THE CHILD'S DENTAL TREATMENT WITH SEDATION: REASONS, DENTAL TREATMENT NEEDS, MEDICAL CONDITION, AND HISTORY OF DENTAL ANXIETY AMONG CHILDREN IN YARSI DENTAL HOSPITAL

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ABSTRACT

Introduction: *The prevention and treatment of oral diseases in childhood and adolescence as the basis for good oral health throughout life is the aim of pediatric dentistry. The ability to care for the segment of the pediatric patients with fear and anxiety of dental treatment also with the medically compromised condition has become an important component of dental practice. Therefore, a need does exist for sedation services within the dentistry field. This study aimed to determine the reasons, dental treatment needs, medical condition, and history of dental anxiety in the analyzed group of pediatric patients.*

Methods: *This was a cross-sectional study using secondary data from medical records data conducted by YARSI Dental Hospital from March to April 2019. About 30 data were eligible for this analysis. The dependent variable in this study was dental treatment with sedation. Independent variables consisted of reasons, dental treatment needs, medical condition, and history of dental anxiety. The data were analyzed using univariate and bivariate analysis.*

Results: *In this study, there were 21 children (70%) doing dental treatment with sedation because of the need for dental treatment and intervention reason. There was statistically significant interaction between reason and dental treatment with sedation with p-value = 0.023 < 0.05. Another finding, children with a history of dental anxiety were more likely to use dental treatment with sedation (43.3%). With p-value 0.935 > 0.05 there was no statistically significant interaction between the history of dental anxiety with dental treatment with sedation. This study also did not reveal a statistically significant correlation between the following variables: dental treatment needs (p=0.128) as well as children's medical condition (p=0,091).*

Conclusions: *Most of the correspondents were non-medically compromised children with a history of dental anxiety. The reasons they came to YARSI dental hospital were because of the need for dental treatment and intervention reason. Conservation was the most needed dental treatment. Of the 4 (four) variables studied, the highest influence was the relationship between reason with dental treatment with sedation.*

Keywords: *pediatric, dental, sedation*

INTRODUCTION

Despite the improvement of oral health facilities in the last decade, oral diseases are still the most common noncommunicable diseases in children worldwide [1] The results of the Basic Health Research or Riskesdas 2018 state that 93 percent of early childhood in the age of 5-6 years old experience cavities. This means that only seven percent of children in Indonesia are free from dental caries problems [2]. This problem can affect children throughout their lifetime, causing pain, discomfort, disfigurement and other serious health issue [3].There are two main procedures in the effort of reducing the incidence of oral health problem and increasing oral care: to keep the environment friendly for the oral health, and

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to keep the patient capable of using and willing to use the dental service [4]. High-quality and efficient dental treatments cannot be performed on uncooperative children, and unpleasant dental visits can negatively affect the child's behavior toward future dental treatments [5].

Traditionally, a sizeable proportion of children and adolescents feel fear and anxiety towards going to dentists. These feelings of fear and anxiety continue despite advances in dental techniques. Treating patients with dental fear and anxiety may become a major dilemma in pediatric dental practice. It can be time-consuming and stressful for the dental professional to treat patients with high levels of anxiety [6] Anxious children often need pharmacological behavior management techniques during dental care [7].

Careful and considerate management by dental practitioners is an important component in assisting anxious individuals to obtain the needed dental care. These feeling of anxiety can be a persistent thing that might hinder the process of dental practice. Therefore, sedation services within dentistry can be a solution for dental anxiety [8].

Sedation is described as drug-induced depression of consciousness with various state of consciousness level. For mild sedation (moderate/conscious sedation) the patient maintain the independent ability to keep an open airway and react accordingly to verbal commands. The protective reflexes are normal or minimally altered [9].

