

ORIGINAL RESEARCH

Dental Care and Oral Health Promotion for Children and Adolescents at ULEAM Mobile Dental Clinic in the Southern Zone of Manabí, during the 2024-1 period

Atención Odontológica y Promoción de la Salud Bucodental a Niños y Adolescentes en la Clínica Odontológica Móvil de la ULEAM en la Zona Sur de Manabí, del periodo 2024-1

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Received: 12/12/2025

Accepted: 10/02/2026

ABSTRACT

Limited access to dental care services in rural and hard-to-reach communities represents a significant problem that affects the oral health of children and adolescents, favoring the persistence of preventable conditions such as dental caries and bacterial plaque accumulation. In response to this situation, the present study aimed to analyze the impact of dental care services and oral health promotion provided by the Mobile Dental Clinic of Universidad Laica Eloy Alfaro de Manabí (ULEAM) on child and adolescent populations in the southern area of Manabí province during the 2024 academic period-1. A descriptive observational study was conducted, with a retrospective cross-sectional design and a qualitative-quantitative approach, based on the review of clinical records and educational activities carried out. The results showed significant coverage in hard-to-reach communities, as well as a reduction in bacterial plaque presence and an improvement in oral hygiene habits; however, a high prevalence of untreated caries was identified, especially in the primary dentition. It is concluded that the Mobile Dental Clinic represents an effective strategy to improve access to oral health services and strengthen preventive education; however, it is necessary to reinforce early prevention actions and continuous follow-up to achieve a sustained impact on children's oral health.

Keywords: Dental care. Oral health. Mobile clinic. Health promotion. Children and adolescents.

RESUMEN

La limitada accesibilidad a servicios de atención odontológica en comunidades rurales y de difícil acceso constituye una problemática relevante que afecta la salud bucodental de niños y adolescentes, favoreciendo la persistencia de patologías prevenibles como la caries dental y la acumulación de placa bacteriana. Frente a esta realidad, el presente estudio tuvo como objetivo analizar el impacto de los servicios de atención odontológica y promoción de la salud bucodental brindados por la Clínica Odontológica Móvil de la Universidad Laica Eloy Alfaro de Manabí (ULEAM) en poblaciones infantiles y adolescentes de la zona sur de la provincia de Manabí, durante el periodo académico 2024-1. Se desarrolló un estudio de tipo observacional descriptivo, con diseño transversal retrospectivo y enfoque cuali-cuantitativo, basado en la revisión de registros clínicos y actividades educativas realizadas. Los resultados evidenciaron una cobertura significativa en comunidades de difícil acceso, así como una reducción en la presencia de placa bacteriana y una mejora en los hábitos de higiene oral; no obstante, se identificó una elevada prevalencia de caries no tratadas, especialmente en la dentición temporal. Se concluye que la Clínica Odontológica Móvil constituye una estrategia eficaz para mejorar el acceso a servicios de salud bucodental y fortalecer la educación preventiva; sin embargo, es necesario reforzar las acciones de prevención temprana y seguimiento continuo para lograr un impacto sostenido en la salud oral infantil.

Palabras claves: Atención odontológica. Salud bucodental. Clínica móvil. Promoción de salud, niños y adolescentes.

INTRODUCTION

Oral health represents a key approach within the comprehensive concept of health, influencing not only physical well-being but also the emotional, social, and academic growth major of children and adolescents. Oral diseases, such as dental caries and periodontal conditions, are considered highly prevalent public health problems in childhood, with cumulative effects throughout life if not addressed early through preventive measures⁽¹⁾. These problems are often the result of structural factors, such as limited access to dental services, insufficient health education, poverty, and unhealthy lifestyles⁽²⁾.

In Latin American countries such as Ecuador, inequalities in oral health coverage persist, particularly in rural and urban-marginal areas. According to studies on the social determinants of oral health, dental care in rural areas is limited, and a high prevalence of dental caries among school-aged children has been reported, reaching up to 85% in certain provinces⁽³⁾. These figures reflect a significant gap in prevention and access to basic services, a situation that directly affects school performance, nutrition, and self-esteem.

