



# The role of the mother habit to clean the ears against incidence of cerumen obturans in children

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## ABSTRACT

**Objective:** This study aims to describe the role of the mother habit against incidence of cerumen obturans in children.

**Methods:** This study is an observational analysis with a cross-sectional design. This study was conducted on 119 elementary students and their mother habits at SD Kera-Kera, Makassar, Indonesia. The aged samples between 6 and 13 years, an otoscopic examination was performed to determine cerumen obturans and an interview method to know ear cleaning habits.

**Results:** In this study, it was found that 84.9% of the samples experienced obtaining cerumen in one or both ears, especially in children aged  $\leq 10$  years (71%), where 82.4% of the ear cleaning were made by their mother, using a cotton bud or cerumen hooks with the main complaints of the children is discomfort or impairment of hearing where these habits are not recognized by the level of education or the main activities of mothers.

**Conclusions:** The mother's habit of cleaning the ears ear plays a major role in the incidence of cerumen obturans in children. The habit of cleaning the ears not seeing the people who do it or the frequency affects the high incidence of cerumen obturans found in children, especially elementary school students under ten years old.

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## Introduction

Mother is a central figure in the household. Mother habits significantly influence all aspects of a child's life, whether it is about education or health. A mother is responsible for maintaining the cleanliness and health of her child, including ear hygiene, so that every mother has the habit of cleaning her child's ears at least once a week. This habit is driven by the desire of the mother and hope that her ears of children are being cleaned and have a healthy hearing. According to Health Sciences, cerumen is not something that must be cleaned, but a sebaceous gland produced by the ear to protect the ear from the entry of small animals such as ants, cockroaches etc., into the ear canal because of its sour smell and prevents bacteria and fungi from being infected by cerumen which functions as a bactericide.<sup>1</sup> Thus, the habit of cleaning earwax (cerumen) actually removes ear protection and risks increasing the incidence of cerumen obturans (wax due to its position which is moved to the bone area so that it is buried in the ear and the risk of trauma/tearing of the eardrum by ear cleaning devices such as cotton buds, cerumen hooks or tools used such as hairpins or safety pins.<sup>2</sup> Cerumen obturans is hardened ear wax, with a large size, and covers the eardrum's surface so that hearing becomes disturbed because the incoming sound imparts the movement of the eardrum.<sup>3</sup> Cerumen

obturans is one of the five main causes of hearing loss, especially in Elementary students in Indonesia, apart from middle ear infections, congenital abnormalities, aging, and noise trauma.<sup>4</sup> Cerumen obturans causes a child's hearing to decrease so that social communicating will be disrupted and this will interfere the ability to absorb lessons, especially for children who are studying. The dangers and side effects of the habit of cleaning the ears were not realized by their mothers, so that the cerumen obturans incident was not even realized by the mother and would become a habit that was carried out routinely. Based on the above thoughts, this study aims to describe the mother habit's role in cleaning the ears against the incidence of cerumen obturans in children by taking samples of elementary school students.

## Methods

This study is an observational analytic study with a cross-sectional approach to the incidence of cerumen obturans of students at Kera-Kera Elementary School in Makassar, Indonesia, on ear cleaning habits. The samples consisted of 119 students divided into  $\leq 10$  years and  $> 10$  years age groups, who were subjected to otoscope examinations to determine the incidence of cerumen obturans and data on mother habits and ear cleaning habits were obtained through direct interviews and filling out questionnaires concerning people who performed ear cleaning, the tools used, reasons, knowledge, frequency of cleaning, level of education and the main activities of their mothers.<sup>5</sup>

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**Table 1**  
The characteristics of samples.

The characteristic of samples	Percent (%)	Frequency (n)
<i>Gender</i>		
Male	56	47
Female	63	53
<b>Total</b>	<b>119</b>	<b>100</b>
<i>Age</i>		
<10 years	84	71
≥10 years	35	28
<b>Total</b>	<b>119</b>	<b>100</b>
<i>Cerumen obturans</i>		
Have	101	84.9
Not have	18	15.1
<b>Total</b>	<b>119</b>	<b>100</b>
<i>People who does ear cleaning</i>		
Mother	98	82.4
Not mother (alone, other than mother)	21	18.6
<b>Total</b>	<b>119</b>	<b>100</b>
<i>Tools used clean cerumen</i>		
Cottonbud/serumen hooks	107	89.9
Other tools (safety pins, hair pins, etc.)	12	10.1
<b>Total</b>	<b>119</b>	<b>100</b>
<i>Reason for cleaning</i>		
Bad taste in the ear	58	48.7
Hearing impairment	43	36.1
Itching	7	6.0
No reason	11	9.2
<b>Total</b>	<b>119</b>	<b>100</b>
<i>Knowledge od danger of leaning cerumen</i>		
Know	7	5.9
Not know	112	94.1
<b>Total</b>	<b>119</b>	<b>100</b>
<i>Cleaning frekuentions</i>		
1×/day	43	36.1
1×/week	31	26.1
1×/month	21	17.6
It is not the only thing	24	20.2
<b>Total</b>	<b>119</b>	<b>100</b>
<i>The formal education of the mother</i>		
<High school/equivalent	53	44.5
≥High school/equivalent	66	55.5
<b>Total</b>	<b>109</b>	<b>100</b>

## Results

From research conducted in August 2019 on 119 students of Kera-Kera Elementary School in Makassar, Indonesia, the characteristics of the following sample were obtained (Table 1).

