
Improving Posyandu Cadres' Knowledge Of Pulp Necrosis Through Education At UKGMD Evaluation, Pucangsawit Health Center

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Abstract

Oral health problems, particularly pulp necrosis, remain a considerable health burden in Indonesia. Community Dental Health Workers (UKGMD cadres) play a strategic role as health promotion agents at the community level; however, their knowledge of advanced dental conditions such as pulp necrosis still needs to be strengthened. This community service activity aimed to improve the knowledge of UKGMD cadres in the working area of Puskesmas Pucangsawit, Surakarta, regarding pulp necrosis through oral health promotion. The method was an interactive lecture supported by visual media (posters, PowerPoint slides, and an educational video) and a question-and-answer session, with knowledge evaluated by a pre-test and a post-test administered through Google Forms. The activity took place on 15 April 2026 at the Sorogenen Auxiliary Health Center Hall and involved 40 UKGMD cadres. The mean knowledge score increased from 95.50 in the pre-test to 99.38 in the post-test, and the cadres' active participation in the question-and-answer session reflected high enthusiasm. In conclusion, interactive lecture-based health promotion supported by engaging media improved the cadres' knowledge of pulp necrosis and may serve as a model for similar UKGMD activities in other primary health care centers.

Keywords: Health Promotion, Pulp Necrosis, UKGMD Cadres, Primary Health Care, Knowledge

INTRODUCTION

Oral health is an integral component of general health and contributes to an individual's overall quality of life. The 2023 Indonesian Health Survey (SKI) showed that the prevalence of dental and oral health problems remains very high, at 58.2% in rural areas and 56.1% in urban areas (Badan Kebijakan Pembangunan & Kementerian Kesehatan RI, 2023). This situation reflects a wide gap between the need for dental health services and public awareness of maintaining oral health.

One dental condition that is frequently encountered in clinical practice and strongly affects patients' quality of life is pulp necrosis, the death of pulp tissue caused by the loss of blood supply. It may result from deep caries, trauma, or irreversible pulp degeneration (Kartinawanti & Khoiruzza, 2021). The high incidence of pulp necrosis is closely related to the public's limited knowledge of the importance of early detection and timely dental care. Many patients seek treatment only when the condition is already advanced, because of delayed management and a poor understanding of the early signs of tooth damage (Dewi et al., 2022).

Puskesmas Pucangsawit is a primary health care facility serving three urban villages (*kelurahan*) in Jebres District, Surakarta: Pucangsawit, Sewu, and Jagalan. Its service area covers 240.5 ha, 39 community units (*RW*), and 31,085 residents. A community assessment at the dental clinic of Puskesmas Pucangsawit from January to March 2026 showed that pulp necrosis was the most frequent diagnosis, with 296 cases, followed by periapical abscess without sinus, with 236 cases (Table 1 and Figure 1). The 296 cases equal 0.95% of the population in the service area. This figure indicates a high burden of chronic dental disease, which is presumably related to limited public knowledge and delays in seeking care, and it underlines the need for systematic promotive efforts that reach the community directly.

Empowering Community Dental Health Workers (*Usaha Kesehatan Gigi Masyarakat Daerah*, UKGMD cadres) is an effective strategy for reaching the community directly (Mujiyati et al., 2023). UKGMD cadres are *posyandu* (integrated health post) cadres from each urban village in the working area of a Puskesmas who have been given additional duties in the UKGMD program. At Puskesmas Pucangsawit, they are active *posyandu* cadres from Pucangsawit, Sewu, and Jagalan. Their duties include providing dental and oral health education at *posyandu* and *posbindu* (integrated non-communicable disease posts); assisting community dental examinations; motivating residents to visit the dental clinic regularly; recording and reporting dental health conditions in their assigned areas; and taking part in the annual UKGMD evaluation together with Puskesmas health workers. In this way, UKGMD cadres act as an extension of health workers in delivering education, motivation, and health information to the community (Chaerudin et al., 2024; Sadimin et al., 2020).

