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Effectiveness of Dental and Oral Health Model Development in Dental Health Behavior Changes in Tuberculosis (TB) Patients

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ABSTRACT: People with Tuberculosis (TB) can increase the number of bacteria in saliva in the oral cavity. The formation of tuberculosis is more due to the rate of saliva flow which causes the concentration of calcium, phosphate is found in calculus. Dental and oral health care activities for TBC patients are absolutely necessary to improve the dental and oral health of TBC patients. The development of a dental and oral health care model for TBC patients requires a special method, which is expected to change the knowledge, attitudes and behaviors of TBC patients towards their dental and oral health. This study aims to determine the effectiveness of the development of dental and oral health care service models on the level of knowledge, attitudes and the decrease in debris index scores in TBC patients. The type of research used in this study is Research and Development (R&D). Statistical test to analyze paired variable data, if the data is normal use the paired t-test but if the data is abnormal use thewilcoxon statistical test. The results of the analysis of the significance value = 0.000 so that it can be concluded that the dental and oral health care service model is effective in increasing knowledge in TBC patients, the significance value = 0.002 so that it can be concluded that the dental and oral health care service model is effective in influencing attitudes in TBC patients, the significance value = 0.002 The dental and oral health care service model is effective in reducing the debris index in TBC patients.

KEYWORDS: Dental health, Dental health, behavior, debris index

I. INTRODUCTION

Tuberculosis or often abbreviated as tuberculosis is a disease in humans caused by Mycobacterium tuberculosis that has existed since the time of ancient humans. The disease mainly affects the lungs, making lung disease the most common symptom. Other organ systems that are often affected by this disease are the respiratory system, gastrointestinal (GI) system, lymphatic system, skin, central nervous system, musculoskeletal system, reproductive system and liver[1]. The spread of Mycobacterium tuberculosis through the air in the form of nuclei droplets coughed up by tuberculosis patients can then infect other individuals around them[2].

According to the World Health Organization (WHO) in the Global TBC Report, 2023, TBC is still a health problem in the world today. TBC is the second highest cause of death in the world after Covid-19 in 2022. More than 10 million people contract tuberculosis every year. Without treatment, the mortality rate from tuberculosis is high (about 50%). Globally in 2022, TBC caused about 1.30 million deaths. With the treatment recommended by WHO, 85% of TBC cases can be cured. The number of people newly diagnosed with tuberculosis globally was 7.5 million in 2022. Thirty countries with a high TBC burden accounted for 87% of the world's TBC cases in 2022 and two-thirds of the global total occurred in eight countries: India (27%), Indonesia (10%), China (7.1%), the Philippines (7.0%), Pakistan (5.7%), Nigeria (4.5%), Bangladesh (3.6%) and the Democratic Republic of the Congo (3.0%). In 2022, 55% of TBC patients are male, 33% female, and 12% are children (aged 0–14 years). The global TBC free achievement target is currently outside the planned path. In 2021, making TBC the second (2) deadliest infectious disease in the world after Covid-19 and thirteen (13) as the leading cause of death worldwide [3].

Some countries have managed to reduce the burden of TBC from year on year by more than 20%. These include Bangladesh in 2020, Lesotho in 2020 and 2021, Myanmar in 2020 and 2021, Mongolia in 2021, and Viet Nam in 2021. Indonesia itself is in the second (2nd) position in the world with the highest number of TBC patients. India is in first place, followed by China, the Philippines, Pakistan, Nigeria, Bangladesh, and the Democratic Republic of the Congo. In 2020, Indonesia was in third place with the highest number of cases. There are an estimated 969,000 TBC cases in Indonesia (one person every 33 seconds), up 17% from 824,000 cases in 2020. The incidence of TBC cases is 354 per 100,000 population or every 100,000 cases[3].

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Most people with Tuberculosis are smokers, people with Tuberculosis can increase the number of bacteria in the saliva in the oral cavity. The formation of tuberculosis is more due to the rate of saliva flow which causes the concentration of calcium, phosphate is found in calculus[4].

Most of the causes of bacteriosis are oral cavities. Oral cavity bacteria that are originally comensal can turn into pathogens in conditions of decreased immunity, especially in people with tuberculosis, which can cause bacteriosis and systemic infections. Bacterial endocarditis, which is very dangerous, can be caused by an infection of the oral cavity. Oral cavity infections can be long-term or acute and patients who do not maintain their oral hygiene often experience them.

