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The Improving Knowledge and Oral Health Behaviour of Cadres through the Use of Dental Care Application

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ABSTRACT

The limitations of dental healthcare personnel to reach the entire population necessitate the involvement of health cadres in fostering self-care practices for oral health. Through training using the Dental Care Application, they can effectively convey this knowledge to the community. This research aims to enhance the knowledge, attitudes, and actions of *Posyandu* cadres related to dental and oral health. The research method employed is a Quasi-Experiment with a Non-Randomized Control Group Pretest-Posttest design. The Wilcoxon test is utilized to assess the impact of the Dental Care Application on these variables. The research results indicate a significant increase in knowledge by 96%, attitudes by 98%, and cadre actions by 86%. It is concluded that cadre training using the Dental Care Application positively influences cadre behavior in the context of dental and oral health, with a significant p-value of 0.000. Recommendations for future research include the development of this application for online accessibility and the addition of more diverse features to enhance training effectiveness.

INTRODUCTION

Based on the 2018 RISKESDAS data, overall statistics indicate a prevalence of hard tissue damage, such as dental caries, reflected in the national DMF-T Index of 4.6. This figure exceeds the WHO standard of 3.5 (Badan Penelitian dan Pengembangan Kesehatan, 2019). The prevalence of dental caries in the age group of 3-4 years is notably high at 81.5%, and Lampung Province stands out as an area with a considerable oral health issue, boasting a dental caries prevalence of 57.6% (Badan Penelitian dan Pengembangan Kesehatan, 2019). Despite this, oral health maintenance behaviors remain poor, as individual, familial, and community health is impacted by behavior (Adliyani, 2015).

Sariningsih (2012) asserts that caring for a child's teeth from an early age is a primary responsibility of parents. One of the influencing factors on dental health in developing countries is behavior, which affects the health of individuals or the community (Karobari, 2022; Malele-

Kolisa, 2019; Rai, & Tiwari, 2018). Preschool-aged children generally lack the knowledge and ability to independently care for their oral health, making it the responsibility of parents to educate them properly (Finlayson, Beltran, & Becerra, 2019; Koirala,et al., 2019)

Efforts to enhance parental knowledge through community empowerment in dental health are essential. The assistance of health cadres, particularly dental health cadres, is crucial. Cadres, being part of the community, play a significant role in conveying knowledge, especially dental health knowledge, to the public (Amalia, 2019). Through dental health education, messages are disseminated, beliefs are instilled, and communities are not only made aware, knowledgeable, and understanding but also willing and capable of implementing health-related teachings (Kitsaras, 2023). Various media, including electronic means such as the Dental Care Application, support the health education activities during cadre training in this research.

The objectives of the research are to determine the influence of the Dental Care Application in cadre training on the improvement of oral health behavior, to assess the dental and oral health knowledge before and after the cadre training with the dental care application, to examine the dental and oral health attitudes before and after the cadre training with the dental care application, and to evaluate the dental and oral health actions before and after the cadre training with the dental care application.

METHOD

This research is of a Quasi-Experimental Design. The research design employs a non-randomized control group pretest-posttest design, where no randomization is applied to the experimental and control groups (Notoatmodjo, 2018). The study focuses on the population of posyandu cadres in the working area of Puskesmas Beringin Raya, with a total of 50 individuals. When the number of research subjects is less than 100 or is on a small scale, this study utilizes total sampling, encompassing a total of 50 individuals. Inclusion criteria involve cadres willing to be sampled, situated within the working area of Puskesmas Beringin Raya, and willing to participate in questionnaire completion and training.

Data analysis involves using the independent t-test if the data exhibits a normal distribution and the Mann-Whitney test if the data does not demonstrate a normal distribution. The training method in this research utilizes the Dental Care application on Android devices to assess knowledge improvement. Questionnaires serve as instruments to evaluate cadre behavioral improvements, and validity analysis includes testing the feasibility of the Dental Care application, material validity testing, and questionnaire validity testing using the Pearson Product Moment test through a computer statistical software application.

Additionally, this research has obtained ethical approval from Poltekkes Kemenkes Tanjungkarang with the reference number: 322/KEPK-TJK/V/2023.

RESULTS AND DISCUSSION

Table 1. Frequency distribution of cadre knowledge

Knowledge	Pre-Test		Post-Test	
	Frequency	%	Frequency	%
Good	17	34	48	96
Medium	19	38	2	4
Poor	14	28	0	0
Total	50	100	50	100

Table 1 shows that of the 50 respondents before the cadre training with Dental Care Application, the pre-test results showed that most of the respondents 19 cadres (38%) had knowledge in the moderate category, and after being given cadre training with Dental Care Application, the results of the post-test knowledge of 48 cadres (96%) increased to the good category.

Table 2. Frequency Distribution of Cadre Actions

Knowledge	Pre-Test		Post-Test	
	Frequency	%	Frequency	%
Good	0	0	43	86
Medium	35	70	7	14
Poor	15	30	0	0
Total	50	100	50	00

Table 2 shows that of the 50 respondents before the cadre training with Dental Care Application, the pre-test results showed that most of the respondents 35 cadres (70%) had actions in the moderate category, and after being given cadre training with Dental Care Application, the post-test results of the actions of 43 cadres (86%) increased to the good category.

Table 3. Distribution of Pre and Post-Test Results of Cadre Training with Dental Care Application on Dental and Oral Health Knowledge.

Knowledge	Mean	*p-value*
Pre-test	5.64	0.000
Post-test	14.40	

Table 3 shows that there is a significant difference between the value of knowledge before and after cadre training with Dental Care Application in Beringin Raya Health Centre working area cadres. The Wilcoxon statistical test results show a p-value of 0.000 (<0.05). So it can be concluded that cadre training with Dental Care Application is able to increase cadre knowledge about oral health.

