

# Improving the Managerial Ability of Dental and Oral Therapists in Adolescent Health Services through the Posyandu Management Information System (SIMYANDU)

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**Abstract:-** Dental and oral therapists provide health services to adolescents in the Soppeng Regency area in the implementation of planning management, especially in posyandu, which is still manual and has not been implemented properly. The Posyandu Management Information System (SIMYANDU) is an information system that can overcome problems and improve the managerial skills of dental and oral therapists. This study uses the Research and Development (R&D) method, model testing using the *pre-experimental design method*. The data from the model test results were tested using Aiken's V and *Intraclass Correlation Coefficient (ICC)*. The results of the expert validation test on SIMYANDU obtained an average feasibility score of 100% which means it is feasible as a posyandu management information system based on expert validation ( $v=0.68$ ), ICC value ( $p=0.940$ ). Assessment of the managerial ability of dental and oral therapists after treatment is meaningful. The results of the *effect size test* on the aspects of problem identification ( $p=0.001$ ), problem priority ( $p=0.001$ ), cause of problem ( $p=0.003$ ), alternative solution to the problem ( $p=0.001$ ), planning ( $p=0.001$ ) means that the web-based SIMYANDU model to improve the managerial ability of dental and oral therapists is very effective in adolescent health services in the Soppeng Regency area. This study shows that the application of the web-based SIMYANDU model is feasible and its application is effective in improving the managerial ability of dental and oral therapists in health services for adolescents in the Soppeng Regency area.

**Keywords:-** Dental and Oral Skills, Dental Health, Health Services, Adolescents.

## I. INTRODUCTION

The Health Law of the Republic of Indonesia number 17 of 2023 concerning health which states that community-sourced health efforts are a vehicle for community empowerment in the health sector which is formed on the basis of community needs, managed by, from, for and with the community, and can be facilitated by the central government, local governments, and/or village governments by involving other related sectors [1]. Community-sourced health efforts can be in the form of integrated service posts. The WHO Global Oral Health Programme (GOHP) policy states that dental and oral health are inseparable and important for general health, and WHO states that oral health is a factor that determines the quality of human life [2].

Dental and oral health of adolescents needs serious attention, dental and oral health problems that are often encountered are dental caries and periodontal disease. School-age children are a vulnerable group of dental health problems that need more attention. Dental and oral health disorders that occurred in elementary school children in Southeast Asia in 2015 amounted to 35% [3]. Basic Health Research data in 2018 stated that 57.60% of people in Indonesia have problems dental and oral health [4]. People in Central Java Province who experience dental and oral problems are 56.70%. The proportion of the Indonesian population according to Basic Health Research in 2018 of 92.60% has dental caries problems in the age group of five to nine years [5]. The Global Burden of Disease Study (2016) reported that permanent dental caries is included in one of the diseases with the largest prevalence in various countries at 95% [6].

This is in line with national data which shows that the number of health centers that receive technical guidance and monitoring from the Health Office for supervision is 33.1%, for urban areas it is 43.6%, while rural areas are only 29.5% [13]. Based on the national proportion, there are only 1,653 health centers or around 72.3% that carry out the main activities of dental health efforts, namely dental and oral health services at health facilities, School Dental Health Efforts (UKGS) and Community Dental and Oral Health Efforts (UKGM). One of the provinces that does not carry out activities at health centers is South Sulawesi, as many as 61.1% of health centers do not receive guidance from the Health Office. Based on this proportion, it is known that the quality of dental and oral health efforts is not optimal. The reason for the low proportion of activities, especially UKGM, is the limited availability of resources and infrastructure facilities at the Health Center [7].

