

Reach and Engagement of a Digital Marketing Campaign on Periodontal Health Awareness in Jamnagar District, Gujarat: A Cross-Sectional Analysis of Google Ads and Instagram Metrics

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Abstract:

Background: Periodontal diseases are highly prevalent and largely preventable, yet public awareness remains inadequate. Digital platforms offer a low-cost route for oral health education. This study evaluated the reach and engagement of a digital marketing campaign on periodontal health directed at the population of Jamnagar district, Gujarat, India.

Materials and Methods: A cross-sectional analysis of platform-generated analytics was carried out for a campaign delivered through Google Ads (16–22 March 2025) and Instagram. A Gujarati-language educational creative describing the warning signs of gum disease was used. Impressions, clicks, click-through rate (CTR), average cost per click (CPC), cost, network, device and age–gender distribution (Google Ads), and views, accounts reached and interactions (Instagram) were analysed descriptively.

Results: The Google Ads campaign generated 4,782 impressions and 307 clicks (CTR 6.42%) at an average CPC of ₹2.28 and a total cost of ₹700. Nearly all clicks (99.7%) came from the Display Network and 99.0% from mobile phones. Impressions were concentrated among men aged 25–34 years. The Instagram content recorded 42,983 views and reached 39,918 accounts, with 157 interactions; 94.4% of views were from followers.

Conclusion: A low-cost, local-language campaign achieved wide exposure, particularly among mobile users, but interaction beyond viewing was limited, and Instagram reach was largely within the existing follower base. These indicators describe exposure and not changes in knowledge; future studies should pair campaign analytics with pre- and post-exposure assessment of periodontal awareness.

Key Word: Digital marketing; Google Ads; Instagram; Periodontal health; Health awareness; Social media

Date of Submission: 28-09-2026

Date of Acceptance: 07-10-2026

I. INTRODUCTION

Periodontal diseases are among the most common chronic conditions affecting oral health worldwide. The global age-standardised prevalence of severe periodontitis was estimated at 11.2% in 2010,¹ and oral diseases, including periodontal disease, remain a major public health challenge.² In India, a systematic review of 30 cross-sectional studies reported a pooled prevalence of periodontal disease of 51% among adults.³ Periodontal diseases are largely preventable, and their burden extends beyond the mouth, with consequences for general health, nutrition and wellbeing.^{4,5}

Despite this, awareness of gum disease remains uneven. A survey from Mahe, India, found that awareness of periodontal disease and its link with systemic health varied by gender, education and age,⁶ and the oral–systemic link is often overlooked by the public. Conventional health education, such as camps and chairside counselling, reaches only a limited audience, so complementary approaches that can reach large populations at low cost are needed.

Digital channels are one such approach. Social media is increasingly used for health communication, although its long-term benefits remain to be established.⁷ India had about 806 million internet users and 491 million social media user identities in January 2025,⁸ which makes online platforms a plausible route for reaching the general public. Systematic and scoping reviews report that social media is increasingly applied in oral health promotion and that it has been positively associated with promoting oral health, while also noting biased information and heterogeneous evaluation methods.^{9,10} Campaign effectiveness is usually described using engagement and performance metrics such as reach, clicks and interactions,^{11,12} and Google Ads metrics such as click-through rate and cost per click have been used to evaluate health-related campaigns.¹³ Data on the performance of local-language periodontal health campaigns in India appear limited.

This study therefore aimed to assess the reach and engagement of a digital marketing campaign on periodontal health, delivered through Google Ads and Instagram, among the general public of Jamnagar district. Its objectives were to describe the campaign's performance indicators, the distribution of exposure by network, device, age and gender, and the engagement achieved on Instagram.

II. MATERIALS AND METHODS

Study design and setting

This was a cross-sectional, observational analysis of aggregated, platform-generated campaign analytics. The campaign was intended for the general population of Jamnagar district, Gujarat, India, and was delivered by [Department of Periodontology, Government Dental College and Hospital, Jamnagar]. The analysis is reported with reference to the STROBE statement, as far as it applies to this design.¹⁴ [100 km radius of Jamnagar district]

Study period

Google Ads and Instagram insights data covered 16–22 March 2025.

