Volume 9, Issue 7, July – 2024 International Journal of Innovative Science and Research Technology
ISSN No:-2456-2165 https://doi.org/10.38124/ijisrt/IJISRT24JUL1818

Development of Information System for the Needs of Service Tools and Materials (SIMAYA) in Improving the Quality of Dental and Oral Health Services

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Abstract:- The process of managing tools and materials at the dental clinic in the area of the public health center of Maros Regency, South Sulawesi, has not been *by system* and is still manual, so it does not ensure the availability of data and information quickly, accurately, up-to-date, continuously, and can be accounted for. The Information System for the Needs of Tools and Service Materials (SIMAYA) is an information system that can overcome problems and improve the quality of management of tools and materials at the Dental Clinic of the Public Health Center. The purpose of this research is to produce a web-based information system for dental and oral health service equipment and materials (SIMAYA) that is feasible and effective for improving service quality and user satisfaction at the Dental Clinic of the Public Health Center. This study uses research and development (R&D) methodology, a model trial using *a pre-experimental design methodology*. The expert validation test of SIMAYA obtained an average feasibility score of 95% which means that it is feasible as an information system for the needs of tools and materials The results of the *effect size* test on the aspects of information system quality (d=10.79), tool and material management (d=13.60) and user satisfaction (d=7.27) in *the strong effect category* means that the web-based SIMAYA model at the Dental Clinic is very effective in improving the quality of service for the needs of tools and materials at the Dental Clinic.

Keywords:- *Dental Health, Service Quality, user Satisfaction, Dental Hygiene Tools and Materials.*

I. INTRODUCTION

In the era of the industrial revolution 4.0, we are required to always be updated about the development and use of information technology in various fields, including in the health sector. As we know, information technology has been proven to make every activity faster, more effective, and more efficient [1]. One of the institutions that need information technology is the public health center. Based on the Regulation of the Minister of Health Number 43 of 2019, it is explained that the information system of public health centers is an order that provides information to assist the decision-making process in carrying out the management of public health centers to achieve the goals of activities [2].

The problem encountered by the first-level health facilities in this case is the community health center in the Maros Regency area in an effort to improve quality services at dental clinics, namely the planning system for the needs of medical equipment and consumables (BMHP), non-medical materials, equipment needs and service materials are still manual. Likewise, the process of request, receipt, storage, distribution, control, recording and reporting as well as monitoring and evaluation has not been by system. It is still not carried out in a multidisciplinary, coordinated manner and still uses the reporting process and manual checks so that it is less effective, not fast, accurate and up-to-date in providing information that has an impact on the quality assurance of dental services at dental clinics [3]. The storage of inappropriate materials will result in drug damage and drug distribution, monitoring of medical devices and consumable medical materials that are less than optimal, can provide reduced quality assessments, and suboptimal service quality. In an effort to implement community health centers, it is necessary to make efforts to improve quality services by looking at various aspects including the information system of public health centers [4].

Sustainable development goals or Sustainable Development Goals (SDGs) create a global future through society 5.0. In 2016 a concept called society 5.0 with the term society 5.0 was first developed in Japan to create a super intelligent society, this concept was born as the development of the industrial revolution 4.0 to anticipate future technological developments which are considered to have the potential to degrade the role of humans. In the concept of sociaty 5.0, the order of life must remain human-centered and technology-based [5]. The concept of society 5.0 is currently very relevant in efforts to build a health information system (SIK) in Indonesia.

An effective health information system provides information support for the decision-making process at all levels of administration, especially in community health centers that are basic health service units [6]. The health information system was developed in order to support the

ISSN No:-2456-2165 https://doi.org/10.38124/ijisrt/IJISRT24JUL1818

achievement of Indonesia's vision and mission of health development, namely Healthy Indonesia 2025. Information has a very important role in an organization. A good decision must be supported by clear and valid information. The speed of presenting data and information is very helpful for an organization in an agency, so it is necessary to implement an information system that can improve employee performance in managing data and information to provide fast and accurate services [7].

