

## Level of Knowledge, Attitude, and Practices of General Physicians in West Java, Indonesia on Middle Ear Inflammation

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### Abstract

**Background:** The prevalence of middle ear inflammation in West Java is still relatively high. General practitioners are at the forefront who see and treat the patients directly; thus, the number of cases can be reduced by increasing the competence of general practitioners. This study aimed to determine the level of knowledge, attitude, and practices of general practitioners in West Java towards middle ear inflammation, as an evaluation for improving health services in the community.

**Methods:** This research was a descriptive study with a questionnaire conducted in August–December 2021 conducted online with a probability sampling technique of at least 368 general practitioners in West Java. The level of knowledge, attitude, and practices were calculated using the Guttman scale. The data were presented as a frequency distribution.

**Results:** The results showed that the majority of the general practitioners still had poor knowledge of middle ear inflammation (n=325; 84.6%) as well as the attitude (n=333; 86.7%) and the level of practice (n=340; 88.5%).

**Conclusions:** The level of knowledge, attitude, and practices of general practitioners in West Java towards middle ear inflammation is poor. Special interventions and approaches are needed to improve the competence of general practitioners in West Java based on the Standard Competency of Indonesian Doctors.

**Keywords:** Attitude, practices, knowledge, middle ear inflammation

### Introduction

Otitis media (OM) is an inflammatory process in the middle ear. Epidemiologists from the Centers for Disease Control and Prevention (CDC) conducted a survey in 2007, which showed that there were 24.5 million cases worldwide with the primary diagnosis of otitis media. In Indonesia, there are no standard epidemiological data nationally, as well as data on the prevalence of otitis media. A study in West Java reported that the total visits to the referral hospital in Bandung for the period 2010 to 2019 were over 186 thousand visits, of which over 33 thousand cases or around 18% were otitis media (OM), indicating that the prevalence of OM in west Java is high.<sup>1-3</sup>

Otitis media (OM) is classified into acute otitis media (AOM), otitis media with effusion (OME), and chronic suppurative otitis media

(CSOM), each of which are closely related and overlapping conditions. The diagnosis of OM is established based on the history taking or anamnesis, for example, by looking at the signs and symptoms that have been assisted by supporting examinations. After being diagnosed, treatment will be carried out, depending on the classification.<sup>1,4</sup>

Proper diagnosis and appropriate therapy aim to prevent complications that may lead to adverse health effects. The most common complication of OM is hearing loss. When it occurs in children of growing age, hearing loss may result in speech delays, learning disorders, and socialization disorders that may indirectly reduce the quality of human life. Another complication is the expansion of the disease to other organs, which results in higher treatment costs and increased morbidity and mortality. Early and adequate management is needed to

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treat and prevent the complications.<sup>5-7</sup>

General practitioners, as the front liners in the health system, have to treat general medical conditions and to refer patients to hospitals and advanced medical services whenever further management is needed. In the Indonesian Doctor Competency Standard, recognizing and treating OM is a competency that a doctor upon graduation must achieve. A doctor, in his/her daily clinical practice, will come across various cases of otitis media. Classifying the OM types becomes a challenging process for a general practitioner which may lead to overdiagnosis, overtreatment, or inappropriate use of antibiotics, which can significantly impact the patient's health. It is important to classify each condition properly and perform a proper examination and treatment management to prevent recurrent middle ear inflammation and complications. Therefore, the purpose of this study was to assess the level of knowledge, attitude, and practices of general practitioners in West Java towards middle ear inflammation. The results of this study were expected to be useful for analyzing the understanding and knowledge of general practitioners about middle ear inflammation and providing benefits to society and the world of medicine.<sup>8</sup>

## Methods

This study was a cross-sectional descriptive

study using a primary data questionnaire obtained online as a research instrument to assess the level of knowledge, attitude, and practices on middle ear inflammation among general practitioners in West Java. The research population was general practitioners who worked in West Java. Research subjects were selected through simple random sampling with a total population of 9,047 general practitioners. The probability sampling technique was used to obtain a minimum sample of 368 respondents. Questionnaires were distributed randomly across social media through collaboration with the Indonesian Doctor Association (*Ikatan Dokter Indonesia*, IDI) in West Java, alumnus of medical universities in West Java, and others. Respondents who met the inclusion criteria filled in the questionnaire. The inclusion criteria were general practitioners actively working in the West Java area. The exclusion criteria were general practitioners who went on leave and came to west Java to take specialist education. This research was conducted from August to December 2021. The research protocol, subject information sheet, and consent form were approved by the Research Ethics Committee of Universitas Padjadjaran (Ethical Approval No. 826/UN6. KEP/EC/2021).