Campaign content

An educational creative in Gujarati, the local language, was designed to prompt recognition of the warning signs of periodontal disease. It showed six symptoms with photographs: tooth sensitivity, toothache, bleeding gums, bad breath, pus discharge from the gums and tooth mobility. It carried a message encouraging people to take responsibility for their oral health, along with the contact details and website of the institution (Fig. 1). On Google Ads, a single ad group was used with a text advertisement headed by the terms ‘bad breath | dental pain | gum disease’ and the description ‘Treatment of bleeding gums. What is periodontitis?’, linked to the institutional website. The keywords included gum pain, dental pain, bad breath, dentist near me, bleeding gum, smelling mouth, and two question-form phrases about keeping breath fresh. On Instagram, the creative was shared as a story.

Data collection and variables

Data were taken directly from the Google Ads and Instagram Insights dashboards. For Google Ads, impressions (number of times the advertisement was shown), clicks, click-through rate (CTR, clicks divided by impressions, expressed as a percentage), average cost per click (CPC, total cost divided by clicks) and total cost in Indian rupees (₹) were recorded. Their distribution by network (search partners versus Display Network), by device (mobile phones, tablets, computers) and by age and gender of the audience was also noted, along with the daily trend. For Instagram, views, accounts reached, interactions and the proportion of views from followers and non-followers were recorded. The target audience was the general public, including social media users and website visitors.

Statistical analysis

The data were aggregated and not sampled at the level of individuals; therefore, only descriptive statistics (counts, percentages and ratios) were used. Derived indicators were calculated from the reported figures: cost per 1,000 impressions (total cost divided by impressions, multiplied by 1,000), views per account reached, and interactions per 100 accounts reached. No inferential tests were applied.

Ethical considerations

The study used aggregated, anonymous analytics and did not involve the recruitment of individual participants or the collection of personal data.

III. RESULTS

Google Ads performance

During the 7-day period, the campaign generated 4,782 impressions and 307 clicks, giving a CTR of 6.42%. The average CPC was ₹2.28 and the total expenditure was ₹700, equivalent to about ₹146 per 1,000 impressions (Table 1). Daily activity was minimal during the early part of the period and increased from around the middle of the period; clicks, impressions and cost peaked on the final day (22 March), whereas the average CPC peaked earlier and fell towards the end (Fig. 2).

Table 1: Overall Google Ads performance, 16–22 March 2025

Indicator	Value
Impressions	4,782
Clicks	307
Click-through rate (CTR)	6.42%
Average cost per click (CPC)	₹2.28
Total cost	₹700
Cost per 1,000 impressions (calculated)	₹146.38

CTR = clicks ÷ impressions × 100; CPC = total cost ÷ clicks. Source: Google Ads dashboard.

Distribution by network and device

Almost all clicks (99.7%) and expenditure (99.4%) were attributable to the Display Network, while search partners accounted for 0.3% of clicks and 0.6% of cost. The average CPC was higher on search partners (₹4.32) than on the Display Network (₹2.27). Mobile phones accounted for 96.6% of impressions, 99.0% of clicks and 99.3% of cost. Computers contributed 2.8% of impressions but only 0.7% of clicks, and tablets accounted for less than 1% of each measure (Table 2). Eight keywords listed on the second and third pages of the keyword report recorded ₹0.00 cost, no clicks and a CTR of 0.00%.

Table 2: Distribution of Google Ads performance by network and device

Segment	Impressions (%)	Clicks (%)	Cost (%)	Average CPC (₹)
Network: Search partners	NR	0.3	0.6	4.32
Network: Display Network	NR	99.7	99.4	2.27
Device: Mobile phones	96.6	99.0	99.3	NR
Device: Tablets	0.6	0.3	0.4	NR
Device: Computers	2.8	0.7	0.3	NR

CPC = cost per click; NR = not reported in the dashboard panel. Source: Google Ads dashboard.

Audience demographics

Among impressions with known age and gender (97% of all impressions), exposure was concentrated among men, with the highest density in the 25–34-year age group, followed by the 18–24 and 35–44-year groups. Impressions among women and among people aged 45 years and above were comparatively few (Fig. 3).