A community health center, hereinafter referred to as a community health center, is a health service facility that includes services for public health efforts and individual health efforts. Dental clinics in community health centers are a means of dental and oral health services provided to the community [2]. Occupational safety and health (K3) in health care facilities in community health centers are part of the overall management system of health facilities, in the context of controlling risks related to work processes in health care facilities. One of the K3 risk control hierarchies from NIOS (National Institute For Occupational Safety and Health) is administrative control, namely arrangements related to equipment maintenance [8]. In an effort to implement community health centers, it is necessary to make efforts to improve quality services by looking at various aspects including the information system of public health centers [9].

The information system of the community health center is an order that provides information to assist the decision-making process in carrying out the management of the public health center in achieving its activity goals [10]. The management of the public health center is a series of activities of planning, mobilizing and implementing, supervising, controlling and assessing in order to improve the management of the implementation of the community health center, it needs the support of the central information system public health that is able to ensure the availability of data and information quickly, accurately, up-to-date, sustainable, and accountable.

One of the most important drug and consumable medical materials management activities is planning the need for drugs and consumable medical materials. This is important because it is the starting point for drug and ingredient management activities in community health centers. Improper planning of the need for drugs and consumable medical materials can affect the availability of drugs and consumable medical materials [11]. Quality health services in health care facilities require assurance of equipment and infrastructure, both medical and non-medical, related to the performance of health workers in providing services [12].

In a journal of health service research and development published in 2020, it is estimated that between 40-70% of medical equipment in poor and developing countries is damaged. According to the World Health Organization (WHO), medical equipment contributes to the achievement of the highest health standards for the Community. Based on the results of the 2019 Health Facility Research (Rifakes), the availability of medical and non-medical equipment in public health centers is quite varied and there are still many public health centers that have not been able to reach the set standards or cannot guarantee the quality of health equipment [13].

Limited access to information and doubtful quality of existing data, this is evidenced by the frequent differences in data between health offices and public health centers regarding information on the need for materials and tools. And in various countries there are studies that have been found to show that a large number of systems obtained are less accurate and incomplete. Data reports that have been worked on are even lost.

Quality information system components must meet the criteria, namely they must be complete, relevant, timely, easily accessible, accurate, and safe. One form of evaluation of information systems is seen from the satisfaction of system users. According to the McGill et al. indicators, user satisfaction consists of three indicators, including efficiency, effectiveness and overall satisfaction [14]. System user satisfaction is a feedback and response of users after using an information system. The user's attitude towards the information system is subjective about how much the user likes the system used [15].

Everyone has the right to quality and affordable health services. This condition is only met if the availability of health service facilities is easily accessible. The availability of safe and well-used facilities, infrastructure, medical equipment and medical support equipment as well as the availability of medical supplies. The availability of safe and ready-to-use facilities, infrastructure and medical equipment and medical support equipment in health service facilities not only supports quality services but will also reduce unnecessary referrals due to problems with health facilities, infrastructure and equipment [16]. This condition will only be achieved if stakeholders obtain data and information to monitor and map the fulfillment of health service tools and materials properly.

The existence of information system-based management of tools and materials is urgently needed to overcome problems in dental clinics, public health centers in terms of fulfilling information on the needs of tools and materials to support dental and oral services [17]. This system is one of the technological solutions in overcoming management problems with ease in the process of data collection, activity monitoring, cost-effective, time-efficient and reducing errors in making reports and decisions. The community health center program that has used the application program is the application of public health center facilities and infrastructure which is still in general and has not been detailed in terms of the need for dental clinic tools and consumables. Meanwhile, in the management of BMHP and the fulfillment of dental and oral needs, a manual system is still used, by filling out forms in writing.

This study aims to produce a web-based dental and oral health information system for the needs of dental and oral health tools and materials (SIMAYA) that is feasible and its application is effective in improving the quality of service and user satisfaction in dental community health centers.

ISSN No:-2456-2165 https://doi.org/10.38124/ijisrt/IJISRT24JUL1818

II. RESEARCH METHODS AND SAMPLE

The method of research to be carried out is the *Research and Development* (R&D) method. The research and development procedure has five steps, namely: 1) Collecting information, 2) designing and building the product/model, 3) expert validation and revision, 4) testing the product/model and 5) producing the product/model.