Table 1. Ten Most Frequent Diagnoses at the Dental Clinic of Puskesmas Pucangsawit, January–March 2026

No.	Diagnosis	Jan	Feb	Mar	Total	ICD-10
1	Necrosis of Pulp	121	85	90	296	K04.1
2	Periapical Abscess Without Sinus	72	85	79	236	K04.7
3	Disturbances in Tooth Eruption	58	51	64	173	K00.6
4	Retained Dental Root	19	20	22	61	K08.3
5	Impacted Teeth	22	12	16	50	K01.1
6	Chronic Periodontitis	19	11	14	44	K05.3
7	Pulpitis	9	5	18	32	K04.0
8	Acute Periodontitis	9	6	11	26	K05.2
9	Caries of Dentine	6	10	5	21	K02.1
10	Embedded Teeth	4	4	—	8	K01.0

Source: SIMPUS data, Dental Clinic, Puskesmas Pucangsawit, January–March 2026

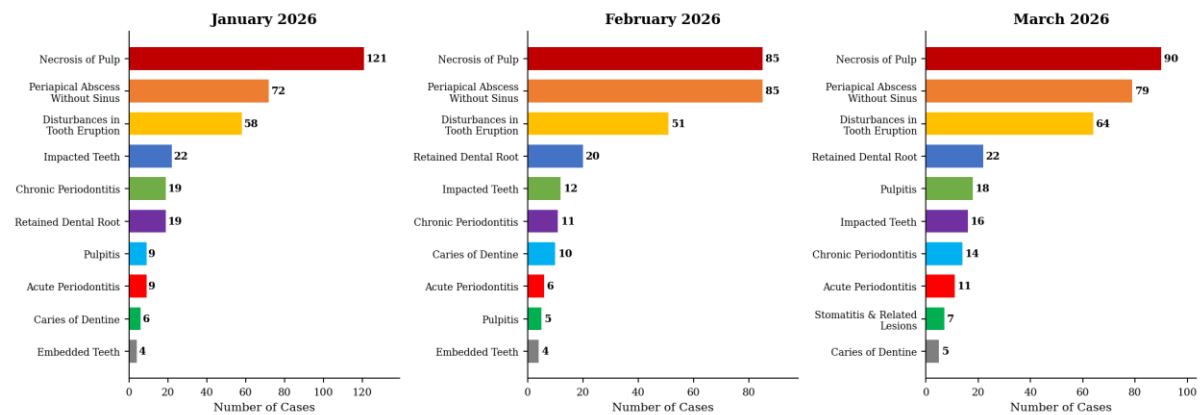


Figure 1. Ten most frequent diagnoses at the dental clinic of Puskesmas Pucangsawit, January–March 2026

Source: SIMPUS data, Dental Clinic, Puskesmas Pucangsawit, 2026

However, the knowledge and skills of UKGMD cadres, particularly regarding pulp necrosis, still need to be improved so that the information they give to the community is accurate and effective. Targeted oral health promotion for UKGMD cadres in the working area of Puskesmas Pucangsawit is therefore important. This activity aimed to improve the cadres' knowledge of pulp necrosis, including its definition, symptoms, causes, prevention, and management, so that they can become agents of dental health behavior change in their communities.

RESEARCH METHODS

This community service activity, in the form of oral health promotion, was held on Wednesday, 15 April 2026, at the Sorogenen Auxiliary Health Center Hall (*Aula Puskesmas Pembantu Sorogenen*), Pucangsawit Urban Village, Jebres District, Surakarta. The participants were 40 UKGMD cadres from the working area of Puskesmas Pucangsawit. The activity was part of the dental professional education program of the Department of Community Dental Health and Prevention (IKGMP), Universitas Muhammadiyah Surakarta, and was carried out collaboratively by professional-program students, supervising lecturers, and Puskesmas staff.

The promotion method was an interactive lecture supported by visual media: an educational poster, PowerPoint slides, and an educational video showing how pulp necrosis develops. The lecture method was chosen because of limited funds, time, personnel, and facilities. The activity proceeded in seven stages: (1) registration of the cadres; (2) opening remarks by the head of Puskesmas Pucangsawit; (3) a pre-test on knowledge of dental necrosis through Google Forms; (4) presentation of the material on the definition, symptoms, causes, prevention, and management of pulp necrosis, accompanied by the educational video; (5) an interactive question-and-answer session; (6) a post-test; and (7) the annual evaluation of the UKGMD activities of Puskesmas Pucangsawit.

