DESCRIPTION OF THE PHYSICAL CONDITION OF HOMES AND THE PRESENCE OF STAPHYLOCOCCUS AUREUS IN THE HOMES OF TODDLERS SUFFERING FROM PNEUMONIA IN PAKUSARI DISTRICT, JEMBER REGENCY

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Article Info

ABSTRACT

Description of the Physical Condition of the House and the Presence of Staphylococcus aureus in the Toddler's House with Pneumonia in Pakusari District, Jember Regency. Pneumonia is a significant health issue, causing both long-term and short-term mortality across all age groups globally. The Pakusari District notably has a high rate of pneumonia among toddlers. According to data from the Jember District Health Office, in 2021, there were 88 cases of toddler pneumonia in Pakusari District. Preventive measures against pneumonia include addressing its various risk factors. This study employed a quantitative descriptive research design, focusing on 23 homes with toddlers suffering from pneumonia in Pakusari District, Jember Regency, from September to November 2023. A sample of 10 houses was selected based on Gay and Diehl's (1992) theory using systematic random sampling. The findings were presented in text and tables. The study revealed that 60% of the houses had good physical conditions, while 40% had poor physical conditions. Additionally, Staphylococcus aureus was not found in most houses, with only 10% of the homes having the bacteria present. The homes with Staphylococcus aureus typically had physical conditions that did not meet health standards, including issues with ceilings, floors, ventilation, kitchen smoke holes, lighting, temperature, humidity, and occupancy density. The study suggests that the Pakusari Health Center should enhance health promotion efforts and optimize sanitation clinics. The Jember District Health Office could implement programs to increase the number of healthy homes, such as plastering programs and providing glass roof tiles. The community should regularly clean their houses and ensure adequate lighting to improve overall health conditions.

INTRODUCTION

Pneumonia cases are one of the main health problems causing long-term and short-term mortality in all age groups around the world [1]. In 2021, East Java became the province with the highest number of cases of pneumonia for children under five, which was 74,071 cases [3]. Jember Regency is the district with the eighth highest rate of pneumonia cases in East Java in 2021, which is 2400 cases. The high number of cases makes Jember Regency one of the

focuses of the Ministry of Health of the Republic of Indonesia in handling pneumonia. Pakusari District is one of the sub-districts that has a high rate of pneumonia in children under five. Based on data from the Jember Regency Health Office, during 2021 the number of pneumonias in toddlers in Pakusari District reached 88 cases.

Cases of pneumonia can be prevented in various ways, one of which is by overcoming the risk factors that cause pneumonia [2]. One of the risk factors for pneumonia is environmental factors. Environmental factors that affect the incidence of pneumonia are the physical condition of the house that does not meet the requirements [4]. According to the Decree of the Minister of Health Number 829/Menkes/SK/VII/1999 concerning housing health requirements, the physical condition of a house that meets the requirements is a house that has criteria, namely waterproof and non-damp house walls, waterproof and easy-to-clean house floors, easy-to-clean, waterproof ceilings, and have ceilings, the presence of sufficient windows and ventilation of the house, The existence of natural lighting, not overcrowded, maintained air temperature and humidity, and the existence of a kitchen smoke pit as a means of removing smoke from the kitchen. This is in line with Mulyani's (2020) research where there is a strong relationship between the achievement of healthy homes and the incidence of pneumonia in Jember Regency [5]. Poor physical environment conditions of the house and not meeting the requirements of a healthy house can be a place for the growth and development of pneumonia agents, one of which is the bacterium Staphylococcus aureus [6]. In a study conducted by Jinghua et al. (2017), the results were obtained that Staphylococcus aureus bacteria are the main cause of pneumonia cases where 51 out of 119 samples studied had high resistance to clindamycin, tetracycline, erythromycin, and penicillin [7]. This proves that there is antibiotic resistance to pneumonia in Staphylococcus aureus bacteria.

The poor physical condition of the house can support the microorganisms that cause pneumonia to grow and develop. In addition, based on data from the Jember Regency Health Office, Pakusari District is an area that is traversed by rivers and is often flooded. The area that is often affected by floods can become a nest for the growth and development of bacteria that cause pneumonia, especially Staphylococcus aureus bacteria because of its humid place. This is in line with the research of Feronica Aprillia Romauli et al. (2021) where there is a relationship between humid house conditions due to frequent 6 floods and the incidence of acute respiratory infections, one of which is pneumonia [8]. In a study by Prajadiva and Ardillah (2019) with respondents of people living near rivers, the results were found that high levels of house humidity had a significant relationship with the incidence of pneumonia [9]. Based on a preliminary study conducted at the Pakusari health center, the results showed that observation to see the physical condition of houses in Pakusari District, Jember Regency has not been carried out by the Pakusari health center since 2017.

