

Original article

## Strategy for improving the quality of School Dental Health Efforts at Tabanan Public Health Center

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### ABSTRACT

**Background:** The School Dental Health Efforts or Usaha Kesehatan Gigi Sekolah (UKGS) is a public health effort to maintain and improve the dental and oral health of elementary school students. UKGS is the strategy and the flagship of dental health in schools. The implementation of UKGS involves three elements, namely the Public Health Centre or Pusat Kesehatan Masyarakat (Puskesmas), schools, and parents. The three elements in UKGS are the driving force and restraining force, which greatly affect the quality of UKGS services. **Purpose:** This study aimed to analyze a strategy that can improve the quality of UKGS at Tabanan Puskesmas. **Methods:** This research used evaluative research and was analyzed by Kurt Lewin's Force Field Analysis. **Results:** The driving forces that have the highest score are good knowledge, the skill of personnel, and guidelines for implementing the UKGS at Puskesmas; whereas the restraining forces that have the highest score are the unavailability of guidebooks and health teacher skills, as well as lack of budget for the UKGS activities. **Conclusion:** Strategies that can improve the quality of UKGS at Tabanan Puskesmas can be done by utilizing the facilities at the Puskesmas for the UKGS activities in schools, transmitting knowledge and skills from Puskesmas officers to the UKGS staff in schools, and increasing the budget by means of self-help.

**Keywords:** dental health education; dentistry; school dental health efforts

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### INTRODUCTION

The Global Burden of Disease Study 2019 estimated that dental diseases affect close to 3.5 billion people worldwide, with caries of permanent teeth being the most common condition. Globally, it is estimated that 2 billion people suffer from caries of permanent teeth and 520 million children suffer from caries of primary teeth.<sup>1</sup> In most low-income and middle-income countries, the prevalence of dental disease continues to increase as urbanization grows and living conditions change. This idea is mainly due to inadequate exposure to fluoride (in water supplies and dental hygiene products such as toothpaste), the availability and affordability of high-sugar foods, and poor access to dental healthcare services in the community.<sup>2</sup> The World Health Assembly approved a resolution on dental health in 2021 at the 74th World Health Assembly. The Resolution recommends a shift from the traditional curative approach toward a preventive approach that includes the promotion

of dental health within the family, schools, and workplaces, which includes timely, comprehensive, and inclusive care within the primary healthcare system.<sup>3</sup>

Dental diseases in Indonesia are at the top of the list of the 10 most common diseases in Indonesia. The perception and the behavior of the Indonesian people toward dental health are still poor. It can be seen from a large number of dental caries diseases in Indonesia, which tend to increase, so dental health problems in Indonesia still need attention. The prevalence of caries and periodontal disease is still relatively high.<sup>4</sup>

The dental and oral problems of the people in Bali are higher than the national average, which is 58.4%. One of the reasons is that 95.7% of Balinese people have never visited a dental medical facility. Furthermore, only 5.3% of Balinese people brush their teeth at the right time, which should be twice a day, in the morning after breakfast, and at night before going to bed. It allows for other factors that influence the high level of dental and oral problems in the

Province of Bali, one of which is the behavior of brushing teeth that is not good and correct, and dental and oral health services are not evenly distributed.<sup>5</sup>

To control dental and oral diseases by the Public Health Center or Pusat Kesehatan Masyarakat (Puskesmas) through the actualization of the local School Dental Health Efforts or Usaha Kesehatan Gigi Sekolah (UKGS) for both examination and treatment of dental and oral diseases is still low. Public awareness of dental and oral health is also still low, so it is necessary to develop a health improvement system through counseling and improving the quality of services.<sup>5,6</sup>

The Puskesmas program on UKGS is not yet optimal. This shows that the implementation of UKGS has not succeeded.<sup>7</sup> The efforts to improve dental and oral health services, especially in elementary schools, face several obstacles which certainly require solutions. Obstacles faced include the limited number of dental health workers in elementary schools. The Health Law of the Republic of Indonesia Number 36 the Year 2009 about health states that improvements in health status can be realized by increasing integrated health facilities and public health services carried out by health workers according to their area of expertise. Therefore, there is a need to strengthen cross-program and cross-sectoral integration, the development of which is the responsibility of health workers, teachers, and parents. The Puskesmas play an important role as the UKGS's development team at the district level, particularly in dental and oral health services such as screening for dental and oral health problems, regular dental health check-ups, and consultations. The role of teachers in schools is also crucial, that is, to monitor student behavior daily.<sup>8</sup>