The sample of the information collection stage was carried out through the method of interviews and observations to the person in charge of individual health efforts (UKP), the coordinator of the dental clinic, the person in charge of materials/pharmaceuticals, the person in charge of infrastructure and administration, the person in charge of finance and the head of the public health center. At the expert validation stage, 3 experts were tested, namely information systems experts, public health center facilities and infrastructure experts, and pharmaceuticals, the analysis was carried out using the Interclass Correlation Coefficient (ICC) test. Meanwhile, in the model trial using *a pre-experiment design* with *a one-group pre-post test* design on 33 dental and oral therapists, the test analysis was carried out using the Wilcoxon test.

III. RESULTS AND DISCUSSION

➢ *Information Collection Stage*

Information collection was carried out by interview method to 7 people, namely the head of the community health center 1 person, the person in charge of the finance of the community health center, the person in charge of the facilities and infrastructure of the community health center, the person in charge of individual health efforts, the person in charge of materials/pharmaceuticals, the coordinator of the dental clinic, the service implementer (dental therapist) 1 person.

Table 1 Conclusions of Respondents' Answers

Source	Question	Conclusion Answer
1	How is the implementation of the management of the management of tools and service materials at the dental clinic that is currently running, has it gone well?	The management of tools and materials has been carried out according to the management cycle of the community health center and according to the established flow. The service implementer (Dental Therapist) provides information on the need for tools/materials to the person in charge of the dental clinic and the proposal is forwarded to the person in charge of the tool/material. The management of tools and materials is carried out manually using a proposal sheet and has not been by the system by the dental and oral service implementing officer and the person in charge of the dental clinic in terms of requests and procurement as needed. The process of monitoring material tools can only be known by each person in charge with inaccurate and poorly stored data.
2	What obstacles are experienced in managing the needs of dental clinic tools and materials that are currently running?	The management of medical consumables and materials is currently not running well. The monitoring system for the use of tools and materials has not been carried out according to accreditation standards because it has not been by the system in management at the dental clinic unit level. The stock of medical consumables and materials that have been stored and used is not recorded accurately so that monitoring cannot be carried out as a basis for planning tools and materials. The recording and reporting system does not automatically describe the condition of needs both daily and monthly in terms of the management of medical equipment and materials at the dental clinic.
3	Is the information on the needs of dental clinic tools and materials currently available on time, can be retrieved at any time and meets the necessary needs?	Information is not timely and cannot be monitored regularly both daily and monthly so that the materials used or damaged tools are not automatically updated in the Dental Clinic stock card so that the validation of needs is not accurate.
4	Is the information on the needs of dental tools and clinics currently available, complete, accurate and informative?	The monitoring system for the use of materials/tools is not updated so that the planning information is not complete and accurate as needed
5	What is your suggestion if the development of information systems in the future is carried out based on a website?	The development of a website-based information system is very much needed to be implemented in an effort to improve the quality of services at dental clinics.

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 whatshapp groups that manage children's health programs in the field of public health. Regarding community-

ISSN No:-2456-2165 https://doi.org/10.38124/ijisrt/IJISRT24JUL1818

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.

- *Product Design and Design of Website-Based Information System Model for Tools and Service Materials*

The system that runs manually causes many problems, including long, overlapping, unsystematic management flows and problems with user satisfaction because it often does not meet needs because the stock of materials that have been used and medical equipment that has been damaged or will be used is not updated. With this manual system, the quality of dental clinic services is reduced because there is no monitoring and evaluation carried out.

It is necessary to make efforts to improve the quality of management services for the management of medical consumables and equipment at dental clinics comprehensively through an integrated information system that is oriented towards the quality of the information system, the quality of material management and the satisfaction of system users.

The "web-based information system model for the need for tools and service materials at the dental clinic of the community health center (SIMAYA)" was designed as an auxiliary tool in the management of tools and materials at the dental clinic which was previously with a manual system into a website-based information system that will help make it easier for officers at the dental clinic to fulfill the facilities and infrastructure of dental clinic services.

