---

**Article:**
Elsheli, J. orcid.org/0000-0002-9102-538X, Patrick, A. and Stokes, C. (2024) Community-based education programmes in the context of dental education: a scoping review. European Journal of Dental Education, 28 (2). pp. 576-590. ISSN 1396-5883

https://doi.org/10.1111/eje.12986

---

Received: 25 November 2022 | Revised: 31 October 2023 | Accepted: 10 December 2023

DOI: 10.1111/eje.12986

ORIGINAL ARTICLE

WILEY

# Community-based education programmes in the context of dental education: A scoping review

Jamila Elsheli[1,2] | Alison Patrick[1] | Christopher Stokes[1]

[1]School of Clinical Dentistry, University of Sheffield, Sheffield, UK

[2]Faculty of Dentistry, University of Tripoli, Tripoli, Libya

**Correspondence**
Jamila Elsheli, School of Clinical Dentistry, University of Sheffield, 19 Claremont Crescent, Sheffield S10 2TA, UK.
Email: jelsheli1@sheffield.ac.uk; jamilaelsheli@gmail.com

## Abstract

**Background:** Community education programmes are vital tools for teaching skills, such as understanding the larger cultural, economic and social determinants of health and how these factors impact people's health. It is currently unclear whether community education programmes in the field of dentistry deliver adequate value. This review aims to scope, collate and analyse globally published evidence concerning community education programmes in dentistry from inception, to gain an understanding of the intentions for these programmes and establish whether outcomes have shifted over time from the original intentions.

**Methods:** Arksey and O'Malley's framework for scoping reviews was employed to guide the reviewers. A systematic search of electronic databases and the reference lists in key papers was conducted.

**Results:** A systematic search concerning community education in dentistry identified a total of 140 papers for full-text evaluations. After further exclusions, 115 articles were selected for data charting. There was a lack of clarity in the literature concerning programmes' definitions and strategies for achieving intentions. Origins, intentions and motivations of the programmes were identified. The literature largely focused on assessing students' clinical treatment skills, contradicting the programme's original idea and intentions. Only a few studies incorporated patient and community perspectives, and the majority of assessments were self-reported, primarily by students.

**Conclusions:** There is broad interest in integrating community education into dental curricula to teach complex concepts, dental public health principles and to ensure professional skills development. We identified issues in the literature around programme definitions, strategies, measurement approaches and programme success requiring additional research.

KEYWORDS
community-based education, dental education, dentistry, outreach, service learning

## 1 | INTRODUCTION

There have been many calls to enact major reforms in health professionals' education, to better serve the health needs of communities and populations.[1–5] The UK government's White Paper, 'Equity and Excellence: Liberating the National Health Service'[6] stresses that a healthcare system should focus on personalised care, reflecting individuals' health and care needs, which is now reflected worldwide.[7–9] This requires a reorientation of education towards community-based education to ensure healthcare professionals are well-prepared to work with diverse communities and populations.

Thus, innovative pedagogies, such as community-based education programmes, are increasingly being deemed beneficial. A community education programme can provide students with an opportunity to obtain knowledge in a real-world situation, generating attitudinal changes.[4,10] It can help students gain a better understanding and appreciation of the larger cultural, economic and social determinants of health, including how these factors impact people's health and care delivery.[11,12] By taking students' professional and clinical skills into community settings, community-based experience provides them with a more comprehensive and greater understanding of their patients in a variety of social settings and contexts than would be possible in typical school clinical encounters.[3,5] This helps prepare students to understand their future patients' needs so that they can deliver care at all levels in healthcare settings.[13,14]

Many dental schools around the world currently offer training programmes in community-based settings outside the dental school environment.[15–20] In spite of considerable research having been conducted with regard to this, there has been no thorough review of the outcomes and intentions of incorporating community education into the dental curriculum. Moreover, it remains unclear whether dental schools are delivering community-based education programmes in the same educationally robust way as community-based programmes in other fields. Therefore, the aim of this study is to scope, collate and analyse globally published evidence concerning community education programmes in dentistry from inception onwards, to gain an understanding of the intentions for these programmes and establish whether outcomes have shifted over time from the original intentions.

### 1.1 | Aim of the research

The aim of this research was to scope, collate and analyse globally published evidence concerning community education programmes in dentistry from inception onwards, to gain an understanding of the intentions for these programmes and establish whether outcomes have shifted over time from the original intentions.

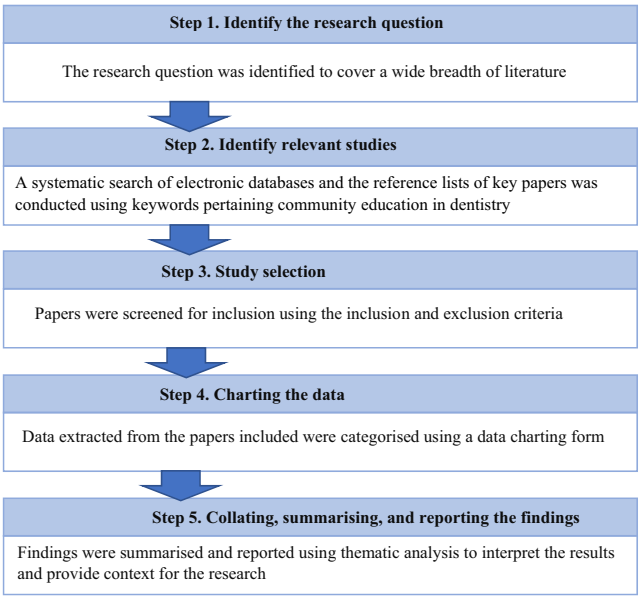


FIGURE 1 Scoping review steps developed by Arksey and O'Malley.[21]

## 2 | MATERIALS AND METHODS

### 2.1 | Study design

A scoping review was appropriate to meet the aim of this review, since it allows for broad coverage of the topic, identifies various types of evidence, clarifies key concepts and aids in exploring the various opinions and attitudes associated with the topic. This scoping review employed five steps set out in the framework articulated by Arksey and O'Malley[21] (see Figure 1, which details the steps of the scoping review methodology). An iterative process was used here, providing flexibility in the search process. A flexible method was required because of the diversity of terms and approaches used when implementing community education in dentistry.

#### 2.1.1 | Identify the research question

The main research question of this scoping review was 'how was the concept of community-based education programmes discussed in the context of dental education research'?

#### 2.1.2 | Identify relevant studies

*Search strategy and information sources*

Electronic databases (Medline via Ovid, Scopus and Web of Science 'core collections'), Google Scholar and searches of key papers' reference lists, were used to identify articles relevant to

this scoping review. The search was conducted from the start of November 2021 for a period of 16 weeks with the final search performed in February 2022. Search terms and strategies were determined with input from the research team, and from a specialist academic librarian. Two reviewers reviewed examples from the literature and then refined the selection of papers. This included combining keywords related to dentistry and to the community, as shown in Table 1.

#### 2.1.3 | Study selection

The titles and abstracts of all the citations retrieved were screened for inclusion using the inclusion and exclusion criteria (Table 2). During the abstract review, the chosen criteria were tested by the reviewers on a sample of abstracts to ensure their robustness was sufficient to capture any papers related to community education in dentistry. Any papers deemed relevant were included in the full-text review. In the second step, one reviewer assessed the full text of the papers to determine whether they met the inclusion criteria. Any uncertainty about inclusion was resolved in discussion with the other reviewers and required full consensus. The same study selection process was applied to all the papers identified via the databases, Google Scholar and the reference list search.

#### 2.1.4 | Charting the data (mapping)

The information was extracted and entered onto the 'data charting form' using Microsoft's Excel for data management and to enable qualitative analysis and numerical summarisation. One reviewer conducted the first round of data mapping, and then a research team discussion confirmed the final headings of the data charting form. The data were extracted by one reviewer with confirmation by the other reviewers. Full agreement was reached, following a discussion of the extracted data's content.

#### 2.1.5 | Collating, summarising and reporting the findings

The mapping results and information were collated, summarised and reported. Key themes were identified and summarised in order to integrate and synthesise the literature and enable clear and concise interpretation of the findings.

## 3 | RESULTS

### 3.1 | Search results

Scoping reviews commonly involve a large number of papers, because of the requirement for broad research terms and a broad research question.[21] The search yielded a total of 2682 papers after combining the results of the database search, Google Scholar and reference list search (see Figure 2 for a summary of eligibility and screening process). After removing duplicates, there were 1490 papers that were screened for inclusion based on title and abstract. Of these, 1350 papers were excluded at this stage because they did not meet the eligibility criteria because the terms were too variable across contexts. The remaining 140 papers then had a full-text review to determine their inclusion. Of these, 25 papers were excluded, because they discussed the programme in aspects other than education, such as technical procedures, programme components and costs and the role of dental practitioners/staff in the programme and their requirements. From 140 papers that underwent full text review, 115 papers were included in this review.