The dental care performed by dental practitioners is mostly conducted in the dental office. Local anesthesia is sufficient for the majority of dental procedures even when it is with or without the sedation. But, an additional monitoring or deeper levels of sedation may be neccesary for some patients with particular medical conditions and procedural needs. Sedation, while often successful, can present significant risks of hypoxemia, respiratory depression, agitation, excessive motion, and procedural failure. While the medical conditions that may need sedation are ischemic heart disease, congenital heart disease, pulmonary impairment with oxygen requirements, bleeding disorders, craniofacial abnormalities, orofacial trauma, mental retardation or severe behavioral disturbances, malignant hyperthermia or at increased risk [10].

The finding from this study potentially contributes to add knowledge on the current situation of dental treatment with sedation for pediatric patients and understand determinant factors underlying among them. Furthermore, it can be used to develop appropriate public health interventions targeting characteristics or other factors that are related to low dental health awareness.

METHODS
Data
This study was a cross-sectional study using secondary data analysis from medical records data conducted by Medical Records Unit in YARSI Dental Hospital from March to April 2019. Data were taken with random sampling methods. 30 data were eligible for this analysis with inclusion criteria of children patient age from 1 to 12 years old with history of dental treatment with sedation. The exclusion criteria of this study is adult patient with or without history of dental treatment with sedation. The dependent variable in this study was dental treatment with sedation. Meanwhile, independent variables consisted of reasons, dental treatment needs, medical condition, and history of dental anxiety.

Data on the child's reasons, dental treatment needs, medical condition, and history of dental anxiety were collected from anamnesis in medical records. Reasons for the child's dental treatment were identified based on:
1. Children visiting the dentist for prophylactic and adaptive reasons (A);
2. Children visiting the dentist due to the need for dental treatment and intervention (B).

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The adaptive visit (A) was defined as a prophylactic examination of a child, and a visit for preventive purposes, while a visit due to tooth pain (T), decay (D) and tooth injury (I) were grouped together as visits due to the need for dental treatment and intervention (B).

Statistical Analysis

The collected data were put into an Excel spreadsheet and analyzed using IBM SPSS software (version 24). The research hypothesis was verified using the Chi-square independence test at the statistical significance level of $p < 0.05$.

Data analysis in the study was conducted using a computer program where 2 types of data analysis will be carried out, they are univariate analysis and bivariate analysis [11].

To explain the characteristics of each variable, both independent and bound variables is the purpose of univariate analysis. By looking at the frequency distribution of each variable. While the purpose of bivariate analysis is to see whether there is a relationship between two variables, the dependent variable and the independent variable. The statistical test used in this study was the chi-square test. Chi-square test is a comparative test used in the data in this study. Significant test between the data observed with the expected data is carried out with a significance limit ($\alpha < 0.05$) which means that if obtained $< \alpha$, it means that there is a significant relationship between the independent variable and the dependent variable and if the value $p > \alpha$, there is no relationship significant between independent and bound variables

Ethical Consideration

The survey of which this study has been approved by YARSI Dental Hospital. Issued by Research Ethics Commission with Registration Number 004/S.Kep/Dir/RSGM/IV/2019 Date issued April 9th 2019.

RESULTS

Based on table 1, it was found that there were 19 children (63,3%) with a history of dental anxiety, 8 children (26.7%) without history of dental anxiety, while children who have not been to the dentist (there was no previous history of dental anxiety) were 3 children (6.7%). For the reason for children to do dental treatment and intervention were 28 children (93.3%) while prophylactic and adaptive reason was 2 children (6.7%). Dental treatment needs at the conservative treatment of 13 children (43.3%), dental surgery and conservative treatment of 10 children (33.3%) and dental surgery of 5 children (16.7%) and no need for treatment, only prophylaxis of 2 children (6.7%). In children's medical condition, non-medically compromised were 21 children (70.0%) while medically compromised were 9 children (30.0%). While treatment options doing dental treatment with sedation were 21 children (70.0%) and not using sedation were 9 children (30%).

