of 189 students participated in the study, including 84 fourth-year students (44.44%) and 105 fifth-year students (55.56%). The age of participants ranged from 22 to 42 years, with a mean age of 24.34 years.

In the cultural knowledge domain, responses indicated generally low to moderate levels of awareness. For the statement "I am aware of ethno-pharmacology and its relevance to dental care," almost all participants reported no awareness, with 187 students (98.94%) selecting "Not at all," and only 2 students (1.06%) indicating "A little." Regarding awareness of health risks experienced by different ethnic groups, more than half of the participants, 110 (58.20%), reported "A little" awareness, while 49 (25.93%) selected "Not at all," and 30 (15.87%) indicated "Somewhat." For the statement "I recognize the impact of socio-economic and cultural factors on oral health outcomes," the majority of participants demonstrated a moderate level of awareness, with 129 (68.25%) selecting "Somewhat." This was followed by 26 participants (13.76%) who reported "Not at all," 23 (12.17%) who selected "A little," and 11 (5.82%) who indicated "Quite a bit." (Fig.1)

Overall, the results suggest minimal awareness of ethno-pharmacology, limited awareness of ethnic-related health risks, and relatively higher recognition of the role of socio-economic and cultural factors in oral health outcomes.

In the practice and skills domain, participants reported generally low to moderate levels of competence in culturally sensitive clinical practices.

For the item "Prescribing/negotiating a culturally sensitive treatment plan," 84 participants (44.44%) selected "Not at all," while the majority, 89 (47.09%), reported

“Somewhat.” A smaller proportion indicated higher levels of competence, with 14 participants (7.41%) selecting “Quite a bit” and only 2 (1.06%) reporting “Very.” Regarding “Providing culturally sensitive patient education and counseling,” nearly half of the participants, 93 (49.21%), reported “Not at all,” followed by 76 (40.21%) indicating “A little.” Only 16 participants (8.47%) selected “Somewhat,” and a very small proportion, 4 (2.12%), reported “Quite a bit.” For the item “Dealing with cross-cultural conflicts relating to diagnosis or treatment,” a minority of participants reported no competence, with 4 (2.12%) selecting “Not at all.” Most responses clustered in the lower to moderate categories, with 32 participants (16.93%) indicating “A little” and 71 (37.57%) reporting “Somewhat.” Higher levels of competence were less common, with 10 participants (5.29%) selecting “Quite a bit” and only 1 (0.53%) indicating “Very.” For “Dealing with cross-cultural ethical conflicts,” 6 participants (3.17%) reported “Not at all,” while 23 (12.17%) selected “A little.” The majority of participants, 104 (55.03%), indicated “Somewhat,” suggesting moderate perceived competence. Higher levels of confidence were reported by 25 participants (13.23%) selecting “Quite a bit,” and only 1 (0.53%) indicating “Very.” (Fig.2)

Overall, the results suggest limited practical skills in delivering culturally sensitive care, particularly in patient education and counseling, with most students reporting minimal to moderate levels of competence. These findings indicate that while some students demonstrate moderate ability in managing cross-cultural and ethical conflicts, high levels of confidence remain limited.

The findings from the cultural knowledge domain highlight important gaps in students’ preparedness for delivering culturally informed dental care, with direct implications for clinical practice, translational research, and patient-centered care. The near-universal lack of awareness of ethno-pharmacology is particularly notable. Ethno-pharmacology plays a critical role in understanding differences in how medications act across various ethnic groups, including variations in efficacy, metabolism, and potential adverse effects in dental treatment. The fact that 98.94% of participants reported no awareness suggests that students may be inadequately prepared to identify potential drug–herb interactions or to engage in meaningful discussions with patients who rely on traditional medicine. From a clinical and translational research perspective, this gap limits the ability to translate emerging evidence about culturally specific therapies into safe and effective dental care. Without such knowledge, clinicians may overlook important factors influencing treatment outcomes, thereby reducing the applicability of research findings in diverse patient populations.

