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REVIEW ARTICLE

INSIGHTS INTO COMMUNICATION IN DENTAL EDUCATION AND PRACTICE: A NARRATIVE REVIEW

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ABSTRACT

Background: Effective communication increases dental patients' satisfaction and improves treatment results. Despite its importance in dental curricula, there is often a gap between the theoretical aspects of communication skills and the practical application in real-world dental settings.

This research aims to explore the key components of effective dentist-patient communication and address teaching, learning, and assessment of communication skills within undergraduate dental education with a specific focus on the Armenian context.

Materials and Methods: Literary research was conducted across internet bibliographic open-access sources. The narrative review included 91 publications, comprising 67 full-text articles, 3 reports, 13 monographs and books, 5 guidelines, 3 legal acts. Databases such as Medline, Scopus, Web of Sciences, PubMed, ScienceDirect, ResearchGate and others were used. This paper presents the key findings of a literature review encompassing publications on communication skills in the field of dentistry and dental education, without constraints on publication dates. In preliminary search 142 titles and abstracts were screened and 91 publications were selected based on their high methodological quality and in alignment with the authors' conceptual approaches.

Results: In dental practice, communication is equally critical, reflecting the personal values and interpersonal skills of dental professionals. Many dental professionals underestimate the challenges of maintaining clear communication in a demanding health care system. Communication can take various forms. In modern dental education, various methods are used to train communication skills, including lectures, role-playing, small group teaching simulated patient interactions, clinical observation, real patient interviews, virtual patients and virtual reality-based trainings, use of videos, chairside teaching and feedback sessions. Traditional assessment tools may not capture the full scope of a student's communication skills. An assessment system should be designed to comprehensively evaluate the students' ability to integrate and apply their knowledge, skills and attitudes in real-world clinical settings, reflecting their readiness for professional practice.

Conclusions: There is no ideal method for training communication skills in undergraduate dental education. Combining the most effective teaching, learning and assessment approaches can help to design a structured communication skills curriculum. Students' communication competencies should be assessed through real-life scenarios with the use of structured frameworks and check-lists to ensure their readiness for professional practice.

Keywords: communication skills, dentist-patient communication, undergraduate dental education, dental curriculum, qualifications framework

'The single biggest problem in communication is the illusion that it has taken place.' - George Bernard Shaw

INTRODUCTION

Communication is a cornerstone of meaningful human interaction, enabling the exchange of ideas, emotions and information through various media, such as language, gestures, symbols and technology. Given the high prevalence and preventable nature of major oral diseases, proactive measures, such as educating patients on oral hygiene, encouraging regular check-ups and promoting strong communication skills amongst oral health professionals, can help prevent these conditions before they become a burden on the healthcare system^{1,2,3}.

Effective management of oral diseases relies on clear communication, which increases patient satisfaction, reduces fear and lowers the likelihood of malpractice claims. Ultimately, this facilitates accurate diagnoses and optimal treatment^{4,5}. According to the World Medical Association Declaration of Lisbon on the Rights of the Patient, involving patients in their healthcare decisions is an inalienable right⁶. Such participation not only respects patient autonomy, but also fosters trust, improves adherence to treatment and enhances overall satisfaction with care^{7,8}.

In dental settings, communication failures may result in patient dissatisfaction and even harm^{8,9,10}. In dental clinics, where the communication dynamic is often dentist-centred, patients assume a more passive role due to the physical constraints. These factors can hinder effective communication, making it challenging to convey important clinical information and address patients' concerns^{11,12}. Therefore, it is essential for dental professionals to possess strong communication and interpersonal skills that foster patient engagement and facilitate clear, empathetic exchanges.

Organisations like the Association for Dental Education in Europe (ADEE) and the American Dental Education Association (ADEA) emphasise the importance of communication skills in dental education and stress the need for their development and assessment to ensure effective patient care^{13,14}. Despite the recognition of the importance of communication skills training in dental curricula, there is often a gap between the theoretical knowledge and the practical application of communication competences in real-world dental settings¹⁵.

