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Model of Deaf and Speech Impaired Dental Nursing in the School for Children with Special Need in Supporting 2030 Indonesia Caries-Free

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ABSTRACT

Background: Students with special needs have lower levels of health and oral hygiene when compared to normal students. In the 11-12 year age group, the average deaf student is 4.17, the 14-16 year age group averages 5.53. This figure is included in the high category when compared to the Ministry of Health's long-term targets for 2020: the rate of dental caries (mixed teeth) aged 6 years 50%, the rate of caries-free teeth grade 6 by 70%, DMF (rate an expression of the condition of the permanent teeth based on the number of teeth decayed, missing) was 85% and the target for 2030 Indonesia is caries-free.

Aim: The resulting model of dental and oral nursing care for people with deaf and speech impaired that aims to develop models of dental nursing care in children with deaf and speech impaired.

Method: This type of research is research and development. Research and development methods are research methods used to produce certain products and test the effectiveness of these products.

Results: Based on the results of expert validity, it shows that the *p-value* = 0.000, which means that the model of dental and oral health care services for deaf and speech impaired is relevant as the implementation of dental and oral health care services for deaf and speech impaired. The results of the effectiveness test showed the *p-value of* the intervention group was 0,000 (p <0.05) meaning that the oral health care model was effective in increasing knowledge, attitudes and deaf and speech impaired skills in the implementation of dental and oral health care.

Conclusion: The effectiveness test results showed the value *p-the value of* the intervention group was 0,000 (p <0.05) meaning that the oral health care model was effective in increasing the knowledge, attitudes, and skills of deaf and speech impaired in the implementation of dental and oral health care

Keywords: Oral health care, Deaf, and Speech Impaired.

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INTRODUCTION

Oral and dental health is not a deadly disease, but a poor oral condition in children interferes with the function and activity of the oral cavity so that it will affect nutritional status which significantly impacts the child's growth and development. Children who have poor oral health, 12 times more suffer from disruption of activity, including not attending school and more than 50 million school hours per year lost due to dental and oral disease (Kwan et al., 2005). In Indonesia, 62.4% of the population felt disturbed by work/school due to toothache, in one year it ranged between 2.50 - 5.28 days, with an average of around 3.86 days. This condition certainly affects the quality of life when associated with productivity (Niken-Sriyono, 2011).

Dental and oral health problems are not only experienced by school-age children who have normal body conditions but are also experienced by school-age children with disabilities. Persons with disabilities are every person with a physical or mental disability that can interfere or constitute obstacles and obstacles for him to carry out appropriate activities consisting of persons with physical, mental, and physical and mental disabilities. Deaf and speech impaired are people with disabilities who have hearing and speech disabilities, usually people with hearing impairments have speech impediments. According to the *World Health Organization* (WHO), more than 5% of the world's population, around 360 million people experience hearing loss (328 million adults and 32 million children). According to Cristy (2013), deaf people generally have limitations in communicating as a result of hearing loss they experience.

According to Purwanto (2012), students with physical and mental limitations have limited physical, developmental, behavioral, or emotional conditions that cause impaired physiological, psychological, or anatomical structures to diminish or disappear, so they cannot carry out normal activities of daily life (limited mobility). Students with special needs have lower levels of health and oral hygiene when compared to normal students (Norahmasari, 2014).

The number of deaf in Indonesia from toddlers to the elderly is approximately 6,000,000 people (Early, 2014), while in Semarang Regency in 2012 there were 527 children. Krista's research (2005) in Special Education (SPED) Karya Murni and SPED Taman Islam, showed that the age group of 11-12 years, the average index *oral hygiene* of deaf and speech impaired students was 2.64, the age group of 14-16 was 2, 54. In the 11-12 year age group DMF-T the average deaf student is 4.17, the 14-16 year age group averages 5.53. West Java Province children attending SPED in 2015 showed that 80% of children examined had poor oral and dental hygiene status and had an average dental caries experience of ≥3 per person. This number is included in the high category, so it is far from expectations when compared with the Ministry of Health's long-term target in 2020: the rate of caries-free teeth (mixed teeth) age 6 years 50%, the rate of caries-free teeth of class 6 by 70%, DMF-T age 12 years ≤ 1, PTI by 50% and *dentally fit* grade 6by 85% and targets in 2030 Indonesia free of caries.

Therefore, children with disabilities need to get the same dental and oral health services as other children, as required in Law Number 36 Year 2009 article 8 which states that

every child has the right to receive health and social security services by physical, mental needs spiritual and social. Poor oral health can affect an individual's quality of life and cause eating difficulties, difficulty speaking, pain, sleep disorders.
Characteristics that stand out in children with deaf/speech impaired are experiencing verbal communication disorders due to loss of all or part of their hearing power, so they use sign language in communication, therefore relationships with normal people experience obstacles. Also, they have an ego-centric that exceeds normal children, is quick-tempered, and easily offended. With these conditions, it takes a long time to react to new situations. Therefore, it requires special stages of dental and oral nursing care for mentally retarded children who are adjusted to their characteristics. The implementation of dental nursing care regulated in the Ministry of Health Decree 284 of 2006 which includes assessment, diagnosis of dental nursing, planning, implementation, and evaluation only regulates for individuals and normal society but does not regulate children with special needs who have different characteristics from children in general. Gigi is integral to general health, in case of problems in dental health will affect the health of others. Based on the 7th Oral Health conference in Bali dental caries is a major problem in Asia which can hurt children's growth and development, social and emotional well-being and disrupt general health (1) (2).

