Regional Oral Health Literacy Promotion in China: Practical Pathways and Future Directions

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Abstract: Oral health is an essential foundation for general health, yet oral health knowledge awareness and behavioral adoption rates have remained low among Chinese residents. Drawing on a municipal philosophy and social science popularization project, the research team compiled a localized oral health popular-science booklet covering 200 knowledge points on the basis of a needs assessment conducted in five districts and counties, and produced 20 original popular-science short videos, thereby establishing a tri-modal dissemination model of "booklet + short videos + offline activities." A pre-post comparison in pilot communities showed that residents' oral health knowledge awareness rate increased from 27.8% to 73.4%, the proportion brushing at least twice daily rose from 71.2% to 89.6%, and the proportion willing to undergo at least one oral examination per year grew from 19% to 67%. Supported by a dual-mentor team and student societies, and integrated into continuing education platforms and the lifelong learning system, the project demonstrates a feasible pathway for regional oral health promotion from the perspective of higher education institutions' social service function. This paper reviews the design rationale, implementation practices, and intervention outcomes of the project, and offers recommendations for the platform-based, curriculum-based, digital, lifelong-learning-oriented, and collaborative development of oral health promotion during the 15th Five-Year Plan period.

Keywords: oral health literacy; health communication/science popularization; continuing education; learning society; university social service

0. Introduction

Against the backdrop of building a learning society and rapid population aging, the social service function of higher education institutions in China is expanding from technology extension toward continuing education and health education. Bidirectional associations between periodontal disease and systemic conditions such as diabetes and cardiovascular disease have been extensively documented, and international evidence also supports the protective effect of oral hygiene interventions on cognitive health in older adults [1]. The Fourth National Oral Health Epidemiological Survey showed that the caries prevalence among Chinese children aged 5 and 12 reached 70.9% and 34.5%, respectively—markedly higher than a decade earlier—while residents' oral health awareness/knowledge rate rate was only 60.1% [2]; dental caries has become a major public health problem affecting health across the whole life course [3]. Caries prevalence among children in Sichuan Province exceeds the national average, and Leshan is roughly comparable to the provincial level.

The Healthy Oral Cavity Action Plan (2019–2025) set work targets for controlling childhood caries, expanding pit-and-fissure sealant coverage, and fostering healthy behaviors, and "oral health" was incorporated as a special initiative of the Healthy China Initiative [4]. With the plan concluding in 2025, how to improve the quality of grassroots popular-science supply has become a pressing practical question. Three salient shortcomings currently limit oral health promotion in China: the absence of systematic regional popular-science carriers; skill-based knowledge that residents can "read about but not learn to perform"; and fragmented popular-science activities lacking sustained support from stable platforms and personnel.

In this context, the research team undertook the compilation of the Popular-Science Booklet on Oral Health Literacy for Leshan Residents in December 2025 under the Leshan Municipal Philosophy and Social Science Popularization Planning Program, using "one booklet, one set of videos, and one suite of activities" as the entry point for exploring a regional pathway to oral health promotion. The team had previously completed a municipal popular-science project and led a local survey on childhood dental caries, accumulating epidemiological data and experience in popular-science writing.

1. Needs assessment: the starting point of localized popular science

The team distributed questionnaires to permanent residents in five districts and counties, including Shizhong (Central) District and Wutongqiao District, and collected more than 300 valid responses, supplemented by community interviews. At the cognitive level, misconceptions such as "tooth loss in old age is normal," "scaling widens the gaps between teeth," and "caries in primary teeth need no treatment" were widely endorsed, consistent with nationwide knowledge gaps [2] and with the pattern among parents of children that "awareness of preventive knowledge is significantly lower than that of therapeutic knowledge" [5]. Some older adults attributed periodontal bleeding to "internal heat," and parents expressed reservations about pit-and-fissure sealants and fluoride varnish. At the behavioral level, toothbrushing techniques were non-standard and interdental cleaning was almost entirely absent. At the level of demand, respondents were most concerned with practical questions such as "how to brush correctly," "how to choose between fillings and implants," and "whether dental care is reimbursable," and preferred popular-science content delivered through everyday-life scenarios.

On this basis, the team adopted the editorial principles of "misconception orientation, scenario-based entry, and skill implementation": popular-science points were organized around each category of misconception, oral health knowledge was introduced through local dietary scenarios such as sweet-skinned duck and hotpot, and skills such as toothbrushing and flossing were broken down into step-by-step, imitable instructions.

