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Original Research Article

An Overview: The Level of Knowledge about Congenital Deafness in Southern Tatura District Palu City Indonesia

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Abstract: ***Background***: Congenital deafness is caused by affecting factors that occur during pregnancy and at birth. The prevalence of congenital deafness in the world ranges from 1 to 3 events out of 1000 babies born alive. The level of public knowledge regarding congenital deafness–especially among the parents–is an important factor for management of children with congenital deafness starting from screening to final management. ***Objective*****:** To describe level of knowledge about congenital deafness in Southern Tatura District. ***Methods***: Descriptive observational study was used. Respondents were from Southern Tatura District, Palu city. The study was conducted in May 2018. Respondents who met the inclusion and exclusion criteria were interviewed using a questionnaire to assess the level of knowledge regarding congenital deafness. ***Results***: Of 98 respondents, most of them were women (69.39%), were in the age group of 18-39 years (79.6%), were self-employed (51.03%) and had graduated from senior high school (53.07%). Among all respondents, we found that only 4.08% had good of knowledge about congenital deafness, 20.4% had moderate, and 7.51% had low knowledge. ***Conclusion*****:** People living in the South Tatura District, Palu City had low knowledge of congenital deafness.

Keywords: Level of knowledge, South Tatura District, Palu City, Congenital deafness, Infant, Pregnancy, Community.

INTRODUCTION

According to the National Committee for the Prevention of Hearing Loss and Deafness, congenital deafness is deafness that occurs in infants due to factors that happens during pregnancy or at birth. The prevalence of congenital deafness worldwide is ranging from 1 to 3 events per 1000 live births (Nugroho *et al*., 2012). The estimated prevalence of congenital deafness is 1.33 per 1000 births. In countries without neonatal hearing screening programs, the prevalence varies from 19 per 1,000 births in Sub-Saharan Africa to 24 per 1,000 in South Asia. (Korver *et al*., 2017).

According to WHO estimates in 2005, 278 million people suffering from hearing loss throughout the world, 75-140 million were in Southeast Asia. In infants, 0.1 to 0.2% of them suffering from deafness from birth. In other words, in every 1000 live births, there are 1-2 babies who suffer from deafness (Ministry of Health RI, 2010). The results from the WHO study in 1998, Indonesia ranks 4th among the countries in Southeast Asia with a fairly high prevalence of deafness (4.6%), the other 3 (three) countries were Sri Lanka (8.8%), Myanmar (8 .4%), and India (6.3%). The hearing health survey conducted by the Ministry of Health in seven provinces in Indonesia (1994–1996) found that the prevalence of congenital deafness was 0.1%. Congenital deafness in Indonesia is estimated to reach 214,100 cases if the population is 214.1 million. This number will keep increasing alongside with the increase in population due to the high birth rate of 0.22% (Nugroho & Muyassaroh, 2014).

In many developed countries, neonatal hearing screening programs can detect congenital deafness early. Early intervention will prevent delays in speech and language development and have benefits for social and emotional development and quality of life. Otoacoustic Emission (OAE) and Brainstem Evoked Response Auditometry (BERA) are used in early detection of congenital deafness. Early intervention included the use of hearing aids (ABD) and cochlear implants. These interventions will provide auditory stimulation to the

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children to affect their speech ability. (Nugroho *et al*., 2012)

Congenital deafness can be caused by prenatal factors, congenital infections, and cytomegalovirus. Genetic mutations may affect components of the auditory pathway, inner ear homeostasis and mechano-electrical transduction. (Korver *et al*., 2017). Parental education level, family income, and other social factors may also affect the opportunities to have early deafness examination and treatment. Parents usually complain about hearing loss in their child after the child has a speech delay; therefore, parental knowledge about early detection of hearing loss is still lacking. (Yun *et al*., 2017)

According to the above-mentioned explanations, researchers are interested in examining the level of public knowledge of congenital deafness. In Palu, we have very limited data showing the prevalence of congenital deafness, even though cases of congenital deafness continue to increase in Indonesia every year. South Palu has the largest population in the Palu city, namely 66,023 people. South Tatura District has the third largest population in South Palu, which is 11,105 people. Researchers are interested in conducting research in the South Tatura district because of its strategic location. Hopefully, the community has more knowledge about deafness compared to people living in suburban areas or rural areas.