Tuberculosis patients are prone to periodontitis caused by the accumulation of plaque and calculus which is a local factor of periodontitis. This periodontitis will increase if there are other factors such as systemic diseases and/or environmental factors. Systemic factors include diabetes mellitus, tuberculosis infection, HIV, while environmental factors can be in the form of dental and oral hygiene, smoking and others[5]. The mouth has a high resistance to the invasion of Tuberculosis germs. This is because germs spread hematogenically from a focal point in the body. Some cases of the oral cavity of TBC patients include ulcerations, nodules, granulomas, and mucosal proliferation. TBC patients also experience more severe gingivitis and periodontitis[6].

The feeling of shame or inferiority as a patient who easily transmits or spreads tuberculosis is always present in every TBC patient. In reality, tuberculosis is an easy disease to treat on the condition that it must be treated regularly, but the recovery factors of TBC patients can come from non-medical factors. People around the area of TBC patients should provide support to TBC patients, but the community mostly excludes TBC patients because they consider TBC disease as a cursed disease, derivatives and even a shipping disease[7].

Dental and oral health care activities for TBC patients are absolutely necessary to improve the dental and oral health of TBC patients. The development of a dental and oral health care model for TBC patients certainly requires a special method so that it can change the knowledge, attitude and behavior of TBC patients towards their dental and oral health.

II. METHOD

The type of research used in this study is Research and Development (R&D). The research and development procedure consists of 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 research and development procedure consists of 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 was divided into 3 groups, namely information collection samples, expert validation samples and product test samples. The sample of information collection is the health office, tuberculosis program holders at health institutions, dentists and dental therapy. The expert validation sample is experts in the TBC activity program from the Health Office and dental health experts.

III. RESULT

A. Information Collection

Information collection was carried out by conducting a preliminary study that was descriptive in nature with the aim of identifying the service model and as a consideration in developing a dental and oral health care service model for TBC patients. In the preliminary study, data were obtained through interviews with health offices, tuberculosis program coordinators at health institutions, dentists and dental therapists.

Table 1. Results of Information Collection

Less	Question	Conclusion Answer
1	What are the Characteristics of Dental and Oral Health of Tuberculosis Patients?	In the general characteristics of tuberculosis patients deep Understanding the importance of dental and oral examinations varies both for patients who are still in the early phase of treatment and those who have entered the advanced phase
2	Dental and Oral Health	Dental and Oral Health Problems

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	Problems Often Experienced by Tuberculosis Sufferers?	complaints made by TBC patients in general related to dental and oral health, namely debris and tartar, in addition to swelling of the gums, this due to the lack of awareness of TBC patients regarding dental and oral health is still low. TBC patients consider dental and oral health disorders not something that must be done immediately An examination was carried out.
3	How is the Implementation of Government Policies Related to Dental and Oral Health Often Experienced by Tuberculosis Patients?	In the program of public health efforts carried out at the health center, it should be done. Dental and oral health efforts are integrated across programs, so that every visit of TBC patients is examined at the dental polyclinic or referred to the dental polyclinic for the first visit or for the follow-up phase visit.
4	To improve TBC patients' understanding of Dental and Oral Health, is an information model needed to improve understanding?	New models or new learning methods are needed on how to maintaining dental and oral hygiene for TBC patients which is such as demonstration education accompanied by pictures and so that TBC patients understand information through the education provided, they also do not feel bored with the delivery of the materials in the education.

B. Design and Build Models

The results of the information collection that has been carried out on 5 respondents and data from various existing literature to make a model design. The results of the initial study stated that the Mekar Health Center has carried out dental and oral health care for patients who come to the dental poly for treatment, but it requires new models and methods because there needs to be a more specific understanding of dental and oral health, especially in TBC patients. Therefore, the researcher developed a dental and oral health care model for TBC patients that is tailored to a method suitable for TBC patients. The following are the stages of developing a dental and oral health care model for TBC patients.