In this context, public universities have assumed a transformative role in promoting community health through social outreach activities, educational programs, and community-based projects⁽⁴⁾. The Eloy Alfaro Lay University of Manabí (ULEAM), aware of its social responsibility, has implemented a mobile dental clinic as a primary care model, providing oral health promotion and prevention services. This clinic travels through vulnerable communities in southern Manabí, offering preventive consultations, primary care treatments such as fluoridation and prophylaxis, as well as oral health education activities, including talks and toothbrushing techniques. This initiative is framed within the family and community health approach, seeking to reduce access barriers and promote healthy lifestyles from an early age⁽⁵⁾.

The implementation of mobile clinics as an intervention strategy has proven effective in different contexts. Various studies indicate that these units improve healthcare coverage, enable early diagnosis of oral pathologies, and strengthen health education component, which is essential for achieving sustainable changes in hygiene habits⁽⁶⁾. In the specific case of Manabí, a region severely affected by the 2016 earthquake and burdened by historical limitations in healthcare infrastructure, the work of mobile dental clinics is particularly relevant in promotion and prevention of oral health.

The purpose of this study is to evaluate the impact of dental care and oral health promotion and prevention strategies provided by ULEAM Mobile Dental Clinic to children and adolescents in rural communities in southern Manabí during 2024. The study aims to identify the main oral pathologies detected, the levels of coverage achieved, and the effects of educational activities on oral hygiene habits. To this end, a quantitative, descriptive, cross-sectional approach is adopted to support the value of these initiatives within the community health system with empirical evidence. This research seeks not only to document the outcomes achieved through the university-led intervention but also to generate recommendations for the continuous improvement of oral health programs, with emphasis on prevention, equity, and sustainability. At the same time, it contributes to strengthening the primary healthcare model, aligned with national public policies and the Sustainable Development Goals related to child health and the reduction of inequalities.

MATERIALS AND METHODS

This is an observational descriptive study with a retrospective cross-sectional design and a qualitative–quantitative approach. The study aims to analyze the characteristics of the dental care provided, as well as the oral health promotion actions carried out for children and adolescents treated by ULEAM Mobile Dental Clinic during the academic period 2024-1. Information was collected from clinical records and community intervention forms developed during outreach activities.

Methods

- Design: Non-probabilistic convenience sampling was used, including only complete and valid clinical records containing demographic data, clinical diagnoses, treatments performed, and preventive activities recorded in field sheets and Microsoft Excel databases.
- Population and sample: A total of 525 minors aged 5 to 14 years who were treated by the mobile dental clinic in the cantons of Jaramijó, Jipijapa, Manta, Montecristi, and Portoviejo during the academic period 2024-1.
- Measurement procedures: Records of treatments performed for oral health care were evaluated.

Materials Used

Clinical records of treatments performed in Microsoft Excel. Dental instruments used to assess the treatments performed. Statistical software for data review and analysis.

RESULTS

The data used for the preparation of this study are based on the evaluation of clinical records of patients who attended the ULEAM Mobile Dental Clinic as part of the Dentistry program's community outreach activities during the academic period 2024-1.

Table 1. Frequency distribution of children and adolescents treated at ULEAM Mobile Dental Clinic in the southern area of Manabí during the academic period 2024-1, by gender.

Gender	n	%
Female	263	50.10
Male	262	49.90
Total	525	100

Prepared by: Anchundia & Herrera (2025).

It is evident that, of the 525 children and adolescents treated, 50.10% (n = 263) were female and 49.90% (n = 262) were male. This distribution reflects a balanced proportion between both genders, with no relevant differences in the care provided by ULEAM Mobile Dental Clinic in the southern area of Manabí during the academic period 2024-1. This indicates that access to dental services was equitable, reaching children and adolescents of both genders in a similar manner.

Table 2. Frequency distribution of children and adolescents treated at the ULEAM Mobile Dental Clinic in the southern area of Manabí during the academic period 2024-1, by age.

Age	n	%
5 years	151	29.90
6 years	64	12.67
7 years	44	8.32
8 years	49	9.50
9 years	38	7.52
10 years	38	7.13
11 years	47	8.32
12 years	33	5.94
13 years	38	6.53
14 years	23	4.17
Total	525	100

Prepared by: Anchundia & Herrera (2025).

