www.bircu-journal.com/index.php/birci
Budapest International Research and Critics Institute-Journal (BIRCI-Journal)
Humanities and Social Sciences
ISSN 2615-3076 Online)
ISSN 2615-1715 (Print)
Budapest Institute

The Relationship of Knowledge Level with the Event of Serumen Prop in the Elderly at Puskesmas Lubuk Buaya Padang

Seres Triola[1], Heti Lestari[2], Rhandyka Rafli[3], Haves Ashan[4]
[1,2,3]*Faculty of Medicine, Universitas Baiturrahmah, Indonesia*
triolaseres@gmail.com, havesashan@gmail.com

Keywords
the incidence of cerumen prop; knowledge; the elderly

Abstract

Cerumen prop has a fairly high prevalence and can affect all ages. In the elderly, the cerumen becomes dry due to atrophy of the cerumen glands and the hair in the ear canal becomes coarser. This results in higher cerumen prop levels in elderly patients. The purpose of this study was to determine the relationship between the level of knowledge and the incidence of cerumen prop in the elderly at the Lubuk Buaya Padang Health Center. The scope of this research is health science ENT-KL (Ear Nose Throat Head and Neck surgery) and the elderly. The research was conducted in January 2022. The type of research is analytic. The affordable population in this study were the elderly at the Lubuk Buaya Padang Health Center as many as 37 samples with concecutive sampling technique. Univariate data analysis is presented in the form of frequency distribution and bivariate analysis using chi-square test. The incidence of cerumen prop in the elderly was 19 (51.4%), the highest level of knowledge was bad, namely in 22 (59.5%) elderly, and there was a relationship between the level of knowledge and the incidence of cerumen prop in the elderly at the Lubuk Buaya Padang Health Center (p = 0.032). The number of elderly who experienced cerumen prop was not much different from the number of elderly who did not experience cerumen prop, the highest level of knowledge was poor, and there was a relationship between the level of knowledge and the incidence of cerumen prop in the elderly at the Lubuk Buaya Public Health Center, Padang.

I. Introduction

Cerumen (earwax) is a combination of secretions from several glands (earwax) sebaceous glands, ceruminous glands), dust particlesand desquamation of the detached skin epithelial cells and dust particles that enter the ear canal. Under normal circumstances, the cerumen is in the outer third of the ear canalbecause sebaceous glands and ceruminous glands are only found in this area.Cerumen protects the skin in the external ear canal and is expelled naturally due to the migration of the skin epithelium that moves outward and is assisted by jaw movements when chewing or speaking.Michaudet & Malaty, 2018).

Cerumen is a fluid that comes out of the external meatus and can be impacted because the shape of the meatus is too narrow or curved or because of the scale of the epithelium or

seborrhoeic dermatitis mixed with the cerumen. Cerumen production is a normal and naturally occurring process in humans. Clots of cerumen that have accumulated in the ear canal can cause hearing loss in the form of conductive deafness. Especially when the ear enters water (such as when bathing or swimming) causing the cerumen to expand and cause a feeling of pressure and hearing loss that is increasingly disturbing.

Cerumen functions to clean, protect, and lubricate the external auditory canal.protects it from infection and provides a barrier for insects and water. Cerumen production is a normal and naturally occurring process in humans. Cerumen is found in one third of the external ear canal because sebaceous glands and ceruminous glands are found only in this area. The consistency can be soft or dry, influenced by several factors such as heredity, age, climate and environmental conditions.Cerumen is usually removed from the ear canal spontaneously through natural jaw movements (self-cleaning). However, in certain individuals this self-cleaning mechanism does not occur perfectly, causing ear blockage or commonly known ascerumen prop(Sevy & Singh, 2021).

Cerumen prop is the accumulation of cerumen that causes symptoms, blocks the ear canal/tympanic membrane or audiovestibular system, or both.16Cerumen prop is more commonly found in people who have wet type cerumen. Cerumen prop causes itching, pain, hearing loss, tinnitus, vertigo and chronic otitis externa.cerumen propUsually asymptomatic and can block the ear canal or compress the tympanic membrane, causing ear discomfort, itching, conductive hearing loss and causing complications such as pain,infection of the external ear canal (otititis externa), middle ear infection, tinnitus or ringing in the ears and spinning headache. Cerumen prop has a fairly high prevalence and can affect all ages.