The instrument consisted of an informed consent form, the characteristics of the respondents, including gender, age, medical

**Table 1 Demographic Characteristics of General Practitioners in West Java in 2021 (n=384)**

Variable	Total (n)	Percentage (%)
Gender		
Female	243	63.3*
Male	141	36.7
University		
Universitas Padjadjaran	192	50*
Islam Bandung University	74	19.2
Jenderal Ahmad Yani University	38	9.9
Kristen Maranatha University	21	5.5
Others	74	19.2
Age		
Young adult (20–40 years old)	349	90.9*
Middle adult (41–60 years old)	30	7.8
Elderly (>60 years old)	5	1.3
Work Place		
Hospital	215	47.8*
Private clinic	139	30.9
Public health center	78	17.3
Others	18	4

Note: \*The highest frequency .

**Table 2 Assessment of Knowledge based on the Correct Answers Distribution (n=384)**

No	Knowledge Questions	Correct Answer n (%)
1.	Pneumatic otoscopy is a necessary examination to diagnose CSOM.	136 (35.4)
2.	Adenoids are organs that play a role in the pathophysiology of otitis media.	206 (53.6)
3.	Most AOM sufferers are at the age of <2 years.	255 (66.4)*
4.	The following is an overview obtained on OME.	152 (39.6)
5.	Systemic antibiotics are always required in AOM patients aged less than 2 years.	208 (54.8)
6.	Oral decongestants are drugs that should be given to AOM.	101 (26.3)
7.	Antibiotic ear drops are the main treatment for CSOM.	205 (53.4)
8.	Tympanoplasty is a procedure to remove fluid from the middle ear.	289 (75.3)*

Note: \*CSOM=Chronic suppurative otitis media, AOM=Acute otitis media, OME=Otitis media with effusion.,\*Have correct answer for >56%.

practice experience, place of work, university origin, year of graduation as a doctor, and questions to assess the level of knowledge, attitude, and respondents' practices towards middle ear inflammation. The questionnaire developed by the authors is in accordance with the competencies required by general practitioners, based on the Standard Competency of Indonesian Doctors (*Standar Kompetensi Dokter Indonesia*, SKDI). The assessment of the level of knowledge, attitude, and practices was calculated using the Guttman scale, which gave the respondents a chance to choose between the two answers that were true or false for all the questions based on their knowledge. The answer was given a value of 1 (one) if it was correct and a value of 0 (zero) was given if it was incorrect.

Before the study, the validity and reliability tests were carried out on 60 respondents using Cronbach's Alpha. The results showed that level of the questionnaire was 0.566 (medium reliability).

There were 8 questions regarding knowledge of middle ear inflammation. The level of knowledge was considered good if the

value was >76–100%, sufficient if the value was 56–75%, and poor if the value was <56%.<sup>12</sup>

Attitude and practices were considered good if the value was 100% and poor if the value was <100%. Treatment of middle ear inflammation (otitis media) included SKDI level 4A (four) for acute otitis media while 3A (three) for otitis media with effusion and chronic suppurative otitis media, indicating that a general practitioner was required to be able to diagnose, to complete treatment, and to refer if there were any complications. Furthermore, a general practitioner must have perfect points for his attitude and practices.<sup>10</sup> The data were in a frequency distribution, presented in tables.