This research aims to explore the key components of effective dentist-patient communication and address the teaching, learning and assessment of communication skills within undergraduate dental education with specific focus on the Armenian context.

MATERIALS AND METHODS

The narrative review included 91 publications, comprising 67 full-text articles, 3 reports, 13 monographs and books, 5 guidelines, 3 legal acts. Databases such as Medline, Scopus, Web of Sciences, PubMed, ScienceDirect, ResearchGate and others were used. Literary research was conducted across internet bibliographic open-access sources using the following keywords: 'communication skills', 'dentist-patient communication', 'undergraduate dental education', 'dental curriculum', 'qualifications framework'. This paper presents the key findings of a literature review encompassing published articles, reports, standards, guidelines, regulations and legal acts on communication skills in dentistry and dental education, without constraints on publication dates. In preliminary search 142 titles and abstracts were screened and 91 publications were selected based on their high methodological quality and in alignment with the authors' conceptual approaches.

RESULTS AND DISCUSSION

Communication in Dental Context

There are notable differences between dental and medical counselling¹⁶. Medical consultations typically involve interviewing the patient, conducting diagnostic tests, presenting a diagnosis, prescribing treatments, reviewing progress and providing advice. These sessions are primarily diagnostic and advisory, with actual treatment often occurring in separate appointments or procedures^{12,16}. Effective communication is not an innate ability but a clinical skill that requires dedicated learning, regular practice, reflection and continuous improvement to prevent misunderstandings and enhance patient care.

In dental practice, communication is equally critical, reflecting the personal values and interpersonal skills of dental professionals¹⁷. Many dental professionals underestimate the challenges of maintaining clear communication in a demanding healthcare environment. Therefore, it is essential for dentists and other dental care professionals to be mindful of their communication with patients and colleagues, whether intentional or inadvertent, in both spoken and written forms. Dental consultations, on the other hand, often involve hands-on treatment right from the initial visit. Dentists commonly perform procedures such as cleanings, fillings or extractions during the consultation itself. This approach adds complexity and stress for both the dentist and the patient¹². Additionally, since dental treatment involves working directly in the patient's mouth and using various instruments, it can heighten patient anxiety and trigger gag reflex often sometimes worsened by vomiting phobia¹⁸. Hence,

unclear explanations of treatment plans may result in patients misunderstanding procedures, leading to anxiety, reduced adherence, or even refusal of treatment. To address this, dentists are supposed to possess strong communication skills to provide emotional support, alleviate anxiety and ensure a positive patient experience.

Effective Communication in Dental Consultations: Forms and Key Components

Communication can be best defined as the transmission of a message from a sender to a receiver in an understandable manner¹⁹. Communication can take various forms, including verbal and non-verbal, and para-verbal (the tone, pitch and pacing)²⁰. Verbal communication involves the use of words to convey a message; it can be either oral or written. Communication starts with the sender and ends with the receiver and is made up of four key components: encoding, medium of transmission, decoding and feedback^{19,21,22}. The sender is the person who initiates the conversation.

Encoding: The sender converts the message into symbols, such as words, pictures, or gestures. In dental consultation, the dentist formulates a message, such as explaining a diagnosis, treatment plan or oral hygiene instructions^{19,21}. He/she may use medical terminology, visual aids or simplified explanations to convey the message³. The patient may also encode a message while describing symptoms, asking questions or expressing concerns.

Medium of Transmission: The dentist communicates with the patient through various media, including face-to-face conversations, written instructions. The encoded message is transmitted through a chosen medium, such as spoken words, written text, digital communication (e.g. emails, patient portals), visual aids (e.g. dental X-rays, diagrams) or body language^{19,21}. When explaining the necessity of a specific treatment, dentists can enhance patient understanding and expectations by incorporating visual aids or using 3D imaging to illustrate the desired outcomes²³.