The implementation of dental and oral health efforts in adolescents often encounters obstacles, this is due to the limitations of facilities, manpower, funds, and facilities of the Health Center. Other obstacles that cause the implementation of adolescent dental and oral health efforts are hampered, namely: 1) The knowledge and ability of health workers in dental and oral health efforts in compiling the organization, planning, monitoring and implementation of promotive and preventive dental health efforts as a whole across sectors has not been maximized, 2) The unavailability of the right dental health coaching platform, The absence of a policy for adolescent dental and oral health programs at the local Health Office resulted in the non-implementation of monitoring and evaluation, 3) The unavailability of operational costs for the implementation of the program [8].

The dental health recording and reporting system at the health center is not optimal because it is still done manually at the end of the year using a combined form between the dental health report and the health center report. This has led to the inhibition of evaluation and monitoring activities in the implementation of dental and oral health efforts at the Health Center [9]. Evaluation and monitoring are important to monitor health program policies and plans implemented in accordance with the goals that have been set. The shortcomings of a program can be minimized by the implementation of regular evaluation and monitoring [10].

It is necessary to make efforts to improve the quality of dental and oral health in adolescents, especially the quality of management which includes planning, implementation, monitoring, and evaluation in the implementation of posyandu which is a form of Community Resource Health Efforts (UKBM). The support of the latest technological developments can be used as a resolution of manual monitoring activities that are diverted by an information system [11]. The quality of recording and reporting of dental and oral health activities at posyandu must be oriented to the quality of human resources and the quality of individual health in accordance with industry 4.0 resolutions so that it needs to be managed comprehensively through an integrated information system [12].

A website-based health information system that utilizes technology can support the processing of information, data and health indicators. This can be used as a switch from manual monitoring activities to a computer information system. The health information system in the health center can ensure the availability of faster, more accurate, up-to-date, sustainable and accountable information. Health information systems as integrated management are used to guide decisions and actions related to information, data, procedures, technology, indicators, and human resources in the health development process [13].

The benefits of the health information system above are sought to be realized by relying on technology that is easy to apply to improve the quality of dental and oral health services at posyandu. The management information system in the posyandu can describe the activity standards, success factors, and evaluation of dental and oral health activities of adolescents in the posyandu.

Dental and oral health efforts at the Posyandu are expected to be able to provide information on the maintenance of dental and oral hygiene and increase knowledge about dental and oral health. In addition, it aims to encourage the achievement of dental health care, encourage the willingness to overcome health problems early and independently, and is expected to be a potential for the implementation of optimal dental health in adolescents [14].

## II. RESEARCH METHODS AND SAMPLE

The method of research to be carried out is the *Research and Development* (R&D) method, which means that this method combines qualitative and quantitative approaches, in testing the effectiveness of products using analytical methods, and in producing products using descriptive methods to collect data.

The sample of this study consists of information collection samples, expert validation test samples and samples for product use. The sample of information collection consisted of 7 samples, namely the health office in the field of health services, the head of the public health center, dentists, dental and oral therapists, adolescent health program managers and adolescent health cadres. The expert validation test sample consisted of management experts, public health experts, and information technology experts with data analysis using Aiken's V validity tests and Intraclass Correlation Coefficient (ICC). Meanwhile, the samples for product trials are dental and oral therapists. The data analysis used is the Wilcoxon test.

## III. RESULTS AND DISCUSSION

### A. Interview Collection

Information collection was carried out with respondents consisting of health offices in the field of health servants, heads of public health centers, dentists, dental and oral therapists, adolescent health program managers and adolescent health cadres.