Tabanan Regency in Bali Province is one of the regencies in Indonesia that has a prevalence of dental caries experience that is higher than the national prevalence of 68.2%. Based on interviews with school principals, it was found that most UKGS in the Tabanan district were not active. This is in accordance with the results of a study in Denpasar which stated that more than 95% of UKGS were inactive,<sup>9</sup> and when the research was conducted, it turned out that, during the COVID-19 pandemic, the UKGS program could not be implemented. Student learning is conducted online which worsens the condition of students' consumption of sweet snacks during the online learning process. This will increase the occurrence of caries in students. Therefore, dental and oral health education counseling through the UKGS online program is highly needed.

Elementary school students (ages 6-12 years) are often referred to as a vulnerable period because the baby teeth begin to fall out one by one, and the first permanent growth begins. New teeth are immature and susceptible to decay.<sup>5</sup> UKGS is a technical strategy for implementing dental and oral health for elementary school students. The scope of its activities is to carry out dental health checks, routine dental care, and dental and oral health counseling for school children.<sup>3</sup> However, at the time of the study, the COVID-19 pandemic occurred, so the UKGS program in

schools was suspended. It is necessary to have a strategy to improve services and human resources quality through the UKGS program. Therefore, the purpose of this study is to investigate the driving and restraining force in developing efforts to improve the quality of UKGS services

## MATERIALS AND METHODS

This qualitative research used evaluative research and was analyzed by *Kurt Lewin's Force Field Analysis*,<sup>10</sup> which assesses and measures results with standard indicators. The population in this study was 40 UKGS officers at Tabanan Puskesmas. The research sample consisted of 15 UKGS officers who had signed an informed concern. The method of determining and selecting samples is by purposive sampling, of which one sample of UKGS officers was taken from each Puskesmas with the support of one elementary school. The population in this study were all Puskesmas in Tabanan district, while the target population was all Puskesmas in Tabanan district that foster UKGS. The research sample was UKGS officers at the Tabanan Health Center, while the intended sample was a sample that met the inclusion and exclusion criteria. The sample that is actually researched is the sample that really follows the research to completion. Inclusion criteria are UKGS Puskesmas Tabanan officers who are willing to be investigated by signing the Informed Consent. The exclusion criteria were UKGS Puskesmas Tabanan officers who were not willing to be investigated. The drop-out criteria are the research sample who for some reason cannot continue the research. The researcher absolutely guarantees that the identity of the research participants will be kept confidential and fully protected. Validity assessment is through cross-checking of information sources.<sup>11</sup> Ethics approval was obtained from the Ethics Review Board of the Faculty of Dentistry at Mahasaraswati Denpasar University (No.356/A.17.01/FKG-Unmas/III/2022).

The technique used is a Force Field Analysis (FFA) approach by analyzing inputs, including the condition of health centers and elementary schools, the availability of UKGS program tools and materials, UKGS program implementation guidelines, UKGS program planning, and UKGS program budget. In addition, the process analysis includes planning discussions, counseling to teachers, parents, and students, screening, plenary treatment, mass toothbrushing, recording and reporting, monitoring, evaluation, and feedback.<sup>12</sup> The results of the input and process analysis are expected to provide input that can produce efforts to improve the quality of UKGS services. The data obtained were analyzed using FFA to determine the key restraining force (RF) and driving force (DF) of the study results.

A qualitative method study was carried out using the FFA regarding improving the quality of UKGS in Puskesmas Tabanan, Bali, in 2020. Implementation of the FFA using transparency overhead let's all participants see

the ongoing discussion process. This study included six steps for improving the quality of UKGS: first, discover DF and RF from references; second, select key DF and RF through focus group discussion; third, DF and RF assessment by the first group (UKGS officers); fourth, determine key DF and RF from head school perspective; fifth, determining the score of the strength of the influence on each of the agreed strength; and sixth, the largest factor value from the driving factors and restraining factors, is then used as a key success factor in formulating a strategy to improve the quality of UKGS in Tabanan Puskesmas.