Table 2 shows the frequency distribution of children and adolescents treated at ULEAM Mobile Dental Clinic in the southern area of Manabí during the academic period 2024-1 by age. Almost half of the children (47.5%) were between 5 and 7 years old, followed by those aged 8 to 11 years (36.5%), while 16% of the participants were between 12 and 14 years of age.

Table 3. Frequency distribution of children and adolescents treated at ULEAM Mobile Dental Clinic in the southern area of Manabí during the academic period 2024-1, by canton.

City	n	%
Manta	359	68.38
Portoviejo	17	3.22
Jaramijó	20	3.80
Montecristi	2	0.40
Jipijapa	127	24.20
Total	525	100

Prepared by: Anchundia & Herrera (2025).

Table 3 presents the distribution of children and adolescents treated by ULEAM Mobile Dental Clinic in the southern area of Manabí during academic period 2024-1, according to the canton of origin. The highest number of consultations was concentrated in the canton of Manta, accounting for 68.38% of total users, reflecting the strong presence and reach of the service in this locality. This was followed by the canton of Jipijapa with 24.2%, also indicating significant coverage. In contrast, Jaramijó, Portoviejo, and Montecristi registered low percentages—3.8%, 3.22%, and 0.4%, respectively—which may be attributed to factors such as fewer visits by the mobile clinic to these areas or the availability of other local dental services. This distribution allows for the identification of sectors with higher demand and supports the reinforcement of coverage strategies in cantons with lower representation.

Table 4. Dental prophylaxis in children and adolescents treated at ULEAM Mobile Dental Clinic in the southern area of Manabí during the academic period 2024-1.

City	Dental prophylaxis	%
Manta	175	69.16
Portoviejo	10	3.96
Jaramijó	18	7.12
Montecristi	1	0.40
Jipijapa	49	19.36
Total	253	100

Prepared by: Anchundia & Herrera (2025).

Table 4 shows that the highest number of dental prophylaxis procedures was performed in the canton of Manta, accounting for 69.16% of total treatments, followed by Jipijapa with 19.36%. Smaller proportions were recorded in Jaramijó (7.12%), Portoviejo (3.96%), and Montecristi (0.4%).

Table 5. Fluoride application in children and adolescents treated at ULEAM Mobile Dental Clinic in the southern area of Manabí during the academic period 2024-1.

City	Fluoride application	%
Manta	93	69.92
Portoviejo	7	5.27
Jaramijó	0	0.00
Montecristi	1	0.75
Jipijapa	32	24.06
Total	133	100

Prepared by: Anchundia & Herrera (2025).

According to Table 5, the highest number of fluoride applications was performed in the canton of Manta, representing 69.92% of cases, followed by Jipijapa with 24.06%. Minimal percentages were reported in Portoviejo and Montecristi (5.27% and 0.75%, respectively), while no applications were recorded in Jaramijó.

Table 6. Dental restorations in children and adolescents treated at ULEAM Mobile Dental Clinic in the southern area of Manabí during the academic period 2024-1.

City	Dental restoration	%
Manta	24	64.86
Portoviejo	0	0.00
Jaramijó	0	0.00
Montecristi	0	0.00
Jipijapa	13	35.14
Total	37	100

Prepared by: Anchundia & Herrera (2025).

Table 6 reveals that 64.86% of dental restorations were performed in Manta, while 35.14% were carried out in Jipijapa. No restorative procedures were recorded in the cantons of Portoviejo, Jaramijó, or Montecristi.

Table 7. Sealant application in children and adolescents treated at the ULEAM Mobile Dental Clinic in the southern area of Manabí during the academic period 2024-1.

City	Sealant application	%
Manta	5	100
Portoviejo	0	0
Jaramijó	0	0
Montecristi	0	0
Jipijapa	0	0
Total	5	100

Prepared by: Anchundia & Herrera (2025).

Table 7 shows that 100% of sealant applications were performed exclusively in the canton of Manta. No procedures of this type were recorded in the other cantons served.

DISCUSSION

The results of the present study allow for an analysis of the impact of ULEAM Mobile Dental Clinic on the oral health of children and adolescents in southern Manabí and enable comparison with similar research conducted in rural settings and vulnerable populations.