- *Expert Validation*

Expert validation was carried out on information technology experts, experts in facilities and infrastructure of public health centers, and pharmaceuticals, the analysis was carried out using the Interclass Correlation Coefficient (ICC) test.

Table 2 ICC Test

Item	Validator	Score	Average	ICC	*p-Value*	Category
1	Pharmacist	95%	95%	0,976	0.000	Highly Worthy
2	IT Expert	94%				
3	Infrastructure Expert	95%				

The results of the assessment from expert validators assessed using the correlation reliability test resulted in an interclass correlation value of 0.976. It can be interpreted in the category of excellent *reliability* because of the > value of 0.91. The *p-value* is P< 0.000. The average percentage of the three experts with an achievement score of 95% thus there is an expert agreement that the website-based dental and oral health Equipment and Service Information System (SIMAYA) model at the dental clinic is relevant and feasible as an information system at the dental clinic. The high level of expert agreement provides robust evidence supporting the implementation of the SIMAYA model in dental clinics.

A high level of expert agreement can mitigate the risk of implementing a system that is not aligned with the clinic's requirements or capabilities [18]. By involving experts in the evaluation process, clinics can develop effective risk mitigation strategies. These might include contingency plans, backup systems, or data security measures to address potential issues.

- *Model Test Results*

The product trial used in the SIMAYA model innovation uses a method with the design of *One group Pre-Post Test.* This research was conducted in 14 community health centers with 33 dental and oral therapists. The researcher collected information from respondents to find out the need for good management of tools and materials in order to build a website-based information system model for the needs of tools and service materials.

This model was used to analyze the feasibility and effectiveness of the website-based dental and oral health information system (SIMAYA) for dental and oral health equipment needs. The initial measurement is in the form of a pre-test after the introduction of the model and then after the

ISSN No:-2456-2165 https://doi.org/10.38124/ijisrt/IJISRT24JUL1818

model test according to the set time, the measurement is carried out again in the form of *a post test*.

Table 3 Results of Menu Assessment Analysis and SIMAYA Understanding

NO	Assessment Aspects	Category	N	%
1	Start Menu	Strongly Agree	11	33
		Agree	20	61
		Disagree	2	6
2	Planning Menu	Strongly Agree	15	45.5
		Agree	18	54.5
		Disagree	0	0
3	Menu Monitoring	Strongly Agree	14	42.5
		Agree	19	57.5
		Disagree	0	0
4	Usage Menu	Strongly Agree	16	48.5
		Agree	17	51.5
		Disagree	0	0
5	Menu Master	Strongly Agree	12	36.3
		Agree	21	63.7
		Disagree	0	0

The table above shows that the assessment of the respondents in the initial menu trial was very satisfied, satisfied and quite satisfied. This is because 11 respondents (33%) strongly agreed, 20 respondents (61%) agreed, and 2 respondents (6%) disagreed. The assessment of respondents on the planning menu who stated that they strongly agreed with as many as 15 respondents (45.5%), agreed as many as 18 respondents (54.5%), stated that there was no disagreement, this means that the respondents were very satisfied and satisfied with the planning menu.

For the assessment of respondents on the monitoring menu who agreed with as many as 19 respondents (57.5%), strongly agreed with 14 respondents (42.5%), stated that they did not agree with nothing. Respondents' assessment of the usage menu stated that 16 respondents strongly agreed (48.5%), agreed as many as 17 respondents (51.5%), stated that there was no disagreement. And for the master menu that stated that they strongly agreed with as many as 12 respondents (36.3%), agreed as many as 21 respondents (63.7%), stated that they did not agree with nothing. This means that the assessment of the monitoring menu, the use and the master menu of the respondents are very satisfied and satisfied in the initial trial of the SIMAYA menu.