In the elderly, the cerumen becomes dry due to atrophy of the cerumen glands and the hair in the ear canal becomes coarser. This results in higher cerumen prop levels in elderly patients. Furthermore, the natural cleansing mechanism of cerumen becomes inadequate, causing cerumen prop. Cerumen prop occurs in up to 6% of the general population, affects 10% of children and more than 30% of the elderly and is cognitively impaired. This is often seen in patients who routinely wear hearing aids or earplugs or in patients with exostoses or anatomic abnormalities of the external ear canal (Mustofa et al., 2021).

Based on a survey in Lothian, Scotland, reported that from 289 primary health services on average serving 5 to >50 patients with cerumen prop every month. In the United States, cerumen causes 12 million patient visits and 8 million cerumen removal procedures each year. This can interfere with examination of the tympanic membrane as well as audiometry and hearing aid placement. A study conducted by Opoku BJ on geriatric patients at the Ear, Nose, Throat (ENT) clinic of the Komfo Anokye Teaching Hospital – Kumasi, Ghana stated that of a total of 417 patients with an age gap between 65-93 years, patients with ear disorders due to cerumen prop is as much as 64 of 209 patients with ear disorders.

In Indonesia, earwax blockage or cerumen prop is the main cause of 9.6 million people with hearing loss. Riskesdas data (2013) states that the incidence of cerumen prop in Indonesia is 18.8% and the incidence of cerumen prop in South Kalimantan is 25.5%. The results of research conducted at the ENT-KL Polyclinic of Brigjend H. Hasan Basry Kandangan on April 16-19 2018 and data from the Indra Community Health Center (BKIM) of Central Java Province in 2016 stated that cerumen prop was the most common disease of the top 10 diseases. ear. These results are in line with the data at the ENT polyclinic of RSUD dr.

Knowledge of cerumen can affect a person's attitude and behavior in preventing self-ear cleaning actions that are not in accordance with the procedure so that it has a negative impact on hearing function. Research conducted by Fina Khiliyatus Jannah on junior high school students in the Bandarharjo Public Health Center in 2017, stated that there was a relationship

between the level of knowledge and cerumen prop. Good ear cleaning knowledge will give good results in the prevention of ear disorders.

From the above background, it proves that cerumen prop is still one of the most common cases in the ENT-KL polyclinic. However, the literature on cerumen prop is still very limited and needs further research considering the incidence of cerumen prop is still very high. In addition, there are still many people who do not understand how to clean their ears properly. Knowledge of the mechanism of ear cleaning and ear cleaning behavior still gives mixed results. Knowledge of the occurrence of cerumen prop and how to properly clean cerumen is important as a preventive measure against the occurrence of cerumen prop. Based on the data above, it can be seen that the level of knowledge about cerumen prop is still low. Therefore, researchers are interested in conducting research to see the relationship between the level of knowledge and the incidence of cerumen prop in the elderly at the Lubuk Buaya Padang Health Center.

Table 1. Classification of Cerumen

Classification	description
Type 1: no cerumen	There was no soft or hard cerumen and the tympanic membrane was completely visible on otoscopy.
Type 2: non-occluding cerumen	Some non-occluding soft/hard cerumen was found and two thirds of the tympanic membrane was still visible when otoscopy was performed.
Type 3: occluding cerumen	The occluding type of soft/hard cerumen was found and the tympanic membrane could only be seen a little or could not be seen at all. There is a gap between the wax and the wall of the ear canal.
Type 4: fully occluding cerumen *and debris*	The ear canal is completely covered with soft/hard cerumen and debris. The tympanic membrane cannot be visualized.

II. Research Methods

This type of research is categorical analytic with a cross sectional research design, while the scope of this research is the health disciplines of ENT-KL (Ear Nose Throat Head and Neck surgery) and the elderly. The sample of this study was the elderly at the Lubuk Buaya Padang Health Center who met the inclusion and exclusion criteria. The tools used in this study were an otoscope and a questionnaire. Otoscope is used to see whether the respondent suffers from cerumen prop or not. While the questionnaire is used to assess the level of knowledge of the respondents. After the determination and preparation of the questionnaire was completed, the next step was to test the questionnaire. This activity is important for researchers to assess the questionnaire that has been prepared. The questionnaire was tested on the same respondents or those who have the same characteristics as the actual respondents. The type of data in this study is primary data. Primary data is data obtained from research samples directly. The data collection procedure in this study was started by filling out a questionnaire by the respondent, then continued with an examination using an otoscope to see if there was cerumen prop or not (Rantung et al., 2018).

