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## Pediatric Specialty Dental and Oral Health Care Model on Oral Therapist Compliance and Child Anxiety

Suprih Utomo<sup>1</sup> Bedjo Santoso<sup>2</sup> Diyah Fatmasari<sup>3</sup> Zita Aprilia<sup>4</sup> Endah Aryati Eko Ningtyas<sup>5</sup>

<sup>1</sup>Postgraduate, Poltekkes Kemenkes Semarang, Indonesia

<sup>2</sup>Postgraduate, Poltekkes Kemenkes Semarang, Indonesia

<sup>3</sup>Postgraduate, Poltekkes Kemenkes Semarang, Indonesia

<sup>4</sup>Dr. H. Soewondo Hospital, Kendal,, Indonesia

<sup>5</sup>Postgraduate, Poltekkes Kemenkes Semarang, Indonesia

Corresponding author: Suprih Utomo  
Email: [suprihutomo@poltekkes-smg.ac.id](mailto:suprihutomo@poltekkes-smg.ac.id)

### ABSTRACT

Oral Therapists in pediatric dentistry services are to provide oral health care contained in Kepmenkes Number HK.01.07/MENKES/1513/2022, with stages: Assessment, diagnosis, planning, implementation and evaluation. The implementation of service actions in hospitals, oral therapists only play a role in the intervention stage (assisting pediatric dental specialists), while at the stages of assessment, diagnosis, planning and evaluation in care services are carried out by general nurses (application of complete nursing care) this is because dental therapists do not yet have dental health care. To develop a pediatric dentistry oral health care model for dental therapist compliance and children's anxiety. This research design uses R&D. The sample was divided into 2 groups, the oral health care model in pediatric patients with mesiodens tooth extraction cases as many as 10 respondents and dental therapists as many as 10 respondents on compliance. Analysis using the Wilcoxon test. The oral health care model effectively reduces children's anxiety. The correlation value of R square is 0.583. The coefficient of determination (R Square) is 0.340, that the influence of the model implementation compliance variable by oral therapist on the variable child anxiety in the act of tooth extraction in mediocre cases is 34%. The F value was found to be 4.121 with a significance level of 0.077 (>0.05). The oral health care model for pediatric tooth extraction with mesiodens cases is feasible and its application is effective in increasing the compliance of oral therapists, reducing children's anxiety in accepting pediatric tooth extraction.

Keywords : health care model, pediatric, anxiety, compliance.

### Introduction

Dental health is an integral part that cannot be separated from general health, meaning that a person with a toothache will have a general health problem. Dental health problems result in a person's quality of life being disrupted due to the decline in various oral cavity functions ranging from speech, chewing, and aesthetic function. Based on Basic Health Research in 2018, 57.6% of Indonesians experience dental and oral health problems, namely dental caries, periodontal disease, teeth that are not

in their position (malposition), tongue tumors, jaw fractures, and teeth *mesiodens* (*Supernumerary Teeth*) [1].

*Mesiodens* is one of the variations of *Supernumerary Teeth* i.e. the presence of additional teeth located at the midline between the two *incisivus* central. *Mesiodens* generally small, shaped *Conical* or *peg shaped*, and can cause *Diastema*. Prevalence *mesiodens* found to range from 0.15% - 3.9%. *Mesiodens* as *anomaly* the most common teeth that affect permanent teeth [2].

Cause *mesiodens* It is not known for sure but can be caused by genetic factors, environmental factors, developmental disorders, *atavism*, *Dichotomy* and *Hyperactivity* dental *Lamina Mesiodens* can cause or impact with various complications such as failure or delay *eruptions*, *ectopic eruptions* adjacent teeth, *Diastema* centerline, *mesiodens*, *malalignment* tooth *incisivus*, displacement and rotation *Axial* adjacent teeth, *Resorption* adjacent dental radicles, *crowding*, *slashed*, possible development of cysts *Dentigerous*. Research conducted by Ryzanur (2022), proves that the prevalence of teeth *mesiodens* in children reached 55.2% of cases [3].