Table 4 Average Value of Quality Aspects of Information System Before

It	Assessment Aspects	Statistics			
		Before	After	Delta (Δ)	*P-Value*
1	Data Completeness Aspect				
	a. Mean ± SD	15.3±0.918	18.97±0.770	3,67	0.000
	b. Min-Max	14-17	17-20		
2	Convenience Aspect				
	a. Mean ± SD	15.33±0.736	19,00±0,866	3,67	0.000
	b. Min-Max	14-17	17-20		
3	Aspects of Punctuality				
	a. Mean ± SD	15.15±0.619	19.33±0.777	4,18	0.000
	b. Min-Max	14-17	18-20		
4	Accuracy Aspect				
	a. Mean ± SD	15.27±0.944	19.33±0.595	4,06	0.000
	b. Min-Max	14-18	18-20		
5	Security Aspects				
	a. Mean ± SD	15.3±0.585	18.91±0.947	3,61	0.000
	b. Min-Max	15-17	16-20		
6	Total System Quality Score				
	a. Mean ± SD	76,36±3,802	95.55±3,955	19,190	0.000
	b. Min-Max	71-86	86-100		

Wilcoxon*

ISSN No:-2456-2165 https://doi.org/10.38124/ijisrt/IJISRT24JUL1818

Based on the results of the study, it is known that the average value of the overall data completeness aspect after the implementation of SIMAYA dental clinic is greater than before the implementation of SIMAYA. Respondents showed a mean value of 15.03 before the intervention and 18.97 after the intervention *P-Value* of 0.000, this result means that the use of the information system for the needs of tools and materials (SIMAYA) of the dental clinic is effective in providing benefits to the completeness of the data in the dental clinic. This is in line with previous research which states that the design of a file completeness information system can help officers in effective and efficient data management [19].

An information produced by an information system can be said to be of high quality if the information produced is complete regarding information about data according to the needs of the organization. Information is said to be complete if the information needed by the user in using the information system is available [20]. If the information available in the information system is complete, it will satisfy the user. In this aspect, the researcher looks at the ability of the system to provide complete information on the data on tools and materials needed, can find out the stock data of tools and materials, can find out the development of the process of procurement of materials or tools, and can access reports on the management of the overall needs of tools and materials so that it becomes report data.

Based on the results of the study, it is known that the average value of the overall convenience aspect after the implementation of SIMAYA dental clinic is greater than before the implementation of SIMAYA, showing a mean value before the intervention of 15.33 and after the intervention of 19.00 *P-Value* of 0.000, this result means that the use of the information system for the needs of tools and materials (SIMAYA) of dental clinic is effective in providing ease of management the need for tools and materials. This is in line with previous research that states that web-based information systems can improve the quality of health services in terms of providing easy access to services [21], [22].

A quality information system if the system will provide convenience for users. This website-based information system was chosen because it has the advantage of ease and convenience in accessing and storing large amounts of data. In terms of convenience, the researcher looks at the ease of data input, ease of accessing data, ease of correcting or editing data, ease of users in using menus and providing convenience in presenting data per semester [23].

Based on the results of the study, it is known that the average value of the punctuality aspect after the implementation of SIMAYA dental clinic is greater than before the application of SIMAYA. Showing a mean value before the intervention was given of 15.15 and after the intervention of 19.33 *P-Value* of 0.000, this result means that the use of the information system for the needs of tools and materials (SIMAYA) of the dental clinic is effective in providing timely data information on the management of the needs of tools and materials.

An information system must be in accordance with the time needed [24]. If the time is late, it will hinder the planning process for the needs of tools and materials. In this aspect of timeliness, the researcher looks at the planning, use, availability of materials and information as well as the overall management of tools and materials.

Based on the results of the study, it is known that the average value of the accuracy aspect after the implementation of SIMAYA dental clinic is greater than before the application of SIMAYA. Based on the results of the analysis on the accuracy aspect, the respondents showed a mean value of 15.27 before the intervention and 19.33 after the intervention. The P-Value is 0.000, this result means that the use of the tool and material needs information system (SIMAYA) of the dental clinic is effective in providing accurate data information on the management of tool and material needs. This is in line with previous research that states that web-based information systems can improve accuracy in patient data management [21].

The output quality of a system can be measured in terms of accuracy, precision, reliability, completeness, relevance and timeliness. Accuracy is how much truth the information produced by the system is. In this aspect of accuracy, the researcher sees in terms of ease of data input, data collection, data processing, the information produced is accurate and trustworthy and can be done accurately.