Decoding: The receiver (either the patient or the dentist) interprets and translates the encoded message back into a form that they can understand^{19,21,24}. The patient interprets the dentist's message. This involves understanding the diagnosis, treatment options and instructions. Effective decoding depends on the patient's background knowledge, language proficiency and cognitive abilities^{19,21,24}. Whereas, the dentist decodes the patient's verbal and non-verbal messages to understand their concerns, symptoms and preferences^{19,21,24}.

Feedback: The receiver (either the patient or the dentist) responds to the message, providing the sender with confirmation that the message has been understood, misunderstood, or requires further clarification. Oral communication, in particular, includes an immediate feedback mechanism, as both the speaker and listener engage in the simultaneous exchange of messages. This allows for prompt feedback, making it an efficient form of communication. When doubts or uncertainties arise, clarifications can be made directly^{19,21}. To provide effective feedback, one must first develop strong listening skills, facilitating a clear transmission of ideas from the sender. This involves giving listener's full attention to the speaker, understanding the message, and avoiding judgments. Reflecting and paraphrasing what have been heard demonstrates engagement, while repeating key information ensures accurate understanding^{25,26}. During the encounter, the dentist should start the conversation with an open-ended question and ask one question at a time. Active listening prior to responding is critical to maintaining focus and avoiding possible distractions, which is essential for clear communication and is highly valued in both professional and personal interactions²⁷. Employing a patient-centred approach by actively listening to the patient's concerns can help ensure that patients feel heard and understood. The patient provides feedback by asking questions, expressing understanding or confusion, and showing their willingness to proceed with the treatment²². The dentist receives this feedback and may adjust their communication to ensure the patient fully understands. This might include re-explaining concepts, providing additional information or addressing any concerns²².

Transmitted information from sender to receiver can lead to communication failures. According to *The Mathematical Theory of Communication* by C.E. Shannon, three levels of communication problems are: identified technical problems, semantic problems and effectiveness problems²⁸. This theory can be applicable to the dental communication context as well:

Technical Problems: These involve the accuracy and efficiency with which symbols (words, images, sounds) are transmitted from the sender to the receiver³ and address the question of how accurately the message can be transmitted. Issues at this level are concerned with the mechanics of signal transmission, including problems such as noise interference and those which can distort communication. An example could be the dentist's speech being muffled by a mask, leading to the patient's mishearing.

Semantic Problems: These concern the meaning and interpretation of the message. They address how precisely the transmitted symbols convey the intended meaning. This level deals with the relationship between the symbols and their meanings, emphasising the need for the receiver to understand the message as the sender intended^{25,3}. Semantic problems arise when the meaning of the message is misinterpreted. For instance, when the dentist tells the patient, ‘Your bite is misaligned’, the patient might think, ‘What does “bite” mean? Is that my jaw or my teeth?’. Words like ‘bite’ may have different meanings in various linguistic contexts. E.g. A patient misunderstanding the term ‘bite’ as referring to either the jaw or teeth may cause confusion during treatment.

Another example is a narrow interpretation of ‘oral hygiene’ as just brushing, while missing broader implications like flossing or professional cleaning.

Effectiveness Problems: These involve the impact of the message on the receiver. They address how effectively the received meaning affects the listeners’ behaviour and whether the desired response or behaviour is achieved^{28,19,3}. When the dentist says, ‘Take an over-the-counter analgesic (NSAID) if you feel pain after the procedure’, the unclear advice on a specific medicine leads to uncertainty about which painkiller to use.

Impact of Body Language and other Cues in Dentistry

Nonverbal communication is the process of conveying information without using words. There are different aspects of non-verbal communication. It includes a variety of signals and cues, such as body language, facial expressions, eye contact, gestures, posture, tone of voice, etc.^{3,20}. Each of these elements plays a crucial role in how the messages are conveyed and interpreted, especially in contexts like healthcare, where empathy and understanding are essential. Nonverbal communication can reinforce or contradict what is being said verbally and often conveys emotions and attitudes more powerfully than words³. Nonverbal communication is essential for building trust, easing patient anxiety, and ensuring understanding between dental professionals and patients²⁰. Research shows that nonverbal communication can manifest in several forms; this shapes how people interact^{20,29}.