2. Content architecture and distinctive features of the booklet

2.1 A "six-chapter, 200-point" content system

The booklet comprises six chapters, 200 knowledge points, and approximately 28,500 Chinese characters, forming an end-to-end structure of "concepts—knowledge—skills—disease recognition—care-seeking guidance—dissemination and capacity building." Chapter 1 explains that "oral health is the gateway to general health," introducing knowledge points such as the World Health Organization's "8020" target and the "1:10:100" cost-of-care principle. Chapter 2 addresses segmented audiences under the scheme of "general knowledge + specialized content for children and adolescents + specialized content for middle-aged and older adults," covering pit-and-fissure sealants, fluoride varnish, root caries, periodontal disease, and prosthetic restoration of missing teeth. Chapter 3 demonstrates skills such as the Bass brushing technique and flossing step by step, and provides individualized oral care plans for infants and toddlers, pregnant women, patients with diabetes, and bedridden older adults. Chapter 4 briefly describes the differentiation of 30 common oral diseases and the timing of care-seeking. Chapter 5 confronts residents' pain points in seeking dental care, covering treatment procedures, costs, and medical insurance reimbursement. Chapter 6 provides replicable popular-science activity plans and evaluation tools for community workers, teachers, and parents.

2.2 Three focal points of localization

First, the content integrates the local disease spectrum with dietary culture, converting the local habit of high-sugar diets into concrete tooth-protection advice. Second, linguistic translation was achieved through three rounds of review by the team and external dental experts, condensing

academic expressions and favoring vivid analogies. Third, policy linkage: information on medical insurance reimbursement and the national comprehensive intervention program for children's oral diseases was incorporated into the care-seeking guidance. The finalized booklet is being distributed free of charge to the public in the second half of 2026.

3. The tri-modal dissemination practice of "booklet + short videos + offline activities"

3.1 Translating skill-based knowledge into video

Skills such as toothbrushing and flossing can hardly be transformed from "reading about" to "learning to perform" through text alone. Drawing on the college's affiliated dental clinic and multimedia center, the team produced 20 original popular-science short videos that present the booklet's content in an engaging clay-animation style, and organized dental experts to explain and demonstrate on camera in response to high-frequency questions such as "how to brush correctly," "how to use dental floss," "does scaling damage teeth," and "how should older adults replace missing teeth." All resources were uploaded to the continuing education course Oral Health Literacy Promotion, and QR codes printed in the booklet integrate print and video media. The videos have also been adopted by a number of local dental clinics for waiting-room education.

3.2 Regularized and scenario-based offline promotion

In 2026, the team held three community and school lectures in Shizhong District, Wutongqiao District, and Jiajiang County, directly serving more than 500 residents, students, and parents. During the summer vacation, a faculty-student "Three Going to the Countryside" practice team carried out a themed campaign "Smile Often, Protect Teeth for Health" in townships, setting up booths at rural markets to demonstrate the Bass technique, provide hands-on flossing instruction, screen common oral problems, and offer care-seeking guidance; a total of 200 booklets were distributed and more than 200 residents were served.

3.3 Organizational mechanism: dual-mentor collaboration and student society participation

The sustainability of regional popular science hinges on a stable division of labor and talent reproduction mechanism. This project was supported by a dual-mentor team of full-time faculty and clinicians: faculty were responsible for content design and activity organization, while clinicians were responsible for content review and provision of typical clinical cases; the two groups jointly completed video production. The student society on oral health conducts campus promotion and clinical volunteering year-round; participation in popular science is simultaneously a process of service and a process of cultivating professional identity and health education competence, and prior research likewise suggests that systematic courses and training are effective in improving practitioners' oral health literacy [6]. The institutionalized, regularized recruitment of society members and volunteers keeps the promotion team refreshed year by year, so that the five elements—booklet, course, base, society, and community—form a stable, interlocking dissemination chain.

4. Intervention outcomes and discussion

The team conducted a pre-post comparison survey in pilot communities; the core indicators are shown in Table 1.

Table 1 Changes in core indicators of oral health literacy among pilot-community residents before and after the intervention

Indicator	Before	After	Change
Oral health knowledge awareness rate	27.8%	73.4%	+45.6 percentage points
Proportion brushing at least twice daily	71.2%	89.6%	+18.4 percentage points
Proportion never using dental floss	97.8%	80.6%	−17.2 percentage points
Proportion willing to have at least one oral examination per year	19.0%	67.0%	+48.0 percentage points

The data indicate that the intervention exerted its most direct effect on "knowledge," a somewhat weaker effect on "behavioral intention," and a relatively slow effect on established behaviors, which accords with the general law of health behavior change and confirms the effectiveness of a content strategy oriented toward cognitive misconceptions and grounded in local scenarios. Behavioral indicators such as flossing, though markedly improved, remained low in absolute terms; behavioral consolidation will require longer-term support such as mutual supervision among family members and regular community services.

Three lessons can be drawn from the practice: needs assessment conducted in advance makes the supply of popular science better targeted; the QR-code integration of print and video accommodates both the reading habits of older readers and the media preferences of younger groups at low cost with good dissemination performance; and the talent-cultivation mechanism of universities is the key to sustainability.

