



## Comparison Of The Effectiveness Of Irrigation and Manual Extraction Techniques On The Comfort Level Of Serumen-Impacted Patients Using The Kolcaba Comfort Theory Approach

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### Abstract

*A buildup of cerumen, or earwax, in the ear canal is one of the most common problems experienced by patients and, if ignored, can cause hearing loss, irritation, and discomfort. Comfort is an integral part of nursing work as a client's basic needs which is the goal of nursing work. The nursing approach to providing comfort to patients is based on Kolcaba's comfort theory. This theory includes comfort in four contexts of comfort, namely: physical, psychospiritual, sociocultural, and environmental. The purpose of this study was to compare irrigation techniques' effectiveness with manual extraction on the comfort level of cerumen-impacted patients using the Kolcaba comfort theory approach. This research is pre-experimental research with a "two independent samples test" approach. The sample was 40 respondents who had impacted cerumen, divided into 20 respondents who underwent ear irrigation and 20 respondents who underwent manual extraction. Analysis to determine differences in comfort levels after intervention using the Mann-Whitney test. Results & Analysis. The Mann-Whitney test showed P value = 0.000 ( $P < 0.05$ ), and there was a difference in the comfort level between irrigation and manual extraction. The action of ear irrigation further increases the respondent's sense of comfort compared to manual extraction, because irrigation is more effective in removing impacted cerumen characterized by clean ears and clearer hearing, and does not cause pain.*

## INTRODUCTION

Cerumen is a secretion produced by the ceruminous glands in the outer ear. Serumen is sticky, waterproof, and naturally protective, containing bactericidal and fungicides. Cerumen traps and removes dead skin cells, dust, and other materials from outside the ear. Sometimes, cerumen builds up and dries out, forming a hard plug that impacts the outer ear. Cerumen can completely block the ear canal, which is called the impaction of cerumen, which can cause hearing loss because it blocks sound waves (World Health Organization, 2021).

According to data from the World Health Organization (2021), about 10% of children, 5% of adults, and more than 50% of older adults experience cerumen impaction. The results of the 2013 Riskesdas showed that the Indonesian population aged 5 years and over had hearing loss of 2.6%, deafness of 0.09%, cerumen blockage (impaction cerumen) of 18.8%, and secretions in the ear canal of 2.4%. The data shows that hearing loss is still a health problem. The priority programs for preventing hearing loss in Indonesia are focused on preventable diseases, namely Chronic Suppurative Otitis Media (CSOM), congenital deafness, noise-induced hearing loss (GPAB), presbycusis, cerumen obstruction, and ototoxicity (Ministry of Health RI, 2020).

Patients with impacted cerumen may present with symptoms, including ear fullness, hearing loss, ear pain, itching, tinnitus, and otitis externa. Symptoms of cerumen accumulation occur when natural elimination mechanisms are impaired or inadequate. There are four main factors that cause cerumen impaction, namely excess production that exceeds the rate of discharge of cerumen from the ear, obstruction due to narrow or tortuous anatomy of the ear canal and having hair which can result in accumulation of cerumen, inadequate migration of epithelium because the cerumen glands progressively atrophy. and it decreases a lot with age by producing drier cerumen which is less easily

excreted, and the phenotypes of cerumen are genetically "dry" and "wet", dry cerumen is brittle and dry and varies in color from light gray to gray brownish, whereas wet cerumen, on the other hand, is often dark, wet and sticky (Horton, *et al.*, 2020).