Facial expressions: Smiles and frowns communicate our emotional states and reactions, making it easier for patients to feel at ease^{30,20}.

Eye contact: Proper eye contact demonstrates attentiveness and sincerity. This is

essential in showing patients that their concerns are being actively listened to^{31,3}. Maintaining appropriate eye contact when explaining a procedure builds trust, especially with anxious patients.

Body language and posture: Sitting or standing often reflects the communicator’s openness and level of attentiveness^{32,20}. Body language shows how engaged the dentist is in listening to the patient’s questions and concerns. A dentist noticing a patient’s body language might pause to ask if they have any concerns, thus showing attentiveness and care.

Paralinguistic signs: The tone, pitch and volume of speech can dramatically influence the emotional undertones of a conversation, adding depth and emotion to verbal communication. A calm and empathetic tone can reassure patients^{3,29,33}.

Proxemics: The physical distance from a patient affects their comfort level. Too little personal space can be intrusive, while too much can seem distant or disengaged^{34,34,29}. During a dentist-patient encounter, the dentist should be mindful that different nations have different culturally determined perceptions of appropriate social distance³⁵.

Gestures: Gestures are not just movements, but symbols that express a full range of meanings which are different from spoken language³⁶. Movements such as hand gestures or nods help to emphasise points, demonstrate attentiveness and convey understanding. They show patients that their concerns are being heard and considered^{36,29}.

Haptics (physical contact, touch): Haptics involves the use of touch to communicate. This can include handshakes, hugs, pats on the back, or any other form of physical contact. Touch can convey a variety of messages, from comfort and reassurance to aggression and dominance. Simple gestures like a reassuring hand on a patient’s arm can ease their nervousness.

Appearance: A professional appearance influences first impressions and helps to establish trust. The dentist’s attire, grooming and overall presentation can set a positive tone for the interaction^{37,38}.

By observing these nonverbal cues, a dentist can gain valuable insights into a patient’s emotional state, comfort level and level of understanding. For example, a patient’s body language might indicate anxiety or confusion, allowing the dentist to adjust his/her approach to ensure that the patient feels heard and valued.

Observing and responding to nonverbal cues such as body language, tone and gestures fosters deeper connections. However, it is not entirely accurate to define nonverbal communication as merely anything other than words. Nonverbal and

verbal behaviour impact the thought and language processes of a sender to the receiver, as well as the interpretations made by the receiver. To fully understand the conveyed thoughts, both verbal and nonverbal channels must be considered together, as they are most effective when they complement each other.

Language and Cultural Barriers in Dentistry

Demographic shifts have been significant in recent years, driven by factors such as immigration and global developments³⁹. Dentists must communicate effectively with individuals from various racial, ethnic, linguistic, socioeconomic and cultural backgrounds, taking into account the impact of cultural and ethnic differences³⁵. Language barriers pose significant challenges, especially when non-native speaker patients interact with native speaker healthcare professionals⁴⁰. Limited language proficiency (LLP) can negatively affect a patient's experience. It is often a primary cause of miscommunication and misunderstandings, potentially leading to patient harm. Miscommunication due to language barriers can significantly compromise patients' safety. For example, a study by Divi et al. (2007) found that LLP patients were more likely to experience adverse events that result from communication errors compared to English-proficient patients^{3,41}. These errors can range from incorrect diagnoses and inappropriate treatments to medication use mistakes, all of which pose serious risks to patients' health. It can increase risk of medical errors, increase healthcare costs and have an emotional and psychological impact on patients⁴.