5. Future directions: from "one booklet" to "one base"

In light of the new requirements of the Healthy China Initiative and learning-society construction during the 15th Five-Year Plan period, the next stage should advance along five dimensions—platform, curriculum, digital resources, lifelong education, and collaboration—so that oral health promotion shifts from a short-term project activity to an institutionalized, regularized operation with stable bases.

5.1 Platform building: establishing an oral health promotion (study-tour) base

Shanghai's practice of funding health popular-science projects through fixed government appropriations to promote grassroots implementation—"project-based supply and community-level delivery"—deserves emulation [7]. The college already possesses the requisite conditions: a productive training base, an affiliated dental clinic, a life science museum, and an active faculty-student promotion team. An oral health promotion base may therefore be built to municipal popular-science base standards, extended into a study-tour base for primary and secondary school students offering interactive courses such as tooth-structure exploration, plaque-disclosure experiments, and Bass brushing practice. The practice of the Chinese Stomatological Association's "Oral Health Education Innovation • Shining Program," which covered 31 provinces, also demonstrates that experiential and interactive popular science is highly accessible and appealing to children and adolescents [8].

5.2 Curriculum development: building a segmented popular-science curriculum system

On the basis of the "six chapters and 200 points," standardized course packages should be developed by audience: for preschool children and primary school pupils, picture books, children's songs, and tooth-model games supplemented by parent classes; for secondary school students, "little dentist" career-experience activities; for older adults, a focus on common geriatric oral problems and their management, including periodontal disease, root caries, restoration of missing teeth, and denture care; and for grassroots health workers, teacher-training courses delivered through the continuing education platform to cultivate a regional talent echelon in which

"every county has a team and every community has key members" [6].

5.3 Digitalization: expanding the reach of quality content

Rural residents and older adults have the lowest oral health literacy and are the costliest groups to reach offline. The short videos can be expanded into a digital resource series covering all 200 knowledge points, an official promotion account established, and live question-and-answer sessions organized around National Love Teeth Day. Health communication research shows that authoritative sources and quality content are the core elements by which popular-science short videos win public trust [9]; cultivating digital health literacy among older adults requires coordinated attention to knowledge, skills, attitudes, and ethics [10]. Digitalization not only broadens coverage; behavioral data on clicks, completion, and interaction also inform the iterative upgrading of popular-science content.

5.4 Lifelong learning: embedding oral health promotion in continuing education and the learning society

The Ministry of Education and the Sichuan Provincial Department of Education have continued to recommend "experts among the people" and "smart assistance for the elderly" featured courses and typical cases, providing an institutionalized channel through which quality university resources reach communities [11]. Leshan Vocational and Technical College's lifelong education brand "Le Xiang Jia Xue" was recognized as an excellent lifelong education institution in Sichuan Province, with four courses and three cases selected for the provincial recommendation list in 2025. This project connects directly with that system: the continuing education course Oral Health Literacy Promotion is already operating on the platform, and the dissemination toolbox in Chapter 6 can be directly converted into training content for community-education teachers. Given survey evidence of reduced oral health-related quality of life among older adults in nursing homes [12], specialized courses for older adults can be redesigned along the "smart assistance for the elderly" paradigm, with digital-skills modules such as online appointment registration. Prior research has noted that education on digital literacy for older adults suffers from the absence of scientific curriculum guidance and insufficient openness of resources [13], lessons that the development of supporting courses should heed.

5.5 Collaboration: deepening university–hospital–community linkage and project succession

Relying on the popular-science networks of the municipal Federation of Social Sciences and the municipal Association for Science and Technology, and in partnership with disease control institutions, medical institutions, and grassroots health service centers, a division-of-labor mechanism of "universities providing content and talent, hospitals providing experts and scenarios, communities providing venues and organization" should be established, embedding oral health promotion into the health education programs of basic public health services—"piggybacking on existing service platforms" rather than building new ones from scratch. In research terms, the team plans to apply for provincial philosophy and social science popularization projects to deepen the evaluation of long-term intervention effects, precision popular-science strategies for rural older adults, and the integrated booklet–base–curriculum model, forming a successive chain of "municipal projects laying foundations—provincial projects deepening research—bases converting outcomes."

6. Conclusion

Proceeding from a needs assessment and using one localized booklet, one set of short videos, and one suite of offline activities, this project addressed the core questions of regional oral health promotion—what to communicate, how to communicate it, who delivers it, and on whom sustainability rests—and pilot data preliminarily validated the effectiveness of the tri-modal dissemination model of "booklet + short videos + offline activities." A stable talent supply

for university-based health promotion depends on the routine participation of dual-mentor collaboration and student societies, while the reuse of popular-science resources requires integration with continuing education platforms and the lifelong learning system to form institutionalized output channels. Building on these results, the team will continue to apply for provincial projects and to establish promotion and study-tour bases, so that oral health knowledge that can be "read, learned, and used" keeps reaching every household.

Author biography

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