Percentage distribution of pediatric patients with dental treatment using sedation

Variables	Categories	n = 30 (%)
History of Dental Anxiety	Children with no history of dental anxiety	8 (26.7%)
	Children with history of dental anxiety	19 (63.3%)
	Never Been to Dentist (there was no previous history of dental anxiety)	3 (10.0%)
Reason	Prophylactic and adaptive reason	2 (6.7%)
	Dental treatment and intervention	28 (93.3%)
Dental Treatment Needs	Conservative treatment	13 (43.3%)
	Dental surgery and conservative treatment	10 (33.3%)
	Dental surgery	5 (16.7%)
	No need for treatment, only prophylaxis	2 (6.7%)
Medical Condition	Non Medically Compromised	21 (70.0%)

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Variables	Categories	n = 30 (%)
	Medically Compromised	9 (30.0%)
Treatment Options	Sedation	21 (70.0%)
	Non Sedation	9 (30.0%)

The number of respondents was 30 pediatric patients with dental treatment using sedation at the YARSI Dental Hospital (RSGM YARSI) which were conducted in March to April 2019. The distribution of respondents' demographics were shown below.

Relationship between history of anxiety and dental treatment with sedation at YARSI Dental Hospital

Age	Treatment Options				P Value
	Sedation		Non Sedation		
	Σ	%	Σ	%	
Children with no history of dental anxiety	6	20.0	2	6.7	
Children with history of dental anxiety	13	43.3	6	20.0	0.935
Never Been to Dentist (no previous history of dental anxiety)	2	6.7	1	3.3	
Total	21	70.0	9	30.0	

The study of 30 pediatric patients at YARSI Dental Hospital conducted in March - April 2019 showed that patients using sedation with no history of dental anxiety were 6 children (20.0%), history of dental anxiety were 13 children (43.3%) and never been to dentist (there was no previous history of dental anxiety) were 2 children (6.7%) with a total of 21 children (70.0%) then those who did not use sedation were 9 children (30.0%) with no history of dental anxiety were 2 children (6.7%), Children with history of dental anxiety were 6 children (20.0%) and no previous history of dental anxiety was 1 child (3.3%). Based on the table above, the data analysis between the history of dental anxiety and Dental Treatment with Sedation using the Chi-Square test obtained a significant p-value = 0.935 (p-value> 0.05). this shows that Ho (null hypothesis) is accepted and Ha (alternative hypothesis) is rejected so that there is no relationship between the history of dental anxiety and Dental Treatment using Sedation.

1. *Relationship between Reason and Dental Treatment with Sedation at YARSI Dental Hospital*

Reason	Treatment Options				P Value
	Sedation		Non Sedation		
	Σ	%	Σ	%	
Prophylactic and Adaptive Reason	0	0.0	2	6.7	
Dental treatment and Intervention	21	70.0	7	23.3	0.023
Total		21	70.0	9	30.0

There were 21 patients (70.0%) using sedation with the same reason: dental treatment and intervention. While the other 9 children who did not use sedation: 2 children (6.7%) with Prophylactic and Adaptive Reason and 7 children with dental treatment and intervention reason. Based on the above table, the data analysis between reason and Dental Treatment with Sedation using the Chi-Square test obtained a significant p-value = 0.023 (p-value > 0.05). it shows that Ho (null hypothesis) is rejected and Ha (alternative hypothesis) is accepted so that there is a relationship between reason and Dental Treatment with Sedation.

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2. *Relationship between Dental Treatment Needs and Dental Treatment with Sedation at YARSI Dental Hospital*

Dental Treatment Needs	Treatment Options				P Value
	Sedation		Non Sedation		
	Σ	%	Σ	%	
Conservative treatment	10	33.3	3	10.0	
Dental Surgery and Conservative	8	26.7	2	6.7	0.128
Dental Surgery	3	10.0	2	6.7	
No need for treatment, only prophylaxis	0	0.0	2	6.7	
Total	21	70.0	9	30.0	

In this research was found 10 patients (33.3%) used sedation with conservative treatment and 3 children (10%) who did not use sedation. Dental surgery and conservative treatment using sedation were 8 children (26.7%), 2 children (6.7%) were not using sedation. For dental surgery, 3 children (10%) using sedation and 2 children (6.7%) were not using sedation. While 2 children (6.7%) who needed prophylaxis were not using sedation. Based on the table above the data analysis between Dental treatment needs with an approach using the Chi-Square test, obtained a significant value of p = 0.128 (p.value > 0.05). This shows that Ho (null hypothesis) is accepted and Ha (alternative hypothesis) is rejected so that there is no relationship between dental treatment needs with dental treatment with sedation.