EXPERIMENTAL SECTIONS

This study is an observational study using a descriptive research design, that is analytical survey study. The study plan uses primary data through questionnaires to determine the level of public knowledge about congenital deafness. The study was carried out in the district of South Palu, South Tatura District.

The study was implemented in May 2018. The population was all people in the subdistrict of South Palu, South Tatura district. The sample size in this study was calculated using the Slovin formula. The minimum number of samples taken was 98 respondents. Sampling was done by purposive sampling, which was based on certain considerations made by researchers based on inclusion and exclusion criteria. The inclusion criteria in this study were: 1) aged at least 18 years; 2) lives in the subdistrict of South Palu, South Tatura district; 3) well literate; 4) willing to be a respondent in the study. The exclusion criteria were not willing to fill out and answer the questionnaire.

The research instruments and tools used in this study were a validated questionnaire and a pen to fill out the questionnaire. The questionnaire consists of two parts, namely data on the characteristics of the respondents (including name, address, education, occupation, and age) and the level of public knowledge about congenital deafness which consists of 12 questions for which answer choices have been provided. The correct answer is given a score of 1 while the wrong answer is given a value of 0. The questions are made in the form of a scale that is firm and consistent. Respondents must choose one of the answers that have been provided by putting a checklist on the true or false option. The data that has been collected is then analysed.

The level of knowledge of respondents can be calculated based on the percentage (%) of questions answered correctly. The compiled questionnaire consisted of two parts, namely data on the characteristics of the respondents (including name, address, education, occupation, and age) and the level of public knowledge about congenital deafness which consisted of 12 questions for which answer choices had been provided. The correct answer is given a value of 1 while the wrong answer is given a value of 0. The calculation is:

$$\%\ correct\ answers = \frac{correct\ answers}{total\ score} \times 100\%$$

Data were collected and analysed descriptively and presented in the form of tables and graphs. Knowledge categories consist of:

a. Knowledge of each respondent is good if the % correct answers >75%
b. Knowledge of each respondent is moderate if the % correct answers is between 50-75%.
c. Knowledge of each respondent is low if the % correct answers <50% (Notoatmojo, 2007).

This research has been approved by the Health/Medical Research Ethics Committee of Medical Faculty of Tadulako University.

RESULTS AND DISCUSSION

South Palu is one of the sub-districts in Palu City. The subdistrict has a population of 66,023 in total. Administratively, the subdistrict is divided into 5 urban districts with a total area of 27.38 km² or 2738 ha, of which almost 100% is residential areas. South Tatura district is one of the districts in the subdistrict of South Palu. The district has the third largest area in the subdistrict of South Palu, reaching 2.86 km². The population of the South Tatura district is the second largest with the total population of 11,105 people and 2,807 households. The district consists of 10 *Rukun Warga (RW)* and 37 *Rukun Tetangga (RT)*. The number of men and women in the district is 5,620 men and 5,485 women. Much of the people in the district are Muslims (60%). The population pyramid shows that the population of the age group 20-24 years has the longest base, while the population in the age group 60-64 years has the shortest.

This study was conducted in the subdistrict of South Palu, South Tatura district, Palu city in 2018. Data collection was carried out using a questionnaire. The

number of respondents who participated in this study was 98 respondents. The data collected in the form of respondent demographics and knowledge level.

Demographic Data

The calculation of demographic data aims to see the frequency/percentage based on the respondent's characteristics, such as the respondent's age, gender, education, and occupation.

Table 1: Characteristics of Respondents in South Tatura

Characteristics of Respondents		Total	Percentage (%)	α-value
Age	a. 18-39 years	78	79.60	0.784
	b. 40-59 years	18	18.37	
	c. ≥60 years	2	2.04	
Gender	a. Male	30	30.61	0.814
	b. Female	68	69.39	
Occupation	a. Civil servants	10	10.20	0.589
	b. Private employees	8	8.16	
	c. Self-employed	50	51.03	
	d. Blue collar workers	2	2.04	
	e. Full-time mother	28	28.57	
Education Level	a. Not completed the primary school	2	2.04	0.332
	b. Primary school	10	10.20	
	c. Junior high school	12	12.24	
	d. Senior high school	52	53.07	
	e. Diploma	8	8.16	
	f. University	14	14.29	