In the field of dentistry these issues are magnified, with studies showing that up to one-half of dental providers reported patients' inability to follow recommended oral health practices, including patients' lack of understanding of oral health information due to language and cultural barriers^{43,10}. Addressing language and cultural differences in dental care not only enhances patient understanding, but also contributes to the health outcome^{3,40}.

This underscores the need for cultural sensitivity training to ensure that all patients, regardless of language proficiency or cultural background, can access and understand their health information³⁵.

Dentistry has always been a highly specialised field with a variety of specific professional terms. Hence, excessive use of dental terms will add to the complexity of dentist-patient communication. Dentists can use the 'tell-show-do method' during the encounter for patients to easily

understand key health concepts⁴⁴. Using charts or videos to explain procedures while language barriers arise could be a supportive tool for dentists. Dentists can ensure effective communication by explaining the procedure in layman terms by visually showing patients what is going to be done.

Teaching, Learning and Assessment of Communication Skills in Dental Education

Communication skills are not innate and can and should be learnt as part of an ongoing process. They should be taught at all the levels of dental education: undergraduate, post-graduate and continuous professional learning. Learning these skills can be challenging because they are often seen as intrinsic to a learner's personality, cognitive functioning and social experiences. Various social theories reveal that teaching and learning interpersonal communication between dentists and patients can be influenced by individual personality traits, situational contexts and environmental factors^{15,45}.

In modern dental education, various methods are used to train communication skills, including lectures, role-playing, small group teaching simulated patient interactions, clinical observation, real patient interviews, virtual patients and virtual reality-based trainings, use of videos, bedside (chairside) teaching and feedback sessions^{15,46-52}. The implementation of targeted training with simulated patient feedback significantly increases clinical communication skills^{49,53}. In contemporary dental education, teaching and learning occur across various environments, including lecture theatres, seminar rooms, phantom head suites and restorative dental education clinics (DECs), where students gain practical experience treating patients⁵⁴. Additionally, students in many dental schools and hospitals attend general dental service clinics.

Role-playing is an interactive teaching technique that enables students to engage with realistic scenarios through interaction, allowing them to assume the role of themselves or another individual in a specific context⁵⁵. Role-play as an educational method is grounded on Kolb's experiential learning theory involving four interconnected learning environments: feeling, thinking, watching and doing⁵⁶. This method fosters active learning, allowing students to practise communication and problem-solving skills in a simulated environment⁵⁵.

Peer-assisted learning is a teaching method in which students teach their less-experienced peers. It is found to be a useful, enhancing learning experience which builds confidence and develops

communication skills^{57,58,59}. Recording interactions between students and voluntary patients can be helpful. Students can review video recordings of their interactions to assess their body language, tone, word choice and overall performance. This method promotes self-awareness and encourages improvement.

Additionally, students can receive feedback from both instructors and peers as a formative assessment. A video- and feedback-based approach to teaching has been shown to enhance communication skills in dental students⁶⁰.

Problem-based learning (PBL) is a student-centred teaching-learning method which uses complex, real-world problems as a context for students to develop their critical thinking and problem-solving skills. PBL gives students the opportunity to master inter-personal and professional communication skills⁶¹. PBL, along with lectures, videos, role-play, patient interview and simulated patients, is found to be effective in developing active listening, establishing rapport, empathy, gathering information, cultural sensitivity and professionalism amongst students⁵².

Sir William Osler, a pioneer of bedside learning in medicine, highlighted the value of hands-on teaching⁶². Bedside (chairside) teaching is a teaching method which involves a real patient to provide students with the experience to associate existing knowledge with new applications. Chairside teaching is as significant for dental students as bedside teaching is for medical students. Despite its importance, it is often under-recognised and under-reported as a teaching and learning method⁵⁴. These chairside opportunities reinforce academic knowledge and build upon the foundations established in formal teaching environments, such as timetabled lectures and tutorials⁶³. However, because chairside teaching is typically unscheduled, it depends heavily on the availability and engagement of dedicated teaching staff^{54,63}.

