



The Relationship Between the Role of Parents and the Incidence of Tooth Persistence in Children with Intellectual Disabilities

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ABSTRACT

Children with intellectual disabilities are individuals who experience limitations in cognitive abilities, mobility, and behavior, caused by several factors, including prenatal, perinatal, and postnatal conditions. The concept of "role" refers to behaviors performed by individuals based on their position within a social structure or group, meaning that each person has specific responsibilities according to their societal status. Based on an examination conducted by the researcher on January 30, 2024, at SLB C Autis Negeri Tuban, of 39 students examined, 25 children (64.10%) were found to have tooth persistence, with an average of two persistent teeth per affected child. This high prevalence indicates a significant dental health problem in the school. The aim of this study was to determine the relationship between the role of parents and the incidence of tooth persistence among children with intellectual disabilities at SLB C Autis Negeri Tuban. This analytical study employed a cross-sectional design with a sample of 37 parents and their children with intellectual disabilities from the same school. Data were collected through parent questionnaires and dental examinations of the children. Data analysis was conducted using Spearman's rank correlation test. The results showed a significant relationship between the role of parents and the incidence of tooth persistence in children with intellectual disabilities, with the parental role categorized as low and the strength of the correlation also in the low category. In conclusion, there is a relationship between the role of parents and the incidence of tooth persistence among children with intellectual disabilities at SLB C Autis Negeri Tuban.

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INTRODUCTION

Children with special needs are those who experience physical and mental limitations that affect their physical development, behavior, and emotions (Veriza & Boy, 2018). One

group within this category is children with intellectual disabilities, who have limitations in cognitive abilities, mobility, and behavior caused by prenatal, perinatal, or postnatal factors (Amiqoh, 2022). According to data from the Coordinating Ministry for Human Development and Cultural Affairs (Kemenko PMK, 2022), the prevalence of children with disabilities aged 5–19 years in Indonesia reaches 3.3% of the total population of normal children in the same age group.

In Tuban Regency, data from the Central Bureau of Statistics show that the percentage of children with special needs is around 1.1% of the total population (Badan Pusat Statistik, 2018). Children with special needs generally have limited knowledge about oral health due to motor and cognitive impairments (Baumgarten et al., 2021; Madaan, & Sahu, 2022; Pisano et al., 2025). This condition results in lower dental and oral health levels compared to normal children.

Parents play an important role in the growth and development of children, including the maintenance of dental health from the primary dentition stage. Primary teeth affect the eruption of permanent teeth, thus requiring serious attention from parents (Banowati et al., 2021). Parental involvement, especially from mothers, greatly influences the formation of attitudes and habits in maintaining children's oral health (Abuhaloob, & Petersen, 2021; Poirier et al., 2021; Marjianto, 2022; Alamoudi et al., 2023; Kaushik, & Sood, 2023; Csima et al., 2024).

Tooth persistence is a condition in which a primary tooth has not exfoliated despite the eruption of its permanent successor. The causes include ankylosis, delayed root resorption, hypothyroidism, malnutrition, genetic factors, or abnormal positioning of the permanent tooth germ (Achmad et al., 2021). This condition can lead to abnormalities such as tooth crowding, malocclusion, and tooth impaction, particularly in children aged 6–12 years who are in the transitional stage from primary to permanent dentition (Fadel et al., 2022; Golovachova, Mikadze, & Kalandadze, 2022; Kus-Bartoszek, et al., 2022).

The results of an examination conducted by the researcher on January 30, 2024, at SLB C Autis Negeri Tuban showed that out of 39 students examined, 25 children (64.10%) experienced tooth persistence, with an average of two persistent teeth per child. This figure is considered high compared to the 2025 National Action Plan (RAN) target for the DMF-T index in 12-year-old children, which is set at 1.4. The novelty of this study lies in its focus on the relationship between the role of parents and the incidence of tooth persistence in children with intellectual disabilities, a topic that has rarely been studied, particularly in special education school settings. This study aims to determine the relationship between the role of parents and the incidence of tooth persistence in children with intellectual disabilities at SLB C Autis Negeri Tuban.

METHOD

This study was an analytical research with a cross-sectional design conducted at SLB C Autis Negeri Tuban. The aim of the study was to determine the relationship between the role of parents and the incidence of tooth persistence in children with intellectual disabilities. The study population consisted of 53 respondents, with a sample of 37 respondent pairs consisting of parents and children with intellectual disabilities aged 6–12 years who had tooth persistence.

The research instruments included a questionnaire and an examination sheet. The questionnaire was used to assess the level of parental role, while the examination sheet was used to record the presence of tooth persistence in the children's oral cavity. Dental examinations were conducted using a standard diagnostic instrument set in accordance with oral health examination procedures.

Data were analyzed bivariate using Spearman's rank correlation test to determine the relationship between variables, as well as to measure the strength of the correlation based on the following criteria: 0.00–0.199 = very weak; 0.20–0.399 = weak; 0.40–0.599 = moderate; 0.60–0.799 = strong; and 0.80–1.000 = very strong. This study obtained ethical approval from the Health Research Ethics Committee of Poltekkes Kemenkes Surabaya with the approval number: EA/3741/KEPK-Poltekkes_Sby/V/2025.

RESULTS AND DISCUSSION

Table 1. Distribution of Respondents by Parents' Age, Parents' Occupation, and Parents' Education in 2024.

Variables	Number	Percentage (%)
Age		
20 - 30 years old	14	38
31 - 40 years old	18	48
41 - 50 years old	5	14
Parents' occupation		
Housewife	37	100
Parents' education		
Elementary school (SD)	8	22
Junior high school (SMP)	7	19
Senior high school (SMA)	19	51
Bachelor's degree (S1)	3	8

Table 1 shows that most respondents were aged between 31 and 40 years old, with 18 respondents (48%), all of whose parents were housewives, and most respondents had a high school education, with 19 respondents (51%).