### 3.2 | Descriptive information of articles included

The papers of this scoping review were from 13 different countries (see Figure 3): the majority of the research was carried out in the United States ($n = 47/115$, 40.8%) followed by the United Kingdom ($n = 37/115$, 32.1%). Although the majority of the papers were from the United States and the United Kingdom, all papers were retained to capture the most comprehensive picture across all healthcare education contexts for this review.

The papers were published from 1971 to 2021, with the majority in the range from 2003 to 2019 ($n = 106$, 92.1%). Prior to 2002, all publications were from the United States and United Kingdom, and they all used the term 'extramural programme' to describe a community education programme. Since 2002, a variety of terms have been used to characterise this type of activity, with only five papers referring to it as 'extramural programme'. The most frequent terms were 'community-based education/experience' and 'outreach',

**TABLE 1** Search strategy used for this scoping review.

| | |
|---|---|
| Dental-related keywords | (*Dental education* OR *education, dent* OR *dentistry* OR *dental student* OR *dental graduate*) |
| AND | AND |
| Community-related keywords | (*Community based education* OR *community-based teaching* OR *outreach* OR *service learning* OR *extramural experience* OR *internship* OR *community-based clinic* OR *outreach placement* OR *community engagement* OR *community inclusion* OR *community involvement*) |

TABLE 2 Inclusion/exclusion criteria for published literature search.

| Inclusion criteria |
|---|
| Papers with educational foci that include research on community education in the scope of dentistry; all types of papers. That is, programme evaluations, curricular innovation accounts, conceptual articles, editorials, published reports and peer reviewed studies; no limitations on publication dates (from inception onwards), so as to identify the origins of community-based programmes in dentistry and trends over time; papers published in a variety of different countries to provide a complete picture of global research into community education in dentistry |
| **Exclusion criteria** |
| Papers that include research on community-based programmes, but outside the scope of dentistry; studies that include research on community-based programs, but do not focus on education; papers with only a title and no abstract and full text available in the online databases; papers in languages other than English for which an English translation cannot be obtained |

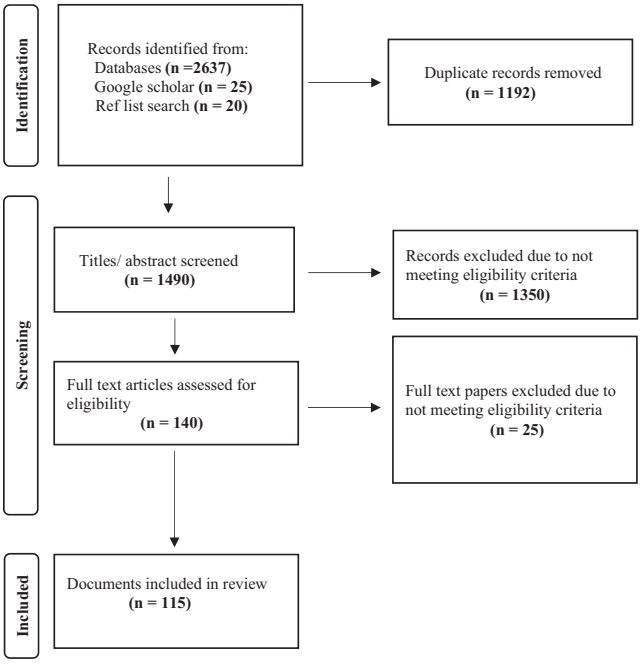


FIGURE 2 PRISMA flow diagram of search results.

which were commonly used in the United States ($n = 31/47$) and the United Kingdom ($n = 27/37$), respectively, followed by 'service learning' which was commonly used in Canada ($n = 5/6$), Brazil ($n = 2/3$) and South Africa ($n = 1/2$).

Different types of paper/study were retrieved from the research. As can be seen from Table 3, the majority of the publications were programme descriptions, ranging from programme evaluations (68.6%) using subjective (74.6%), objective (17.7%) and both subjective and objective (7.5%) measures to accounts of curricular innovations (20.8%). Next come editorials (2.6%), reports (2.6%), reviews (2.6%), conceptual articles (1.7%) and national surveys (0.8%).

## 3.3 | Findings

The findings of this scoping review are presented in five sections. First, the terms and definitions used for community education are provided, followed by the origins, motivations and intentions of the programme, challenges to the programme's success, and finally, a summary of studies that measured the programme.

### 3.3.1 | Terms and definitions used to characterise community education programmes

Considerable heterogeneity existed among the papers. They employed a variety of terms; for example, the programmes were described as community-based in 42 papers. Thirty-five papers used the term 'outreach', 14 papers used the term 'service learning' and 10 papers used the term 'extramural'. Finally, 14 papers used entirely different terms such as 'rural placement', 'outplacement', 'community engagement', 'internship', 'community externship', 'community learning' and 'external training'. Many papers mentioned more than one term to describe the same activity.[22–39]

Several definitions of community education were retrieved from the research. As can be seen from Tables 4 and 5, six terms from 22 publications were defined in a variety of ways, both across countries and within the same country for some terms. In general, the definitions of 'extramural', 'service learning', 'community engagement' and 'community learning' (Table 4) are quite similar, emphasising that students learn and gain skills through exposure to various communities and population groups, whereas the definitions of community-based education and outreach (Table 5) are quite broad and do not specify how students gain skills from these activities. Regardless of their variety, these definitions all share the idea that community education activities are important in achieving educational goals that cannot be met within the boundaries of the dental school, or at least, that they would be a better means of attaining these goals.

### 3.3.2 | Origins of the community education programme

Papers ($n = 19/115$, 16.5%) mentioned the origins of community-based programmes, demonstrating that the idea of incorporating such a strategy into dental curricula first emerged in the United States in the 1960s[58,59] and was initiated in the 1970s in the United States[27,40,58–62] and the United Kingdom.[51,63–71] The idea of community education was considered as an application of Dewey's principle of direct learning.[47,58,62] Three papers demonstrated that the incorporation of such a strategy into the dental curriculum occurred in response to criticism that dental students receive all of their professional education within the school environment, which was seen as an artificial environment that did not allow students to develop sensitivity to social issues that are associated with

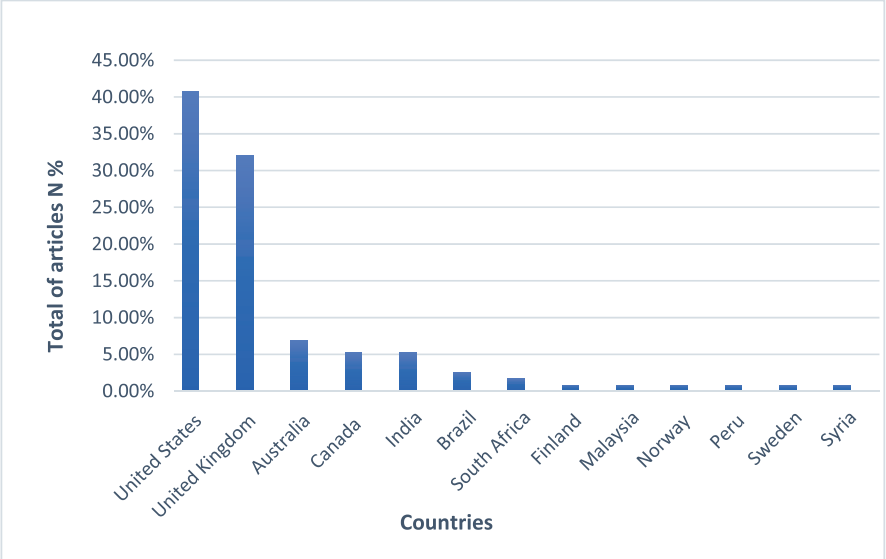


**FIGURE 3** Percentage of papers according to countries.

**TABLE 3** Number of articles by the type of paper/study.

| Type of Paper/Study | Number of articles (% of total) |
|---|---|
| Programme evaluation papers, including: | 79 (68.6%) |
| Papers used subjective measures | 59 (74.6%) |
| Papers used objective measures | 14 (17.7%) |
| Papers used both subjective and objective measures | 6 (7.5%) |
| Papers on curricular innovation accounts | 24 (20.8%) |
| Editorials | 3 (2.6%) |
| Reports | 3 (2.6%) |
| Reviews (2 systematic reviews and 1 scoping review) | 3 (2.6%) |
| Conceptual articles | 2 (1.7%) |
| National surveys | 1 (0.8%) |

healthcare delivery.[58,63,72] Community education was described as an educational methodology that overcomes the negative impact of the dental school environment on the social development of dental students.[58]

### 3.3.3 | Motivations and intentions of community education programme

Three papers published prior to 2002 ($n=3/8$, 37.5%) demonstrated that community education programmes peaked in the 1970s and were funded by government grants; the grants were used to incentivise dental schools to develop rotations for their students outside the university in order to broaden dental students' education and serve the community.[40,58,73] Thirty-four papers published between 2002 and 2021 ($n=34/107$, 31.7%) asserted the critical role that the dental schools play in improving the oral health of larger communities, citing specific dental school and higher education mission statements in papers from Canada, South Africa and Peru ($n=6$) or regulatory organisations' standards or broader institutional policies in papers from Australia, Brazil, Norway, Syria, United States and United Kingdom ($n=28$) as motivators behind community education programmes.