Based on the results of the analysis on the safety aspect, respondents showed a mean value of 15.3 before the intervention and 18.91 after the intervention. The P-Value is 0.000, this result means that the use of the information system for the needs of tools and materials (SIMAYA) of the dental clinic can provide accurate information and data security for the management of the needs of tools and materials. The results of the analysis of the quality aspect of the information system are in line with previous research which states that the information system facilitates the process of recording patient identities, speeds up data search, and facilitates the process of making reports [17].

The quality of the information system from the security aspect aims to ensure that the data on the system can be safe from all harmful things. In the security aspect in this study, which is assessed in terms of storage security, data files, confidentiality, not easy access, and data is easy to search at any time if needed.

ISSN No:-2456-2165 https://doi.org/10.38124/ijisrt/IJISRT24JUL1818

Table 5 Results of the Paired Test of Aspects of the Management of the Needs of Dental Clinic Service Tools and Materials Before and After the Implementation of the Model

It	Assessment Aspects	Statistics			
		Before	**After**	**Delta (Δ)**	***P-Value***
1	Planning Aspects			4,12	
	a. Mean ± SD	15.24±0.969	19.36±0.895		0.000
	b. Min-Max	14-18	17-20		
2	Procurement Aspects			4,22	
	a. Mean ± SD	15.30±0.585	19.52±0.566		0.000
	b. Min-Max	15-17	18-20		
3	Usage Aspects			4,33	
	a. Mean ± SD	15.15±0.364	19.48±0.755		0.000
	b. Min-Max	15-16	18-20		
4	Storage Aspects			4,03	
	a. Mean ± SD	15.12±0.331	19.15±0.834		0.000
	b. Min-Max	15-16	17-20		
5	Reporting Aspects			4,39	
	a. Mean ± SD	14.52±0.792	18.91±0.947		0.000
	b. Min-Max	15-17	18-20		
6	Total Management Aspect Score			21,090	
	a. Mean ± SD	75,33±3,041	96,76±3,997		0.000
	b. Min-Max	74-84	88-100		

Wilcoxon*

The table above shows that *the p-value* before and after the application of the SIMAYA model in the planning aspect is P< 0.000. This shows that there is a difference in effectiveness in the quality of management of tool and material needs in the planning aspect before and after the administration of SIMAYA. The *p-value* value in the aspect of procurement of dental clinic tools and materials before and after the implementation of the SIMAYA model is P<0.000,

The value shows that there is a difference in effectiveness in the management of equipment and material needs with the procurement aspect before and after the provision of SIMAYA. The use of the SIMAYA model is effective in increasing the convenience of procurement of tools and materials compared to the old system. The *p-value* in the aspect of use before and after the implementation of the SIMAYA model is P<0,000, this shows that there is a difference in the effectiveness of the information system in the aspect of using tools and materials before and after the administration of SIMAYA. The use of the SIMAYA model is more effective in terms of use compared to the old system. The *p-value* in the aspect of storing tools and materials before and after the implementation of the SIMAYA model is P<0,000, this shows that there is a difference in the effectiveness of the information system in the aspect of storage management of tools and materials before and after the administration of SIMAYA. The *p-value* value in the reporting aspect of tool and material management before and after the implementation of the SIMAYA model is P<0.000, this shows that there is a difference in the effectiveness of the information system in the reporting aspect before and after the administration of SIMAYA. The use of the SIMAYA model is effective in terms of reporting output compared to the old system 55. The planning output is better so that the service needs of equipment and consumables at the dental clinic can be met with good planning. This affects the quality of service at dental clinics.

The procurement of assessed materials is the process of procurement of tools and materials in accordance with the planning and control *of the stock of name* as well as the details of available and necessary tools and materials. The procurement of materials and tools is a crucial step in management, especially in the context of management in public health centers [25]. This process involves not only purchasing, but also effective planning and control to ensure that all necessary resources are available on time and to the required specifications.