## Results

The total samples obtained were 384 respondents, including 141 male (36.7%) and 243 female (63.3%) general practitioners who graduated from various universities in West Java, predominantly from Universitas Padjadjaran (n=192; 50%) as shown in Table 1. The included general practitioners were

**Table 3 Level of Knowledge on Middle Ear Inflammation among General Practitioners from West Java (n=384))**

Level of Knowledge	Total (n)	Percentage (%)
Good	19	4.9
Sufficient	40	10.4
Poor	325	84.6

Note: \*The highest frequency

**Table 4 Assessment of Attitude and Practices Level based on the Correct Answers Distribution (n=384)**

No	Attitude and Practices Questions	Correct Answer n (%)
Attitude Questions		
1.	I believe that all tympanic membrane perforations can close spontaneously once the otitis media has healed.	274 (71.4)
2.	As a general practitioner, I must be able to carry out the management of acute otitis media to completion.	357 (93)
3.	If I do not carry out the management of AOM in children completely, it can cause communication and learning disorders.	371 (96.6)
4.	I believe that all otitis media can be cured.	295 (76.8)
5.	Is ear examination necessary in all patients with upper respiratory tract infections?	281 (73.2)
6.	OME requires careful examination and the assistance of pneumatic otoscopy.	300 (78.1)
7.	I agree that patients with recurrent AOM are indicated for tonsillectomy.	213 (55.5)
Practices Questions		
1.	I will always give antibiotics in the first 48 hours to children with mild AOM symptoms.	242 (63)
2.	I will refer to an ENT specialist for patients with CSOM with complications.	383 (99.7)
3.	I always perform a tuning fork examination on patients with suspected otitis media.	141 (36.7)
4.	I always recommend a photo examination of Schuller and Stenver in patients with CSOM.	203 (52.9)
5.	I always do ear toilets with H2O2 in the clinic for patients with otorrhoea.	202 (52.6)
6.	I will prescribe analgesics without antibiotics in the first 48 hours for patients with mild AOM.	286 (74.5)

Note: AOM=Acute otitis Media; OME=Otitis media with effusion; ENT=Ear, nose, throat; CSOM= Chronic suppurative otitis media; H2O2=Hydrogen peroxide.

dominated by young doctors (n=349; 90.9%) who worked for < 5 years (n=289; 75.3%).

Most of the respondents worked in hospitals (47.8%), private clinics (30.9%) or a smaller percentage in public health centers or other places such as independent practice.

Only two questions had correct answers for >56%; Question no. 3 - Most AOM sufferers are at the age of <2 years (66.4%), and question no 8. Tympanoplasty is a procedure to remove fluid from the middle ear. (75.3%) as depicted in Table 2. The questionnaire results showed that most of the respondents had poor knowledge (84.6%) (Table 3).

The questionnaire to assess the attitude of the respondents consisted of 7 questions. Attitude was regarded as good if the value

was 100% and poor if the value was less than 100%. In other words, if the respondents could answer all of the questions, the attitude was good; if they could not, then the attitude was still poor (Table 4).

Six items made up the questionnaire used to gauge the respondents' practices. When the value was 100%, practices were considered good; when it was less than 100%, they were considered poor. If responders responded effectively to all the questions, the practices were good; otherwise, they were poor (Table 4).

The results showed that the attitude of the respondents was predominantly poor (86.7%) as well as for practice (88.5%) (Table 5). When viewed from the references

**Table 5 Attitude and Practices on Middle Ear Inflammation among General Practitioners from West Java (n=384)**

Attitude and Practices	Total (n)	Percentage (%)
Attitude		
Good	51	13.3
Poor	333	86.7
Practices		
Good	44	11.5
Poor	340	88.5

**Table 6 Respondent's Reference to Learn Middle Ear Inflammation**

References	Total (n)	Percentage (%)
Textbook	317	29.7
Peer discussion	274	25.7
Journal	231	21.7
Symposium	151	14.2
Training	73	6.8
Others	20	1.9

used by respondents in studying middle ear inflammation, the majority of respondents read textbooks as the main reference, followed by the discussion or consultation with colleagues. Some respondents read journals, and some others gained knowledge about inflammation of the middle ear through symposiums, training, and a small proportion of respondents used other sources such as the Clinical Practice Guide in primary care, the internet, guideline from the ministry of health, several medical applications, and guidelines from the Indonesian Otorhinolaryngology-Head and Neck Surgery Society (Table 6).