Many papers ($n=82/115$, 71.3%) mentioned intentions for community-based education, with papers ($n=48/82$, 58.5%) demonstrating educators' enthusiasm for community education activities as methods of teaching complicated topics. Complex concepts such as cultural competence,[17,45,74–80] social accountability,[39] a patient-centred and holistic care approach,[18–20,25,29,31,34,35,38,56,64–66,68,72,81–90] civic/community engagement,[42,47,75,78] professionalism,[17,32,68,80,91] ethical skills/responsibility[19,20,22,32,35,38,41,65,66,80,84,92] and social/civic responsibility[24,42–45,47,49,54,76,92,93] that are hard to teach through conventional pedagogical approaches. As for learning principles of dental public health, articles ($n=58/82$, 70.7%) illustrated that the community education programme is important in teaching students about barriers to health care,[28,40,42,87] health disparities,[39,54,77,94–98] community/population needs,[19,22–24,28,31,35,39–43,45,47,58,60,62,63,65,70,84,92,99–101] the social determinants of health,[16,20,23,24,40,42,52,55–57,59,61,63,68,70,73,81,84,92,95,102,103] the diversity of the population,[17,24,26,29,31,35,46,48,50–52,56,89,93,96,97,99,102,104–107] diverse environments,[32,108] appreciating underserved

TABLE 4 Definitions of the terms used to characterise the programme.

| Terms | Definitions used in the papers | Country of origin |
|---|---|---|
| Extramural programme | 'Is not simply providing a clinical experience that could not be had in the school, it is about increasing student sensitivity to social groups such as the ages, handicapped, promoting practice in a rural area and making the student more socially aware of the community and social needs' (p. 54)[40] | US |
| Service-learning | 'Is an experiential pedagogical tool contributing to students' education and development. The learners gain new insights and understanding about themselves and the environment, develop their critical thinking abilities and make use of ethical and problem-solving skills. it combines classroom learning with the provision of mutually beneficial and sustained services that meet community needs through outreach initiatives and partnerships' (p. 628)[41] | Canada |
| | 'Community service-learning can be seen as a teaching, learning and reflective methodology that combines academic activities with meaningful service in communities. Its main goals are enriching students' learning experience, encouraging their lifelong community engagement and strengthening communities for the common good. Meaningful community service also fosters a sense of social responsibility, a concept that surfaces in health education and in business linking civic engagement, self-direction, sustainability and moral development'(p. 609)[42] | Canada |
| | 'As a pedagogical tool for preparing students to be community and socially responsive' (p. 905)[43] | Canada |
| | 'Is a type of experiential education in which students deliver services to underserved communities but also reflects on their involvement in such way as to gain an understanding of course content, the discipline and its relationship to social needs as well as an enhanced sense of civic responsibility' (p. 1482)[44] | South Africa |
| | 'A form of community-based education is a structured learning activity where community service and academic objectives are pursued concurrently. A balance between service and learning, integral involvement of community partners and emphasis on reflection are important factors in service learning. Service-learning activities establish a reciprocal relationship between community partners and campus instructors. In successful service-learning activities, campus instructors ensure that the service experience is consistent with the course goals and objectives whilst community partners ensure that student activities are consistent with their goals and needs' (p. 131)[45] | US |
| | 'Service-learning as a pedagogy is a response to concerns about the ability of higher education to make the connection between teaching technical skills and using those skills to address issues of public concern' (p. 116)[46] | India |
| | 'Is a form of experiential education defined as a structured learning experience that combines intentional learning goals for students with service to the community' (p. 454)[47] | US |
| Community engagement | 'Projects that allow students to move beyond the walls of the dental school into the external group of individuals belonging to one of as assorted variety of populations in the local community' (p. 82)[48] | UK |
| Community Learning | 'Is an important part in the education of medical and dental health professionals in the worldwide, it enables the students to conduct community health programme in a selected community, preferably in a rural community' (p. 2262)[49] | Malaysia |

communities,[35,43,92] appreciating patients' social circumstances.[22,101] Most papers mentioned how seeing clinical cases in community settings helps students understand the cultural and social influences on health at individual and population level, but without providing specific strategies to achieve the aims; only four papers mentioned some strategies to achieve some of the aims.[23,39,43,87]

Further articles ($n=29/82$, 35.3%) illustrated that shifting educational experiences to community settings can also be an opportunity for further development of professional skills, mentioning that exposure to a variety of patients and procedures in community settings can be an opportunity for students to develop confidence,[32,38,51,52,66,70,78,90,91,99,105] increase students' communication skills with patients[17,45,48,51,52,64,65,68,76,80,84,92,93,102,105] and develop teamwork,[19,22,32,40,51,64–66,68,82,84,85,91,93,105] practice management[82,85] and time management skills.[19,51,65,84,86,105]

### 3.3.4 | Challenges for the success of community-based education activities

Nine papers (7.8%) described the funding as the main impediment to implementing and sustaining community education activities. Further papers ($n=17/115$) mentioned that the programmes were funded either by the government ($n=7$) or other institutions ($n=10$). The availability of resources, according to Smith et al.,[19] was considered as a contextual factor that impacts intentioned learning

**TABLE 5** Definitions of the terms used to characterise the programme.

| Terms | Definitions used in the papers | Country of origin |
|---|---|---|
| Outreach programme | 'Refers to an arrangement in which clinical teaching takes place in primary care settings outside the dental schools. Community-based and primary outreach, where students provide comprehensive care for patients under local supervisions' (p. 312)[29] | Finland |
| | 'Outreach is a part of the dentistry course syllabus; it gives students the opportunity to deal with realities outside the university boundaries and take care of community oral health' (p. 498)[50] | Brazil |
| | 'Outreach was defined as students providing comprehensive dental care for patients away from the dental school' (p. 85)[19] | UK |
| | 'Is moving out of teaching hospitals and into community settings, under the direction of academic departments' (p. 111)[51] | UK |
| | 'Can be defined as teaching which although, coordinated by a traditional provider of dental education, such as a dental school, takes place at a site, distant to the traditional centre. This somewhat broad definition encompasses a variety of circumstances including teaching dental undergraduates in community clinics or other distant sites video-conference links to provide continuing education to general dentists and visits to general dentists in their dental offices and/or community clinics by specialists from university or hospital clinics to provide clinical advice and continuing education' (p. 186)[52] | UK |
| | 'An outreach programme is a complete entanglement between the community and the oral healthcare institute or organisations. It is an attempt by the organising members to impart its objectives, skills and practices to the target population or general population thereby generating awareness and improving oral health' (p. 1)[53] | India |
| | 'Is a complete entanglement between the community and the oral healthcare institute or organisations. Outreach programmes not only benefit the community but also the healthcare professional. They develop learning and applying knowledge to studies, community services, a sense of responsibility towards the unreached communities, advancing both oral healthcare professionals and the community' (p. 2)[54] | India |
| Community-based dental education | 'Shifts a substantial portion of dental clinical education from dental school clinics to mainly public health settings' (p. 42)[17] | US |
| | 'Community-based dental education is a type of experiential learning that provides students with clinical opportunities in community settings' (p. 1234)[55] | US |
| | 'As a means to allow dental students to assume their role as health professionals in the real world' (p. 875)[23] | Peru |
| | 'Is a learning strategy that provides meaningful opportunities for students to apply theory learnt in a larger social and cultural context in various community settings' (p. 362)[56] | South Africa |
| | 'Community-based dental education is the implementation of dental education in a specific social context, it shifts a substantial part of dental clinical education from dental teaching institutional clinic to mainly public health settings. It deals with dental and oral care, economic-political and socio-culturally aspects of oral health and disease and prepares students for improving community oral health' (p. 119)[57] | India |

outcomes of the programme. Four papers described how the availability of funding influenced the functionality of community education activities, by placing constraints on resources such as location, space and staff.[35,47,52,105] For example, problems with paying trainers[105] and financial loss as a result of fewer patients seen or less treatment performed in a clinic used for the programme, as this loss may need to be compensated by the school, putting a strain on programme resources.[52,109] Some dental schools expressed concern about the impact of community-based education on dental school funding.[18] Two publications emphasised how some programmes in some dental schools were reduced or cancelled due to a decline in government grants for the programmes.[27,47] Interestingly, Bailit[110] stated that dental school net revenues can be increased through well-managed community experiences of 50 or more days for dental students. Bailit[110] explained that community education increases student productivity, which compensates for the loss of clinical income from the dental school.