**Table 1.** Number of Puskesmas based on regional characteristics of research location, from Puskesmas to Elementary School

Puskesmas	n	%
In easily accessible locations: Tabanan I, II, III	3	20
In locations that are difficult to reach: Marga I, II; Kerambitan II; Pupuan I, II; Selemadeg Timur I, II; Selemadeg Barat; Baturiti I, II; Penebel I, II	12	80

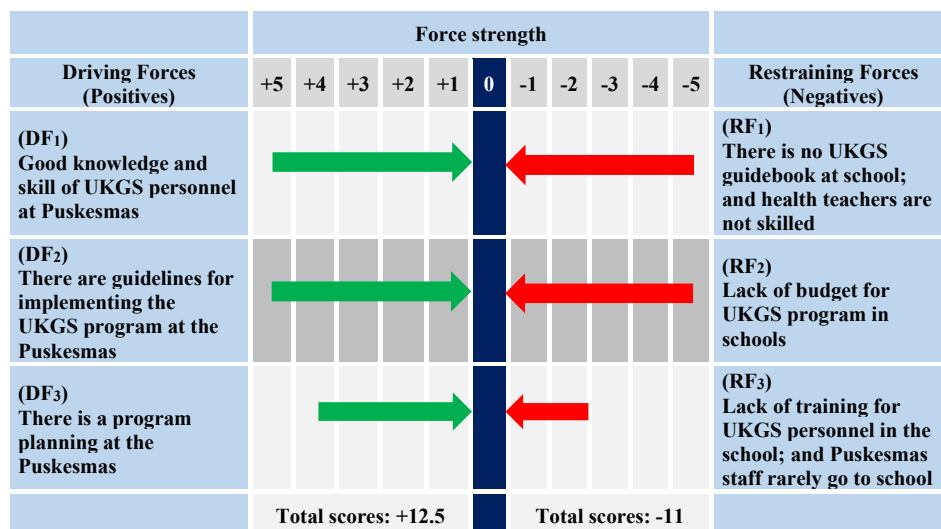
**RESULTS**

Tabanan regency is divided into 10 sub-districts and consists of 133 villages. According to the results of the population registration carried out by the Central Statistics Agency (BPS) at the end of 2015, the population of Tabanan Regency reached 448,033 inhabitants. The population is spread over ten sub-districts in Tabanan Regency. Most of the Tabanan Regency area is a rural/mountainous area. Tabanan Regency has 20 Puskesmas, which covers UKGS in 310 Elementary Schools. The 15 Puskesmas where the research was carried out based on regional characteristics is shown in Table 1.

Questionnaires, field observations, suggestions, and expectations of UKGS staff (Puskesmas and school) are expected to improve the quality of UKGS program services at Tabanan Puskesmas. The procedures, efforts, and actions for improving the quality of UKGS program services based on the key driving and restraining forces are presented in Table 2. FFA efforts to improve the quality of UKGS program services in Tabanan Puskesmas are presented in Figure 1.

**Table 2.** Efforts to improve the quality of UKGS program services based on the key driving forces and restraining forces

Key driving and restraining forces	Efforts and activities made
Good knowledge and the skills of UKGS personnel at the Puskesmas	Providing skills and understanding of the meaning, objectives, targets of activities, and targets of the UKGS program for teachers and elementary school students, especially in the implementation of dental and oral health counseling and mass toothbrushing
There are guidelines for implementing the UKGS program at the Puskesmas	Distributing and explaining the UKGS implementation guidelines for school health teachers
There is a program planning at the Puskesmas	Utilizing the UKGS program planning at the Puskesmas as a reference for implementing UKGS in schools and making UKGS program planning together
There is no UKGS guidebook at school	Organizing UKGS guidebooks for students and teachers
Lack of budget for UKGS program in schools	Implementing a healthy fund program through the Student Parents Committee Board
Lack of training for UKGS personnel in schools, and Puskesmas staff rarely go to school	Providing training and counseling on how to brush teeth properly and correctly, as well as practicing it to teachers and elementary school students; Improving the discipline of UKGS Puskesmas officers



