



Description Gender, Age on The Incidence of Acute Respiratory Infections (ARI) at Baula Community Health Center

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ABSTRACT

Acute Respiratory Tract Infection (ARI) is a major health problem worldwide associated with high morbidity and mortality. In Indonesia, ARI always ranks first in every health service. The purpose of this study was to determine the description of age and gender in ARI cases in the Baula Health Center working area. This study used a research method with an observational design, and retrospective data collection. Data analysis using SPSS was descriptively conducted at the Baula Health Center surveillance installation in 2024. The highest cases were in 2023 as many as 737 patient visits with a diagnosis of ARI disease, and in 2022 as many as 527 visits. The results showed that there was a significant increase in the number of cases from 2022 to 2023. In the age group of 20-44 years, 64,5%, 45-54 years by 22,5%, the lowest in the age group of 60-69 years by 6.4% of the total 1,264 research samples. In terms of gender, the most commonly diagnosed ARI was female at 66.9% and male at 33,1%. The study showed that the most diagnosed adult age of ARI cases was age 20-44 years, which amounted to 64,5% and in the most gender, women were more diagnosed with ARI than men, which amounted to 66,9%, finding that women are more susceptible to disease and want to get treatment immediately compared to men.

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1. Introduction

Respiratory diseases are an important public health problem over the last decade, many research studies have reported on the detection of respiratory pathogens that cause ARI or pneumonia, with various factors and disease prevalence, pathogen spectra demonstrated from different countries and regions based on population demographics, seasons, and by year. (Li et al. 2021)

Acute Respiratory Infection (ARI) is a major worldwide health problem associated with high morbidity and mortality. The World Health Organization (WHO) estimates that ARI ranks as the world's fourth highest global cause of death, resulting in nearly three million deaths worldwide in 2016 with an estimated 40 deaths per 100,000 people. Among acute lower respiratory tract infection (ARI) diseases are pneumonias and bronchiolitis, which have become the leading cases of hospital admissions,

especially in low- and middle-income countries (Kang et al. 2016; Lafond et al. 2021). ARI is caused by more than 300 species of bacteria, viruses and rickettsia. Bacteria that can cause URI include Streptococci, Staphylococci, Hemophilus, Bordetella, Corynebacterium, and Pneumococci, while viruses that can cause URI include Picornavirus, Herpesvirus, Myxovirus, Adenovirus, and Mycoplasma (Mulat and Suprpto 2018).

Transmission of ARI can be by drop, but contact transmission (including hand contamination followed by accidental inoculation) and infectious respiratory aerosols of various sizes and nearby can also occur for some pathogens. As many symptoms of ARI are nonspecific and rapid diagnostic testing is not always possible, the cause is often not immediately recognized ARI is an epidemic disease that affects all age groups, with aged people aged 2 to 4 years having a high incidence of acute respiratory infections (ARI) (Kemenkes 2019). According to World Health Organization (WHO) data in 2020, there were 1,988 cases of ARI (WHO, 2020). In Indonesia, ARI has been ranked first in every health service. This disease is of special concern because it contributes to many cases of illness and death.

There are many factors that influence the incidence of ARI, namely environmental conditions (air pollutants such as cigarette smoke and cooking gas fumes, solidity of family members, house ventilation conditions, humidity, cleanliness, season, temperature), health and activity. Health services and measures to prevent infection Transmission (vaccines, access to health services, isolation room capacity), hereditary factors (age, smoking habits, hereditary's ability to describe infection, nutritional status, previous or coexisting infection with other pathogens), general health status) and pathogen characteristics (transmission route, infectivity, virulence factors, e.g. gen, germ count or dose). Environmental conditions that can be a factor in the occurrence of ARI include environments with car exhaust, heating oil, smoke from fires, and foreign objects such as small plastic toys (Cortes-Ramirez et al. 2021; Leung, O'Donoghue, and Suen 2023)

Based on the results of interviews and initial studies on surveillance officers, namely on the specific increase in ARI cases due to environmental conditions and environmental conditions of the workplace which is a mining and industrial area. The average visit to the Baula Health Center is dominated by adults, this is also the basis for the high number of ARI cases in adults and based on gender, ARI case visits are dominated by women. Based on these data, this study aims to determine the characteristics of age and gender in ARI cases at the Baula Health Center.

2. Methods

This study used a research method with an observational design, Retrospective data collection. This study was conducted at the Baula Health Center outpatient installation in 2024. The population in this study were outpatients with a diagnosis of ARI with adult age registered at the Baula Health Center in 2022 to 2023. The sampling method was total sampling. Research time was conducted in September 2024.