A buildup of cerumen, or earwax, in the ear canal is one of the most common problems experienced by patients and, if ignored, can cause hearing loss, irritation, and discomfort. Cerumen blockages can block the external ear canal or put pressure on the eardrum, which can cause ear filling, conductive hearing loss, itching, and pain. This relates to the comfort felt by the patient. Comfort is considered normal and necessary in treatment (Awal, 2017). In several nursing work models, it is stated that comfort is an integral part of nursing work as a basic client need which is the goal of nursing work (Wensley *et al.*, 2020). The statement of comfort is consistent with the concept of the comfort model according to Kolcaba, according to which comfort is a state in which basic human needs are met (Chandra, Raman, and Katharine, 2016). Comfort is a temporary and dynamic state characterized by the release of pain, emotional and physical stress, and the emergence of positive feelings, security, strength, and acceptance of situations that are supported and supported by feelings of being valued, cared for, trusted, and accepted (Durkin, Usher and Jackson, 2019). Comfort care has three components: (a) effective interventions, (b) compassionate service delivery methods, and (c) comfort-enhancing goals. Kolcaba defines comfort as a holistic experience. "Direct experience is reinforced so that it satisfies the need for rest, comfort, or transcendence in four contexts: physical, mental, environmental, and sociocultural" (Lin, Zhou, and Chen, 2023a). Treatment focuses on comfort as a phenomenon in therapeutic practice and finds its greatest significance from the perspective of Katherine Kolcaba's theory development and conceptualization (Lin, Zhou, and Chen, 2023b). The application of comfort theory in nursing is called comfort nursing, which is a health philosophy that focuses on the need for comfort, a comprehensive yet individualized model of care for each recipient or group (Wensley *et al.*, 2017).

Under normal circumstances, cerumen can come out on its own when chewing and talking without us knowing (Adegbiyi *et al.*, 2014). There are three methods of cleaning cerumen that is commonly used in clinical practice, namely using cerumen, irrigation, and manual extraction. These three methods are often used together (Horton, *et al.*, 2020). In everyday life, the general public usually uses various materials to reduce complaints of clogged ears due to wax by dripping water (H<sub>2</sub>O), olive oil (olive oil), cooking oil (coconut oil), and others with the aim of softening the hard and dense cerumen so that it can be easily removed from the ear. The materials used still need research to scientifically prove their benefits and efficacy. Based on the description above, it is necessary to conduct research on the differences in the action of irrigation with manual extraction on the level of comfort in cerumen-impacted patients in Bangkalan, Madura.

## RESEARCH METHODS

The research design is like an experiment, The research was conducted from April to June 2021. The population in this study were patients in Bangkalan, Madura, who received treatment for cerumen impaction. The sample in this study was 40 respondents who were divided into 20 respondents who received irrigation therapy and 20 respondents who underwent manual extraction, the sampling method used *Total Sampling*. The instrument in this study used a questionnaire sheet, namely the General Comfort Questionnaire (GCQ) questionnaire with a total of 24 questions, there were positive and negative questions. Processing data editing, coding, scoring, tabulating, and data analysis were carried out using the Mann-Whitney Test. The independent variables in this study were irrigation and manual extraction techniques, while the dependent variable was patient comfort.

## RESULT

Based on the results of research that was conducted in April - June 2021 with the title Analysis of Differences in the Action of Irrigation with Manual Extraction on the Level of Comfort in Cerumen Impacted Patients in Bangkalan, Madura.

**General data****Table 1. Characteristics of Respondents**

No.	Data	Irrigation		Manual Extraction	
		Frequency (Person)	Percentage (%)	Frequency (Person)	Percentage (%)
1.	Age				
	<30	7	35,0	5	25,0
	30-50	12	60,0	14	70,0
	>50	1	5,0	1	5,0
	Total	20	100,0	20	100,0
2.	Gender				
	Man	12	60,0	13	65,0
	Woman	8	40,0	7	35,0
	Total	20	100,0	20	100,0
3.	Work				
	Self-employed	11	55,0	9	45,0
	Farmer	6	30,0	6	30,0
	Private	3	15,0	4	20,0
	Student	-	-	1	5,0
	Total	20	100,0	20	100,0

Based on the data above, most of the respondents in the manual extraction and irrigation action group were 30-50 years old, namely 70% and 60%, male sex as much as 65% and 60%, and some had jobs as entrepreneurs with a total of 45% and 55%.