In contrast, students demonstrated a slightly higher, though still limited, awareness of health risks experienced by different ethnic groups. While 58.20% reported “a little” awareness and only 15.87% “somewhat,” this suggests a superficial understanding rather than a comprehensive grasp of population-specific risk profiles. Clinical-

ly, this may hinder early identification of at-risk groups and the implementation of preventive strategies tailored to specific populations. In translational research, insufficient awareness of ethnic disparities can contribute to gaps between research evidence and real-world application, particularly if future practitioners are not equipped to interpret or apply findings across diverse demographic groups. This underscores the need for integrating epidemiological and population health perspectives into dental education.

Encouragingly, a majority of students (68.25%) recognized, at least to some extent, the impact of socioeconomic and cultural factors on oral health outcomes. This indicates a foundational understanding of the social determinants of health, which is essential for patient-centered care. However, the predominance of “somewhat” responses suggests that this awareness may not yet translate into clinical competence. Patient-centered care requires not only recognition but also the ability to adapt communication, treatment planning, and preventive strategies to align with patients’ cultural beliefs, financial constraints, and social contexts. From a translational standpoint, bridging this gap is crucial to ensure that research on social determinants is effectively implemented in everyday clinical settings.

Overall, the results suggest that while students have some awareness of broader socio-cultural influences on oral health, there are significant deficiencies in more specific and clinically actionable areas, particularly ethno-pharmacology and ethnic health risks. Addressing these gaps through curriculum enhancement, integration of culturally competent clinical training, and exposure to translational research principles could improve future dentists’ ability to deliver safe, equitable, and patient-centered care across diverse populations (Fig.3).

The results from the skills domain reveal generally low to moderate competence in delivering culturally sensitive care, which has important implications for both clinical and translational practice, particularly within a patient-centered care model. Patient-centered care relies on effective communication, shared decision-making, and responsiveness to patients’ cultural values and beliefs. The limited ability reported in negotiating culturally appropriate treatment plans and providing tailored patient education suggests that future clinicians may struggle to fully engage patients in their own care. This can lead to reduced trust, lower treatment adherence, and ultimately poorer clinical outcomes. Furthermore, difficulties in managing cross-cultural and ethical conflicts highlight potential barriers to establishing strong therapeutic relationships, which are central to patient-centered care. In the context of clinical and translational medicine, these gaps may also hinder the implementation of evidence-based interventions, as successful translation depends on aligning treatments with patients’ social and cultural contexts. If clinicians lack the skills to navigate these differences, even well-established therapies may be less effective in real-world settings. Therefore, strengthening culturally competent clinical

skills is essential not only for improving individual patient experiences but also for ensuring that advances in research are equitably and effectively applied across diverse populations.

Conclusion

In conclusion, the findings indicate that both knowledge and practical skills related to cultural competence remain insufficient, which may significantly limit the effective delivery of patient-centered care. Since patient-

centered models emphasize respect for individual values, cultural beliefs, and active patient involvement in decision-making, gaps in these competencies can lead to miscommunication, reduced trust, and lower adherence to treatment. Addressing these deficiencies through targeted education and training is essential to ensure that future clinicians can provide equitable, culturally responsive care and fully realize the principles of patient-centered practice in diverse clinical settings.