The equitable distribution of patients by gender is consistent with findings reported in previous studies, which have identified no significant differences in access to mobile dental services between boys and girls. This reinforces the inclusive nature of this care model in vulnerable populations ⁽⁶⁾. This finding supports the effectiveness of mobile clinics as a strategy to promote equity in child oral healthcare.

Regarding age, the highest concentration of care in the 5–7-year age group (47.5%) is consistent with national and international research indicating that this age group presents greater vulnerability to dental caries, particularly in primary dentition ⁽⁷⁾, due to inadequate oral hygiene habits and limited adult supervision. This result demonstrates that the mobile clinic is reaching a priority group for the early prevention of oral pathologies.

With respect to geographic distribution, the predominance of the canton of Manta as the main recipient of dental care aligns with studies reporting that mobile clinics tend to concentrate their interventions in areas with higher population density or greater logistical accessibility ⁽⁸⁾. However, this concentration also reflects unequal coverage in cantons such as Portoviejo and Montecristi, a situation previously described as one of the main barriers to equitable access to oral health services in rural communities in Ecuador ^(9,10).

In terms of preventive interventions, the high frequency of dental prophylaxis and fluoride application in Manta and Jipijapa is consistent with other studies highlighting these procedures as priorities in community programs due to their low cost and high impact on plaque reduction and caries prevention. Nevertheless, the low application of dental sealants observed in this study differs from recommendations in the literature, which identify sealants as one of the most effective strategies for preventing caries in permanent molars in the pediatric population ^(11,12). This finding suggests the need to strengthen this preventive component.

Finally, the limited provision of restorative treatments in several cantons is consistent with World Health Organization recommendations, which indicate that mobile programs tend to prioritize health promotion and prevention over complex curative treatments. However, the persistence of untreated caries, particularly in primary dentition, highlights the need to reinforce follow-up actions and timely referral mechanisms to achieve a sustained impact on child oral health ⁽¹³⁾.

Overall, the findings confirm that ULEAM Mobile Dental Clinic constitutes an effective strategy for improving access to oral health services and strengthening preventive education among children and adolescents, in line with reports in the scientific literature. However, as in other similar contexts, challenges remain related to territorial equity, continuity of care, and the intensification of early preventive actions ⁽¹⁴⁾.

CONCLUSION

The evaluation of records from children and adolescents treated by ULEAM Mobile Dental Clinic during the academic period 2024-1 made it possible to identify an oral health condition that, while showing progress in terms of coverage and oral hygiene education, still faces significant challenges in the prevention and effective treatment of dental caries, particularly in primary dentition.

The concentration of care in certain localities, the high proportion of untreated caries, and the presence of plaque in a substantial segment of the pediatric population reveal the need to strengthen health promotion and prevention strategies, prioritizing intervention at the earliest stages of life. The study reaffirms the value of the mobile clinic as a fundamental resource for delivering dental care to communities with limited access and highlights the importance of maintaining systematic monitoring of oral health indicators to guide future actions.

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AUTHOR CONTRIBUTION STATEMENT

“Conceptualization and design: Karla Herrera and Luiggy Anchundia; Literature review: Luiggy Anchundia; Methodology and validation: Karla Herrera; Formal analysis: Karla Herrera; Investigation and data collection: Karla Herrera and Luiggy Anchundia; Resources: Not applicable; Data analysis and interpretation: Karla Herrera and Luiggy Anchundia; Writing – original draft preparation: Luiggy Anchundia; Writing – review and editing: Carmen Espinoza; Supervision: Carmen Espinoza; Project administration: Not applicable; Funding acquisition: Not applicable.”

CONFLICTS OF INTEREST

The authors declare that there were no conflicts of interest during the conduct of this research. In addition, the manuscript was submitted exclusively to the Revista Científica "Especialidades Odontológicas UG" for review and publication.

FUNDING

The authors report that personal funds were used to carry out this research.

HOW TO CITE:

Herrera Loor KN, Anchundia Cañarte LJ, Espinoza Cantos CJ. Dental Care and Oral Health Promotion for Children and Adolescents at ULEAM Mobile Dental Clinic in the Southern Zone of Manabí, during the 2024-1 period. Revista Científica Especialidades Odontológicas UG. 2026;9(1):15-21