The effectiveness of the activity was evaluated using a pre-test and a post-test, both administered through Google Forms and consisting of five questions on pulp necrosis (definition, signs and symptoms, causes, prevention, and management). Changes in the cadres' knowledge were analyzed descriptively on the basis of the score distributions. In addition, participants' enthusiasm and satisfaction were assessed qualitatively by observing their participation in the question-and-answer session.

RESULTS AND DISCUSSION

The oral health promotion session on pulp necrosis was attended by 40 UKGMD cadres of Puskesmas Pucangsawit. All of them took part in the pre-test, the educational session, and the question-and-answer session. Participants' enthusiasm was high: many cadres asked questions and shared their experiences with dental conditions they had encountered in the community. Pre-test data were available for all 40 cadres, whereas post-test data were available for 32 cadres.

All participants were women, which is consistent with the general profile of health cadres in Indonesia, who are mostly housewives active in community activities (Table 2).

Table 2. Distribution of Respondents by Sex

Sex	Number (n)	Percentage (%)
Female	40	100
Male	0	0
Total	40	100

Before the education session, most cadres already had good knowledge of pulp necrosis, although a minority did not reach the maximum score. After the interactive session supported by visual media, scores in the post-test improved slightly. The pre-test and post-test score distributions are compared in Figure 2.

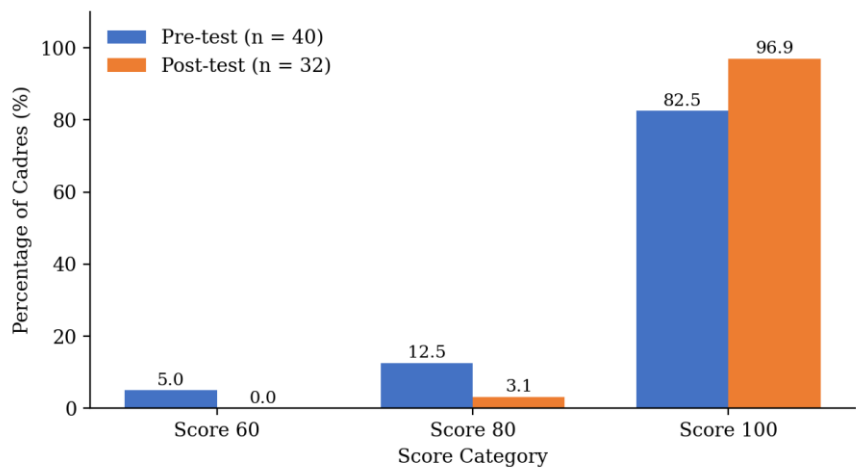


Figure 2. Distribution of pre-test and post-test knowledge scores of UKGMD cadres on pulp necrosis
Source: Primary data, 2026

The mean score rose from 95.50 (SD = 10.61) in the pre-test to 99.38 (SD = 3.54) in the post-test. In the pre-test, 33 cadres (82.5%) scored 100, five (12.5%) scored 80, and two (5.0%) scored 60. In the post-test, 31 of 32 cadres (96.9%) scored 100 and one (3.1%) scored 80. The higher mean and the smaller spread of scores suggest that the interactive lecture supported by visual media helped consolidate the cadres’ understanding of pulp necrosis. However, the analysis was descriptive and baseline scores were already high, so the increase should be interpreted with caution. This finding is in line with Peerbhay et al. (2025), who reported that appropriate dental health information contributes to changes in the knowledge and dental health behavior of the public. Similar improvements in cadres’ knowledge after dental health counseling with a pre-test and post-test have been reported in other community service programs (Hidayat et al., 2019; Rahman et al., 2024; Sholekhah & Rimawati, 2025).