Traditional lecture-based teaching approaches limit students' learning and create difficulties in assessing practical communication skills⁵². Experiential learning methods, such as role-playing and simulation with standardised patients, are more effective in learning communication skills than traditional lecture-based approaches with assessment by written examination^{12,56}.

Assessment is an essential component in teaching clinical courses in dental undergraduate training to ensure patient safety. Assessment ensures that students undertake clinical procedures that they have been trained for^{64,65}. In 1990, Miller proposed the Model for Clinical Competency Assessment. It is

now widely used for assessing clinical competence in medical and dental education^{66,12}. The model is structured as a hierarchy with four levels, representing the progression from basic knowledge to real-world application. At the lowest level of the pyramid is knowledge (student knows). It is followed by competence (student knows how to use the knowledge); then comes performance (student shows how to apply the knowledge) and action (student implements the knowledge)⁶⁶. The level of credibility of the competency increases in a hierarchical manner, mounting closer to actual working conditions. Assessment of mental function refers to knowledge and the application of knowledge ('knows' and 'knows how to do'), gradually moving from the 'understand' level of Bloom's taxonomy to the higher 'analyse' and 'evaluate' levels⁶⁷. Common methods of assessment, such as multiple-choice questions target the lower levels of the pyramid. Thus, this pyramid model assumes that actual practice is a much better reflection of routine performance than assessments done under academic testing, which would also be the long-term goal of a longitudinal curricular programme in communication skills training⁷.

Students' assessment takes many forms, depending on the assessment aim. A summative assessment is a formal assessment of a student's work which documents the student's mastery of the required learning outcomes⁶⁸. It is usually conducted at the end of a course or a programme and is graded^{68,69,70}. Formative assessment is usually an ongoing classroom assessment which takes place throughout the course to support learning and improvement⁶⁸. It provides feedback on each student's performance and helps the instructor continually to make necessary adjustments during instruction⁷¹. Formative and summative assessment methods are diverse and should be carefully selected, justified and approved in alignment with the fundamental principles of the university's grading system. These methods must adhere to relevant university policies and procedures and be clearly detailed for each course. Assessment criteria should be transparent to students and should accurately reflect their performance. A study found that integrating formative with summative assessment methods improved communication skills instruction⁷². Clinical competencies, including communication skills, can be effectively evaluated using structured checklists and guidelines⁴⁸. The literature on structural checklists and guidelines for healthcare professionals consistently emphasises the core principle of promoting patient-centred communication during consultations⁷³. These approaches have been adapted for dentist-patient

interactions, with several studies demonstrating the effectiveness of such models in training healthcare professionals^{7,74}. Specific communication techniques, strategies or frameworks are being used for training communication courses and the Calgary-Cambridge Model is mentioned more often⁵³. The Calgary-Cambridge Model is a structured framework developed by Kurtz and Silverman to enhance communication in healthcare settings⁷⁵. The model outlines a five-step process: initiating the session, gathering information, conducting a physical examination, providing explanation and planning, and closing the session. Unlike traditional methods, this model integrates verbal communication with the physical examination, highlighting the interdependence of information gathering and communication⁷⁴. The Calgary-Cambridge Model has been extensively translated and implemented for teaching communication skills in specialised settings across both undergraduate and postgraduate education levels. It has also been adapted for dental communication training^{52,7,74}.

The innovative 360-degree appraisal (360-degree assessment, multi-source feedback) is a workplace-based student assessment in a clinical setting that involves different groups of people associated with that particular dental clinic⁷⁶. This comprehensive assessment tool collects feedback from diverse sources, such as peers, instructors, patients, administrative staff and the student himself/herself, to provide a holistic evaluation of students' communication competencies^{77,78}. Several assessors observe and evaluate the student according to pre-defined criteria, with special attention to empathy, clarity and active listening, while remaining anonymous^{79,60}. This appraisal method not only identifies strengths and weaknesses in verbal and non-verbal communication, but also helps students develop self-awareness and address areas for improvement through structured feedback. Studies have highlighted that multi-source feedback promotes professional conduct, teamwork and self-directed learning by encouraging students to reflect on their interpersonal behaviours and adjust them to meet professional standards⁸⁰. Integrating 360-degree assessments into dental curricula, educators can ensure that graduates are better equipped to navigate the complexities of patient care and interdisciplinary collaboration effectively.