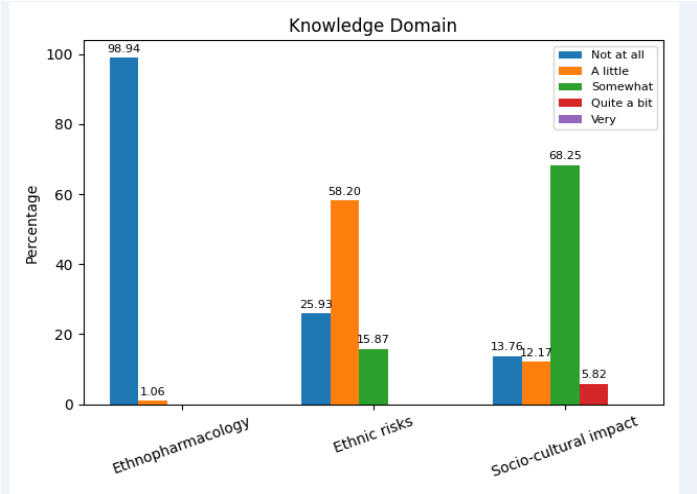


Figure 1. Knowledge Domain: Diverging bar chart of participants’ self-reported cultural knowledge and awareness related to oral health.

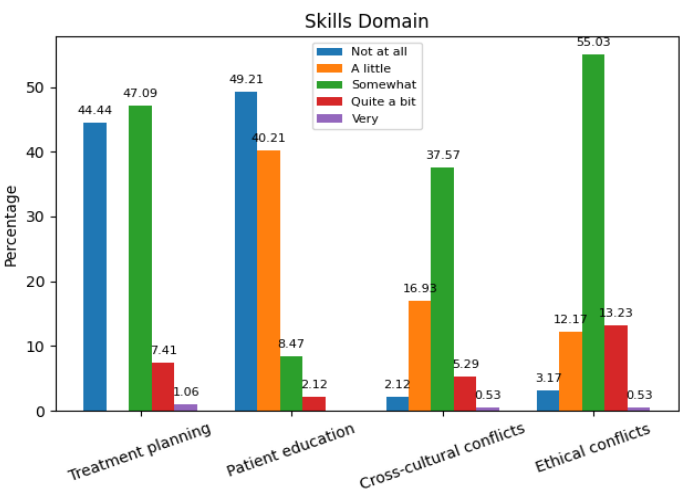


Figure 2. Skills Domain. Diverging bar chart of self-reported competence in culturally sensitive clinical practices among participants.

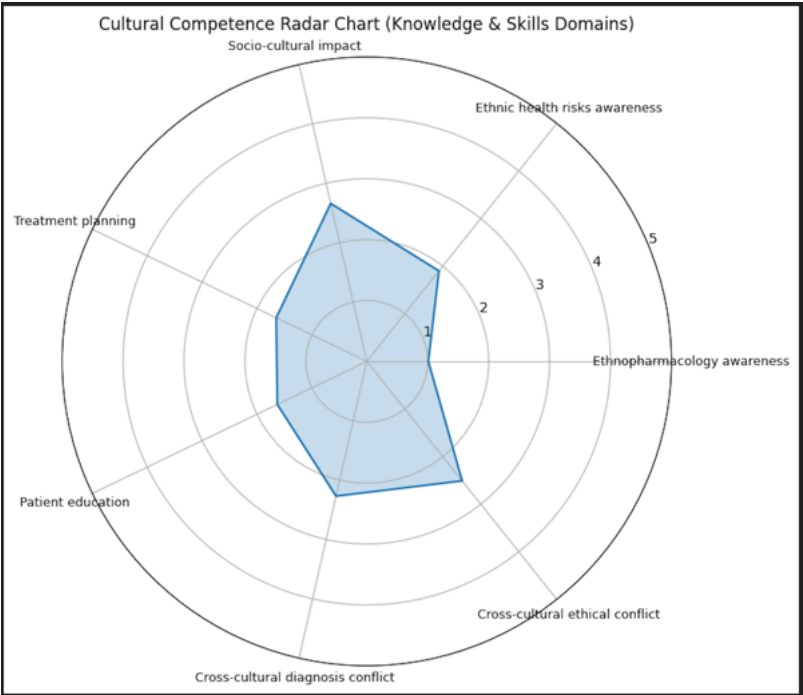


Figure 3. Cultural competence across knowledge and skills domains

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