METHODS

a. Type of Research

Type of research is research and development.

b. Population and sample

The population in this study were deaf/speech impaired as respondents, parents/caregivers and teachers and related parties as a source of information at the time of data collection. The sample used was 20 deaf / speech impaired in Semarang Regency. Criteria for inclusion in the sample are all deaf and speech impaired in SPED Semarang district regardless age and IQ.

c. Procedure Research

Phase I: Planning for dental care models for children with deaf/speech impaired
Phase II: The second stage of the research is to test the model by analyzing the effectiveness of dental nursing care models for children with deaf/speech impaired in SPED Semarang regency

RESEARCH RESULTS

Research with the title Model Dental Nursing Care Model Children with deaf and speech impaired at SPED Semarang Regency were conducted from 30 July 2019. This research was conducted at the stage of *ethical clearance* by the Health Polytechnic Commission of the Ministry of Health Semarang. The gathering of information sources was obtained from several elements:

a. Information Collection Information

Gathering was carried out by interviewing the health department (public health sector), SPED head, and dental health workers.
The results of the interview respondents to the question: what is the opinion of the father/mother about the degree of dental and oral health in children with special needs especially deaf and speech impaired? The conclusion of the respondent's answer is the degree of dental and oral health in children with special needs especially deaf and speech impaired is still low. This is due to the absence of efforts or programs for the implementation of dental and oral nursing care whose SOPs are adapted to the characteristics of deaf and speech impaired.
The results of the interview respondents to the question: how is the implementation of dental and oral health care for children with special needs especially the Deaf and speech have been implemented? The respondent's answer concludes that the implementation of dental and oral health care given to deaf and speech impaired children is currently a common dental and oral health care and has not been adjusted to the needs and characteristics of deaf and speech impaired children.
The results of the interview respondents to the question: what kind of dental and oral health care model is suitable given to special needs children with deaf and speech impaired? The respondent's answer concludes that the dental and oral health care model that is suitable for children with deaf and speech impaired is the dental and oral health care whose SOP or implementation has been adjusted to their characteristics or limitations, besides that assistance is needed in its implementation, especially parents.

b. Making Module

Data results from information gathering are used to make product designs or models. The structure of this model is adjusted to the structure of the dental and oral health care model in Minister of Health Decree No. 284 of 2006 with replication and modification methods that have been adapted to the characteristics of deaf and speech impaired children.

c. Expert Validity Test

Table 1: Statistical test of expert

Validity Expert *			
	n	f (%)	p-value
relevant	20	100	0,000
no_relevant	0	0	

*intraclass correlation coefficient

Expert validity results show that the *p-value* = 0,000, which means that the model of dental and oral health care services

for the deaf and speech impaired is relevant as the implementation of dental and oral health care services for the deaf and speech impaired.

d. Test the effectiveness of the model

This study has the aim of the trial which is to analyze the effectiveness of dental and oral health care models in deaf and speech impaired children as an effort to increase the knowledge, attitudes, and skills of deaf and speech impaired children in the implementation of oral and dental health care. Efforts to determine the effectiveness of the method carried out testing on the intervention group that received treatment models of dental and oral health care for deaf and speech impaired children. The product trials in this study were deaf and speech impaired children. Samples in this study were 20 students.

e. Data Normality Test

Table 2: The normality of knowledge, attitude, and deafness and speech impaired data test.

Variables	p-value n=20
Knowledge pre-test	0.304
Knowledge post-test	0.197
Attitude pre- test	0.257
Attitude post-test	0.331
Skills pre- test	0.201
Skills post-test	0.166

* Shapiro-Wilk

Normality test results showed that *p-value* > 0.05, so it can be concluded that the data are normally distributed then continued with parametric tests.

f. Data Effectiveness Test

Table 3: Test the effectiveness of knowledge of children with deaf and speech impaired in intervention groups

Group	Paired Data Test*	Mean	SD	Mean Difference Mean±SD	P value
Intervention	Pre	5.33	1.555	2.500±0.674	0.008
	Post	9.00	1.138		

* Paired T-Test ** Mann Whitney

The results of the paired data effectiveness test showed that the *p-value* intervention groups was 0.008 (p <0.05) meaning that the model of dental health care and mouth in deaf and speech impaired children effectively increases the knowledge of deaf and speech impaired children in the implementation of dental and oral health care in deaf and speech impaired children.