Seven papers (6.0%) mentioned time as a factor that also challenges the success of a community education programme. They emphasised that the duration of time provided to the programme has an impact on the educational outcomes of community education activities.[36,47,75,106,110,111] Four publications highlighted how short-term programmes limit students' abilities to conduct particular procedures[75] and prevent students from having meaningful

learning experiences as short programmes may not give students the opportunity to acquire skills and change attitudes.[36,47] Knight[31] and Hood[47] mentioned that implementing community education throughout the summer prior to the student's second year is a way to alleviate the time limitation. They demonstrated that such an approach allows students to become involved in the community as early as possible, allowing them to become more competent at patient care earlier and have more time and opportunities for community education initiatives.

### 3.3.5 | Community-based education outcomes papers

Papers ($n=79/115$, 68.6%) discussed the outcomes of community education activities; subjective and objective measures were used to determine the outcomes, with subjective assessments ($n=59/79$, 74.6%) yielding the majority of the findings, using self-reported questionnaire responses, interviews and written reflections. Objectively measured outcomes ($n=14/79$, 17.7%) included student performance assessment, exams and treatment records of patients. Six papers (7.5%) used both subjective and objective measures (4 used dental student perspectives and 2 used patient perspectives as subjective measures with the objective measures).

The majority of articles ($n=49/79$, 62.0%) evaluated the programme's impact on dental students from the perspectives of dental students; fewer papers ($n=11/79$, 13.9%) included programme outcomes from the perspectives of deans, practitioners and teachers. Only five papers (6.3%) included community members and patients; one did track outcomes such as patient satisfaction,[112] one described patients treated by students,[113] two demonstrated the acceptability of services to patients[104,114] and one included community partner experiences working with students.[43]

Table 6 shows themes for three categories of outcomes: professional skills and academic knowledge, inter/intrapersonal skills and influences on career choices and community services.

#### *3.3.5.1 | Professional skills and academic knowledge*

Participation in community-based activities demonstrated an increase in professional skills and academic knowledge in 65 papers, as determined by objective and subjective measures. Student's self-reports, faculty tutor reports, patients' questionnaires and treatment records of patients demonstrated improvement in clinical skills and self-confidence in providing clinical treatment ($n=49/65$, 75.3%). Student reports via questions and reflection, as well as student performance evaluation, indicated understanding of the roles and responsibilities of dentists ($n=3/65$, 4.6%) and the impact of community-based activities on students' academic performance ($n=4/65$, 6.1%). In 21 papers (32.3%), positive outcomes related to professional cultural competence, understandings of the determinants of oral health and social responsibility were identified, based primarily on student questionnaire, reflection and interview responses, dean and programme director questionnaire responses, community interviews and student assessment.

#### *3.3.5.2 | Inter/intrapersonal skills*

Students' questionnaires and interviews demonstrated the development of inter / intrapersonal skills in 11 papers. Outcomes were linked to leadership ($n=2/11$, 18.1%) and communication skills ($n=7/11$, 63.6%). Five papers (45.4%) concluded that community-based education activities improved students' teamwork and collaboration skills.

#### *3.3.5.3 | Influences on students' future careers and community services*

The influences on students' future careers and community services were identified as the third theme in 21 papers. For instance, in three out of 21 studies (14.2%), students reported via questionnaires and interviews their intentions to work in rural areas after graduation. Objective documentation of community education and data from students in seven studies (33.3%) revealed that community education activities assisted dental students in preparing for their future clinical careers. In 11 studies (52.3%), data from student reflections, questionnaire responses and dentist questionnaire responses revealed outcomes related to influences on students' willingness to serve the community, care for the underserved and participate in charitable work.

## 4 | DISCUSSION

### 4.1 | Lack of clarity in programme definitions and term differences

Different terms were found to be used to describe community-based programmes. Although terms differed between countries, many papers described them as sharing the same educational goals. For example, in papers describing programmes that expose dental students to diverse communities/populations and emphasise the importance of understanding them and their concerns, the terms 'extramural, service learning, community engagement or community learning' appeared. Meanwhile, papers describing programmes that placed dental students under clinical supervision in community/dental public health clinics, favoured the terms 'outreach or community-based dental education'. Interestingly, themes associated with understanding people's diversity, learning about the impact of the social determinants of health on people's oral health and treatment plans and developing students' sensitivity to social groups emerged as significant in articles that used these terms.[20,23,66,75,84,92] This made it difficult to evaluate such programmes or identify differences between terms that could impact on how programmes are assessed and compared.[3,131–133] Although we would expect some variation between countries, we expected greater international alignment between terms as they are based on the same educational principles.

**TABLE 6** Outcome themes from community education activities in dental education.

| Professional skills and academic knowledge | | Summary |
|---|---|---|
| Clinical skills and subject-specific knowledge | Developed clinical skills[29,35,44,91,115,116]<br>Increased students' clinical activities/clinical productivity[59,71,89,117–119]<br>Increased the quantity of students' clinical experience[120]<br>Increased the volume and diversity of treatment experiences[88]<br>Provided positive clinical experience[33,98,104,121]<br>Gained positive impression associated with performing dental treatments[25]<br>Students valued the volume and the variety of clinical experience in a primary care clinic[66]<br>Students performed numerous diverse general dental procedures[99]<br>Provided a substantial amount of oral health care[122]<br>Gained paediatric clinical experiences[123,124]<br>Performed more clinical paediatric procedures, especially in the placement of sealants and experiences in giving local anaesthesia[78]<br>Acquired competencies for clinical decision making under unusual conditions[26]<br>Impacted student clinical performance[111]<br>Students valued immersion in clinical dentistry[65]<br>Students gained higher scores in restorative section[119]<br>Students became more competent in practice[74]<br>Students provided patients with high-quality services, satisfactory to patients[104,112]<br>Students were able to provide acceptable, accessible dental services for adult patients in deprived areas[114]<br>Following graduation, students treated a diverse population (e.g. other ethnic groups and low-income populations)[125]<br>Students provided a variety of clinical services to communities in rural settings[32]<br>Students undertook the full range of restorative procedures, with the emphasis on direct restorations, preventive treatment and advice, scaling extractions and emergency treatment[113]<br>The experience enhanced students' ability to provide care for a wide range of people[106]<br>Students were considered by their teachers to be inadequately prepared for clinical life[69] | Increased students' clinical skills, clinical productivity and their ability to provide different treatment to different people |
| Self-confidence and efficacy in providing clinical services | Increased confidence in providing treatment[54] and clinical preparation[126]<br>Increased students' confidence in practice[72,115]<br>Increased confidence in patient care[102,108]<br>Increased students' clinical confidence[33,86,90,94,116,121]<br>Improved students' confidence in tackling clinical situations[38]<br>Increased confidence in treating underserved patients[36]<br>Increased confidence in treating paediatric patients[78,86,93]<br>Increased confidence in practically all skill areas, including endodontics and the provision of bridgework[83]<br>Increased confidence in clinical diagnosis of dental caries, treatment plan, restorations and managing patients and time[70] | Increased students' confidence in providing various dental treatments |
| Dentist role and working environment | Heightened sense of professional identity and enable the student to appreciate the role that dentistry plays in impacting patients' lives[92]<br>Improved student awareness of healthcare environment[120]<br>Improved students' understanding of primary health care in dentistry[50]<br>Enhanced awareness of the complexity of dental care and raised complex ethical dilemmas[92] | Increased students' understanding of the roles and responsibility of dentists |
| Academic performance | No negative impact on students' final scores[100]<br>Positive impact on academic development[49]<br>Developed students' sense of responsibility towards their studies[44,54] | Positive outcomes related to students' academic performance |
| Professional cultural competency | Positive cultural experiences[98]<br>Appreciate cultural safety[96,97]<br>Developed sense of cultural respect[50] and cultural competence[76,102] | Enhanced students' professional cultural competence |

(Continues)

TABLE 6 (Continued)

| Professional skills and academic knowledge | | Summary |
|---|---|---|
| Understanding the determinants of dental public health | Increased understanding of community/population issues[96,97]<br>Increased confidence in engaging with those experiencing homelessness[87]<br>Understand patients in their totality as social beings[50]<br>Increased students' ability to capture relevant patients' social history[101]<br>Increased knowledge of access to care[107] and social inequalities[39]<br>Increased awareness of oral health disparities[43,94,102,103]<br>Gained a greater insight into social determinants of health[43,56,107]<br>Increased student understanding of needs of vulnerable groups and communities[39,87]<br>Gained insight into the importance of community engagement and health promotion skills[43]<br>Developed holistic and pragmatic views of treatment plan because of peoples' diversity[66] | Increased students' understanding of the social determinants of oral health |
| Social responsibility and awareness | Developed sense of social responsibility[42,44,49,54,76,91] and awareness[60] | Enhanced students' social responsibility |
| **Inter-Intrapersonal Skills** | | |
| Leadership | Enhanced leadership skills[49,54] | Developed students' leadership, communication and teamwork skills |
| Communication | Developed personal communication skills[43,48,90–92,94,115] | |
| Teamwork and collaboration | Improved teamwork skills[66,86,91,94,115] | |
| Influences on Career Choices and Community Service | Students considered working in rural locations after graduation[96,116,121]<br>Influenced employment choice[127]<br>Gained a positive effect on their subsequent clinical careers[82,85]<br>Prepared for future clinical practice career[67,71] and subsequent independent practice[18]<br>The programme influenced likelihood that students will select community dental career paths as their first career choice[36]<br>Students were enthusiastic about performing community services[102]<br>Influenced students' attitudes towards providing services to community[41,45,126] and underserved populations[30,37,54,94,128]<br>More appreciation for the value of community service[129]<br>Students were more likely to provide charitable dental care for communities after graduation[130] | Influenced students' future careers and community service |