Table 1 Conclusions of Respondents' Answers

It	Question	Conclusion Answer
1	How is the management of management information systems in adolescent dental and oral health services?	Adolescent dental and oral health services are in the PKPR program for other health service items, there is manual recording and reporting, planning has not run according to the stages, information delivery is only carried out at meetings or WA groups so that an information system that can be integrated with other programs is needed.
2	What is a youth posyandu?	Community-based health efforts that involve adolescents as targets and drivers in an adolescent care health program (PKPR) activities consist of health services (counseling, KIE and peer counselors), management of growth and development cases (nutrition, short posture, puberty problems, anemia), genetics, infections, sensory health, mental health and other health and referrals.
3	How is the management of posyandu in adolescent dental and oral health services	Dental and oral health services for adolescents at the posyandu have been implemented, there is a recording and reporting of a special format for the results of dental and oral examinations of adolescents but it is still manual.
4	What is the role of dental and oral therapists in dental and oral health services for adolescents in youth posyandu?	Conducting dental and oral health care services for adolescents in promotive, prefactive and simple curative efforts as needed.
5	What is the role of cadres in dental and oral health services for adolescents in youth posyandu?	Coordinating related to the preparation of activities at the posyandu starting from target mamanggil (adolescents), scheduling, recording, reporting and together with dental and oral officers to conduct counseling

The results of interviews from seven respondents became a recommendation in making the design of SIMYANDU to obtain a posyandu management information system according to the needs of dental and oral therapists and can be used in adolescent health services.

The results of the interview obtained information that in the Soppeng Regency area, dental and oral health services for adolescents are integrated in the adolescent care health program, the delivery of information is only carried out at meetings or whatsapp groups that manage children's health programs in the field of public health. Regarding community-based health efforts that involve adolescents as targets and drivers in an adolescent care health program activity, it consists of health services (counseling, KIE and peer counselors), case management of growth and development (nutrition, short posture, puberty anemia problems), genetics, infections, sensory health, other health and referrals. Dental and oral health of adolescents is included in other health and referrals. For the management of dental and oral health services at the posyandu, which is integrated with the adolescent care health program, in recording and reporting there is a special format for the results of dental and oral examinations of adolescents but the management is still manual. The implementation of the management of dental and oral health care services has begun to be carried out at the stage of preparation, implementation, simple promotive, preventive and curative efforts in all life cycles as needed, at the planning stage has not run according to

the stages, cadres have participated in health services for adolescents related to coordination, preparation of activities at the posyandu, starting to call targets (adolescents), scheduling, recording, reporting and together with dental officers (therapists teeth and mouth) to conduct counseling.

Based on the information and data that has been obtained, there has been no special program formed to improve the managerial ability of dental and oral therapists in adolescent health services using the website. So far, dental and oral therapists in providing dental health services to adolescents after the activity is carried out have not taken steps to analyze program problems, there is no good planning. As an effort to improve the managerial ability of dental and oral therapists in accordance with the management stages, it needs to be supported by a website-based information system that can make it easier to make problem identification, problem priorities, problem causes, alternative solutions to problems and dental and oral health planning for adolescents so that "SIMYANDU" is needed to improve the managerial ability of dental and oral therapists in health services for adolescents.

#### B. Expert Validation

Expert validation was carried out to obtain data that was used as a basis to test the feasibility of the SIMYADU Validator Model media for 6 people and was tested by the Aiken's V Validity test and the Intraclass Correlation Coefficient (ICC) test.

Table 2 Aiken's V Test Table

Sum	n (c - 1)	Value	Result
491	720	0,68	Medium Validity

The Validity value obtained is 0.68 interpreted as a medium coefficient that considers that the range V is from 0 – 1.

Table 3 ICC Test Table

Size Average	ICC	Minimum limit	Maximum limit
	0,940	0,900	0,968

- In the Table of *Intraclass Correlation Coefficient* (ICC) Reliability Test Results, ICC = 0.940, CI (*Confidence Interval*) = 0.900 to 0.968. This means that the Product Model and Measurement carried out by experts are declared to be an excellent agreement with an ICC value of 0.940.
- The results of the feasibility test have been carried out by 6 experts using a questionnaire with indicators related to management, health management and information technology, each expert has answered 7 questions about management, 13 questions about health management and 10 questions about information technology so that the results of expert validation that are declared feasible are obtained because the SIMYADU model was developed based on the needs of dental and oral therapists in adolescent health services In Posyandu which has elements of promotive, preventive dental and oral health, there is data on adolescent dental examination activities and analysis of activities in the form of problem identification, problem priorities, problem causes, alternative solutions to problems

and planning of dental health activities for adolescents. This means that the SIMYANDU model is relevant for its application as a management information system in posyandu in improving the managerial ability of dental and oral therapists in adolescent health services based on experts