Based on the description above, a study of the physical condition of the house and the existence of Staphylococcus aureus in the home of a toddler with pneumonia in Pakusari District, Jember Regency needs to be carried out. The purpose of this study is to find out the description of the physical condition of the house and the existence of Staphylococcus aureus in the house of toddlers with pneumonia in Pakusari District, Jember Regency, as well as to examine the relationship between the physical condition of the house and the presence of Staphylococcus aureus in the house of toddlers with pneumonia in Pakusari District, Jember Regency.

MATERIALS AND RESEARCH METHODS

The type of research used in this study is a type of quantitative descriptive research with a research population of 23 homes for toddlers with pneumonia in Pakusari District, Jember Regency in September - November 2023. The sample taken in this study was 10 houses calculated based on the theory of Gay and Diehl (1992). Sampling was carried out by systematic random sampling. The independent variables in this study are the physical condition of the house consisting of ceilings, walls, floors, ventilation, kitchen smoke holes,

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the presence of windows, lighting, temperature, humidity and residential solids in the house of toddlers with pneumonia in Pakusari District, Jember Regency and the bound variable in this study is toddler pneumonia. Observation and measurement of the physical condition of the house were carried out using 10 indicators with a total score of 20 with a category of >65%, the physical condition of the house was good, 34%-65%, the physical condition of the house was not good, and <34%, the physical condition of the house was poor. The data source in this study came from primary data, observational data conducted by researchers on respondents' homes which were observed related to the physical condition of the house and the measurement of the presence of Staphylococcus aureus as well as secondary data from the Pakusari Health Center, Jember Regency. Data collection was carried out by observing the physical condition of the house and measuring temperature, lighting, humidity using an environment tester and measuring the presence of Staphylococcus aureus using an air sampler accompanied by BBTKLPP Surabaya. Lighting measurements are based on SNI 7062-2019 and measurements of the presence of Staphylococcus aureus based on ISO 16000-18:2011 based on impaction techniques. The preparation of the observation sheet is prepared based on the Decree of the Minister of Health Number 829/Menkes/SK/VII/1999 concerning Housing Health Requirements and the Regulation of the Minister of Health Number 1077/Menkes/PER/V/2011 concerning Guidelines for Air Sanitation in Residential Spaces. The research data was analyzed using descriptive analysis to describe the variables, namely the physical condition of the house and the presence of Staphylococcus aureus in the homes of toddlers with pneumonia and cross-tabulation analysis to determine the frequency and percentage of the physical condition of the house that is more dominant with the presence of staphylococcus aureus bacteria. The research data is presented in the form of text and tables.

RESEARCH RESULTS AND DISCUSSION
Conditions of Toddlers' Homes for Pneumonia Patients
House ceiling

Table 1. Condition of the ceiling of the house

House Ceiling	Number of Patient Homes	Percentage
None	0	0
It is dirty, difficult to clean, less than 2.75 meters high, not waterproof, and prone to accidents	8	80
Yes, clean, over 2.75 meters high, waterproof and not	2	20
Sum	10	100

Based on the results of observations made on the ceiling of the respondent's house, it is known that out of the 10 houses that were observed, there were 8 (80%) respondents' houses that did not meet the requirements and there were 2 (20%) respondents' houses that met the requirements. Most respondents' houses do not have ceilings, making the ceiling prone to accidents. The condition of the ceiling of the house is also in a dirty state with many spider webs. This results in a lot of dust and dirt falling and being inhaled by the occupants of the house. In addition, there were several respondents' houses that had a height of less than 2.75 meters, resulting in the house becoming damp. Research from Dewiningsih, (2018) stated that toddlers who have unqualified house ceiling conditions are 5 times more likely to develop pneumonia compared to toddlers who have conditional house ceiling conditions [10]. This is in line with the research of Pratiwi, (2018) which obtained the result that there is a relationship between the condition of the ceiling of the house and the incidence of pneumonia [11].

House walls

Table 2. The condition of the walls of the house

House Walls	Number of Patient Homes	Percentage
Not a wall (made of woven bamboo/thatch)	0	0
Semi-permanent/non-waterproof board/half-wall	1	10
Permanent, waterproof/wall-proof board	9	90
Sum	10	100