Table 2. Stage of Dental Care at TBC Patients

Phase	**Activities**	**description**
Stage I of problem determination	Analysis of dental and oral health care services in TBC patients	After conducting interviews and reviewing theories, it was concluded that in Indonesia, dental and oral health care services are contained in the Minister of Health Regulation No. 284 of 2006 for dental and oral health care services in general but do not contain more specific dental and oral health care on TBC patients
Phase II search root of the problem.	Problem analysis in TBC patients	1. Needs and problems range from healthy to sick, 2. Varied living environment.
Stage III behavioral and milieu	Looking for behavioral factors that resulting in problems	Lack of awareness in maintaining dental and oral health
Phase IV identifies three Behavioral Factors	Presdiposing factors	1. Lack of knowledge, attitudes, and actions to maintain dental and oral health. 2. High levels of anxiety and fear when dental and oral health checks are carried out

		Reinforcing factor	Lack of knowledge, attitudes, and actions of dental hygienists in the implementation of dental and oral health in TBC patients
		Enabling factors	Lack of facilities and infrastructure for dental and oral health services, especially for patients tuberculosis
Stage appropriate combination of interventions.	V1.	Material Analysis	This model is designed to be used for interventions that include promotive, preventive, and simple curative care in dental and oral health care. In this study, intervention, promotive, based on preliminary studies TBC patients need to gain knowledge about maintaining dental and oral hygiene, preventive 10 steps of brushing teeth, curative dental and oral health checks. Namely: If there are cavities or tartar and require referral action, you should immediately go to the dentist for treatment Further.
	2.	Concept Analysis	The addition of the concept of mutual trust between the operator and the client before conducting an oral examination, the addition of the concept of asekgilut which is divided into 3 phases for askepgilut, increasing the ability of individuals to carry out daily activities and increasing life satisfaction
	3.	Task Analysis	The task carried out by the dental and oral therapist/researcher is to conduct askepgilut and carry out promotional activities on TBC patients The intervention is carried out 2 times a week.
	4.	Formulation of Dental and Oral Health Care Goals	Indicators of achievement are increasing knowledge, attitudes, actions in the implementation of dental and oral health maintenance in TBC patients
	5.	Media Selection	Selected media in counseling activities are posters and dental phantom for activities to train the act of brushing your teeth. Media selection by means of discussion with Expert Judgment
	6.	Selection of Dental and Oral Health Care Format	The format used is adjusted to the previous format with a combination of dental and oral care needs in TBC patients
	7.	Expert Test Validation	The results of validation by expert validators on the dental and oral health care service model are that this model is allowed to be tested on TBC patients
	8.	Validation and Effectiveness Test	Significant results were obtained based on statistical test.

C. Expert Validation

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Expert validation is carried out on experts in TBC activity programs from the Health Office and dental health experts. Validation was carried out to obtain data that was used as a basis to test the feasibility of the dental and oral health care service model for TBC patients.

Table 3. Expert Validation Results

Expert Validation Test	
N	**F (%)**
15	80% (Very Feasible)
15	96% (Very Feasible)

The results of expert validation showed that the feasibility component value of the dental and oral health care model for TBC patients was between 80-100, which means that the dental and oral health care service model for TBC patients according to the results of expert validation is a very feasible and relevant category as a method of dental and oral health education for TBC patients.

D. Product Trial

The trial results of the development of a dental and oral health care service model for TBC patients used a quasy experiment with a pre and post test design. This was carried out in accordance with the trial, namely to analyze the effectiveness of developing a model of dental and oral health care services for TBC patients in the promotive, preventive, and curative fields and to analyze the stages of building mutual trust relationships in phases I, II, III, and IV in dental and oral health care for TBC patients.

Efforts to find out the method, in the design pre and posttest design were carried out in testing the same two groups. Where dental and oral health service care is given after the pretest assessment to subsequently obtain results and continued with the application of the dental and oral health service care model for TBC patients which ends with the implementation of Post-test

Table 4. Results of Knowledge and Attitude Test Before and After Intervention

	Knowledge		p-value	Attitude		p-value
	Before	After		Before	After	
Less	27	7		21	8	
Enough	6	18	0.00	12	25	0.02
Good	2	10		2	2	

The table above shows that most of the respondents before being given the dental and oral care care model had a low level of knowledge, namely 27 (77.1%) respondents, 6 (17.2%) respondents had sufficient knowledge while 2 (5.7%) respondents had a good level of knowledge. After being given the dental and oral care care model, the level of knowledge decreased by 7 (20.0%) respondents, those who had sufficient knowledge increased by 18 (51.4%) respondents while those with a good level of knowledge also increased by 10 (28.6%) respondents.