### C. Model Test Results

The web-based SIMYANDU model test is an effort to improve the managerial ability of dental and oral therapists using an experimental method to measure the feasibility of the SIMYANDU model using a tool in the form of a questionnaire with a pre and post test research design. This research was conducted on dental and oral therapists who work in community health centers and who have practices.

Wilcoxon Effectiveness Test Table of paired data of TGM managerial ability variables before and after the use of the SIMYANDU model

Table 4 SIMYANDU Model

Variable	Statistics			
	Before	After	P Value*	Interpretation
Identify the problem				
Mean + Std dev	19,833+4,390	21,250+4,056	0,001	There is a difference
Min - Max	13 - 30	15 - 30		
Issue priority				
Mean + Std dev	18,083+4,262	20,041+4,091	0,001	There is a difference
Min - Max	13 - 28	14 - 29		
Causes of the problem				
Mean + Std dev	19,250+4,971	20,708+4,427	0,003	There is a difference
Min - Max	13 - 30	15 - 30		
Alternative solutions to the problem				
Mean + Std dev	19,125+4,693	21,625+4,518	0,001	There is a difference
Min - Max	13 - 301	3 - 30		
Planning				
Mean + Std dev	19,00+4,791	20,583+4,548	0,001	There is a difference
Min - Max	12 - 30	12 - 30		

Based on the table above, it can be seen that in all variables there is a significant difference between the results before and after by looking at the statistical data on problem identification  $p=0.001$ , on the problem probability  $p=0.001$ , on the cause of the problem  $p=0.003$ , on the alternative solution to the problem  $p=0.001$  and planning  $p=0.001$ .

The occurrence of significant differences is due to the SIMYANDU feature there are stages of preparation and implementation of dental and oral health services for adolescents, so that it affects the planning of dental and oral health services for adolescents.

Management in an information system can optimize roles, functions, and positions that can analyze managerial abilities and motivation in a management to be able to find out the existing shortcomings and weaknesses so that improvements can be made to improve elements that are considered necessary [15].

In this digital era, technology offers a variety of innovative solutions to improve various aspects of life, including the health sector [16]. One example is the use of special applications to assist health workers in improving their managerial skills. These applications come with various features that can help healthcare workers manage their tasks more efficiently and effectively, thereby improving the overall quality of health services.



One of the important features contained in the health management application is SIMYADU. SIMYADU enables healthcare workers to access and manage patient data digitally, including problem identification, problem prioritization, problem causes, alternative solutions to problems and planning. In addition, there is a dental and oral health promotion feature and a dental and oral health promotion data report.

Health management applications can also assist healthcare workers in communicating with patients and other medical teams [17]. This feature allows healthcare professionals to send text messages or emails to patients, share test results, and collaborate with other doctors in handling complex patient cases. Effective communication can help increase patient satisfaction and improve the quality of health services.

Overall, the technology contained in SIMYADU can help healthcare workers in significantly improving their managerial skills. By utilizing the available features, health workers can work more efficiently, effectively, and organized, thereby improving the quality of health services and patient satisfaction.

#### IV. CONCLUSION

The web-based SIMYANDU is feasible and its application is effective in improving the managerial abilities of dental and oral therapists. This information system helps in improving the ability of dental and oral therapists in managerial skills, namely problem identification, problem prioritization, problem cause determination, determination of alternative solutions to problems and improvement of natural planning of treatment actions to be carried out.

However, in this information system, there is no activity monitoring feature in the SIMYANDU system, so it can be used as a development in this system, both short-term, medium-term and long-term evaluation.

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