Based on the results of observations made on the walls of the respondents' houses, it is known that of the 10 houses that were observed, there were 1 (10%) respondents' house that had semi-permanent house walls in the form of non-waterproof/half-walled boards and there were 9 (90%) respondents' houses that had permanent house walls in the form of waterproof boards/walls. The condition of the walls of the house that meets these requirements can reduce the incidence of pneumonia. This is in line with research conducted by Akbar et al., (2021) who obtained the result that wall conditions that meet the requirements can reduce the risk of toddlers developing pneumonia 6.62 times lower than the condition of the walls of the house that do not meet the requirements [12]. One of the respondents' houses had a semi-permanent house wall condition with a part in the form of a permanent wall and the other part of the house used plywood boards. The condition of the walls of semi-permanent houses can be one of the risk factors for pneumonia because the walls of semi-permanent houses have materials that are easily damaged so that they can cause dust or dirt which when inhaled continuously will irritate the lungs [13]. Research from Jannah et al., (2019) stated that toddlers who have unqualified house wall conditions are 3 times more likely to develop pneumonia compared to toddlers who have conditional house wall conditions [14]. This is in line with the research of Nurjayanti et al., (2022) who obtained the results that there is a relationship between the type of wall and the incidence of pneumonia [15].

House floor

Table 3. Floor conditions of the house

House Floor	Number of Patient Homes	Percentage
Soil	0	0
Bamboo boards/matting close to the ground/stucco cracked and dusty	5	50
Plaster/tile/ceramic/board (stilt house)	5	50
Sum	10	100

Based on the results of observations made on the floor of the house of a toddler with pneumonia in Pakusari District, Jember Regency, it is known that of the 10 houses that were observed, there were 5 (50%) respondents' houses that had a board-shaped/comfortable bamboo floor close to the ground/cracked and dusty plaster and there were 5 (50%) respondents' houses that had a plaster/tile/ceramic/plank house floor (stilt house). The condition of the floor of the house that is in accordance with the requirements has the shape of the house floor in the form of tiles. The condition of the floor of the house that is suitable for the conditions can reduce the risk of pneumonia in toddlers by 11.9 times lower [15]. In addition, some of the respondents' houses that were observed had floor conditions that were not in accordance with the requirements where all floors of the respondents' houses that had house floor conditions that were not in accordance with the requirements had the shape of the house floor in the form of soil and dusty cracked plaster. Research from Sari et al., (2018) stated that toddlers who had unqualified house floor conditions had a 3.4 times higher risk of developing pneumonia compared to toddlers who had conditional house floor conditions [16]. This is in line with the research of Akbar et al., (2021) who obtained the results that there is a relationship between the condition of the floor of the house and the incidence of pneumonia [12].

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The existence of house windows

Table 4. The existence of house windows

The Existence of Home Windows	Number of Patient Homes	Percentage
None	1	10
Exist	9	90
Sum	10	100

Based on the results of observations made on the existence of windows in the homes of toddlers with pneumonia in Pakusari District, Jember Regency, it is known that out of 10 houses that were observed, there were 1 (10%) of respondents' houses that did not have windows in the bedroom and family room and there were 9 (90%) that had windows in the bedroom and family room. The respondent's house did not have windows in the bedroom and living room, resulting in humidity and lighting in the house not in accordance with the requirements. The results of humidity and lighting measurements in homes where respondents who did not have windows in bedrooms and living rooms received measurement results of 75.7% for humidity and 6 Lux for lighting. The humid condition of the house and lack of lighting can result in the room being a good place for the development of pathogens that cause pneumonia [17]. Research from Samosir and Eustasia, (2019) stated that toddlers who have a bedroom with less lighting have a 6.3 times higher risk of developing pneumonia compared to toddlers who have a bedroom with adequate lighting [18]. Research from Samosir and Eustasia, (2019) also stated that toddlers who have a family room with less lighting are 12.8 times 59 times more likely to develop pneumonia compared to toddlers who have a family room with adequate lighting [18]. In addition, research from Izhar, (2021) states that toddlers who have a humid house room are 7.3 times more likely to develop pneumonia compared to toddlers who have a house room that is not humid [19].

Ventilation of the house

Table 5. House Ventilation Conditions

Home Ventilation	Number of Patient Homes	Percentage
None	0	0
Yes, permanent ventilation area <20% of floor area	9	90
Yes, permanent ventilation area ≥20% of floor area	1	10
Sum	10	100

Based on the results of observations made on the ventilation of the house of toddlers with pneumonia in Pakusari District, Jember Regency, it is known that out of 10 houses that were observed, there were 9 (90%) of the respondents' houses that had house ventilation with a permanent ventilation area. Based on the measurement results, it is known that the average ventilation area of the respondent's house that does not meet the requirements is 14 m2 with a house area of 95 m2. The ventilation area of the house that is ≥20% of the floor area of the house will result in a decrease in oxygen concentration and an increase in the concentration of carbon dioxide which is toxic for the occupants of the house [20]. In addition, a house that has ventilation that does not meet the requirements will result in the house becoming damp and lacking lighting. Humid and poorly lit house conditions can support pneumonia-causing bacteria to grow and develop properly [17]. This is in line with research conducted by Nilamsari and Putri, (2022) which obtained results that there is a relationship between house ventilation that does not meet the requirements and the incidence of pneumonia [21]. Research from Sa'diyah et al., (2022) stated that toddlers who live in houses with ventilation that do not meet the requirements are 6.9 times more likely to develop pneumonia than toddlers who live in houses with ventilation that meet the requirements [22].

