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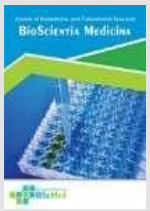

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The Relationship between Gender and Presbycusis at Mandalika Elderly Social Center, West Nusa Tenggara, Indonesia

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A B S T R A C T

Background: Presbycusis is a type of hearing loss with sensorineural deafness due to the degeneration of the hearing organs. Gender is said to have an influence on the occurrence of presbycusis. The presbycusis is influenced by differences in activity routines carried out by women and men and differences in the anatomical shape of the auricles between men and women. The study aimed to identify the relationship between gender and presbycusis at the Mandalika Elderly Social Center, West Nusa Tenggara, Indonesia. **Methods:** The study design was observational analytic with cross sectional approach and purposive sampling technique. There were 50 research respondents who met the inclusion and exclusion criteria. The research was conducted at the Mandalika Elderly Social Center, West Nusa Tenggara, Indonesia. The data obtained were analyzed univariately and bivariate with the Chi-square test using SPSS software version 23.0. **Results:** It was obtained that the demographic description of the research respondents obtained the majority of respondents aged 60-74 years (66%), female (66%), ungraduated (90%), and unemployed (90%). There was no relationship between gender and presbycusis at the Mandalika Elderly Social Center, West Nusa Tenggara Indonesia, p> 0,05. **Conclusion:** There was no relationship between gender and presbycusis at the Mandalika Elderly Social Center, West Nusa Tenggara, Indonesia.

1. Introduction

Presbycusis is a type of hearing loss, the form of sensorineural deafness due to the degeneration of the middle ear and inner ear hearing organs. Presbycusis occurs symmetrically on both sides of the ear, is slowly progressive, and generally starts at low or high frequencies where there are no underlying abnormalities other than degeneration or aging.[1,2] Presbycusis was experienced by around 10 million people worldwide, with a prevalence of 11% between the ages of 44 – 54, 25% at the age of 55-64, and 43% at the age of 65-84 years. The World Health Organization (WHO) estimates that by 2025, as many as 1.2 billion people aged over 60 years worldwide will suffer from presbycusis disorder.[3] In general, presbycusis in the world and in Southeast Asia, presbycusis is more common in men than in women.[4]

In Indonesia, the prevalence of presbycusis at the age of >60 years is 1.4%, greater than the prevalence at the age of >80 years, which is 0.1%, where the proportion of presbycusis events at the age of >60 years is slightly greater in males than females.[5] West Nusa Tenggara Provinces has a greater prevalence of deafness than the national prevalence, which is 0.1%, with an elderly dependency rate in West Nusa Tenggara of more than 50 %, which is equal to 53.72%.

Therefore cases of deafness, especially in the elderly in West Nusa Tenggara, need attention so that they can be immediately followed up to reduce the dependency level of the elderly and improve the quality of life for the elderly in Indonesia, especially in West Nusa Tenggara.[6] The West Nusa Tenggara Regional General Hospital is a referral center hospital in the Province of West Nusa Tenggara. The Otorhinolaryngology-Head and Neck Surgery department has a service center for hearing loss and deafness and has facilities that can be used to determine a diagnosis of presbycusis in the elderly, so it is an institution that can support good research in Hospital and outside Hospitals. The West Nusa Tenggara Hospital also has the responsibility of caring for the elderly, especially the elderly, who are cared for by the State at the Mandalika Elderly Social Center, West Nusa Tenggara. The study aimed to identify the relationship between gender and presbycusis at the Mandalika Elderly Social Center, West Nusa Tenggara, Indonesia.

2. Methods

This study was an analytic observational study with a cross-sectional approach and used primary data obtained from The West Nusa Tenggara Mandalika Elderly Social Center. A total of 50 research subjects participated in this study, and the research subjects met the inclusion criteria. The inclusion criteria in this study were elderly research subjects at The West Nusa Tenggara Mandalika Elderly Social Center with presbycusis disorder and having obtained the consent of the research subjects or research subjects' guardians to participate in this study. This study was approved by the medical and health research ethics committee of the Faculty of Medicine, Universitas Islam Al Azhar, Mataram, Indonesia. This study made observations on sociodemographic and presbycusis data on research subjects. Data analysis was carried out using SPSS software version 25. Data analysis was performed using univariate and bivariate methods. Univariate analysis was performed to present the frequency distribution of each test variable. Bivariate analysis was performed to assess the relationship between the test variables with $p<0.05$.