The results of the analysis using theWilcoxon Signed Rank Test statistical test obtained a significance value = 0.000 smaller than the p value < 0.05 so that it can be concluded that there is a significant difference in knowledge between before and after being given the dental and oral health care model, thus the hypothesis is accepted. The dental and oral health care service model is effective in increasing knowledge in TBC patients.

The table above shows that most of the respondents before being given the dental and oral care model have a poor attitude, namely 21 (60.0%) respondents, who have an adequate attitude as many as 14 (40.0%) respondents while those who have a good attitude as many as 2 (5.7%) respondents. After being given the dental and oral care care model, there was a decrease in attitude, namely 8 (22.9%) respondents, 25 (71.4%) respondents had a fairly increased attitude while 2 (5.7%) respondents had a good attitude.

The results of the analysis using theWilcoxon Signed Rank Test statistical test obtained a significance value = 0.002 smaller than the p value < 0.05 so that it was concluded that there was a significant difference in attitude between before and after being given the dental and oral health care model so that the hypothesis was

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accepted. Dental and oral health care service model is effective in improving attitudes in TBC patients

Table 5. Results of Debris Index Measurement Before and After the Intervention

	Debris Index		p-value
	Before	Before	
Bad	5	5	
Enough	25	25	0.00
Good	5	5	

The table above shows that most of the respondents before being given the dental and oral care model based on the results of the Oral Hygiene Index had the most Debris Index with the medium category, namely 25 (71.4%) respondents, while those with a good Debris Index were 5 (14.3%) respondents and had a Debris Index in the bad category as many as 5 (14.3%) respondents. After being given the dental and oral care care model, the Debris Index in the medium category decreased by 23 (65.7%) respondents, while those with Debris Index in the good category increased by 9 (25.7%) respondents.

The results of the analysis using theWilcoxon Signed Rank Test statistical test obtained a significance value = 0.000 smaller than the p value of < 0.05 so that it can be concluded that there is a significant difference in the Debris Index value between before and after being given the dental and oral health care model, thus the hypothesis is accepted. The dental and oral health care service model is effective in reducing the debris index score in TBC patients.

IV. DISCUSSION

A. Model of dental and oral health care services for TBC patients

Dental and oral health care services based on the Minister of Health Regulation No. 58 of 2012, dental and oral health care is a systematic approach process in the fields of promotive, preventive, and simple curative[8]. The implementation of dental and oral health care is then regulated in the Minister of Health Regulation 284 of 2006 which includes study, diagnosis, planning, treatment, intervention, and evaluation to achieve optimal dental and oral health, so treatment must be carried out periodically, treatment can start from paying attention to food diet, do not eat too much sugar and sticky foods[9]. Also take care of your health such as reducing smoking or not smoking to maintain body health and optimal dental and oral health[10].

In the implementation of research and the application of the dental and oral health care model in TBC patients, it is carried out in several stages. At the first meeting, a therapeutic approach was carried out on TBC patients so that respondents would be actively involved in the implementation of the dental and oral health care model, the second meeting conducted intraoral and extra oral examinations to review and assess the Debris Index before intervention and model application. The results of the initial assessment will be used as a comparison after model intervention.

The second meeting also observed the ability of respondents to brush their teeth as well as dental and oral health checks of respondents and training kitchen materials as a toothache reliever. Then for the third meeting, an intervention was carried out in the form of brushing the teeth of the respondents which began with a simulation demonstration. The simulation method can be interpreted as a way of presenting a learning experience by using simulated situations to understand certain concepts, principles or actions. The simulated dental and oral health care model is in accordance with the guidelines for the development of dental and oral health care in the following areas. The third meeting also observed the ability of respondents to clean their teeth and mouth. For the fourth meeting, a re-evaluation of the respondents was carried out starting from an intra-oral examination to assess the Debris Index after the implementation of the dental and oral health care model[11].