Table 4. Distribution of Pre and Post Test Results of Cadre Training with Dental Care Application on Dental and Oral Health Attitudes

Attitude	Mean	*p-value*
Pre-test	16.66	0.000
Post-test	29.10	

Table 4 shows that there is a significant difference between the value of attitude before and after training cadres with dental care applications in the Beringin Raya Puskesmas work area cadres. The Wilcoxon statistical test results show a p-value of 0.000 (<0.05). So it can be concluded that cadre training with dental care applications can improve cadre attitudes about oral health.

Table 5. Distribution of pre- and post-test results of Cadre Training with Dental Care Application on Dental and Oral Health Actions of Cadres at Beringin Raya Community Health Centre, Bandar Lampung.

Actions	Mean	*p-value*
Pre-test	2.04	0.000

Table 5 it is evident that there is a significant difference between the values of actions before and after cadre training with the Dental Care application in the working area of Puskesmas Beringin Raya. The Wilcoxon statistical test results show a p-value of 0.000 (<0.05). Therefore, it can be concluded that training cadres with the Dental Care Application is capable of improving cadre actions related to oral health.

Knowledge about oral health before and after cadre training with the Dental Care application. The research results indicate that the knowledge possessed by cadres before training falls into the moderate category (34%), and after training, it has improved to the good category (96%). There is no poor knowledge category. The questionnaire results reveal that the area of knowledge that improved the most is related to the consequences of dental calculus. The increased knowledge among respondents is attributed to the information received during cadre training.

Notoatmodjo (2018) states that knowledge is acquired through the process of learning and experience. The increase in knowledge is a result of active learning activities using various

media, including technology-based media. Training with the Dental Care application is both engaging and effective in enhancing knowledge. The application's accessibility at any time and anywhere, coupled with its attractive features such as audio and visual components, makes the material clear, and the inclusion of images in all parts of the content allows cadres to see and understand directly. In the era of digitalization, dental care applications are widely used by the public. According to Prihastuti et al. (2021), increasing knowledge through interactive methods and online videos provides a clearer and more interesting representation and has better capabilities in delivering technology-based information.

Attitudes toward oral health before and after cadre training with the Dental Care application. The research results indicate that cadres' attitudes before training are mostly in the moderate category (78%), and after training, they have improved to the good category (98%). There is no poor attitude category. The questionnaire results show that the most significant improvement in attitude is agreeing to brush teeth before sleeping. Attitudes change when there is a response to something in their environment. Training using the Dental Care application can alter attitudes because the features within the application create stimuli or responses. Therefore, it can be interpreted that the change in attitude occurs due to stimuli from the provided training, turning negative attitudes into positive ones.

Notoatmodjo (2018) states that an attitude is an individual's response to a specific stimulus or object, involving opinions and emotions. Positive attitudes occurring after training contribute to changing daily habits. This aligns with research conducted by Bawental, Korompis, & Maramis, (2019), indicating a relationship between knowledge and attitudes with reproductive health behavior in high school students. The conclusion is that if adolescents have good knowledge and attitudes about reproduction, their health behavior will be positive. Similarly, cadre training can change attitudes for the better, leading to positive behavior changes.

Actions related to oral health before and after cadre training with the Dental Care application. The research results indicate that cadres' actions before training are mostly in the moderate category (70%), and after training, they have improved to the good category (86%). There is no poor action category. The questionnaire results reveal that the most significant improvement in actions is related to brushing their teeth before sleeping, aligning with the attitude of cadres who agree to brush their teeth before sleeping. Actions refer to the activities carried out in daily life. The increased actions after cadre training to change behavior positively contribute to maintaining oral health.

According to Asri, Mulyono, & Khasanah (2020), the research results show a mean change from 82 before training to 87 after training. The paired T-test analysis indicates that POSBINDU cadre training has an effect on the early detection of hypertension behaviors. After training, cadre actions become better and can be applied in daily life. This is consistent with the research conducted by Susanti (2014), which concludes that the empowerment of cadres through training has proven effective in enabling cadres to provide direct information to the community and impacting the community's knowledge. With the increased behavioral change, cadres can act by providing information, simulations, and demonstrations to the surrounding community as an extension of the health center.

Impact of cadre training with the Dental Care application on cadre behavior. The research results show changes in the levels of knowledge, attitudes, and actions related to oral health among cadres based on the statistical test results of Pretest and Posttest with a p-value of $0.000<0.05$. Therefore, the alternative hypothesis is accepted, indicating an influence after conducting cadre training with the Dental Care application on the knowledge possessed by cadres. The influence is attributed to the fact that respondents or cadres can comprehend the material from the Dental Care application clearly due to its technology-based nature, making it easy to understand. Jumiyati (2014) states that the effectiveness of online information delivery is highly dependent on the use of technology. The results of this research align with the notion that the Dental Care application, with its clear and technology-based content, enhances cadre knowledge effectively. The training of cadres with the Dental Care application has a positive impact on cadre knowledge, attitudes, and actions related to oral health. The application's

technological basis, coupled with its interactive features, provides an effective platform for enhancing the oral health-related capacities of cadres, ultimately contributing to positive behavioral changes.

CONCLUSION

In conclusion, there is a significant difference in the improvement of behaviors (knowledge, attitude, and actions) with a p-value reaching 0.000 ($p < 0.05$). This indicates that the application of dental care has a meaningful positive impact on the knowledge, attitude, and behavior of cadres. These results suggest that the effective implementation of dental care efforts enhances understanding, positive attitudes, and good practices related to oral health in the cadre group that was the subject of the study. As a suggestion, it is recommended to develop additional online educational media as a tool that the general public can utilize.

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