The item analysis in Table 3 shows that the proportion of correct answers increased for the item on the definition of pulp necrosis and the item on its management, both of which reached 100% in the post-test. The proportions for the items on signs and symptoms, causes, and prevention remained high and changed only slightly. The small decreases on these items each reflect only a few cadres who answered differently from the answer key, and they indicate that these topics, especially the causes of pulp necrosis, need to be reinforced in future sessions.

Table 3. Percentage of Correct Answers per Item in the Pre-test and Post-test

Item	Pre-test (%)	Post-test (%)
1. Definition of pulp necrosis	92.5	100.0
2. Signs and symptoms of pulp necrosis	97.5	96.9
3. Causes of pulp necrosis	95.0	93.8
4. Prevention of pulp necrosis	97.5	96.9
5. Management of pulp necrosis	95.0	100.0
Mean score (± SD)	95.50 ± 10.61	99.38 ± 3.54

Source: Primary data, 2026. Pre-test n = 40; post-test n = 32.

The UKGMD cadres were not merely passive participants but active agents of change. During the question-and-answer session, many of them shared real cases they had met around their *posyandu*, such as residents who complained of blackened teeth that did not hurt but were reluctant to seek treatment. This shows that the cadres are already sensitive to the dental health conditions of their communities; what needs to be strengthened is their knowledge of how to recognize symptoms and give appropriate education. With better knowledge after the session, the cadres are expected to educate at least 10–15 residents

around their respective *posyandu* about the importance of early detection and care of pulp necrosis.

The cadres' verbal feedback indicated that they were satisfied with the material and found the activity very useful for understanding the importance of early detection of dental and oral problems in the community. The use of visual media, namely posters, slides, and an educational video, appeared to help participants grasp the material. This is consistent with Fitri et al. (2023), who found that dental health education using varied media was more effective in improving the knowledge of the target group than conventional counseling. Lecture and discussion supported by many pictures have also been reported to be effective for delivering material to *posyandu* cadres (Hidayat et al., 2019).

The evaluation of the process showed that the whole program ran as planned. During the pre-test, several cadres needed more time to complete the Google Form because they were not used to smartphones, so the committee assisted them. The presentation went smoothly and the participants were very attentive, especially while watching the educational video illustrating how pulp necrosis develops. The question-and-answer session was lively: 12 cadres asked questions, including how to recognize a necrotic tooth that causes no pain, when to refer residents to the dental clinic, and how pulp necrosis differs from ordinary caries. The limitations encountered were a weak internet signal at some tables, which slowed the completion of the Google Form, and a question-and-answer session that was too short given the cadres' enthusiasm.

The follow-up plan was based on the process evaluation and the participants' recommendations. First, the cadres who attended the session will be encouraged to pass the material on pulp necrosis to residents at their own *posyandu*, supported by leaflets prepared by the dental team of the Puskesmas. Second, Puskesmas Pucangsawit plans to make dental health a regular topic in the annual UKGMD evaluation, with a different theme each year, covering caries, periodontal disease, and children's dental health. Third, to overcome technological barriers, future activities will provide a printed questionnaire as an alternative to the Google Form. Fourth, post-activity monitoring should be carried out three months later to assess whether the cadres have passed the material on to the community and whether visits by residents to the dental clinic of Puskesmas Pucangsawit have increased.



Figure 3. Documentation of the oral health promotion activity at Puskesmas Pucangsawit, 15 April 2026

Source: Personal documentation, 2026

CONCLUSION

The oral health promotion on pulp necrosis for 40 UKGMD cadres in the working area of Puskesmas Pucangsawit improved the participants' knowledge, as shown by the increase in mean scores from the pre-test to the post-test. The interactive lecture combined with visual media (a poster, PowerPoint slides, and an educational video) was suitable for conveying the definition, symptoms, causes, prevention, and management of pulp necrosis, and the cadres' high enthusiasm and satisfaction indicate that the activity was relevant to their needs in the field. To make the program sustainable, Puskesmas staff should accompany UKGMD cadres routinely, the number of UKGMD participants who receive dental health promotion each

year should be expanded, cadres should be developed as facilitators at the community-unit (*RW*) level so that they can spread dental health information to their neighbors, and educational media should be complemented with take-home leaflets so that cadres can pass the material on to residents independently.

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