III. Discussion

3.1 Age Character

The results showed that the frequency distribution of the elderly at the Lubuk Buaya Padang Health Center can be described as follows:

Table 2. Frequency Distribution of Elderly Age at Lubuk Buaya Public Health Center, Padang

age	*f*	%
Old age (60-74 years)	35	94.6
Old age (75-90 years)	2	5.4
Very old age (>90 years)	0	0
Total	**37**	**100.0**

Based on the table above, it can be concluded that from 37 samples of elderly at the Lubuk Buaya Padang Health Center, the most are elderly people aged 60-74 years, namely there are 35 (94.6%) elderly.

3.2 Gender Characteristics

The results of the study found that the distribution of the gender frequency of the elderly at the Lubuk Buaya Padang Health Center can be described as follows:

Table 3. Frequency Distribution of Elderly Gender in Lubuk Buaya Health Center Padang

Gender	*f*	%
Man	13	35.1
Woman	24	64.9
Total	**37**	**100.0**

Based on the table above, it can be concluded that of the 37 elderly at the Lubuk Buaya Padang Health Center, the most are elderly women who are 24 (64.9%) elderly.

3.3 Cerumen Prop Incidence

The results showed that the frequency distribution of the incidence of cerumen prop in the elderly at the Lubuk Buaya Padang Health Center can be described as follows:

Table 4. Frequency Distribution of Cerumen Prop Incidence in the Elderly at Lubuk Buaya Health Center Padang

Cerumen Prop Incidence	*f*	%
There is not any	18	48.6
Exist	19	51.4
Total	**37**	**100.0**

Based on the table above, it can be concluded that of 37 elderly people at the Lubuk Buaya Padang Health Center, 19 people (51.4%).

3.4 Knowledge Level

Knowledge has a significant relationship with the age of the respondents.With different educational backgrounds and uneven distribution of information in the elderly, knowledge

about cerumen prop in the elderly is also not evenly obtained by the elderly.elderly (Farid et al., 2019).

Knowledge is one of the important points in the formation of one's actions (overt behavior). Behavior based on knowledge will last longer than behavior that is not based on knowledge. Knowledge of cerumen can reduce the prevalence of ear impaction and complications related to the results of the study, the frequency distribution of the knowledge level of the elderly at the Lubuk Buaya Padang Health Center can be described as follows:

Table 5. Frequency Distribution of the Knowledge Level of the Elderly at the Lubuk Buaya Public Health Center, Padang

Knowledge Level	*f*	%
Well	15	40.5
Bad	22	59.5
Total	**37**	**100.0**

Based on the table above, it can be concluded that out of 37 elderly people at the Lubuk Buaya Padang Health Center, 22 people (59.5%).

3.5 Relationship between Knowledge Level and Cerumen Prop Incidence in the Elderly at Lubuk Buaya Health Center Padang

The results showed that the relationship between the level of knowledge and the incidence of cerumen prop in the elderly at the Lubuk Buaya Padang Health Center could be described as follows:

Table 6. Relationship of Knowledge Level with Cerumen Prop Incidence in the Elderly at Lubuk Buaya Health Center Padang

Knowledge level	Cerumen Prop Incidence						P value
	There is not any		Exist		Total		
	F	*%*	*f*	*%*	*f*	*%*	
Well	11	29.7	4	10.8	15	40.5	
Bad	7	18.9	15	40.5	22	59.5	0.032
Total	**18**	**48.6**	**19**	**51.4**	**37**	**100.0**	

Based on the table above, it can be concluded that from 37 elderly, there are 4 (10.8%) elderly who have good knowledge experience cerumen prop. While betweenelderly who have poor knowledge, there are 15 (40.5%) who experience cerumen prop.Test resultsstatistics using the chi square test obtained a value of p = 0.032 (p <0.05) which means that there isThe relationship between the level of knowledge and the incidence of cerumen prop in the elderly at the Lubuk Buaya Padang Health Center (Lukito, 2020).