3. Results

Table 1 presents the characteristics of the study subjects. The majority of study subjects were aged 60-74 years. The majority of the study subjects had a female gender. The subjects of the study had 90% uneducated education. The majority of study subjects were unemployed, 90%. Based on Table 2, there was not a significant relationship between gender and the incidence of presbycusis at the Mandalika Elderly Social Center, West Nusa Tenggara.

Table 1. Characteristics of research subjects.

Variable	Frequency	Percentage (%)
Age:		
60-74 years	33	66%
75-90 years	16	32%
>90 years	1	2%
Gender:		
Male	17	34%
Female	33	66%
Last education:		
Uneducated	45	90%
Primary school	3	6%
Junior high school	1	2%
Senior high school	1	2%
Occupation:		
Unemployment	45	90%
Farmer	2	4%
Laborer	2	4%
Teacher	1	2%

Table 2. Relationship between gender and presbycusis.

Gender	Presbycusis		Total	p-value*
	Presbycusis	Non-presbycusis		
Female	11 (33%)	22 (67%)	33 (66%)	0,242
Male	3 (18%)	14 (82%)	17 (34%)	
Total	14 (28%)	36 (72%)	50 (100%)	

*Chi-square, p>0,05.

4. Discussion

This study examines the relationship between gender and presbycusis at the Mandalika Elderly Social Center, West Nusa Tenggara. The majority characteristic of respondents were aged 60-74 years, namely 33 respondents (66%), 16 respondents aged 75-90 years (32%), and one person aged > 90 years (2%). Respondents with presbycusis based on gender, where as many as 3 (21.4%) respondents were male, and 11 (78.6%) respondents were female, while respondents who did not suffer from presbycusis, as many as 14 (38.9%) respondents were male and 22 (61.1%) female respondents. This study is in accordance with the results of a study conducted by Baraldi et al., which found that women with presbycusis were more common (71.1%) than men (28.9%).[7] In A study conducted by Kamelia Sitorus et al. in Binjai, North Sumatra, similar data was also obtained that there were more women with presbycusis (70.3%) than men.[8] Meanwhile, the research conducted by Fatmawati et al., in the ENT-KL Department of Dr. Hasan Sadikin General Hospital, Bandung, for the period January 2012 - December 2014, it was found that more men suffered from presbycusis than women, in which there were 269 men (62.7%) and 160 women (37.3%).[9] Likewise, in a study conducted by Kim S et al., in South Korea, it was stated that of the respondents studied, 85.5% of the respondents who suffered from presbycusis were male, and 14.5% were female.[10] In this study regarding the relationship between gender and presbycusis, the p-value was obtained from the results of the chi-square test p = 0.242 where p > 0.05 showed that there was no significant relationship between gender and the incidence of presbycusis at the Mandalika Elderly Social Center, West Nusa Tenggara. This is in accordance with research conducted by Siti et al. at the Tresna Werdha Budi Mulia Social Institution, West Jakarta, which found that there was no relationship between gender and the incidence of presbycusis.[11] A literature review of 70 journals regarding presbycusis conducted by Zhang et al., there is a relationship between age and gender in a decrease in hearing thresholds in the elderly. The incidence of presbycusis increases with age and is more likely to occur in men compared to women because men are considered to be more exposed to noise due to work and lead unhealthy lifestyles such as smoking. Smoking and noise history in old age is associated with a decrease in hearing threshold values at frequencies of 500, 2000, and 4000 Hz.[1]

The difference in the results of this study can be caused by many factors, including the environment, culture, and socio-economic status of the respondents. One of the most important is that the results of research on presbycusis sufferers based on gender will be greatly influenced by the demographic characteristics of a country or region. The number of people with presbycusis in an area will follow the sex proportion pattern of the population of that area.[7] The results of this study are very easily influenced by the demographic characteristics of the respondents, considering this research was carried out in a population with homogeneous environmental influences in a social hall. The absence of a relationship between the incidence of presbycusis and

gender in the research conducted at the Social Center could be due to the fact that both male and female respondents were influenced by the same environment for a long time. This is proven by research conducted by Widuri et al., which examined the relationship between the living environment and risk factors for presbycusis in Yogyakarta, where the living environment determines whether or not presbycusis occurs in the elderly.[12]

5. Conclusion

There was no significant relationship between gender and the incidence of presbycusis at the Mandalika Elderly Social Center in West Nusa Tenggara, Indonesia.

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