**Custom Data****Table 2. Respondents' Comfort Level**

Comfort Level	Irrigation	Manual extraction	Mann-Whitney
	n (%)	n (%)	
Good	20 (100)	8 (40)	0,000 (<0,05)
Currently	0 (0)	0 (0)	
Less	0 (0)	12 (60)	
Total	20 (100)	20 (100)	

Table 2 shows the comfort level of respondents with irrigation on cerumen impaction stated Good with a percentage of 100%, while most of the respondents who received manual extraction procedures stated that they were uncomfortable as indicated by the percentage of 60% and the results of the Mann Whitney test analysis showed P value = 0.000 (<0 .05) showed that there were differences in comfort levels after irrigation with manual extraction.

**DISCUSSION**

The results showed that when viewed from the age background, the majority of respondents in Bangkalan Madura who received treatment for ear wax impaction were in the age group of 30 to 50 years. This age group can be classified into the adult age group. This is in line with Horton *et al.* (2020) whose article stated that the prevalence of cerumen impaction generally increases in older adults and also in individuals with intellectual disabilities (intellectually disabled). Cerumen becomes drier at an older age because the cerumen glands atrophy and the hair in the ear canal become coarser with age, resulting in a higher rate of impaction of cerumen in elderly patients (Meyer *et al.*, 2020). Based on data reported by the Ministry of Health (2013) as many as 2.6% of the population in Indonesia aged 5 years and over have hearing loss, 0.09% have hearing loss and 18.8% have hearing loss due to cerumen blockage.

The results of the study concluded that there was a significant difference in the average comfort level between irrigation and manual extraction in cerumen-impacted patients. Thus, it can be stated that

there is an effect of the use of irrigation on the management of impacted cerumen on patient comfort in Bangkalan Madura. Irrigation measures to treat impacted cerumen are more comfortable than manual extraction as indicated by the feeling of not being full in the ear, hearing sound clean and clear, and not causing pain. This is in accordance with Horton et al (2020) opinion which states Irrigation is an effective method for removing cerumen and is the most common method used in family practice. Side effects are rare when considering contraindications to irrigation procedures such as incomplete tympanic membrane, previous ear surgery, ear canal disorder, history of otitis externa, and affected ear as the patient's only hearing ear. The liquid is used for irrigation according to body temperature to prevent stimulation of the vestibular system. It is not recommended to clean earwax using a toothpick or cotton-tipped applicator because it can injure the ear canal and rupture the tympanic membrane. Cotton-tipped applicators can cause cerumen to enter the ear canal and can increase wax production (Berman, Shirlee J., and Frandsen, 2016). The act of cleaning cerumen manually is often performed in patients with congenital or acquired ear disorders, after ear surgery, and patients with immune disorders. This method of manually removing earwax is considered safe and effective in the hands of a trained practitioner but can be traumatic in less experienced hands (Horton et al., 2020).

Comfort is a universal concept understood across most disciplines and cultures, and comfort theory applies to all medical settings and age groups (Durkin, Usher, and Jackson, 2019). The comfort felt by patients undergoing active therapy to remove impacted cerumen can prevent trauma for future treatment. So that apart from focusing on independent action or collaboration with other medical teams in cleaning earwax in patients, nurses also need to pay attention to patient comfort which affects the patient's quality of life. By applying a caring attitude in nursing care, clients will appreciate nurses who treat them whole heartedly because nurses are there when they need them and clients feel more cared for.

Interventions that can be performed on clients with cerumen impaction problems consist of using cerumenolitics and ear irrigation. If after using the cerumen that can be removed only which is located in the outer ear canal, then the remaining cerumen can be assisted in removing it with ear irrigation (Schwartz et al., 2017).

## CONCLUSION

The results of the research study showed that there was a significant difference in the comfort level of the respondents by administering ear irrigation compared to manual extraction. Respondents who received the irrigation procedure stated that their comfort level was better than manual extraction as indicated by the feeling of not being full in the ear, feeling clean, and being able to hear clearly. Ear irrigation therapy will be effectively carried out by professional and competent health workers in order to avoid side effects such as infection or trauma to the ear.

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