Tooth *supernumerary* has the potential to disrupt development *occlusion* normal and aesthetic in children. This is evidenced by Ratna's research in 2022 which states that *mesiodens* located on the dental palatal (appears to overlap), *Single* and *unilateral*. Complications *mesiodens* The most common is the displacement of the central *incisivus*. Research conducted *Ersin*, *Candan*, *Alpoz* and *Anonymous* (2022) proves that *mesiodens* is more common in males, with a median age of 8.96 years and more often located on the left side of the midline and/or absent from the midline [4].

Early diagnosis of teeth *supernumerary* It is very important to determine the right care for each child. Clinical and radiography examinations should be done at the right time to minimize the need for tooth extraction treatments and changes to adjacent teeth. Treatment carried out on children with cases *mesiodens* is the extraction of teeth that have *mesiodens* by a pediatric dentist [5].

Impact of tooth extraction *mesiodens* in children can cause anxiety that tends to be high in children. Sghaireen (2020) research shows that the level of anxiety about dental and oral care is higher. Anxiety is felt by the child at actions that require injections for tooth extraction cases *mesiodens* and dental and oral care that uses extracting pliers. The anxiety that the child feels before the removal can sometimes affect the perception of pain or fear during the removal at the pediatric dentistry polyclinic [6].

Many negative impacts have occurred on children who have experienced cases *mesiodens*, so it is necessary to have teeth extracted by a pediatric dentist who is carried out in a hospital with complete equipment. Ideally, the service in *mesiodens* tooth extraction, pediatric dentists collaborate with dental and oral therapists, as stated in the competency standards for dental and oral therapists, which states that in carrying out

collaborative roles, dental and oral therapists collaborate with specialist dentists. Strengthened by the opinion of Farhan (2020), which states that in exercising the authority of a specialist dentist, it must be accompanied by a dental and oral therapist [7].

The role of pediatric dentists in hospitals is to perform tooth extraction *mesiodens* with local by collaborating with dental and oral therapists. The role of Dental and Oral Therapists in pediatric dentistry specialist services is to carry out dental and oral health care contained in the Ministry of Health Number HK.01.07/MENKES/1513/2022, carried out through the following stages: Assessment, diagnosis, planning, implementation and evaluation [8]. This is in accordance with the standards of specialist dental care services in hospitals implemented in accordance with *SOAPIE* (*Subjective, Objective, Assessment, Planning, Intervention and Evaluation*). with the stage: assessment (*subjective-objective*), including the collection of subjective and objective data on what the child feels, the enforcement of dental health care diagnosis (*assessment*), including determining the diagnosis based on the results of the study, planning (*Planning*), including implementation planning both independent and collaborative, implementation (*intervention*), including assistance actions (*Chair Side Assistant*) and independent, Evaluation (*evaluation*), includes post-implementation evaluation actions [9].

A preliminary study conducted by researchers which was carried out in October 2023 - November 2023 at the Dental and Oral Hospital, University of Muhammadiyah Semarang, data was obtained that in the implementation of service actions in hospitals, dental and oral therapists only play a role in the implementation/intervention stage (assistance of pediatric dentists), while at the stage of assessment, diagnosis, planning and evaluation of care services are carried out by general nurses (the application of care complete nursing). This is because dental and oral therapists do not have dental service standards for pediatric dentistry specialists in the case of *mesiodens* tooth extraction in hospitals.

## Methods

This type of research is a *mix method*, which is a combination of descriptive and analytical research. The design of this study uses *Research and Development (R&D)*. The purpose of this study is to develop a dental and oral health care model in

*mesiodens* tooth extraction services in specialist dentistry in hospitals. The research and development procedure includes 5 (five) main steps, including: 1). Information Collection. 2). Plan Build. Product or model. 3). Expert validation and revision. 4). Product or model trial. 5). Product or model result.

The population of this study is all dental and oral therapists and children who receive *mesiodens tooth extraction treatment* at RSGM UNIMUS. The sample in this study consists of 3 samples, namely information collection samples, expert validation and product testing.