The subjects of this study were adult patients diagnosed with ARI in 2022-2023 who met the inclusion criteria, namely all adult patients diagnosed with ARI in 2022-2023 and registered in the surveillance section of the Baula Health Center, and exclusion criteria, namely patients diagnosed with ARI in 2022-2023 and registered in the surveillance section of the Baula Health Center. Exclusion criteria are ARI patients with incomplete data, Data obtained from the Baula Puskesmas surveillance section in the form of secondary data, including integrated surveillance data of health center-based diseases, then the data were analyzed using the SPSS 24 application descriptively in the form of frequencies and percentages, with the distribution of age and gender of ARI patients. This study has obtained a research permit from Baula Health Center with Number 445/550.a/SKP/PKM-BLA/X/2024.

3. Results and Discussion

In the results of this study, it was found that the number of cases of visits with ARI disease in the Baula Health Center Working Area in 2022-2023 with the number of cases, can be seen in Figure 1.

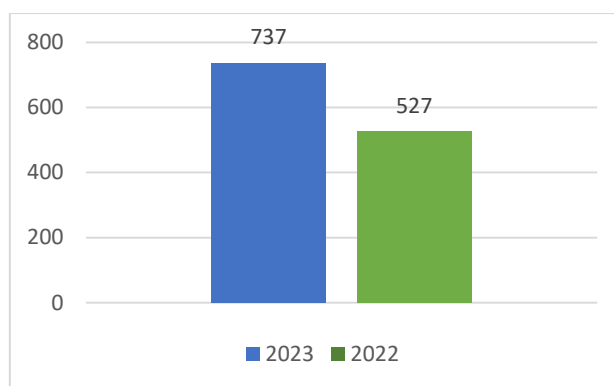


Figure 1. Amount of ARI visits in the Baula Health Center work area in 2022-2023

Based on Figure 1, it shows that the highest number of cases was in 2023 with 737 patient visits with a diagnosis of ARI, and in 2022 there were 527 visits. In this study, it can be seen that there was a significant increase in the number of cases from 2022 to 2023.

Table 1.
Characteristics of respondents

Characteristics	Year				Totally	
	2022		2023		n	%
	n	%	n	%		
Age :						
20-44 years	344	42,2	471	57,8	815	64,5
45-54 years	127	44,7	157	55,3	284	22,5
55-59 years	38	45,8	45	54,2	83	6,6
60-69 years	18	22,0	64	78,0	82	6,4
Gender :						
Male	172	41,1	246	58,9	418	33,1
Female	355	42,0	491	58,0	846	66,9

The age distribution of ARI patients, the age group with the highest number of cases is 20-44 years with 471 in 2023 and 334 patients in 2022 with a percentage of 64,5%, then in the age group of 45-54 years with 157 in 2023 and 127 patients in 2022 with a percentage of 22,5%, and in the age group 55-59 years. Se.many 45 in 2023 and 2022 many 38 patients with a percentage. 66,4%. The lowest was in the age group 60-69 years with 64 in 2023 and 18 patients in 2022 with a percentage of 6,4%. This is in line with the literature which states that old age is also a factor in the occurrence of ARI due to the weakening of the immune system in individuals.

This study aims to describe the characteristics of ARI patients, which in the past has been the first place in the cases of the top ten diseases in each health center. ARI cases have been increasing every year, this increase can be seen twice as high in 2022 and twice as high in 2023. In terms of age, the incidence of ARI was highest among 20-44 year olds at a rate of 57,8%. Age is a measurement from the time of birth to the time of rebirth. The older a person is, the more mature they will be in their thinking and working patterns. The second place is in the age group 45-55 years at 55,3%, while the lowest is in the age group 60-79 years at 22,0% in 2022 but there is an increase in cases in 2023 at 78,0%.

Age is one of the pre-dispositional factors that shape the attitudes and behaviors of all people. The productive age group is at risk of disease from work and endurance. Based on a prospective study, the independent risk factor that led to the high incidence of ARI and phenomonias hospitalizations in South Korean hospitals among older patients is the immune system that begins to decline in older age (Kang et al. 2016; Shi et al. 2020).

ARI increases in adulthood, and was identified in 6075321 individuals aged 40-64 years in England with a retrospective research method based on data from 2008 to 2018, stating that this age increases the incidence of ARI especially accompanied by cardiovascular disease (J. Davidson et al. 2021;

J. A. Davidson et al. 2021). In Indonesia, the prevalence of ARI cases in each health center ranks first among the top 10 diseases. Characteristics of the population with ARI are highest in adulthood, namely age >24 years. While in children under five, ARI is the biggest cause of death in Indonesia with a percentage of 32.10% of all under-five deaths.