Source: Primary data (Questionnaire, 2018)

Based on Table 1, the distribution of age groups in the South Tatura district. Most of respondents came from the age group of 18-39 years (19.6%) followed by the age group of 40-59 years (18.37%) and 60 years (2.04%). Most of the respondents was female (69.39%) followed by male sex (30.61%). The percentages of respondents' occupations were self-employed (51.03 %), full-time mothers (28.57 %), civil servants (10.2%), private employees (8.16 %), and blue-collar workers (2.04%). The percentages of respondents based on their education level were senior high school graduates (53.07 %), university (14.29%), junior high school (12.24 %), primary school (10.2%), diploma (8.16 %) and did not complete their primary school (2.04%).

Knowledge Level

Table 2: Distribution of Sample Based on Their Knowledge Level

Knowledge Level	Total	Percentage (%)
Good	4	4,08
Moderate	20	20,4
Low	74	75,51
Total	**98**	**100**

Source: Primary data (Questionnaire, 2018)

Based on Table 2, 74 people (75.51 %) had low level of deafness knowledge, 20 people (20.4 %) had moderate level, and 4 people (4.08 %) had good level.

Table 3: Distribution of Knowledge Based on the Questions

Question	Total correct answers	Percentage of correct answers	Category
Deafness from birth is a hearing loss that is present at birth	88	89.8	Good
Congenital deafness is a hearing loss that can be acquired due to illness in infancy	26	26.5	Low
Congenital deafness is deafness that occurs in a baby due to factors that occur during pregnancy or at birth	86	87.7	Good
Congenital deafness is usually a severe to very severe nerve deafness	90	91.8	Good
Congenital deafness usually occurs in both ears	70	71.4	Moderate
Children with congenital deafness will inhibit speech and language skills	84	85.7	Good
Hearing ability of a child can only be known when the child learns to speak	56	57	Moderate
To check hearing ability, you have to wait until the child speaks	62	63.3	Moderate

Question	Total correct answers	Percentage of correct answers	Category
Early detection of congenital deaf children can be done by parents	2	2.04	Low
Congenital deafness examination can already be done at the General Hospital of Palu City	18	18.36	Low
Congenital deafness is a hereditary disease and only occurs in children with congenital deaf parents	72	73.5	Moderate
Congenital deafness is always accompanied by other defects such as ear deformities	54	55.1	Moderate

Knowledge is the result of knowing and usually happens after people sense a certain object. Knowledge or cognitive is a domain for the formation of a person's actions (Notoatmojo, 2007). This study aims to determine the level of public knowledge about congenital deafness. Congenital deafness is a hearing loss or deafness that may occur at birth.

This research was conducted in South Tatura district, South Palu subdistrict, Palu city. Based on Table 2, 74 people (75.51%) had low level of deafness knowledge, 20 people (20.4%) had moderate level, and 4 people (4.08%) had good level. Most of the respondents had low knowledge on the question of "Congenital deafness is a hearing loss that can be obtained due to illness in infancy" (26.5%), "Early detection of congenital deaf children can be done by parents" (2.04%), and "Congenital deafness examination can already be done at the General Hospital of Palu City" (18.36%). Based on these results, there are still many people who are not aware of congenital deafness because people do not know its causes and how to detect it early. Knowledge will affect one's behaviour; or in our case, the early detection of congenital deafness will be hampered.

There are few data showing the prevalence of hearing loss and the causes of hearing loss, which are two important forms of information needed to develop intervention strategies for hearing loss. Especially in hospitals in Palu City, the prevalence of children born with congenital deafness is not recorded and parents do not know whether their child has congenital deafness. For most of the time, the parents complain that their child has hearing loss after the child has a speech delay, which they believe as the early detection of congenital deafness. This shows that parents' knowledge about early detection of hearing loss is still lacking.

According to age group, most of respondents came from the age group of 18-39 years (19.6%), followed by the age group of 40-59 years (18.37%) and 60 years (2.04%). This is because South Palu subdistrict is dominantly resided by people aged 18-39 years (BPS, 2017). Based on the results of the study, 2 people aged 18-39 had good deafness knowledge, 62 people with moderate knowledge, and 14 people with low knowledge. In age group of 40-60 years, 2 people had good deafness knowledge, 12 people had moderate knowledge, and 4 people had low knowledge. In the over 60 group, 2 people had moderate knowledge of deafness.