Information collection was carried out by observation methods and interviews with pediatric dentists, dental and pediatric therapists, and general nurses on duty at RSGM Unimus. In addition, literature studies are carried out to support the data or information obtained. Expert validation is carried out by pediatric dentists, dental and oral therapists who are experts in the field of dental and oral health care in hospitals, and psychologists.

The product model test uses *pre-experimental* with trial samples, namely dental and oral therapists and children with *mesiodens cases*.

The analysis used was using *Interclass correlation coefficient*, frequency distribution, *Shapiro-Wilk* and *Wilcoxon uni*.

## Results and Discussion

### 1. Information Collection

Development of a dental and oral health care service model contained in the Ministry of Health Number HK.01.07/MENKES/1513/2022. carried out through stages: Assessment, diagnosis, planning, implementation and evaluation. This is in accordance with the standards of specialist dental care services in hospitals implemented in accordance with SOAPIE (Subjective, Objective, Assessment, Planning, Intervention and Evaluation). with stages: assessment (subjective-objective), including the collection of subjective and objective data about what the child feels, enforcement of dental health care diagnosis (assessment), including the determination of diagnosis based on the results of the assessment, planning (planning), including implementation planning both independent and collaborative, implementation (intervention), including assistance actions (chair side assistant) and independent,

evaluation (evaluation), including evaluation actions after implementation [8].

Based on the results of information collection, it was found that dental and oral therapists on duty in hospitals need a dental and oral health care model for the extraction of children's teeth in *mesiodens* cases as a reference in doing their work. *Mesiodens* is a tooth extraction in children with cases of crammed children's teeth and adjusts to the needs of the child, depending on the difficulty level of the *mesiodens* case and also on the condition of the child due to anxiety [10].

Tooth extraction in children with *mesiodens* cases often causes anxiety in children. However, anxiety can be reduced with treatment from dental and oral therapists who provide education and counseling to children regarding the disease and treatment steps. Anxiety during dental care ranks 5th in situations that are considered scary. *Dental anxiety* or anxiety when going through a dental procedure arises due to the child's anxiety about medical equipment and especially with tooth extraction [11].

Education and counseling provided by dental and oral therapists to *mesiodens* children can reduce anxiety, because children can discuss with dental and oral therapists regarding the causes of their anxiety. Education and counseling by dental and oral therapists to children is part of dental and oral health care. Education provided to children can increase confidence in children about dental and oral health, so that it can reduce anxiety in children [12].

### 2. Expert Validation Test

Validation is the process of assessing expert validators in their field on the model. This was done to obtain data that was used as a basis to test the feasibility of the dental and oral health care model for *mesiodens* tooth extraction with a total of 3 (three) validators, namely dentists, pediatricians, care service experts and psychologists. This validation was carried out with a questionnaire containing 15 questions

#### Expert Validation Test Results Table

N	p-value	IC	Criterion
3	0,001	0,767	Good Criteria

*\*Interclass correlation coefficient*

The reliability test results showed a *p-value* of 0.001 and an Interclass Correlation value of 0.767 with good criteria. This shows that the

assessment of the pediatric specialist dental and oral health care model carried out by experts has a good level of consistency. Based on these results, it shows that the pediatric dental and oral health care model is suitable for use as an effort to reduce the level of anxiety in children's dental care with mesiodens cases.

### 3. Test Model

The trial results of the development of a dental health care model for child tooth extraction with mesiodens cases are conducted using a *pre experiment* with a *pre* and *post test design*. This is done in accordance with the purpose of the model trial, which is to analyze the effectiveness of the model as a result of the development of dental and oral health care for pediatric specialist dentistry.

#### a. Frequency Distribution of Respondent Characteristics

The results of the respondent characteristics in this study are used to find out the general description of the respondents presented in the following table:

Characteristic	Respondents	
	n	(%)
<b>Dental and Oral Therapist</b>		
<b>Education</b>		
Diploma III	6	60
Diploma IV	4	40
<b>Pediatric Patients</b>		
<b>Age</b>		
7 years	1	10
8 years	2	20
9 years	4	40
10 years	2	20
11 years	1	10
<b>Gender</b>		
Man	7	70
Woman	3	30

The education of the respondents in this study was five dental and oral therapists who graduated from DIII, four DIV/S1 students and one S2 student, with a score of 1,000 ( $p > 0.05$ ) so that it can be concluded that TGM Education has the same proportion (homogeneous). The level of education will affect a person's response to the information received. Education is an effort to help humans improve individual behavioral abilities to achieve maximum health. The higher the level [13] Education will also have a higher level of individual compliance with health, easy to grasp information and think rationally. This is possible because education is one of the important factors to be able

to understand the prevention and management of various diseases.