3.6 Distribution of the Frequency of the Incidence of Cerumen Prop in the Elderly at the Lubuk Buaya Public Health Center, Padang

Based on the research that has been done, of 37 elderly people at the Lubuk Buaya Padang Health Center, there are 19 (51.4%) elderly who experience cerumen prop. The results of this study are in line with previous research conducted by Lukito (2020), namely from 52 elderly, there were 31 (59.6%) who experienced cerumen prop.

In the elderly, the cerumen becomes dry due to atrophy of the cerumen glands and the hair in the ear canal becomes coarser. This results in higher cerumen prop levels in elderly

patients. Furthermore, the natural cleansing mechanism of cerumen becomes inadequate, causing cerumen prop. Besides that, adults to the elderly have a much higher level of activity when compared to children and adolescents.

Based on the results of this study, the number of samples of the elderly who experienced cerumen prop was not far from the number of samples of the elderly who did not experience cerumen prop. This can happen because there are other factors that can affect the formation of this cerumen prop, such as anatomical or physiological abnormalities found in each particular sample. Based on a study conducted on 67 patients, all of whom were over 80 years old, it was shown that there was an increase in the formation of cerumen, resulting inhearing loss or presbycusis. Production increaseCerumen can be caused by several things, namely: the aging process, thinning of the outer ear epithelial layer, subcutaneous tissue atrophy, cerumen and sebaceous glands produce less lubricating oil.Alriyanto, 2010).

3.7 Frequency Distribution of the Knowledge Level of the Elderly on Cerumen Prop at the Lubuk Buaya Health Center Padang

Based on the research that has been done, from 37 elderly at Puskesmas Lubuk Buaya Padang, the highest level of knowledge about cerumen prop is bad, namely in 22 (59.5%) elderly. Research conducted on parents of elementary school students in the Coastal Region, stated that the proportion of parents with good knowledge (52.7%) was almost the same as the proportion of parents with less knowledge (47.3%).

Knowledge is the result of knowing and this occurs after people have sensed a certain object. Several factors that can affect knowledge include education, occupation, age, interests, experience, environmental culture and information. Knowledge has a significant relationship with the age of the respondents.BackgroundDifferent education and uneven distribution of information in the elderly have caused knowledge about cerumen prop in the elderly to be not evenly distributed among the elderly.Cewputra, 2018).

Knowledge is an important factor in the formation of one's actions (overt behavior). Behavior that is based on knowledge will be more lasting than behavior that is not based on knowledge. Knowledge of predisposing factors is very influential in reducing the prevalence of ear impaction and related complications.

Knowledge of cerumen can include cerumen characteristics, cerumen function, benefits of cerumen, how to clean cerumen, and the impact of cleaning the ear. According to Jung, cerumen in the external ear canal has a natural cleansing mechanism, so cleaning the ear is not really needed. A good level of knowledge about the function of cerumen will affect the way the respondent cleans cerumen properly. Oladeji et al. In fact, cerumen can protect and lubricate the external auditory canal. Cerumen impaction can occur if a person cleans the ear with a cotton swab or places an object in the ear (using headphones or hearing aids). Some of the symptoms caused by cerumen prop are reduced hearing, ringing in the ears,

3.8 The Relationship between the Level of Knowledge and the Incidence of Cerumen Prop in the Elderly at the Lubuk Buaya Health Center Padang

Based on the research that has been done, the incidence of cerumen prop is more in the elderly who have a poor level of knowledge.Test resultsstatistics using the chi square test obtained a value of $p = 0.032$ ($p < 0.05$) which means that there isThe relationship between the level of knowledge and the incidence of cerumen prop in the elderly at the Lubuk Buaya Padang Health Center. The results of this study are in line with research conducted by Fina (2017), which states that there is a relationship between knowledge and the incidence of cerumen prop ($p = 0.010$).

Knowledge has a significant relationship with the age of the respondents. This deficiency arises due to the lack of attention of educational personnel printing institutions that

pay attention to these skills (Waluyandi, 2020). Pohan (2020) states that at school, from elementary to secondary school or even college, students undergo, practice, and experience the learning process of various knowledge and skills. Learning is essentially a cognitive process that has the support of psychomotor functions (Arsani, 2020). Different educational backgrounds and uneven distribution of information in the elderly causeknowledge about cerumen prop in the elderly is also not evenly obtained by the elderly (Sari et al., 2021).