Table 4: Tests of the effectiveness of attitudes of deaf and speech impaired children intervention groups

Group	Paired Data Test*	Mean	SD	Mean Difference Mean±SD	P value
Intervention	Pre	16.08	2.968	6.250±2.221	0.001
	Post	22.33	2.146		

* Paired T-Test ** Mann Whitney

The effectiveness of paired data test results show that the *p-value of* the intervention group is 0.001 (p <0.05) means that the model of dental and oral health care in children of deaf and speech impaired. People effectively improve the attitude of deaf and speech impaired children in the implementation of dental and oral health care.

Table 5: Test the effectiveness of the skills of deaf and speech impaired children of the intervention group

Group	Paired Data Test*	Mean	SD	Mean Difference Mean±SD	P value
Intervention	Pre	5.33	1.165	3.250±0.866	0.008
	Post	8.17	0.998		

* Paired T-Test ** Mann Whitney

The results of the paired data effectiveness test showed that the *p-value* of the intervention group was 0.008 (p <0.05) means that the model of dental and oral health care for deaf and speech impaired children is effective in improving the

skills of deaf and speech impaired children in the implementation of dental and oral health care in deaf and speech impaired children.

DISCUSSION

The collected information can be concluded that for the implementation of the maintenance of dental health in children with deaf and speech impaired special effort through the implementation of the nursing care of teeth and mouth can involve children with deaf and speech impaired in its implementation, as well as the role of parents or guardians, it is appropriate with the opinion of Huda (2012), to overcome the inability of children with deaf and speech impaired, management is needed in the form of providing dental and oral nursing care to improve children's abilities, in this case, oral and dental hygiene. Deaf and speech impaired children are vulnerable to periodontal tissue diseases. Periodontal disease is a disease of the tooth-supporting tissue which is usually characterized by the appearance of red on the gums, swelling, and bleeding when brushing teeth. This is caused by saliva secretions that are not smooth and neglected dental and oral hygiene management. Oral hygiene care is an important part of the care obtained by patients. Management of poorly maintained dental and oral hygiene triggers the growth of bacteria which can cause infections in the oral cavity. Dental and oral health care is an action that needs to be done to maintain health, especially dental health, for this reason, it is necessary to carry out dental and oral health care for deaf and speech impaired children. Nursing care that is suitable for realizing this is a model of dental and oral health care for deaf and speech impaired children.

The result of expert validation shows the p-value = 0.000, which means that the model of dental and oral health care in deaf and speech impaired children is relevant as a model of dental and oral nursing care for deaf and speech impaired children. The expert validation process is important in developing a product/model that is useful in improving quality.

Based on the characteristics of deaf and speech impaired children cannot do independent activities in the implementation of maintenance of dental health so that it requires help from others such as parents or caregivers. Parental knowledge about dental and oral health is very much needed to be able to build children's motivation in carrying out dental health maintenance in deaf and speech impaired children.

The implementation of dental and oral health care regarding the implementation of dental and oral health maintenance can be given by dental health workers to parents and children who are deaf and speech impaired, but in the process, dental health workers need to be given training in advance because with knowledge, attitudes, and skills in maintaining dental health and the mouth of the dental and oral health personnel can *transfer knowledge* and *transfer of skills*. This is consistent with Suryadi's (2004) research that children with physical or mental disorders are often accompanied by a decrease in the ability to mobilize such as doing movements when brushing their teeth.

The development of dental and oral health care models for children with deaf and speech impaired is an innovation to improve the oral and dental health status of children with deaf and speech impaired. Innovation is the introduction of new discoveries or spreading the meaning of new discoveries into general use in society. Product innovation does not have to come from the top management alone but the responsibility of all parties involved in the production process. Innovation is seen as the creation and implementation of new combinations. Innovation implies the development and implementation of something new. This model was developed from the dental and oral health care model set out in Minister of Health Decree No. 284 of 2006 by referring to journals on dental health care and characteristics of deaf and speech-impaired children, and adapted to the field conditions namely how the oral cavity of deaf and speech impaired children, characteristics of children with deaf and speech impaired, as well as expectations of dental health workers arranged according to the format of dental and oral health care. The implementation of the Minister of Health Decree No. 284 in 2006 began with subjective assessment, objective assessment, diagnosis, planning, implementation, and evaluation. The stages of oral health care activities are carried out in a short period so that there is no opportunity for the client to know in advance the operators who carry out oral health care situations like this can cause anxiety on deaf and speech impaired children.

CONCLUSION

1. Structuring of dental and oral nursing care models for children with deaf and speech impaired with the method of replication and modification of oral health care in Minister of Health Decree No. 284 of 2006 which has been adapted to the characteristics of children with deaf and speech impaired.
2. The result of expert validity shows that the *p-value* = 0.000, which means that the model of dental and oral health care services for deaf and speech impaired people is relevant as the implementation of dental and oral health care services for deaf and speech-impaired people.
3. The effectiveness test results showed the *p-value of* the intervention group was 0,000 (p <0.05) meaning that the oral health care model was effective in increasing the knowledge, attitudes, and skills of deaf and speech-impaired children in the implementation of dental and oral health care.

CONFLICT OF INTEREST

None

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