## Discussion

This study found that most general practitioners in West Java still have poor knowledge, attitude, and practices towards middle ear inflammation. Research on knowledge, attitude, and practices toward middle ear inflammation has previously been carried out in several countries, such as India and Rwanda, with respondents in the communities, such as parents with children in a specific age group. Assessing the level of parental awareness is of great interest, so that interventions in the form of education can be carried out to increase awareness that can reduce the number of cases, mortality rates, and morbidity rates from otitis media.<sup>11,12</sup> In contrast, our study approaches general practitioners as the front line in the community

health system, who will see and treat the patient's condition directly. Here, the same goal has been directed to reduce the number of cases but in a different way.

Middle ear inflammation is a disease that needs attention because this disease can be prevented, either through preventive or promotive measures. Furthermore, its complications can be prevented through appropriate curative measures. General practitioners are health workers who have the main control to prevent, diagnose, treat, and refer to follow-up services if there are complications to control disease and achieve patient welfare. A general practitioner is required to have the appropriate competence to achieve overall health. The knowledge, attitude, and practices of the general practitioners in this study are still poor and must be improved. Health is an investment for developing productive human resources both socially and economically, so indirectly general practitioners have an important influence on the development of various other sectors and have an important role in developing the country.<sup>13,14</sup>

Knowledge results from sensing a particular object through sight, hearing, smell, taste, and touch. Knowledge is an important domain to determine a person's attitude and actions. Practices that are based on knowledge will last longer than practices that are not based on knowledge. These three things are interrelated and cannot be separated.<sup>12,15</sup>

If the knowledge is good, it will determine attitudes and practices that tend to be good. On the other hand, if the knowledge is poor, it will be more difficult to form good attitude and practices. This statement was strengthened in the study, as we can see the knowledge, attitude, and practices of the general practitioners are still poor and mostly the questions that were not answered correctly by the respondents were questions about the diagnosis and management of otitis media. When general practitioners in West Java still have poor knowledge, especially about this topic, then the application of attitude and practices would also not be good because these things are two things that go hand in hand. Better competence of general practitioners is still needed to diagnose and carry out effective and efficient management.<sup>12</sup>

One of the efforts and solutions that can be offered to this problem is to build fundamental skills, especially in terms of analytical thinking and critical thinking, from the pre-clinical period to the time of becoming a doctor. Critical thinking is the ability to recognize problems, seek, and evaluate related information to get the right conclusions. If future doctors instill and practice this mindset, especially in the pre-clinical period, doctors will be more aware of the importance of a disease to be studied with various approaches. A doctor must also realize that every case encountered, such as middle ear inflammation, must be seen and studied comprehensively because in essence, one problem caused by one disease can spread to other problems.<sup>16</sup>

Otitis media is more common in childhood, related to the anatomical structure, physiology, and immunity. The most common complications encountered in otitis media cases are disturbances in children's growth and development, which will indirectly reduce the quality of life of children who are the nation's successors. This proves that a disease cannot be underestimated and must be operated on comprehensively to prevent a bigger bad impact. If curiosity is built from the start, learning will also be more effective because it has a basic wall in the form of a strong reason to learn something. The doctors formed are those who have the self-awareness to continue seeking knowledge and maintain lifelong learning principles. It is hoped that the doctors formed will be of higher quality.<sup>17-19</sup>

The briefing in question can be in the form of seminars, workshops, symposia, upgrading and updating of knowledge, socialization of management, as well as direct discussion

sessions with experts, namely doctors who are specialists in their field. Skills training can also be carried out directly by experts. It is recommended that training can be carried out regularly. Medical science will continue to develop and be updated. Dissemination of training information through social media can also be effective in this global era.<sup>20</sup>

The limitation of this research is the difficulty in getting respondents. The researchers came from Universitas Padjadjaran, so the respondents were dominated by respondents who graduated from the same university, making the data taken less evenly distributed.

In conclusion, the knowledge, attitude, and practices of the general practitioners in West Java are still poor. To increase the awareness and competence of general practitioners, providing material on middle ear inflammation in several ways, both face-to-face and online, is needed to help general practitioners develop knowledge of middle ear inflammation. Therefore, accuracy in managing middle ear inflammation can be carried out more effectively and efficiently.

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