**Figure 1.** FFA Strategy for improving the quality of UKGS at Tabanan Puskesmas.<sup>10</sup>

The results showed that the driving factors were the availability of skilled and knowledgeable health workers and UKGS personnel who were willing to carry out the UKGS program. In addition, there were also restraining factors in the form of infrequent visits by officers to schools, lack of equipment and materials facilities, and lack of budget for UKGS activities. Efforts to improve the quality of UKGS program services based on the key driving forces are utilizing the guidelines, program planning, knowledge, and skills of UKGS personnel Puskesmas. Efforts to improve the quality of UKGS program services based on the key restraining forces are increasing the budget for the UKGS program by holding health funds.

Based on Figure 1, the total score for the force strength of the driving forces (+12.5) is higher than that of the restraining forces (-11). So the UKGS program is feasible to be developed. The driving forces that have the greatest value are  $DF_1$  and  $DF_2$ , whereas the restraining forces that have the greatest value are  $RF_1$  and  $RF_2$ .

## DISCUSSION

Dental and oral health services in the province of Bali begin with basic dental health activities at the Puskesmas. The research report says the effectiveness of the utilization of the Dental Health Department of Puskesmas Tabanan is very low.<sup>13</sup> This is in accordance with the results of research at the Karangasem Puskesmas. It is due to the road conditions which are difficult to reach.<sup>14</sup> The results of this study are shown in Table 1, which shows that 80% of the road conditions are very difficult for UKGS Puskesmas officers to go to elementary schools. Moreover, since each Puskesmas only has two dentists, it does not meet the standards for services for the number of residents that must be handled. The rate of addition of Puskesmas in the Tabanan district is not proportional to the rate of population growth, so the UKGS program is difficult to implement due to the lack of existing facilities.<sup>15</sup> This is consistent with the results of an evaluation of the UKGS implementation in the districts of Denpasar and Karangasem, Bali province, which found around 95% of UKGS were inactive. This can be overcome by multiplying the UKGS guidebook at the Puskesmas, distributing them to students and teachers, and training school health teachers through the implementation of the Student Parent Committee Board's health fund program (Table 2 and Figure 1).<sup>16</sup> The active UKGS was found to be around 5%, significantly improving the dental and oral health of elementary school students.<sup>9,14</sup> Some aspects of the service can influence the utilization of the health services in Puskesmas Tabanan, including the activities being done for health such as factors of the health personnel doing the health service, facility, and factor of the services users. Puskesmas' flagship program to prevent dental health problems in elementary school students is the UKGS program. It is conducted to maintain and improve the dental and oral health of all students in school. It is carried

out through health education, dental health services, and fostering a healthy school environment. The impact of the UKGS is that, hopefully, there will be changes in students' attitudes and behavior. In addition, students will understand when and how they should brush their teeth properly and correctly, and they can take advantage of available dental and oral health service facilities to improve their oral and dental health.<sup>17</sup>

The lack of budget for the UKGS program in schools is the restraining power with the highest score (Figure 1). This is in accordance with the results of research at the Halmahera Health Center, Semarang, which stated that the UKGS activities were not successful because they were influenced by the lack of operational funds for UKGS activities.<sup>3</sup> This is confirmed by the results of research in Saudi Arabia on increasing oral health literacy, as well as reducing organizational and financial barriers, resulting in better oral and dental health in school children.<sup>18</sup> Therefore, the strategy for the success of the UKGS program is to implement it in an integrated manner, across programs and sectors that are targeted and sustainable.<sup>12</sup>

FFA analysis found the restraining force with the highest score is health teachers in schools are not skilled (Figure 1). Several research reports recommend that it is necessary to regularly conduct training for school health teachers to motivate teachers to actively take the initiative to develop various activities related to the promotion of dental health in schools.<sup>19–21</sup> This activity is in the form of counseling for teachers on how to assess oral hygiene or oral condition, including dental caries and gum disease, as well as explanations about efforts or programs that need to be carried out.<sup>22,23</sup> UKGS services for students are training for school health teachers on integrated dental and oral health knowledge.<sup>24–26</sup> Dental health education and counseling are carried out by school health teachers by following the curriculum applicable to all students in grades I–VI. The teacher guides daily tooth brushing activities, at least for grades I, II, and III, by using toothpaste containing fluoride.<sup>27</sup>