## 4.2 | The fundamental idea of the programme

The review revealed that community education has been incorporated into dentistry because conventional dental school programmes do not offer students adequate opportunities to learn about how individuals' social environments inform adherence to health and treatment plans. Three papers in this review illustrated that the concept of community education in dentistry stemmed from Dewey's concept of experiential learning. According to Beard[134] and Sikandar,[135] Dewey (1859–1952) believed experiences alone are insufficient to produce meaningful learning, and as such education has individual and social purposes, he believed education should focus on fostering students' long-term commitment and capacity to contribute to society, as well as on developing students as individuals. These findings demonstrate that the fundamental purpose of integrating such a strategy into dental curricula is to expose students to a diverse range of people, enabling them to acquire skills gained from real-world situations, in order to develop sensitivity to the social aspects of patient care, rather than simply clinical skills that can be obtained in dental school clinics. However, it is remains unclear whether this has been successfully accomplished.

## 4.3 | Motivated programmes with no standards

Motivators for community-based activities were identified in this review. As reported in the results, reorienting dental education towards communities/populations is now indicated by institutional policies, university missions and regulatory organisation standards. This reflects the need to educate dental students to meet the population's current and future needs, and the importance of community education programmes in preparing them to do so. Interestingly, while many educational and professional bodies, including the UK General Dental Council,[65,72,83] the US Commission on Dental Accreditation[35,74,107] and the Association for Dental Education in Europe,[91] support the incorporation of community-based programmes into contemporary dental education, there are no clear strategies or standards for such programmes in dental education and implementation details remain the responsibility of individual dental schools. This perhaps explains the diversity of terms and programmes within dental schools, and the lack of educational rigour. Further work is required to establish a framework for community education programmes in dentistry to assist dental schools

in developing clear strategies for the programme to clarify their educational philosophy.

### 4.4 | Intentions with no clear strategies

The growing interest in community-based education activities revealed by this review indicates that educators value this approach and intend to use it to teach complex concepts, dental public health principles and as a method for professional skills development. However, little is explicitly mentioned about the programme strategies employed in order to achieve these goals. This is perhaps unsurprising given the lack of clear standards and frameworks for such programmes in the field of dentistry, although it makes it difficult to understand how the skills that students gain from the programme can be measured if there is no clear strategy for achieving them. As Ball[136] emphasises, in order to properly evaluate educational programmes, the programme strategies need to be clear. Having clear strategies will help dental schools ensure their delivery meets the programme objectives and form a comprehensive view of outcomes that will assist them in making decisions about whether to develop the programme, how best to develop it and whether to continue or modify existing programmes.

### 4.5 | Minimal community/patient involvement

Notably, the review also revealed papers that evaluated community-based programmes, with the vast majority of the papers focusing on the impact of community education on dental students' personal and educational experiences. Despite five studies in our review having focused on community members and patients, none conducted a comprehensive evaluation of the programmes' impact on communities/populations served by dental students. Although research on communities might prove challenging, understanding the impact of the programmes on different communities/populations could be beneficial as a means to explore various strategies that can be used for different populations/communities.[137]

It is surprising that the majority of studies evaluating the programmes used self-report approaches conducted with students, with patients' perspectives were rarely included. Although the perspectives of dental students are valuable for providing educators with insight into students' experiences in the programme, it is a reasonable expectation that if we evaluate programmes involving patients, their voices will be included. This will be in line with the many regulatory standards and institutional principles designed for patient-centred care 'knowing the patient as an individual, tailoring healthcare services for each patient and enabling patients to actively participate in their care' (p. 6, 9, 12).[138] 'Recognise and respect the patient's perspective and expectations of dental care' (p. 24)[139] 'Ensure that patients' preferences and their social, economic, emotional, physical and cognitive circumstances are sensitively considered' (p. 12).[140] More research including patients' voices is needed to better align the educational strategies of programmes with the preferences and needs of patients.

### 4.6 | Focusing the research on clinical aspects of the programme

Although most of the papers that evaluated community education programmes mentioned the importance of the programme in teaching dental public health principles and learning about the diversity of populations, surprisingly the majority of papers evaluating professional skills focused on skills related to the provision of clinical treatment, which is inconsistent with the programme's original idea and intentions. This means that those papers failed to capture the programme's stated aims, and their reported measures of success did not reflect those aims. This might be because clinical skills are easier to evaluate than other skills, such as understanding diversity and the development of cultural competence. Only 21 studies focused on skills including understanding the determinants of oral health, cultural and social responsibility; however, the vast majority of those papers failed to mention how such skills were developed and evaluated. This restricted the scope of understanding with regard to how these programmes operate within dental schools and the approaches dental schools use to teach and evaluate these skills. It is widely acknowledged and understood that students can acquire skills such as understanding determinants of health by working collaboratively with the communities/populations they serve, as this helps them to understand how peoples' lives influence their health and the treatment options,[3,11,141,142] but only three papers in this review used such approaches.[39,43,87] The issues identified suggest scope for future research using a variety of methods.

### 4.7 | Limitations affecting programme intentions, success and sustainability

The most commonly cited challenges for achieving programmes' intended learning outcomes and sustainability and the success of community education programmes include the difficulty of obtaining funding and providing enough time for the programme. Although this demonstrates the programme was viewed as academically educationally important, it also reveals a lack of genuine commitment to this type of programme from those who deem it important, as well as a lack of clarity regarding the programme's position in the dental curriculum. This may raise questions about why these programmes are not prioritised, despite having been encouraged by many educational and professional bodies, including those that aim to produce dentists with skills that include working effectively with a diverse range of people and developing sufficient sensitivity to provide social and ethical patient care,[138–140] which can be achieved through these types of programmes.[3,13]

### 4.8 | Limitations of the study

There are some limitations to the current scoping review to consider. First, the search was limited to the English language. This means that some related papers written in languages other than English may have been overlooked. Another possible limitation was that the review included eight research articles published more than 20 years ago, which may no longer represent today's reality. Nevertheless, such papers were important for providing an overview of the origins of community education in dentistry and the fundamental reasons for including such programmes in the dental curriculum. Additionally, since the terms used for community education in dentistry varied by context, a large number of papers that were unrelated to the research focus were initially included in the search before ultimately being excluded after review. Nonetheless, the purpose of this scoping review was to scope, collate and analyse published evidence concerning community education programmes in dentistry, to gain an understanding of the intentions for these programmes, and establish whether outcomes have shifted over time from the original intentions, and that aim was effectively accomplished.

### 4.9 | Conclusions and recommendations

There is broad interest in integrating community education programmes into dental curricula to teach complex concepts, dental public health principles and enhance professional skills. However, we identified issues in the literature around programme definitions, strategies, measurement approaches and programme success requiring additional research.

This scoping review indicated a lack of clarity in the definition of community education in dentistry across countries, as well as strategies for achieving programme intentions, limiting the scope of understanding of how these programmes operate within dental schools and how they are assessed, as well as the approaches dental schools use to educate students. Although it is unsurprising to find some variation between countries, we expected greater alignment between terms as they are based on the same educational principles. Our findings also show the majority of community education research in dentistry focuses on dental students' perspectives, with patients' voices rarely included. Moreover, the majority of the research focused on measuring students' clinical treatment skills, despite the fact that the original idea of integrating such programmes into the dental curriculum was to develop students' sensitivity to social aspects of patient care. This reflects an inconsistency between programmes' intentions and measured objectives, making it difficult to determine the extent to which the original aims of programmes were accomplished.

This review confirmed that funding and time are the main barriers to ensuring the sustainability and success of community education programmes in terms of achieving their intended aims. This raises the question of why such programmes are not prioritised despite being encouraged by many educational and professional bodies in the field of dentistry. Future research should focus on understanding how such programmes operate within dental schools, developing a framework for community education programmes in dentistry, and evaluating programmes using a variety of methodologies, including patients' and community members' voices.

#### ACKNOWLEDGEMENTS

The authors would like to thank Anthea Tucker (a specialist academic librarian, University of Sheffield) for her assistance in developing search terms and strategies for this study.