Instagram engagement

The Instagram content recorded 42,983 views and reached 39,918 accounts, an average of about 1.08 views per account reached. Followers accounted for 94.4% of views and non-followers for 5.6% (roughly 2,400 views). There were 157 interactions, equivalent to 0.39 interactions per 100 accounts reached (Table 3).

Table 3: Instagram insights for the campaign content

Indicator	Value
Views	42,983
Accounts reached	39,918
Interactions	157
Views from followers	94.4%
Views from non-followers	5.6%
Views per account reached (calculated)	1.08
Interactions per 100 accounts reached (calculated)	0.39

Source: Instagram Insights.

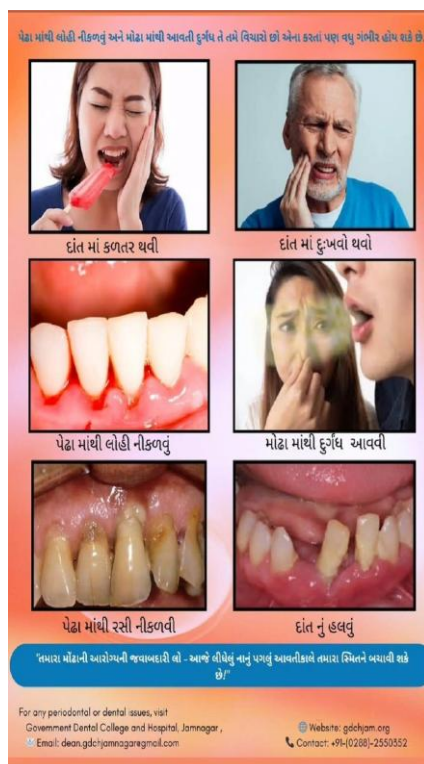


Fig. 1: Gujarati educational creative used in the campaign, showing six symptoms of periodontal disease and the contact details of the institution.

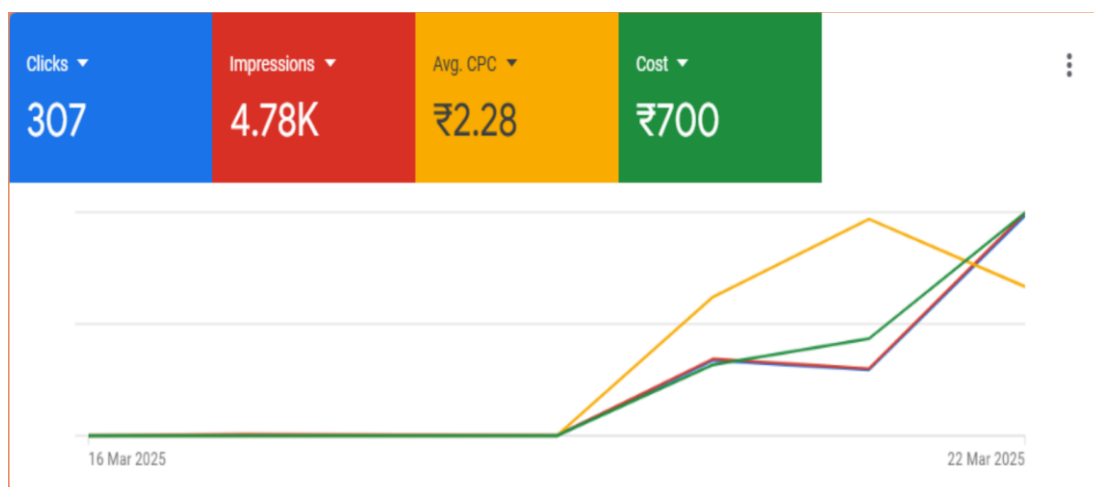


Fig. 2: Google Ads performance panel, 16–22 March 2025 (clicks 307, impressions 4.78K, average CPC ₹2.28, cost ₹700), with the daily trend.