Traditional assessment methods lack structured guidelines for evaluating communication skills, and the criteria used for assessment are often unclear to students, leading to evaluator errors. A rubric within the field of education is known as a coherent set of criteria and descriptions of the levels of performance for these criteria; it is a working

guide for students and teachers^{81,82}. Rubrics are often given to individuals prior to assessment (in this case students) so that they know how the task will be assessed^{83,81}. Clear learning objectives and assessment criteria are supportive because they provide students with a clear understanding of what they are expected to learn and how they will be assessed. Additionally, it assists assessors in ensuring transparent and fair grading.

The Objective Structured Clinical Examination (OSCE), first introduced by Harden, is a widely used assessment model designed to evaluate medical students' clinical skills and competencies in undergraduate education. It can also serve as an effective tool for teaching communication skills to dental students, as well as assessing their competency in various areas of dental education, including communication skills^{48,73,46}. From various formats of assessment, OSCE is mentioned more often in the literature.

Considering the development of artificial intelligence (AI), including its potential to enhance communication skills among medical professionals, AI-driven tools are being used to simulate patient interactions, enabling students to practise and refine their communication strategies in a risk-free environment^{84,85}. By engaging with AI-powered virtual patients, learners can develop essential skills, such as empathy, active listening and clear articulation of medical concepts. Furthermore, these tools provide immediate, personalised feedback on both verbal and non-verbal communication, enabling students to identify areas for improvement and track their progress over time.

Thus, the effectiveness of discussed innovative assessment methods can be complex. Traditional assessment tools may not capture the full scope of a student's communication skills, particularly in non-verbal and interpersonal interactions. To address this, new assessment frameworks need to be developed in order to account for the diverse range of skills required for effective communication in dental practice. By overcoming these challenges through strategic planning, investment in resources, and faculty development, dental schools can create a more dynamic and effective learning environment. Moreover, fostering interdisciplinary collaboration amongst faculty members (dental, medical, and communication experts) can enrich the curriculum and provide students with a broader perspective on the development of communication competences. Most importantly, as outlined in the UK General Dental Council Standards for Education, students' assessment must be reliable and valid; the chosen assessment method must appropriately demonstrate

the achievement of learning outcomes⁶⁰. It is essential that when selecting or combining certain assessment methods for evaluating clinical competency and communication skills, educators do not view the assessment solely as a means of validating students' knowledge for a specific programme or module learning outcome. Instead, assessments should be designed to comprehensively evaluate the students' ability to integrate and apply their knowledge, skills and attitudes in real-world clinical settings, reflecting their readiness for professional practice.

Communication Skills Training Standards within Undergraduate Dentistry Curriculum

The special importance of teaching communication skills in the undergraduate dental curriculum is widely recognised^{13,14,75}. The ADEE highlights the significance of non-technical skills, including communication and situation awareness, in ensuring patient safety. Similarly, the ADEA outlines competencies for new general dentists, emphasising the necessity for graduates to apply appropriate interpersonal and communication skills^{13,14}. ADEE and the DentEd Thematic Network (TNP) are among the leading organisations which have consistently played a key role in shaping dental education in Europe⁸⁶. *The Graduating European Dentist* is the latest update of ADEE's European Profile and Competence of the European Dentist. While maintaining the style, format and approach of previous editions, this version significantly advances European dental education⁸⁷. *The Graduating European Dentist Curriculum* provides a contemporary approach reflecting best academic practice for European undergraduate dental education system. It consists of five domains: I: Professionalism, II: Safe and Effective Clinical Practice, III: Patient-Centred Care IV: Dentistry and Society, V: Research⁸⁷. Team-work and communication competencies are integral programme learning outcomes in all domains except for domain IV: Dentistry and Society. *The Graduating European Dentist* underscores the emphasis on a holistic and practical approach to preparing graduates for evolving societal and professional needs. While some dental schools integrate communication training throughout the curriculum, others offer standalone courses or modules. Several dental education experts advocate for longitudinal teaching, which involves integrating communication skills training consistently throughout the entire dental curriculum, aligning it with students' clinical development and increasing in complexity as they progress⁸⁸.