#### CONFLICT OF INTEREST STATEMENT

The authors declare that there are no conflicts of interest.

#### DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

#### ORCID

*Jamila Elsheli* https://orcid.org/0000-0002-9102-538X

#### REFERENCES

1. Hudson JN, Weston KM, Farmer EA. Changes in medical education to help physicians meet future health care needs. *Med J Australia*. 2017;206(9):378-379.
2. Liaison Committee on Medical Education. *Functions and Structure a Medical School: Standards for Accreditation of Medical Education Programmes Leading to the MD Degree*. Liaison Committee on Medical Educatio; 2017.
3. Talat W, Ladhani Z. Planning and implementing community based education: global experiences and perspectives. *Community Based Education in Health Professions: Global Perspectives*. World Health Organisation; 2014:20-42.
4. World Health Organisation. *Community Based Education Personnel*. World Health Organisation; 1987.
5. Wilkins CH, Alberti PM. Shifting academic health centers from a culture of community service to community engagement and integration. *Acad Med*. 2019;94(6):763-767.
6. National Health Service. *Equity and Excellence: Liberating the NHS*. Department of Health; 2010.
7. Institute of Medicine. *Crossing the Quality Chasm: a New Health System for the 21st Century*. National Academies Press (US); 2001.
8. Coleman K, Wagner E, Schaefer J, Reid R, Leroy L. *Redefining Primary Care for the 21st Century*. Agency for Healthcare Research and Quality; 2016:1-20.
9. Rodrigues L, Portela M, Malik A. *Agenda for Patient-Centered Care Research in Brazil*. SciELO Public Health; 2019.
10. Gardner J, Emory J. Changing students' perceptions of the homeless: A community service learning experience. *Nurse Educ Pract*. 2018;29(2):133-136.
11. Schroeder K, Garcia B, Phillips RS, Lipman TH. Addressing social determinants of health through community engagement: an undergraduate nursing course. *J Nurs Educ*. 2019;58(7):423-426.
12. Wennerstrom A, Gibson JW, Krane NK. From classroom to community: the impact of a non-clinical clerkship on fourth-year medical students' ability to address social determinants of health. *Med Sci Educ*. 2018;28(2):381-387.
13. Eyler J. Reflection: linking service and learning-linking students and communities. *J Soc Issues*. 2002;58(3):517-534.
14. Thornton M, Persaud S. Preparing today's nurses: social determinants of health and nursing education. *Online J Issues Nurs*. 2018;23(3):1-9.

15. Mascarenhas AK. Community-based dental education at Boston University. *J Dent Educ*. 2011;75(10):S21-S24.
16. Johnson G, Wright FC, Foster K, Blinkhorn A. Rural placement experiences in dental education and the impact on professional intentions and employment outcomes—A systematic review. *Eur J Dent Educ*. 2018;22(3):e364-e378.
17. Strauss RP, Stein MB, Edwards J, Nies KC. The impact of community-based dental education on students. *J Dent Educ*. 2010;1(10 Suppl):S42-S55.
18. Lynch CD, Ash PJ, Chadwick BL. Current trends in community-based clinical teaching programs in U.K. and Ireland dental schools. *J Dent Educ*. 2013;77(5):604-611.
19. Smith M, Ash P, Gilmour ASM, Austin T, Robinson P. Outreach training: the special interest group's report. *Eur J Dent Educ*. 2011;15(2):85-89.
20. Nandakumar C, Robinson P. Teaching dental public health to undergraduates using community profiles and patient case studies. *Community Dent Health*. 2011;28(1):1-5.
21. Arksey H, O'Malley L. Scoping studies: towards a methodological framework. *Int J Soc Res Methodol*. 2005;8(1):19-32.
22. Bean CY. Community-based dental education at the Ohio State University: the OHIO project. *J Dent Educ*. 2011;75:S25-S35.
23. Bernabé E, Bernal JB, Beltrán-Neira RJ. A model of dental public health teaching at the undergraduate level in Peru. *J Dent Educ*. 2006;70(8):875-883.
24. Brondani MA, Clark C, Rossoff L, Aleksejūnienė J. An evolving community-based dental course on professionalism and community service. *J Dent Educ*. 2008;72(10):1160-1168.
25. Daher A, Costa LR, Machado GC. Dental students' perceptions of community-based education: a retrospective study at a dental school in Brazil. *J Dent Educ*. 2012;76(9):1218-1225.
26. do Nascimento CF, Warmling CM. Service-learning in undergraduate dental education: professional competence for clinical decision-making. *Eur J Dent Educ*. 2021;25(1):191-198.
27. Formicola AJ, Bailit HL. Community-based dental education: history, current status, and future. *J Dent Educ*. 2012;76(1):98-106.
28. Furlini L, Noushi N, Castonguay G, et al. Assessing dental Students' readiness to treat populations that are underserved: A scoping review. *J Dent Educ*. 2018;82(5):483-491.
29. Goswami S, Karaharju-Suvanto T, Kaila M, Tseveenjav B. Community health Centre-based outreach clinic for undergraduate dental education: experience in Helsinki over 8 years. *Eur J Dent Educ*. 2018;22(3):e312-e320.
30. Holtzman JS, Seirawan H. Impact of community-based oral health experiences on dental students' attitudes towards caring for the underserved. *J Dent Educ*. 2009;73(3):303-310.
31. Knight GW. Community-based dental education at the University of Illinois at Chicago. *J Dent Educ*. 2011;75(10):S14-S20.
32. Lalloo R, Evans JL, Johnson NW. Dental care provision by students on a remote rural clinical placement. *Australian N Zealand J Public Health*. 2013a;37(1):47-51.
33. Lynch CD, Ash PJ, Chadwick BL, Hannigan A. Evaluation of a U.K. community-based clinical teaching/outreach program by former dental students two and five years after graduation. *J Dent Educ*. 2010b;74(10):1146-1152.
34. Lynch CD, Ash PJ, Chadwick BL, Treasure ET. Community-based clinical teaching. *Br Dent J*. 2009;207(4):141.
35. Mathieson KM, Gross-Panico ML, Cottam WW, Woldt JL. Critical incidents, successes, and challenges of community-based dental education. *J Dent Educ*. 2013;77(4):427-437.
36. Piskorowski WA, Stenafac SJ, Fitzgerald M, Green TG, Krell RE. Influence of community-based dental education on dental students' preparation and intent to treat underserved populations. *J Dent Educ*. 2012;76(5):534-539.
37. Rohra AK, Piskorowski WA, Inglehart MR. Community-based dental education and dentists' attitudes and behavior concerning patients from underserved populations. *J Dent Educ*. 2014;1(1):119-130.
38. Smith M, Lennon MA, Brook AH, Robinson PG. A randomized controlled trial of outreach placement's effect on dental students' clinical confidence. *J Dent Educ*. 2006d;1(5):566-570.
39. Witton R, Paisi M. The benefits of an innovative community engagement model in dental undergraduate education. *Educ Prim Care*. 2021;33(1):41-45.
40. Shreve WB Jr, Clark LL, McNeal DR. An extramural dental education program in a rural setting in Florida. *J Community Health*. 1989;14(1):53-60.
41. Brondani MA. Students' reflective learning within a community service-learning dental module. *J Dent Educ*. 2010;74(6):628-636.
42. Brondani MA. Teaching social responsibility through community service-learning in predoctoral dental education. *J Dent Educ*. 2012;76(5):609-619.
43. Dharamsi S, Espinoza N, Cramer C, Amin M, Bainbridge L, Poole G. Nurturing social responsibility through community service-learning: lessons learned from a pilot project. *Med Teach*. 2010;32(11):905-911.
44. Bhayat A, Vergotine G, Yengopal V, Rudolph MJ. The impact of service-learning on two groups of south African dental students. *J Dent Educ*. 2011;75(11):1482-1488.
45. Coe JM, Best AM, Warren JJ, McQuistan MR, Kolker JL, Isringhausen KT. Service-learning's impact on dental students' attitude towards community service. *Eur J Dent Educ*. 2015;19(3):131-139.
46. Yoder KM. A framework for service-learning in dental education. *J Dent Educ*. 2006;70(2):115-123.
47. Hood JG. Service-learning in dental education: meeting needs and challenges. *J Dent Educ*. 2009;73(4):454-463.
48. Hanks S, Marples C, Wall E. Reflections on learning and enhancing communication skills through community engagement: a student perspective. *Br Dent J*. 2016;221(2):81-85.
49. Abllah Z, Kamar SHS, Halim NA, Supaat S, Musa MFC. The impact of community learning program to a Kuantan dental students. *Mat Today-Proc*. 2019;16:2262-2267.
50. Bulgarelli AF, Roperto RC, Mestriner SF, Mestriner W. Dentistry students' perceptions about an extramural experience with a Brazilian indigenous community. *Indian J Dent Res*. 2012;23(4):498-500.
51. Elkind A. Outreach teaching: is this the future for dental education? *Br Dent J*. 2002;193(2):111-112.
52. Eaton KA, de Vries J, Widstrom E, et al. Schools without walls?' developments and challenges in dental outreach teaching - report of a recent symposium. 2006;1(4):186-191.
53. Dagli R, Singh A. Dental outreach program–how effective it is in reaching out to the community. *Journal of International Oral Health*. 2015;7(5):i-ii.
54. Suresan V, Jnaneswar A, Swati SP, Jha K, Goutham B, Kumar G. The impact of outreach programs on academics development, personal development and civic responsibilities of dental students in Bhubaneswar city. *Journal of Education and Health Promotion*. 2019;8(1):188.
55. Strauss R, Mofidi M, Sandler ES, et al. Reflective learning in community-based dental education. *J Dent Educ*. 2003;67(11):1234-1242.
56. Moodley I, Singh S. Community-based education: experiences of undergraduate dental therapy students at the University of KwaZulu-Natal, South Africa. *Int J Dent Hyg*. 2018;16(3):362-371.
57. Deogade SC, Naitam D. Reflective learning in community-based dental education. *Educ Health*. 2016;29(2):119-123.
58. Gardiner J, Lotzkar S. A survey of extramural experiences for dental students. *J Dent Educ*. 1975;39(8):530-534.
59. Perez FA, Allareddy V, Howell H, Karimbux N. Comparison of clinical productivity of senior dental students in a dental school teaching clinic versus community externship rotations. 2010;1(10):1125-1132.