The results of the analysis using chi-square on various variables on the incidence of cerumen obturans can be seen in Table 2.

## Results

From the results of this study, it can be seen that gender, the habit of cleaning the ears by the mother, the tools used, the knowledge, frequency, education, and main activities of the mother does not have a statistical significance on the incidence of cerumen obturans in children, and only the age factor is statistically significant to the occurrence of cerumen obturans. However, if analyzed further, the incidence of cerumen obturans at the age ≤10 years showed a high role in the mother's habit of cleaning the child's ears which reached 98 (82.4%). However, this does not mean statistically meaningless the role of the mother is not important in the increase of cerumen obturans incidence, but it does mean that both the cleaning of the ears by the mother and not the mother (other adults or themselves) together increase the incidence of cerumen obturans in children. Cerumen obturans in the child was caused by the habit of cleaning cerumen obturans in which the mother took a role of 82.4%. Likewise, that the habit of cleaning the ears is not influenced by knowledge, education level, or a mother busyness of work or non-work but is more driven by health goals, maintaining hearing without thinking is dangerous or not but more been motivated to the responsibility and protecting their children from something which is considered dirty and should be cleaned. This can be seen from the answer of respondents about the reasons for cleaning the ears 48.7% because of the unpleasant taste of the ears and 36.1% due to hearing loss, 6% because of itching, and even 9.2% did not have any complaints. Likewise, with the frequency of ear cleaning, we find that 79.8% do ear cleaning once per day/per week/per month, and there are 20.2% who do it with an unclear frequency. This study shows that whatever the reason and frequency, the habit of cleaning the ears has a role in the high incidence of cerumen obturans

**Table 2**  
Statistical analysis of gender, age, people who clean their ears, the tools used, knowledge, education, and activities of mothers regarding the incidence of cerumen obturans in students of Kera-Kera Elementary School in Makassar.

No	The characteristic of samples	Have cerumen obturans		Not have cerumen obturans		p-value
		n	%	n	%	
1.	<i>Gender</i>					p = 0.507
	Male	48	85.7	8	14.3	
	Female	53	84.1	10	15.9	
	<b>Total</b>	<b>101</b>	<b>84.9</b>	<b>18</b>	<b>15.1</b>	
2.	<i>Age</i>					p = 0.011
	≥10 years	76	90.5	8	9.5	
	>10 years	25	71.4	10	28.6	
	<b>Total</b>	<b>101</b>	<b>84.9</b>	<b>18</b>	<b>15.1</b>	
3.	<i>People who do cleaning the ear</i>					p = 0.263
	Mother	92	86.0	15	14	
	Not mother (alone mother people)	19	75.0	3	25	
	<b>Total</b>	<b>101</b>	<b>84.9</b>	<b>18</b>	<b>15.1</b>	
4.	<i>Knowledge the danger of ear cleaning</i>					p = 0.307
	Know	7	100	0	0	
	Not know	94	84.9	18	15.1	
	<b>Total</b>	<b>101</b>	<b>84.9</b>	<b>18</b>	<b>15.1</b>	
5.	<i>The formal education of the mother</i>					p = 0.222
	<High School/equivalent	43	81.9	10	19.1	
	≥High School/equivalent	58	87.9	8	12.1	
	<b>Total</b>	<b>101</b>	<b>84.9</b>	<b>18</b>	<b>15.1</b>	
6.	<i>The main activities of mother</i>					p = 0.365
	Working	32	82.1	7	17.9	
	Not working	69	86.3	11	13.7	
	<b>Total</b>	<b>101</b>	<b>84.9</b>	<b>18</b>	<b>15.1</b>	

in children, especially in elementary school students.<sup>6</sup> From this study, it was also known that knowledge about the dangers and side effects of cleaning mothers' ears was still lacking. 94.1% of the responses stated that they did not know that cleaning the ears had dangerous side effects and was an action that was not recommended in health science. Therefore, it needs continuous efforts by the community health center team, academic community, and other community organizations to provide counseling so that prevention and management of cerumen obturans can be carried out and can participate in maintaining the health and hearing of our current and future young generations.<sup>7</sup> Furthermore, it is from the hands of a smart and responsible mother, and we can realize the hope of creating healthy ears, good hearing for everyone in 2030.

### Conclusion

In this study, it can be concluded that only the age factor has a significant effect on the incidence of cerumen obturans. However, the mother habit of cleaning the ears has an important role increased the incidence of cerumen obturans in children, especially the aged children  $\leq 10$  years, regardless of education level, main activities, and lack of mother's knowledge of the dangers and side effects of ear cleaning.

### Conflicts of interest

The researchers would like to thank all people who have helped in the research study, especially Kera-Kera Elementary students, mother and teacher as participants and civitas academic of Biochemistry Department, Hasanuddin University, who helped us carry out this research.

The authors declare no conflict of interest.

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