Undergraduate Dentistry programmes in

Armenia are regulated by a number of Laws, as well as the Sectoral Qualifications Framework for 'Medicine' (SQF-M) in the RA^{89,90}. Graduates should meet the standards under the 7th level of Armenian National Qualifications Framework (ANQF) and the SQF-M of the Republic of Armenia. The SQF-M outlines the knowledge and competencies of dental graduates. The SQF-M specifies detailed competencies that dental graduates must achieve, including technical skills, ethical standards and professional behaviour. Communication skills are integral to these competencies, facilitating effective patient management, ethical decision-making and teamwork. Qualification holders shall possess thorough, systematised and in-depth specialised knowledge, demonstrate skills, competences and behavioural practices to pursue postgraduate education and undergo professional development training sessions in health specialties.

Despite the recognised importance of communication skills training in the Armenian dental education system, as in many other countries, it has often been disregarded. Many dental school curricula rely primarily on a didactic, one-time course, offering minimal opportunities for students to actively develop these essential skills¹².

The undergraduate study of dentistry in the Republic of Armenia is a five-year integrated academic programme leading to the award of 'Doctor of Stomatology'⁹¹. After the enforcement of the Sectoral Qualifications Framework for 'Medicine' (SQF-M) of the Republic of Armenia, Armenian higher medical educational institutions followed the implementation of new standards. Firstly, the desk review of Programme Learning outcomes vs SQF-M was conducted by university curriculum developers. A comparison of the SQF-M and the YSMU Undergraduate Dental Programme Learning outcomes revealed a gap in terms of communication and interpersonal competences. While some courses within the humanities block included communication-related topics, these did not comprehensively address the nuances of communication in dentistry. Communication and interpersonal skills training did take place across different courses at various stages of the programme, resulting in a fragmented approach. To address these gaps, the Dentistry Programme Learning Outcomes have been refined and a new modularised curriculum has been developed in order to place greater emphasis on teaching and learning professionalism and clinical skills. These competences are now longitudinally included in the dentistry Curriculum. Additionally, a standalone course specifically dedicated to communication skills in dentistry has been designed.

CONCLUSION

Effective communication in dentistry is a multi-faceted process involving harmonised communication cues. By mastering communication competences, dental professionals can build rapport, reduce patient anxiety and enhance patient care to achieve the most effective dentist-patient interaction. To address these needs, it is essential that a standalone module specifically focused on communication in dentistry along with integrating communication competences be integrated throughout the clinical modules within undergraduate dental curriculum. Dental programme learning outcomes should include clear and empathetic communication. Cultural sensitivity training is equally essential to equip students with the skills to deliver high-quality care to patients from diverse linguistic, ethnic and cultural backgrounds.

There is not one best method for training communication skills in undergraduate dental education. Instead, combining the most effective teaching and learning approaches can help design a

structured communication skills curriculum with content appropriately aligned to different levels of dental studies. Dental students' communication competencies should be formally and comprehensively assessed through real-life scenarios with the use of structured frameworks and check-lists to ensure their readiness for professional practice.

DECLARATIONS

Conflict of interest

The authors declare that there are no conflicts of interest related to the design, conduct, or publication of this study.

Ethical approval

The study was approved by the University ethics committee and was conducted in accordance with the Declaration of the World Medical Association.

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