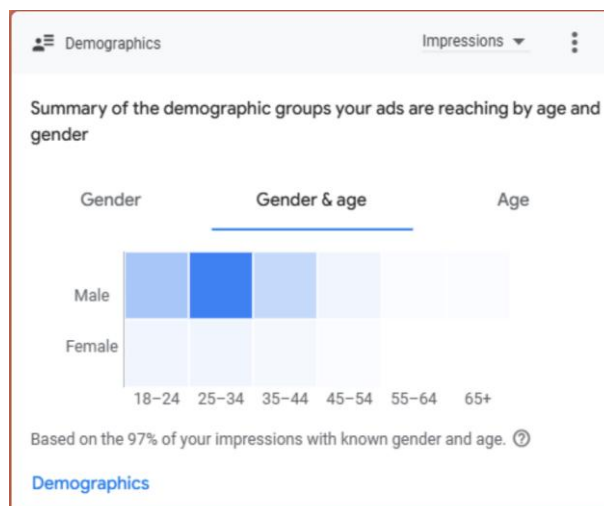


Fig. 3: Age and gender distribution of ad impressions (darker shading indicates more impressions; based on the 97% of impressions with known age and gender).

IV. DISCUSSION

This study describes the performance of a low-cost, local-language digital campaign on periodontal health in Jamnagar district. The Google Ads component produced 307 clicks from 4,782 impressions (CTR 6.42%) for ₹700, and the Instagram content was viewed 42,983 times by 39,918 accounts. These are measures of exposure and engagement. They do not show that knowledge, attitudes or behaviour changed, and the findings should be read in that light.

The CTR of 6.42% lies within the range of 1.86% to 8.48% reported for Google AdWords campaigns for health research websites in four languages,¹³ although the settings differ. Nearly all clicks came from the Display Network and from mobile phones. This is consistent with the mobile-first nature of internet use in India,⁸ and it suggests that creatives should be designed for small screens. The Display Network was the cheaper source of clicks (₹2.27 versus ₹4.32 per click on search partners), but display clicks may represent lower purposeful intent than clicks on search results. The absence of clicks on the keywords that were visible also suggests that keyword-based search targeting contributed little in this campaign, a point that deserves attention when planning future campaigns.

Exposure was concentrated among men aged 25–34 years, with few impressions among women and people aged 45 years and above. In the Mahe survey, awareness of the periodontal–systemic link differed by gender, education and age,⁶ so younger men may be a group that benefits from such messages. However, disease burden accumulates with age, and older adults were scarcely reached. Targeting and creative choices that include women and older age groups, and possibly additional channels such as messaging applications, are therefore worth testing.

On Instagram, 94.4% of views came from followers, so the content mainly reached an audience already connected to the account. Interactions amounted to 0.39 per 100 accounts reached. In frameworks for evaluating social media in health promotion, views and reach are low-level indicators, and progression to likes, comments, shares and sustained participation reflects deeper engagement.^{11,12} The low interaction rate indicates that viewing seldom translated into visible engagement. Reviews also emphasise that indicators should be selected to match the objective of the campaign.⁹ Content from a recognised teaching institution is a strength, given concerns about the accuracy of oral health information online.⁹

The campaign cost was small (₹700 for 307 clicks), which supports the feasibility of digital outreach in the context of social marketing in public health,¹⁵ and the creative addressed common symptoms in a familiar language. The strengths of this study are its real-world setting, transparent use of standard platform indicators and use of the local language.

Several limitations apply. First, no outcome of awareness, knowledge or behaviour was measured, and there was no pre–post comparison or control group, so effectiveness in improving awareness could not be assessed. Second, the Google Ads data cover only one week and a single ad group, and the Instagram data come from one piece of content. Third, platform metrics are aggregated and may include accidental or non-purposeful clicks; reach was not de-duplicated across the two platforms, and delivery within the district could not be verified. Fourth, conversion measures such as website visits, appointments or symptom-related help-seeking were not tracked. Future studies should combine campaign analytics with validated pre- and post-exposure questionnaires, tagged landing pages to follow user behaviour, comparison of alternative creatives, and a broader age and gender reach.

V. CONCLUSION

A low-cost, Gujarati-language digital campaign on periodontal health reached a large audience in Jamnagar district, with a CTR of 6.42% on Google Ads, predominantly through mobile devices and the Display Network, and with 42,983 views on Instagram. Exposure was skewed towards younger men, interaction beyond viewing was low, and Instagram reach was mostly within the existing follower base. These indicators support the feasibility of digital outreach but do not demonstrate improved awareness. Controlled studies with direct measurement of knowledge and behaviour are needed before conclusions on effectiveness can be drawn.

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