The results of the analysis of this study found that the age of the children in the intervention and control groups did not have the same variance (not homogeneous) with a value of 0.001 ( $p < 0.05$ ). The age of the child greatly influenced the anxiety when receiving the action, a significant difference between the level of anxiety of children of age (6-18 years), with a significance value of 0.004 ( $p < 0.005$ ). This is because age is related to a person's view of something and the experience they have. The older you get, the more mature the process of thinking and acting in facing something [14].

#### b. Child Anxiety Effectiveness Test

To test the effectiveness of the pediatric specialist dental and oral health care model on children's anxiety in revocation with mesiodens cases.

**Table of Results of Child Anxiety Effectiveness Test**

Variable	Statistics		p-value
	Pre test	Post test	
	Mean±SD	Mean±SD	
<b>Anxiety</b>	18.90 ± 3.03	6.10±0.31	0,005*

\*Wilcoxon

Based on the table above, it shows that the results of the paired data effectiveness test show a *p-value* of 0.005 ( $< 0.05$ ), meaning that the dental and oral health care model is effective in reducing children's anxiety with a decrease in value from 18.90 to 6.10.

Based on the results of statistical analysis, the pair test showed that there was a significant difference in the compliance score of dental and oral therapists before and after being treated using the dental and oral health care model. The average value of dental and oral therapist compliance before treatment was 7.30 while after treatment was 9.00 with an average difference in increase before and after model treatment of 1.70 and a *p* value of 0.001 meaning, the application of the dental and oral health care model for tooth extraction in children with mesiodens cases was effective in increasing dental therapist compliance.

The value of compliance in the intervention group increased because respondents were given training and modules. After that, the respondents also conducted a simulation which ultimately increased the compliance of dental therapists.

Compliance is a learning outcome obtained after the person is exposed to certain objects [15].

This is in line with research in 2024 that there was an increase in compliance in participants who were given training on dental and oral health care services with  $p$  value = 0.333 ( $p > 0.05$ ). This is reinforced in research in 2023, there is an increase in dental and oral health cadre training participants [16].

The results of the effectiveness test of unpaired data showed that the test value of the intervention group was 0.001 ( $p$  value  $< 0.05$ ), meaning that the dental and oral health care model for mesiodinal children was more effective in increasing dental therapist compliance than dental and oral health care.

Based on the results of statistical analysis, the pair test showed that there was a significant difference in children's anxiety scores before and after being treated using the dental and oral health care model. The average value of children's anxiety before treatment was 34.25 while after treatment it was 27.58 with an average difference of increase before and after the model treatment of 6.67 and a  $p$  value of 0.001, which means that the application of the dental and oral health care model for mesiodinal children is effective in reducing children's anxiety.

Dental and oral health care is given to children according to their diagnosis. In children with a diagnosis of unmet needs to be free from fear/anxiety and stress, dental and oral therapists make plans and interventions with the aim of reducing children's anxiety. Dental and oral therapists will provide independent intervention in the form of education and counseling related to children's anxiety. This has been proven to be effective in reducing children's anxiety. Children's anxiety after tooth extraction can be handled with dental and oral health care after the child's basic needs are met [17].

The results of the unpaired data effectiveness test showed that the test value of the intervention group was 0.001 ( $p$  value  $< 0.05$ ), meaning that the dental and oral health care model for tooth extraction in children with mesiodentic cases was more effective in reducing children's anxiety

### Conclusion

The dental and oral health care model for child tooth extraction with mesiodense cases is feasible and its application is effective in increasing the compliance of dental and oral therapists,

reducing children's anxiety in receiving child tooth extraction.

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