Personal hygiene behavior can be influenced by the values and habits embraced by individuals and families, problems with personal hygiene will have an impact on health problems in family members, especially dental and oral health issues. Maintaining dental and oral health is one of the various efforts to improve health[12]. Maintaining dental and oral health is an important thing to do for everyone so that their dental and oral health can be maintained properly, and avoid dental and oral problems. Problems with teeth and mouth such as toothache, cavities, bleeding gums and other problems.

The high prevalence of dental health problems in the community in Indonesia is still an important public health problem because the prevalence of dental problems and periodontal

diseases reaches 80 percent of the population. This situation is caused by the attitude and behavior of the community, especially young adults, regarding the maintenance of dental health is still very low[13].

The results of the relationship between dental care actions and the occurrence of dental and oral problems in young adults are significantly proven by the results of the alternative hypothesis (Ha) of this study accepted, which can be proven by the Chi Square test. A significant value of 0.001 ($p < 0.05$) was obtained. And there was also a significant relationship between actions and the occurrence of dental and oral problems ($p=0.001 \alpha=0.05$).

B. The effectiveness of developing a dental and oral health care service model in increasing knowledge in TBC (Tuberculosis) patients

Knowledge is the result of knowledge, which occurs after a person senses a certain object, knowledge is the result of a domain that is very important for the formation of a person's actions. Knowledge will make a person see more ways and opportunities to improve the standard of life and knowledge will affect a person's attitude and deeds to behave or live a healthy life, thus a person will be able to do something that is considered good if he has enough knowledge[14].

The results of the analysis using the Wilcoxon Signed Rank Test statistical test obtained a significance value = 0.000 smaller than the p value < 0.05 so that it can be concluded that there is a significant difference in knowledge between before and after being given the dental and oral health care model, thus the hypothesis is accepted. The dental and oral health care service model is effective in increasing knowledge in TBC patients.

From the results of the study, it was found that the results of the assessment before the dental and oral health care model were carried out, information was obtained on the level of knowledge of respondents with a category of less than 27 (77.1%) respondents, and after the implementation of the dental and oral health care model, respondents with a level of knowledge in the category of less decreased to 7 (20.0%) respondents. This shows that there are 20 (57.1%) respondents who were previously in the category of low level of knowledge, but after the application of the model, it shows that the level of knowledge of respondents about debris prevention becomes sufficient.

The results of the study also showed that there was an increase in respondents' knowledge about dental and oral health between before being given the dental and oral health care service model and after being given dental and oral health care services, where before the provision of dental and oral care the respondents did not know the cause of debris and how to prevent and handle it, after being given dental and oral care accompanied by dental and oral health counseling Respondents' knowledge of debris increased[15]. This can be seen from the score of knowledge obtained before maupum after being given care. Respondents also stated that the dental and oral health service care model applied was very helpful in increasing knowledge about debris because the module explained about dental and oral care that must be done, especially for TBC patients.

After family dental nursing care, there were differences in the average value of knowledge, attitudes, actions of children and their parents as well as the status of children's dental hygiene (pediatric OHIS status) and pediatric dental caries status (pediatric DMF-T status) immediately after the intervention and three months after the intervention which was statistically significant[16]. The conclusion of this study is that there are changes in the knowledge, attitudes, actions of children and their parents as well as the status of OHIS and DFM-T of children who have become better with the care of family dental nursing.

Knowledge that covers the cognitive domain has 6 (six) levels, namely knowing is defined as remembering a material that has been studied before, understanding is defined as an ability to explain correctly about a known object and be able to interpret the material correctly. Application is defined as the ability to use material that has been studied or actual conditions, analysis is an ability to describe material or an object into components, but still in an ability to compose new formulations of existing formulations. This evaluation is related to the ability to justify or assess a material or object[17].

Individual and community knowledge plays an important role so that a benefit will be obtained for the success of prevention and improvement of public health. The utilization of health services is influenced by driving components that describe individual factors indirectly related to the use of health services which include several factors, especially the factor of knowledge about the causes and prevention of health problems. Supporting components include the ability of individuals to use health services which are estimated based on factors such as education, knowledge, sources of income or income.

Knowledge is generally obtained from experience and from sources of information such as mass media, counseling by health workers about a health problem and information from friends, one of the factors that determine a person's behavior in acting is the level of knowledge, so on the basis of the level of knowledge that is still lacking is what affects the level of visits to health services to check their health, the low level of knowledge of the community is also It can be caused by the lack of implementation of health counseling by health workers to the community about the causes of a certain health problem and how to prevent it, so that the community does not fully understand what should be done[18].