3. *Relationship between Medical Condition and Dental Treatment with Sedation at YARSI Dental Hospital*

Medical Condition	Treatment Options				P Value
	Sedation		Non Sedation		
	Σ	%	Σ	%	
Non Medically Compromised	12	40.0	8	26.7	0.091
Medically Compromised	9	21.0	1	3.3	
Total	21	70.0	9	30.0	

There were 12 children with non-medically compromised (40.0%) using sedation and 8 children who did not use sedation (26.7%). While 9 children with medically compromised condition used sedation (21.0%) and 1 child did not use sedation (3.3%). Based on the table above, the data analysis between Medical Condition and the approach using the Chi-Square test, obtained a significant value of p value = 0.091 (p-value > 0.05). It shows that Ho (null hypothesis) is accepted and Ha (alternative hypothesis) is rejected so that there is no relationship between Medical Condition and dental treatment with sedation

DISCUSSION
Based on this research, we can see that most children with history of dental anxiety need dental treatment in YARSI Dental Hospital with result 19 children (63.3%), with reason to do dental treatment and intervention as many as 28 children (93.3%). While dental treatment needs were the conservative treatment with 13 children (43.3%) and 20 non-medically compromised children (66.7%). The number of children in this research who used sedation were 21 children (70.0%).

Children with history of dental anxiety who used sedation as many as 13 children (43.3%). Understanding process and also motivation to comply with dental treatment differs depending on psychological development. It is important to comfort children with anxiety, because children has to deal with lying down without moving; to tolerate discomfort; strange tastes; maybe even pain; and all

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this in an unfamiliar environment during the treatment [4]. However, there was no significant correlation between history of dental anxiety with dental treatment with sedation with p value 0.935> 0.05. Dental treatment and intervention reason of 21 children (70.0%) using sedation. The evidence of associating dental anxiety with poor oral health-related outcomes, it is clearly imperative that the dental team identifies and works with children and adolescents who exhibit signs of dental fear and anxiety from an early age [12]. Here it is stated that there is a significant relationship between reason with dental treatment with sedation, p value = 0.023 <0.05. At the highest dental treatment needs, 10 children (33.3%) conservation treatment using sedation with p value 0.128> 0.08, so there is no relationship between dental treatment needs and dental treatment with sedation. Patients with medical condition for examples heart disease, bleeding problems, mental retardation or behavioural disturbances may need sedation during dental treatment [10]. But in this study, there was no relationship between medical condition and dental treatment with sedation with p value 0.091> 0.05.

CONCLUSSION

Based on the results of the study it can be seen that the history of dental anxiety, reason, dental treatment needs and medical condition has different correlation with sedation approach in YARSI Dental Hospital. Significant correlation can be found in relationship between the reasons with dental treatment with sedation. Apparently, pediatric patients who needed intervention dental treatment were using sedation approach. It can be concluded that the highest influence is the relationship between reason and dental treatment with sedation which gets a p value of 0.023 < 0.05. While there were no significant correlation between history of dental anxiety, dental treatment needs or medical condition with dental treatment using sedation. Sedation in dentistry should be considered if pediatric patients has anxiety to do dental treatment, medical consideration or dental treatment complexity. It is important to ensure that the children has no trauma and be comfortable during their dental visit. Using sedation approach, the dental team can deliver high-quality and efficient dental treatments for pediatric patients.

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