60. Grantham EV, Block MJ. Effect of extramural experiences on dental students' attitudes. *J Dent Educ*. 1983;47(10):681-684.
61. Robinson E, Bagramian RA. The community practice program at the University of Michigan, Ann Arbor, U. S. A. *Community Dent Oral Epidemiol*. 1974;2(6):269-272.
62. Soble R. Extramural experiences as an educational methodology in dentistry. *J Dent Educ*. 1971;35(6):365-370.
63. Holloway PJ, Dixon PA. Extra-mural experience for undergraduate dental students. *Br Dent J*. 1977;1977(143):146-150.
64. Craddock HL. Outreach teaching - the Leeds experience: reflections after one year. *Br Dent J*. 2008;204(6):319-324.
65. Radford DR, Holmes S, Dunne SM, Woolford MJ. Outreach clinical dental education: the Portsmouth experience – a 4-year follow-up study. *Eur J Dent Educ*. 2016;20(3):148-155.
66. Smith M, Lennon MA, Brook AH, Ritucci L, Robinson PG. Student perspectives on their recent dental outreach placement experiences. *Eur J Dent Educ*. 2006b;1(2):80-86.
67. Radford DR, Hellyer P. Dental students' perceptions of their experience at a residential outreach Centre. *Br Dent J*. 2015;219(4):171-175.
68. Waterhouse P, Maguire A, Tabari D, Hind V, Lloyd J. The development of a primary dental care outreach course. 2008;1(1):8-16.
69. Elkind A, Watts C, Qualtrough A, et al. The use of outreach clinics for teaching undergraduate restorative dentistry. *Br Dent J*. 2007;203(3):127-132.
70. Elkind A, Blinkhorn AS, Blinkhorn FA, Duxbury JT, Hull PS, Brunton PA. Developing dental education in primary care: the student perspective. *Br Dent J*. 2005a;198(4):233-237.
71. Hind V, Waterhouse PJ, Maguire A, Tabari D, Lloyd J. Developing a primary dental care outreach (PDCO) course–part 1: practical issues and evaluation of clinical activity. *Eur J Dent Educ*. 2009;13(4):203-209.
72. Lynch CD, Ash PJ, Chadwick BL. Student perspectives and opinions on their experience at an undergraduate outreach dental teaching Centre at Cardiff: a 5-year study. *Eur J Dent Educ*. 2010;14(1):12-16.
73. Wasserman BS, Goldman HS, Cheng K, Marcus C. A one-day-a-week extramural experience for senior students in community dentistry. *New York State Dent J*. 1980;46(9):570-576.
74. McFarland KK, Nayar P, Ojha D, Chandak A, Gupta N, Lange B. Impact of community-based dental education on attainment of ADEA competencies: Students' self-ratings. *J Dent Educ*. 2016;1(6):670-676.
75. Mays KA. Community-based dental education models: an analysis of current practices at U.S. dental schools. *J Dent Educ*. 2016;80(10):1188-1195.
76. Rubin RW, Rustveld LO, Weyant RJ, Close JM. Exploring dental students' perceptions of cultural competence and social responsibility. *J Dent Educ*. 2008;72(10):1114-1121.
77. Forsyth CJ, Irving MJ, Tennant M, Short SD, Gilroy JA. Teaching cultural competence in dental education: A systematic review and exploration of implications for indigenous populations in Australia. *J Dent Educ*. 2017;1(8):956-968.
78. Coe JM, Brickhouse TH, Bhatti BA, Best AM. Impact of community-based clinical training on dental students. Confidence in treating pediatric patients. *J Dent Educ*. 2018;82(1):5-11.
79. Arnett MR, Forde R. Increasing student diversity and cultural competence as part of Loma Linda university school of dentistry's service mission. *J Dent Educ*. 2012;76(6):721-727.
80. Hood JG. Reflections on the dental pipeline Program's efforts regarding community-based dental education. *J Dent Educ*. 2010;74(10):S62-S66.
81. Radford DR, Weld JA. Micro-educational opportunities in outreach clinical dental education. *Br Dent J*. 2013;1(8):389-391.
82. Lynch CD, Ash PJ, Chadwick BL. Evaluation of a community-based clinical teaching programme by current and former student dental therapists and dental hygienists: A pilot investigation. *Br Dent J*. 2011;210(10):481-485.
83. Lynch CD, Ash PJ, Chadwick BL, Hannigan A. Effect of community-based clinical teaching programs on student confidence: A view from the United Kingdom. *J Dent Educ*. 2010a;74(5):510-516.
84. Smith M, Lennon MA, Robinson PG. The Sheffield outreach teaching programme. *Br Dent J*. 2010;209(10):513-520.
85. Lynch CD, Ash PJ, Chadwick BL. Community-based dental hygiene and therapy education. *Vital*. 2011;9(1):39-43.
86. Maguire A, Hind V, Waterhouse PJ, Tabari D, Steen IN, Lloyd J. Developing a primary dental care outreach (PDCO) course–part 2: perceptions of dental students. 2009;1(4):210-217.
87. Webb L, Sandhu S, Morton L, et al. A dental student view on learning gained through inter-professional engagement with people experiencing homelessness. *Educ Prim Care*. 2019;30(5):319-321.
88. Eriksen HM, Bergdahl M, Byrkjeflot LI, Crossner CG, Widstrom E, Tillberg A. Evaluation of a dental outreach teaching programme. *Eur J Dent Educ*. 2011;1(1):3-7.
89. Arevalo O, Saman DM, Rohall V. Measuring clinical productivity in community-based dental education programs. *J Dent Educ*. 2011;75(9):1200-1207.
90. Verma A, Muddiah P, Murthy AK, Yadav V, Krishna Murthy A, Yadav V. Outreach programs: an adjunct for improving dental education. *Rural Remote Health*. 2016;16(3):1-7.
91. Joury E. Community-based learning in a challenging context: the development and evaluation of an outreach dental public health programme in Damascus university, Syria. *Eur J Dent Educ*. 2016;20(1):39-44.
92. Mofidi M, Strauss R, Pitner LL, Sandler ES. Dental students' reflections on their community-based experiences: the use of critical incidents. 2003;1(5):515-523.
93. Hunter ML, Oliver R, Lewis R. The effect of a community dental service outreach programme on the confidence of undergraduate students to treat children: a pilot study. *Eur J Dent Educ*. 2007;11(1):10-13.
94. Nierenberg S, Hughes LP, Warunek M, Gambacorta JE, Dickerson SS, Campbell-Heider N. Nursing and dental students' reflections on interprofessional practice after a service-learning experience in appalachia. *J Dent Educ*. 2018;82(5):454-461.
95. Roberts RA. Community dentistry now: progress in dental school programs. *J Am Dent Assoc*. 1994;88(5):927-930.
96. Abuzar MA, Burrow MF, Morgan M. Development of a rural outplacement programme for dental undergraduates: students' perceptions. *Eur J Dent Educ*. 2009;13(4):233-239.
97. Abuzar MA, Owen J. A community engaged dental curriculum: A rural indigenous outplacement Programme. *J Public Health Res*. 2016;5(1):668.
98. Lalloo R, Evans JL, Johnson NW. Dental students' reflections on clinical placement in a rural and indigenous community in Australia. *J Dent Educ*. 2013b;1(9):1193-1201.
99. Woronuk JI, Pinchbeck YJ, Walter MH. University of Alberta dental students' outreach clinical experience: an evaluation of the program. *J Canadian Dent Assoc*. 2004;70(4):233-237.
100. Smith M, Lennon MA, Robinson PG. RCT of the effects of block absence for outreach placements on dental students' finals grades. *Eur J Dent Educ*. 2009;13(1):28-30.
101. Smith M, Lennon M, Brook A, Blinkhorn F, Blinkhorn A, Robinson P. A randomised controlled trial of the effect of outreach placement on treatment planning by dental students. *Br Dent J*. 2006a;201(5):27-31.
102. Behar-Horenstein LS, Feng X, Roberts KW, Gibbs M, Catalanotto FA, Hudson-Vassell CM. Developing dental students' awareness of health care disparities and desire to serve vulnerable populations through service-learning. *J Dent Educ*. 2015;79(10):1189-1200.
103. Sager JJ, Blue CM. Reflective learning outcomes of community-based experiences: A qualitative study. *J Dent Educ*. 2019;83(5):530-535.
104. Craddock HL. An evaluation of student, patient and practitioner experience of general dental practice placements. *Br Dent J*. 2011;211(6):279-282.