The role of individuals in health programs is very important. Therefore, an understanding of this program is very necessary for these groups. A person's understanding and knowledge of a health problem is greatly influenced by the level of education[19].

The higher a person's knowledge about the use of health facilities, the more they need health service centers as a place for treatment for themselves and their families. With increased insight and knowledge, they will be more aware that health is so important for life that they are motivated to visit better health care centers.

C. The effectiveness of the development of dental and oral health care service models in influencing attitudes in TBC (Tuberculosis) patients

The causes of dental and oral health problems in the community include behavioral factors or attitudes in ignoring dental and oral care and hygiene. This is based on a lack of awareness and knowledge of the importance of maintaining dental and oral health. Dental and oral hygiene that is not maintained is the cause of poor dental and oral health and can eventually have a negative impact on overall health and quality of life. One of the main indicators of dental and oral hygiene is the frequency of brushing. The habit of brushing your teeth if done regularly in adolescence is usually maintained until adulthood will be able to reduce the risk of disease[20].

The results of the analysis using the Wilcoxon statistical test obtained a significance value = 0.002 smaller than the p value < 0.05 so that it can be concluded that there is a significant difference in attitude between before and after being given the dental and oral health care model, thus the hypothesis is accepted. The dental and oral health care service model is effective in influencing attitudes in TBC patients.

From the results of the study, it was found that the results of the assessment before the dental and oral health care model were carried out, information on the attitudes of respondents with a category of less than 21 (60.0%) respondents, and after the implementation of the dental and oral health care model, respondents with less category attitudes decreased to 8 (22.9%) respondents. This shows that there are 13 (37.1%) respondents who were previously in the category of poor attitudes, but after the application of the model, it shows that the respondents' attitudes about debris prevention have become sufficient.

The results of the study also showed that there was an increase in respondents' attitudes about dental and oral health between before being given the dental and oral health care service model and after being given dental and oral health care services, where the attitude before care was in the poor category. Before being given a dental and oral health care service model, respondents were reluctant to check their dental and oral health at the Health Center. TBC patients generally only come to the Health Center to obtain TBC treatment package drugs and are reluctant to check their teeth and mouth, this is because the patient considers that there are no complaints related to teeth and mouth. However, after being given a model of dental and oral health care services, the respondent wanted to check his teeth at the Health Center. The increase in respondents' attitudes was also related to their increased knowledge of dental and oral health problems in TBC patients, especially debris. The increased attitude of respondents can also be seen from the statements of respondents who stated that they have routinely carried out oral hygiene independently after being provided with dental and oral health care services.

The validity test of the paired variable data on the attitude variable showed that the p-value of the intervention group was 0.000 (<0.05), meaning that the dental and oral health care model in pregnant women was effective in improving attitudes in pregnant women. The dental nursing care model is effective in secondary prevention of changes in knowledge, attitudes, and actions towards the dental and oral health of pregnant women[21].

Based on the results of Basic Health Research (Riskesdas), it is reported that dental and oral health problems increased from 25% in 2013 to 56% in 2018, and 73% had suffered from caries in 2018. The results of Riskesdas in 2018 showed that 55.6% of adolescents aged 10-14 years and 51.9% of adolescents aged 15-24 years suffered from dental and oral diseases, and the behavior or

attitude of maintaining dental and oral health was known to be low. Several studies have revealed that awareness of individual attitudes towards dental and or oral health is an important role in initiating dental and oral health maintenance, behaviors that are less supportive of health must be changed in order to form good health[22].

Attitude is a reaction or response of a person who is still closed to a stimulus or object. Positive behavior can make attitudes good (positive). While behavior change in this case is dental and oral care can get results that are not optimal because existing attitudes or good attitudes have not been realized into positive behavior. One of the factors that form an individual's attitude is social influence, this social influence often shapes our attitude long before we have met the object/role model of the attitude.

The social influence mentioned above is according to the factors that shape human attitudes, namely personal experiences, culture, role models, mass media, schools or religious institutions, and individual emotional factors. A person's attitude can be influenced by the knowledge he has, when a person has good knowledge, the tendency to behave well will increase[19].