ARI disease is also influenced by the environment, this is associated with the environment of the population in the Baula health center working area which is a mining area. This study is in line with a study conducted by Bambang, et al in 2013 that the environment of coal mining, South Sumatra that the age of workers has an effect on the incidence of ARI, this is due to the level of air pollution due to the particle bu (Sukana et al. 2013). However, in contrast to research conducted by Rahmalila, 2023 that the close proximity of the residence to the industrial area does not have a relationship with the incidence of ARI, after further research states that the industrial area already has chimney filtration so that the smoke released by industrial activities is good (Rahmalila Putri and Nanda 2023).

A study conducted by Ibnu in 2017 found that there was a relationship between age and the incidence of ARI in workers who were exposed to wood dust and a study conducted by Yunus et al in 2020 stated that there was a significant relationship between age and the incidence of ARI in workers in the sande.r field (plywood sanding activity) (Yunus, Raharjo, and Fitriangga 2020). According to Prasetyo, 2010 that lung diffusion capacity, lung ventilation, oxygen uptake vital capacity and all other lung fauna parameters will decrease with age so that the older the age, the more rentant the incidence of ARI (Prasetyo 2010).

The picture of Gender with the highest incidence of ARI is in Women. Research from Ibama, 2017 in Negeria states that the female gender is more infected with ARI disease compared to men. (JD et al. 2017). Research from India also showed that the prevalence and risk factors associated with ARI among 370 children under five from 184 households and 370 families in 2004, the prevalence of ARI was found to be 26.22%; infants and young children were more than males 25.35%. ARI was found to be 26.22% more infants and girls 27.35% than boys 25.69%. (Islam et al. 2013). Study from Zambia observed that in children under five, ARI was significantly associated with the sex of the child. (Siziya, Muula, and Rudatsikira 2009). According to Seong Hui Kang, 2016 stated that women generally report more pain symptoms than men. In relation to gender and age, this is e.g. related to the age of the ring experiencing health problems or immune system disorders or auto-illness which is e.g. related to ARI and Phenomonial(Kang et al. 2016; Shi et al. 2021).

Several studies related to the relationship between age and gender in patients with ARI also suggest that environmental factors affect the incidence of ARI, for example in a study conducted by Yulia, 2022 that factors that affect the incidence of ARI in the disposal of liquid waste from the fish processing industry are nutritional status, smoking habits, room temperature, humidity, and sanitation of the home environment (Retno, Prayitno, and Ma 2022). Analysis of the distribution of people with ARI disease using the nearest neighbor analysis method. The nearest neighbor analysis value of 0.215675 or less than 1 indicates that the distribution is clustered or grouped. The clustering model shows that the distribution of ARI patients is clustered (Iman and Iskarni 2024; Nuryati 2018).

Research conducted by Achmad Asnawi, 2009 at the Sukmajaya Health Center stated that visits with 60.9% were mostly dominated by women. However, this is not in line with the research conducted by Yunus et al, 2020, where there was no relationship between gender and the incidence of ARI (Yunus, Raharjo, and Fitriangga 2020). According to Rahmah's research in 2018, the incidence of ARI was more prevalent among males and less prevalent among females because males tend to be more active in work than females (Rahmah 2021).

ARI control needs to be carried out as an effort that is expected to reduce morbidity and mortality. Improving the implementation of Acute Respiratory Infection control needs to be supported by a good strategy in order to implement the program in accordance with the objectives to be achieved. The health center is required to be able to develop an appropriate strategy so that the problem of Acute Respiratory Infection can be overcome and is expected to reduce the incidence of Acute Respiratory Infection. The implementation of Acute Respiratory Infection control requires the commitment of the

central government, local government, support from cross-program, cross-sector, and community participation including the business world (Rizki Fahri Muhammad 2019; Sinaga et al. 2024).

4. Conclusion

In this study, it was found that there was a significant increase in the number of ARI cases, namely 527 cases in 2022 and twice as high in 2023 at 732 cases, with the average occurring in the 20-44 age group. ARI in the elderly generally occurs in males but does not rule out the possibility of occurring in females. And generally, women are more resistant to illness and more eager to seek health care assistance if they experience health problems than men. Based on visit records from the Baula health center more women come for health check-ups than men. The baula health center is expected to increase promotive, preventive efforts in disease control and conduct program evaluations, especially in ARI cases which always rank first in reporting integrated surveillance data on health center-based diseases.

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