Based on the result of the Chi Square test, we obtained an α-value of 0.784, which means that there is no relationship between age and the level of public knowledge of congenital deafness. This is in line with the study conducted by Dananto, 2010, that age does not have a relationship with people's attitudes towards eye health services. Ideally, the older and the stronger people get, the more mature their thoughts should become. However, as stated by Verner and Davison (Asmin, 2000), there are 6 physical factors that can hinder the learning process in adults, thus reducing their power of thinking and working. Therefore, through knowledge that has been previously shared by other people, through both self-experience and experience of others, through surrounding environment and other intrinsic factors, those factors can shape one's knowledge in the long run and will last until their old age.

Based on the gender distribution in Table 1, most the respondents were female (69.39%), followed by male (30.61%). Among the female respondents, 2 had good deafness knowledge, 50 had moderate knowledge, and 16 had low knowledge. Meanwhile, in male respondents, 2 had good knowledge, 24 had moderate knowledge, and 4 had low knowledge.

The result of the Chi-Square test shows an α of 0.814; meaning that the level of knowledge is not influenced by gender. Both genders have the same level of knowledge; however, because more female respondents involved in this study, it looks like the female respondents had better knowledge than the male ones. Moreover, this study shows that source of information also did not provide a significant relationship with knowledge; meaning that the experiences of other people such as neighbours or family, which they heard or saw, might shape their knowledge.

Table 1 also shows the latest education level of the respondents as follows 52 people (53.07 %) were senior high school graduates, 14 people (14.29%) were university graduates, 12 people (12.24 %) were junior high school graduates, 10 people (10.2%) were primary school graduates, 8 people (8,16%) were diploma graduates, and 2 people (2,04%) did not graduate from

primary school. All the respondents (100%) who did not finish elementary school had low level of deafness knowledge. Six respondents with primary education had moderate knowledge, and the other four had low knowledge. In junior high school graduates, 2 people (16.6%) had good knowledge, 8 (66.6%) people had moderate knowledge, and 2 people (16.67%) had low knowledge.

In senior high school graduates, 44 of them had good knowledge of deafness and the other 8 had low knowledge. Six respondents with diploma education had moderate knowledge, and two of them had low knowledge. Two of respondents who graduated from university a good level of deafness knowledge (14.28%), 10 people (71.46%) had moderate knowledge, and 2 people (14.28%) had low knowledge. According to these results, education has no impact on the level of knowledge (Chi Square test value = 0.332).

The results of this study have different results from Nursalam's Theory which states that the higher a person's level of education, the easier it is to digest information, so they will have the more knowledge; and vice versa, less education will hinder the development of one's attitude towards the newly introduced information or values. However, on the other hand, lack of education causes one's intellectual power to be limited so that people with lack of education can be easily influenced by the surrounding circumstances. Local culture, environment and the influence of other people play dominant roles in the formation of knowledge. Thus, it can be concluded that the knowledge received by respondents with low and moderate education, and even by those who had higher education, may come from their surrounding environment. (Nursalam, 2008)

Based on Table1, the occupations of the respondents as follows: civil servants (10.2%), private employees (8.16%), self-employed (51.03%), blue-collar workers (2.04%), and full-time mothers (28.57%). Two civil servants (20%) and two self-employed respondents (4.1%) had good knowledge. Meanwhile, 12 self-employed respondents (25%) and 4 civil servants (40%) had low level of deafness knowledge. Based on the Chi Square test, we obtained an α-value of 0.589, which means that there is no relationship between occupations and the knowledge level on congenital deafness. People learn from their daily environment such as family, workplace, neighbors, and other surrounding community. (Dananto *et al*., 2010).

CONCLUSION

Based on the results of this research, it is found that the level of public knowledge about congenital deafness is still lacking. Most of the public's understanding is wrong regarding the item that congenital deafness is a hearing loss that can be acquired due to illness during infancy, early detection of congenitally deaf children can be done by parents, and examinations for congenital deafness can be carried out at Palu City General Hospital. This research also found that there was no relationship between age, gender, education, and employment on the level of public knowledge about congenital deafness.

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