Table 6 Results of Paired Tests on user Satisfaction Aspects before and after Model Implementation

It	Assessment Aspects	Statistics			
		Before	**After**	**Delta (Δ)**	***P-Value***
1	Effectiveness Aspect			4,55	
	a. Mean ± SD	15.09±0.292	19.64±0.603		0.000
	b. Min-Max	15-16	18-20		
2	Efficiency Aspect			0,33	
	a. Mean ± SD	14.88±0.740	15.21±0.781		0.000
	b. Min-Max	13-17	12_16		
3	Total Satisfaction Aspect			4,3	

ISSN No:-2456-2165 https://doi.org/10.38124/ijisrt/IJISRT24JUL1818

	a. Mean ± SD	15.06±0.740	19.36±0.929		0.000
	b. Min-Max	13-16	17-20		
4	Total Score of Satisfaction Aspect				
	a. Mean ± SD	45.03±1,772	54,21±2,313	9,18	0.000
	b. Min-Max	42-47	48-56		

Wilcoxon*

The table above shows that the *p-value* before and after the application of the SIMAYA model on the aspect of user satisfaction in terms of effectiveness is P< 0.000. This shows that there is a difference in effectiveness in user satisfaction before and after the administration of SIMAYA. This shows that the use of the SIMAYA model provides more benefits than the old system. The *p-value* in the efficiency aspect before and after the implementation of the SIMAYA model is P<0,000, this shows that there is a difference in efficiency in the aspect of user satisfaction before and after the application of SIMAYA. The use of the SIMAYA model provides more efficient benefits in the procurement of tools and materials compared to the old system. The *p-value* in the overall satisfaction aspect was P<0.000. This shows overall satisfaction with the use of the SIMAYA model at the Dental Clinic of the district health center.

Effectiveness in information systems includes aspects of effectiveness in managing data, producing information that is easy to understand, and able to produce data and reports that are in accordance with user needs [26]. The information system will be more effective for users if it can make it easier for service implementing officers and those in charge of dental clinics to manage the needs of dental clinic tools and materials.

The efficiency assessed in this research process includes aspects of ease of staff in managing tools and materials, improved coordination between service officers (dental therapists) and the person in charge of dental clinics as well as the person in charge of tools and materials in charge, accelerating performance and saving costs. The process of managing tools and materials can be well controlled according to procedures.

Table 7 Effect Size Analysis of SIMAYA Dental Clinic Model

Variable	**Statistics**				
	Before	**After**	**Delta (Δ)**	**± Elementary School**	***Effect Size***
Quality Aspects of Information Systems	76,36	95,55	19,19	1,77	10,79
Aspects of Tool and Material Management	75,33	96,76	21,09	1,57	13,60
User Satisfaction Aspect	45,03	54,21	9,18	1,26	7,27

The table above shows that all composite variables have an effect size above 1 so that they can be categorized as having a high effect, meaning that the overall SIMAYA Dental Clinic model has a great effect on the management of tools and materials in the dental clinic from the aspects of information system quality, tool and material management, and user satisfaction. The *highest effect size* value in the tool and material management aspect with a value of 13.60 means that the SIMAYA model has an influence on tool and material planning, procurement, use, storage and reporting. So that the SIMAYA Dental Clinic model is very effective in improving the quality of service for the needs of tools and materials at the Dental Clinic Health Center.

IV. CONCLUSION

SIMAYA Dental Clinic is web-based and its application is effective in improving the quality of service and user satisfaction at dental clinics in community health centers. Dental and oral therapists, service providers, the person in charge of the dental clinic, the person in charge of the equipment and the person in charge of the materials of the community health center can use the SIMAYA Dental Clinic model as an innovation program that is in accordance with standards and tested as a system for managing the needs of tools and materials at the dental clinic of the community health center. In an effort to accelerate the transformation of health services, the SIMAYA Dental Clinic model is feasible to be developed by the Health Office and can be applied in health facilities throughout Indonesia

ACKNOWLEDGMENT

The author would like to thank all respondents who were willing to participate in this study.

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ISSN No:-2456-2165 https://doi.org/10.38124/ijisrt/IJISRT24JUL1818

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