Other UKGS program activities are duplicating, distributing, and training UKGS implementation guidelines in the Puskesmas to school UKGS teachers (Table 2). The UKGS implementation guidelines can be used as guidelines for implementing the UKGS program in elementary schools. Elementary school-age children are vulnerable to dental and oral health due to a lack of knowledge. The level of teachers' knowledge about oral health affects students' attitudes and behavior towards dental and oral health.<sup>19</sup> Applying the latest science, technology, and motivation to stimulate student participation and break the caries chain by preventing and protecting teeth. Primary prevention and protection technologies include the latest caries theory, such as demineralization versus remineralization, and *minimum intervention*, such as protecting caries-prone teeth. Principles of treatment and *minimum intervention* from an early age are proven to add value to be more effective and measurable. This is in accordance with the

research results that the current UKGS development is the emergence of Innovative UKGS, which aims to increase students' awareness of caries risk factors by teaching them how to overcome caries.<sup>12</sup>

United Nations Educational, Scientific, and Cultural Organization (UNESCO) and the World Health Organization (WHO) call on schools to play an important role in maintaining dental health education and equip students with skills for their future health and well-being. The results showed that dental health education improved the students' knowledge, attitudes, and oral hygiene status.<sup>28</sup> There is a significant correlation between knowledge, attitude, source of information, and teacher support with oral treatment behavior of oral hygiene in children. Source of information is the dominant factor that affects the behavior of oral hygiene in children aged 12 years old in Puskesmas I Baturiti, Tabanan.<sup>29</sup>

The results of the study indicate that it is important for educators to incorporate education on medicinal plants with nutrition for oral health into the school curriculum. This is reinforced by a reminder sticker book, which can increase knowledge of oral health. The results of the study indicate that it is important for educators to incorporate dental and oral health nutrition, as well as medicinal plant garden and dental health nutrition education, into the school curriculum.<sup>30,31</sup> Reminder sticker books can increase oral health knowledge and reduce OHI-S scores in seven-to-eight-year-old children.<sup>32</sup> UNESCO proposes to prepare students to understand the reality to build individual student empowerment through improving curriculum content (focus on related to health, nutrition, and well-being) with collaboration between various sectors and actors to achieve an integrated system focused on students and teachers.<sup>28,33</sup>

Good dental health contributes considerably to the health and quality of life of the population.<sup>34</sup> Providing elementary school educators with web-based resource materials improves their attitudes, increases their knowledge, and leads to positive behavioral intentions concerning educating their students about dental health.<sup>32</sup> Based on research, it is stated that the acquisition of learning outcomes through a combination of the senses of sight (visual) and hearing (audio) becomes higher.<sup>35</sup>

Based on the description above, it can be concluded that the strategy that can improve the quality of UKGS at the Tabanan Puskesmas can be done by utilizing the facilities at the Puskesmas for UKGS activities in schools, transmitting knowledge and skills from Puskesmas UKGS officers to school UKGS officers, and increasing the budget by the implementation of the Student Parent Committee Board's health fund program. This research was carried out during the COVID-19 pandemic, which is the main limitation of this research, so respondents can only be taken from 15 UKGS Puskesmas officers. The findings of this study have important implications that the UKGS program is very important to be immediately noticed by parents, the health office, the government, research and

community service institutions, and funders, considering that only about 5% of the UKGS program can be active. On the other hand, the condition of students' dental health is getting worse. It is recommended for the development of an innovative UKGS program, namely the development of a few dentists with a garden of nutritious medicinal plants, which is the main focus of the physical education and health curriculum, and appears on the website. The findings of this study have very important implications, both for readers, students, parents of students, UKGS officers (schools and Puskesmas), principals, heads of health centers, leaders of the Puskesmas, as information that the UKGS program is more than 95% unable to be active because of constraints, such as lack of funds and lack of awareness to dental health for elementary school students.

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