Knowledge is an important factor in shaping one's actions (overt behavior) in maintaining ear cleanliness. Behavior that is based on knowledge will be more lasting than behavior that is not based on knowledge. Cleaning the ear using a cotton bud / cotton earplug can push ear wax into the ear canal, causing cerumen prop (Ikhsan, 2020).

Cleaning the ear canal using a cotton bud can cause trauma, injury to the ear canal, and push the cerumen further into the medial ear. Otolaryngologists around the world have criticized the use of cotton buds because they can cause many complications, one of which is cerumen prop. Previous studies have suggested that frequent ear cleaning can disrupt the protective barrier and increase humidity in the external auditory canal. Inflammation and moisture in the external auditory canal will stimulate increased production of cerumen and cause the formation of cerumen prop. Proper and adequate ear care, can be done in a simple way such as wiping the outer ear with a clean wet cloth. If there is accumulation of cerumen should be treated by a doctor.

IV. Conclusion

Based on the results of research on the relationship between the level of knowledge and the incidence of cerumen prop in the elderly at the Lubuk Buaya Padang Health Center, it can be concluded that the number of elderly who experience cerumen prop is not much different from the number of elderly who do not experience cerumen prop, then the elderly who have a poor level of knowledge more than those with a good level of knowledge.There isThe relationship between the level of knowledge and the incidence of cerumen prop in the elderly at the Lubuk Buaya Padang Health Center.

References

Alriyanto, CY (2010). Effect of cerumen obstruction on hearing loss (Case study in fifth grade elementary school students in Semarang City) (Doctoral dissertation, Faculty of Medicine).

Arsani, et.al. (2020). Differences in Motivational Orientation in Physical Education in terms of Gender Differences. Budapest International Research and Critics in Linguistics and Education (BirLE) Journal Vol 3 (3): 1428-1434.

CewPutra, WS (2018). The Design of a Social Campaign to Prevent Hearing Loss Due to Cerumen Prop in Elementary School Children (Doctoral dissertation, Universitas Multimedia Nusantara).

Farid A, Agustina R, Choiruna (2019). H. Factors Associated with the Formation of Obstruction Cerumen at Brigjend H. Hasan Basry Kandangan Hospital. Nerspedia.2(1):69-76.

Ikhsan, M. (2020). Description of the Level of Knowledge about Serumen in the Students of the Faculty of Medicine, Hasanuddin University Class 2017 (Doctoral dissertation, Hasanuddin University).

Lukito, A. (2019). The Relationship between Hearing Loss and Cerumen in the Elderly at the Medan Johor Health Center. Journal of Public Health Research, 1(2), 41-47.

Meyer F, Preuß R, Angelow A, Chenot J, Meyer E, Kiel S (2020). Cerumen Impaction Removal in General Practices: A Comparison of Approved Standard Products. J Prim Care Community Heal. II(1-5). doi:10.1177/2150132720973829

Michaudet C, Malaty J. Cerumen impaction (2018). Diagnosis and management. Am Fam Physicians. 98(8):525-529.

Mostofa F, Yune T, Kasim M, Eryzkia E (2021). Analysis of Factors Affecting Cerumen Obstruction Formation. Mahesa Malahayati Heal Student J. 3(1):63-74.

Pohan, A.M., Asmin, and Menanti, A. (2020). The Effect of Problem Based Learning and Learning Motivation of Mathematical Problem Solving Skills of Class 5 Students at SDN 0407 Mondang. Budapest International Research and Critics in Linguistics and Education (BirLE) Journal Vol 3 (1): 531-539.

Rantung P, Palandeng O, Mengko S. Audiometric Overview of the Elderly at the Center for Abandoned Elderly Social Services at Twilight, Manado in 2018. J Med and Rehabil. 2018;1(2):1-5.

Sari, AP, Gunadi, G., & Handiani, R. (2021). The Relationship between Cerumen Obstruction and Conductive Type of Hearing Loss in Students of SD Negeri Rowosari 01 Semarang. Medica Arteriana (Med-Art), 3(2), 102-107.

Sevy J, Singh A (2021). Cerumen Impaction Removal. In StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2021. doi:PMID: 28846265

Waluyandi, F., Trihastuti, R., and Muchtarom, M. (2020). Implementation of Parental Involvement in Learning Civic Education. Budapest International Research and Critics in Linguistics and Education (BirLE) Journal Vol 3 (4): 1686-1695.