Table 2. Distribution of Respondents by Age of Child in 2024.

Age	Number of persistent teeth	Percentage (%)
7 years old	8	14%
8 years old	20	32 %
9 years old	13	21 %
10 years old	11	18 %
11 years old	7	10 %
12 years old	3	5 %

Table 2 shows that most respondents aged 8 years had 20 persistent teeth (32%).

Table 3. Frequency Distribution of Parental Roles and Persistent Teeth in Children with Intellectual Disabilities at SLB C Autis Negeri Tuban in 2024.

Role of Parents	Frequency	Category
The Role of Parents as Caregivers	15	Less
The Role of Parents as Supervisors	19	Less
The Role of Parents as Educators	16	Less
The Role of Parents as Motivators	16	Less
Number		68
Average		17
Category		Less

Table 3 shows that the role of mothers with persistent incidents in children with intellectual disabilities at SLB C Autis Negeri Tuban has an average of 17 in the poor category.

Table 4. Distribution of Respondents According to Children's Age and Number of Persistent Teeth in 2024.

Age	Number of persistent teeth
7 years old	8
8 years old	20
9 years old	13
10 years old	11
11 years old	7
12 years old	3

Table 4 shows that most child respondents with persistent teeth were 8 years old, with 20 persistent teeth and some experiencing delayed eruption. It is known that the majority of child respondents with persistent teeth are aged 8 (eight) years, as at this age, primary teeth begin to be replaced by permanent teeth. Therefore, if there are loose primary teeth and permanent teeth have begun to grow, extraction of the primary teeth should be performed.

Table 5. Results of Spearman's correlation test between parental role and the incidence of tooth persistence in children in 2024.

Variable	n	r	p-value
The Role of Parents of Children with Intellectual Disabilities	37	-0,351	0,033
Persistence of Teeth in Children with Intellectual Disabilities	37		

Table 5 shows that the Spearman correlation test yielded a p value (0.033) < a (0.05) with a correlation coefficient (r) of -0.351, thus accepting H1 and rejecting H0. It can therefore be concluded that there is a relationship between the role of parents and the incidence of tooth persistence in children with intellectual disabilities at SLB C Autis Negeri Tuban.

DISCUSSION

The role of parents in encouraging children to regularly visit dental health services is essential, along with providing facilities that support oral and dental health. One example is giving children their own toothbrush and replacing it regularly every three months. The habit of replacing toothbrushes is often overlooked by parents, who tend to do so only when the toothbrush appears worn out, whereas use beyond three months can lead to contamination by *Streptococcus* sp., reduce cleaning effectiveness, and risk injuring the gums.

Parental supervision of dental care for children with intellectual disabilities is crucial to ensuring consistent oral hygiene routines. Children with special needs require support, motivation, and reinforcement of daily habits to maintain their dental health (Alamri, 2022; Carter, Clarke, & Stevens, 2022; Khan, Sabri, & Ahmad, 2022). This study shows that a lack of parental involvement can contribute to a higher prevalence of dental persistence in children with intellectual disabilities.

Parents play a role in guiding, educating, reminding, and providing the necessary tools to help their children maintain oral and dental hygiene. The characteristics of children with intellectual disabilities, who are generally slower in learning new skills—especially those related to self-care—necessitate intensive guidance from parents (Atmadjati et al., 2023). Factors influencing oral hygiene behavior include self-image, knowledge, socioeconomic status, social practices, cultural background, personal preferences, and physical condition.

Parental involvement is also important in directing children's curiosity toward positive activities, including oral and dental health. Parental support in dental health service programs contributes to improving children's oral health status (Wowor et al., 2023). Children with intellectual disabilities require greater support than typical children because most of their daily activities depend on their family environment, including the provision of specific knowledge and skills (Nurjanah et al., 2023).

The behavior of children with intellectual disabilities is influenced by predisposing factors (knowledge, attitudes), enabling factors (facilities and information sources), and reinforcing factors (health workers and maternal roles) (Leonard, 2022; Bab, Khodadadi, & Nasirzadeh, 2022). The health status is influenced by environmental, behavioral, hereditary, and healthcare factors (Venetsanopoulou et al., 2022; Genovese, & Butler, 2023; Zhang et al., 2023). Heredity affects the anatomical structure of the jaw and teeth and plays a role in the risk of giving birth to children with special needs, which can be caused by prenatal, perinatal, and postnatal factors (Amiqoh, 2022).

Spearman's rank correlation test results show a significant relationship between parental roles and the incidence of dental persistence in children with intellectual disabilities. The negative correlation value indicates an inverse relationship, meaning that the lower the parental

role, the higher the incidence of dental persistence in children with intellectual disabilities at SLB C Autis Negeri Tuban. The strength of this relationship is categorized as low.

This study has limitations, including a relatively small sample size and being conducted at only one special needs school, which limits the generalizability of the findings. Furthermore, the cross-sectional design does not allow for definitive causal conclusions. Other factors, such as nutritional intake, systemic disease history, and children's eating habits, were not analyzed in depth.

CONCLUSION

In conclusion, there is a relationship between the role of parents and the incidence of tooth persistence in children with intellectual disabilities at SLB C Autis Negeri Tuban. The strength of this relationship falls into the low category, indicating that although parental involvement has an influence, other factors also contribute to the occurrence of tooth persistence in children with intellectual disabilities. Future studies are recommended to involve a larger sample size and include several special schools in various regions to improve the generalizability of the findings. In addition, future research should consider other variables such as nutritional intake, eating habits, general health history, and access to dental health services, as well as employ a longitudinal design to more accurately identify causal relationships.

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