105. Eaton KA. Outreach teaching–coming soon to a practice near you? *Prim Dent Care*. 2005;12(4):115-116.
106. Thind A, Atchison K, Andersen R. What determines positive student perceptions of extramural clinical rotations? An analysis using 2003 ADEA senior survey data. *J Dent Educ*. 2005;69(3):355-362.
107. Smith PD, Mays KA. Dental Students' non-clinical learning during community-based experiences: A survey of U.S. dental schools. *J Dent Educ*. 2019;83(11):1289-1295.
108. Leisnert L, Redmo Emanuelsson I, Papia E, Ericson D. Evaluation of an outreach education model over five years: perception of dental students and their outreach clinical mentors. *Eur J Dent Educ*. 2017;21(2):113-120.
109. Bailit HL, McGowan TL. Senior dental students' impact on dental school clinic revenues: the effect of community-based dental education. *J Dent Educ*. 2011;75:S8-S13.
110. Bailit HL. Financial impact of community-based dental education. *J Dent Educ*. 2010;74(10 Suppl):S33-S41.
111. Major N, McQuistan MR, Qian F. Association of community-based dental education components with fourth-year dental students' clinical performance. *J Dent Educ*. 2014;78(8):1118-1126.
112. Bhat N, Singh A, Asawa K, et al. Assessment of satisfaction levels of patients during dental outreach programs in rural part of Udaipur, India. *Niger Postgrad Med J*. 2016;23(4):227-231.
113. Elkind A, Potter C, Watts C, et al. Patients treated by dental students in outreach: the first year of a pilot project. *Eur J Dent Educ*. 2005b;8(Suppl 4):49-52.
114. Elkind A, Blinkhorn FA, Mackie IC, Tickle M, Duxbury JT, Blinkhorn AS. Service quality implications of dental undergraduate outreach teaching for primary care trusts in England, UK. *Commun Dent Health*. 2006;23(2):75-79.
115. Smith M, Lennon MA, Brook AH, Robinson PG. Perspectives of staff on student outreach placements. *Eur J Dent Educ*. 2006c;10(1):44-51.
116. Johnson GE, Blinkhorn AS. Student opinions on a rural placement program in New South Wales, Australia. *Rural Remote Health*. 2011;11(2):1-12.
117. Le H, McGowan TL, Bailit HL. Community-based dental education and community clinic finances. *J Dent Educ*. 2011;75(10 Suppl):S48-S53.
118. Bean CY, Rowland ML, Soller H, et al. Comparing fourth-year dental student productivity and experiences in a dental school with community-based clinical education. *J Dent Educ*. 2007;71(8):1020-1026.
119. DeCastro JE, Bolger D, Feldman CA. Clinical competence of graduates of community-based and traditional curricula. *J Dent Educ*. 2005;69(12):1324-1331.
120. Smith M, Lennon M, Robinson P. Students' clinical experience on outreach placements. *Eur J Dent Educ*. 2010;14(1):7-11.
121. Johnson G, Wright FAC, Foster K. A longitudinal evaluation of the rural clinical placement program at the University of Sydney Dental School. *Eur J Dent Educ*. 2019;23(1):e59-e70.
122. Mays KA, Maguire M. Care provided by students in community-based dental education: helping meet Oral health needs in underserved communities. *J Dent Educ*. 2018;1(1):20-28.
123. Thikkurissy S, Rowland ML, Bean CY, Kumar A, Levings K, Casamassimo PS. Rethinking the role of community-based clinical education in pediatric dentistry. *J Dent Educ*. 2008;1(6):662-668.
124. Hunter ML, Chaudhry U. Paediatric dentistry in outreach settings: an essential part of undergraduate curricula? *Eur J Dent Educ*. 2009;13(4):199-202.
125. McQuistan MR, Kuthy RA, Qian F, Riniker-Pins KJ, Heller KE. Dentists' treatment of underserved populations following participation in community-based clinical rotations as dental students. *J Public Health Dent*. 2010;70(4):276-284.
126. DeCastro JE, Matheson PB, Panagakos FS, Stewart DC, Feldman CA. Alumni perspectives on community-based and traditional curricula. *J Dent Educ*. 2003;67(4):418-426.
127. Gordon S, Warren AC, Wright WG. Influence of community-based dental education on practice choice: preliminary data from East Carolina University. *J Dent Educ*. 2019;83(9):1000-1011.
128. Volvovsky M, Vodopyanov D, Inglehart MR. Dental students and faculty Members' attitudes towards Care for Underserved Patients and Community Service: do Community-based dental education and voluntary service-learning matter? *J Dent Educ*. 2014;78(8):1127-1138.
129. Nayar P, McFarland K, Lange B, Ojha D, Chandak A. Supervising dentists' perspectives on the effectiveness of community-based dental education. *J Dent Educ*. 2014;78(8):1139-1144.
130. McQuistan MR, Mohamad A, Kuthy RA. Association between Dentists' participation in charitable care and community–based dental education. *J Dent Educ*. 2014;78(1):110-118.
131. Furco A. Service- learning: A balanced approach to Experiencial education. *Expanding Boundaries: Service and Learning*. Coporation for National Service; 1996:2-6.
132. Furco A, Norvell K. What is service learning?: making sense of the pedagogy and practice. *Embedding Service Learning in European Higher Education*. Taylor and Francis Inc; 2019:13-53.
133. Shipengrover JA, James PA. Measuring instructional quality in community-orientated medical education: looking into the black box. *Med Educ*. 1999;33(11):846-853.
134. Beard C. Dewey in the world of experiential education. *New Direct Adult Contin Educ*. 2018;2018(158):27-37.
135. Sikandar A. John Dewey and his philosophy of education. *J Educ Develop*. 2016;2(2):191-201.
136. Ball S. Evaluating educational programs. *Advancing Human Assessment. Methodology of Educational Measurement and Assessment*. Springer; 2017:341-362.
137. Rodriguez L, Banks T, Barrett N, Espinoza M, Tierney WM. A medical school's community engagement approach to improve population health. *J Commun Health*. 2021;46(2):420-427.
138. National Institute for Health and Core Excellence (NICE). *Patient Experience in Adult NHS Services: Improving the Experience of Care for People Using Adult NHS Services*. NICE; 2012. Available at: https://www.nice.org.uk/guidance/cg138/resources/patient-experience-in-adult-nhs-services-improving-the-experience-of-care-for-people-using-adult-nhs-services-pdf-35109517087429 [Accessed: 22 April 2022].
139. General Dental Council (GDC). *Preparing for Practice: Dental Team Learning Outcomes for Registration*. General Dental Council UK; 2015. Available at: https://www.gdc-uk.org/docs/default-source/quality-assurance/preparing-for-practice-(revised-2015).pdf?sfvrsn=81d58c49_2 [Accessed: 22 April 2022].
140. Commission on Dental Accreditation (CODA). *Accreditation Standards For Dental Education Programs*. 2021. http://www.ada.org/coda [Accessed: 14 May 2022].
141. O'Brien MJ, Garland JM, Murphy KM, Shuman SJ, Whitaker RC, Larson SC. Training medical students in the social determinants of health: the health scholars program at Puentes de Salud. *Adv Med Educ Pract*. 2014;23(5):307-314.
142. Palakshappa D, Denizard-Thompson N, Puccinelli-Ortega N, Brooks A, Damman A, Miller DP Jr. The experiences of community organizations partnering with a medical school to improve students' understanding of the social determinants of health: A qualitative study. *Med Teach*. 2022;44(3):1-8.

**How to cite this article:** Elsheli J, Patrick A, Stokes C. Community-based education programmes in the context of dental education: A scoping review. *Eur J Dent Educ*. 2023;00:1-15. doi:10.1111/eje.12986