D. The effectiveness of developing a dental and oral health care service model in Reducing Debris Index in Tuberculosis (Tuberculosis) patients

Debris is a soft deposit that occurs due to food debris that sticks to or sticks to the surface of the teeth. Generally, debris will be formed by enzymes and bacteria if teeth are not cleaned five minutes/thirty minutes after eating[23].

Most debris will be liquefied by bacterial enzymes and clean up 5-30 minutes after eating, but it is possible that some will still remain on the surface of the teeth and mucous membranes. The flow of saliva, the action of the tongue, cheeks and lips mechanism as well as the shape and arrangement of teeth and jaws will affect the speed of food cleaning. This cleaning is accelerated by the chewing process and low viscosity of the saliva[24].

From the results of the study, it was found that the results of the assessment before the dental and oral health care model were carried out, information was obtained on the value of the debris index with a category of less than 24 (68.6%) respondents, and after the implementation of the dental and oral health care model, the respondents with the debris index value of the less decreased category were 13 (37.1%) respondents. This shows that there are 11 (31.4%) respondents who were previously in the category of less debris index, but after the application of the model shows that the respondents do good dental and oral care so that they get enough debris index values.

The results of the analysis using the Wilcoxon Signed Rank Test statistical test obtained a significance value = 0.000 smaller than the p value < 0.05 so that it can be concluded that there is a significant difference in debris index between before and after being given the dental and oral health care model, thus the hypothesis is accepted. The dental and oral health care service model is effective in reducing the debris index in TBC patients.

The results showed that there was a significant difference in the value of the Debris Index between before and after the dental and oral health care model was given, thus the hypothesis was accepted. The dental and oral health care service model is effective in reducing the debris index in patients. The results of the study also showed that there was an increase in oral hygiene of respondents between before being given the dental and oral health care service model and after being given dental and oral health care services, this was assessed from the decrease in the debris index score before and after being given care. The increase in respondents' knowledge of the debris index and the increase in attitudes towards oral hygiene support the reduction of the debris index in TBC patients, because oral hygiene that is carried out routinely with the right techniques causes the respondents' debris index to be better. Respondents also stated that the dental and oral health care service model provided is very helpful for TBC patients to know and practice good and correct oral hygiene.

Respondents with a bad index debris category before being given a dental and oral health care model stated that they did not know about dental and oral health problems, especially debris on teeth and mouth, and did not know how to prevent or overcome them. After being assisted with the dental and oral care model, the respondents stated that they would carry out prevention in accordance with the guidance they received in the dental and oral health care model. The respondents with the debris category are stating that they have never received information about debris but routinely do dental and oral care independently.

Primary preventive measures to prevent dental and oral diseases can be taken, especially preventive measures by individuals, namely by carrying out dental and oral hygiene measures.[25] This dental and oral hygiene action can be done by

individuals by brushing their teeth to remove plaque and gargle with antiseptic liquid so that teeth remain clean. Secondary precautions can be carried out by means of topical application, tartar cleaning and fissure sealant. Tertiary preventive measures can be carried out with dental fillings and tooth extractions.

There are several factors that affect a person's perception to do an action, including age and maturity as well as a person's knowledge and understanding. At the age of children to teenagers, they do not have the maturity to think, act and make a decision. They have not been able to give an accurate assessment of a stimulus, besides that children do not have a fixed stance in making a choice. So they do not have the perception to produce good actions.

Independence of brushing before The situation in most countries is not yet developed requires a change in dental and oral health care methods. Conventional dental and oral health services must be replaced with services that follow the principles of Oral Health Care. This implies the need for a stronger emphasis on community-oriented dental and oral health promotion. The treatment that can be provided by governments and individuals at an affordable cost should receive more attention. By using this approach, the number of untreated dental and oral diseases is expected to be reduced.

Factors that can affect a person's dental and oral health status are heredity, environment, health services, and behavior. Of these four factors, behavior is the most influential factor in the health status of a person's oral cavity[25].

V. CONCLUSION

The development of dental and oral health care service models is effective in increasing dental health knowledge and attitudes and can reduce the debris index in TBC patients. The development of dental health care can be integrated with other general health so that an optimal degree of health can be created.

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