Kitchen smoke pits

Table 6. Kitchen Smoke Pit Condition

Kitchen Smoke Pit Condition	Number of Patient Homes	Percentage
None	1	10
Yes, the area of the kitchen smoke pit <20% of the floor area	7	70
Yes, the area of the kitchen smoke pit ≥20% of the floor area	2	20
Sum	10	100

Based on the results of observations made on kitchen smoke pits in the homes of toddlers with pneumonia in Pakusari District, Jember Regency, it is known that of the 10 houses observed, there are 1 (10%) respondents' houses that do not have kitchen smoke pits and there are 7 (70%) respondents' houses that have kitchen smoke pits with kitchen smoke pits with an area of kitchen smoke pits Based on the measurement results, it is known that the average area of the kitchen hole of the respondents who do not meet the requirements has an average area of 1.4 m2 with a kitchen area of 8 m2. The area of kitchen smoke of an unqualified size will affect the air exchange or the length needed so that there is a risk of pneumonia. Research from Ayumi, (2020) stated that toddlers who live at home with unqualified kitchen smoke pit conditions are 2.9 times more likely to develop pneumonia compared to toddlers who live at home with unqualified kitchen smoke pit conditions [23].

Home lighting

Table 7. Home Lighting Conditions

Kitchen Smoke Pit Condition	Number of Patient Homes	Percentage
Home lighting <60 lux	10	100
Home lighting ≥60 lux	-	-
Sum	10	100

Based on the results of measurements carried out on the lighting of the house of toddlers with pneumonia in Pakusari District, Jember Regency, it is known that all respondent houses (100%) that were measured had home lighting. The lighting of the respondents' houses measured had an average lighting of 21.6 lux with an average house area of 10 m2. Research from Prajadiva and Ardillah, (2019) states that toddlers who have 60 lux home lighting [9]. This is in line with research conducted by Harnani and Yulviana, (2021) who obtained the results that there is a relationship between home lighting and the incidence of pneumonia [24]. Research from Sa'diyah et al., (2022) stated that toddlers who have houses with unqualified lighting are 9 times more likely to develop pneumonia compared to toddlers who have houses with qualified lighting [22]. This is because home lighting can affect the high and low temperature and humidity of the house room as a place for the growth and development of bacteria that cause pneumonia.

Home temperature

Table 8. Home Temperature Conditions

Home Temperature	Number of Patient Homes	Percentage
Home temperature over 30°C or less than 18°C	6	60
Home temperature around 18-30°C	4	40
Sum	10	100

Based on the results of measurements carried out on the home temperature of toddlers with pneumonia in Pakusari District, Jember Regency, it is known that of the 10 houses measured, there are 6 (60%) respondent houses that have a house temperature of more than 30°C or less than 18°C and there are 4 (40%) respondent houses that have a house temperature of around 18-30°C. The average temperature of the non-qualified respondents' homes was 31.5°C. The unqualified house temperature will be one of the risk factors for pneumonia. This is because the house temperature of more than 30°C supports the bacteria that cause pneumonia to grow and develop properly [25]. This can endanger the residents of the house, especially toddlers because the longer the toddler is indoors with good temperature conditions for the growth and development of the bacteria that cause pneumonia for a long period of time, the higher the chance of toddlers to develop pneumonia [26]. This is in line with research conducted by Prajadiva and Ardillah, (2019) which obtained the results that there is a relationship between house temperature and the incidence of pneumonia in toddlers [9]. Research from Agustyana et al., (2019) stated that toddlers who have a house with an

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unqualified house temperature are 3 times more likely to develop pneumonia compared to toddlers who have a house with a qualified house temperature [27].

Home humidity

Table 9. Home Humidity Conditions

Home Humidity	Number of Patient Homes	Percentage
Home humidity more than 60% or less than 40%	10	100
Home humidity is about 40-60%	0	0
Sum	10	100

Based on the results of measurements carried out on the humidity of the house of a toddler with pneumonia in Pakusari District, Jember Regency, it is known that all of the respondent's houses (100%) that were measured had a house humidity of more than 60%Rh or less than 40% Rh. All of the respondents' houses that were measured had a house humidity of more than 60% with an average of 73.4% Rh. The air humidity of the respondent's house that was more than 60% Rh could is one of the risk factors for pneumonia. This is in line with research conducted by Harnani and Yulviana, (2021) who obtained the results that there is a relationship between house humidity and the incidence of pneumonia [24]. Research from Sa'diyah et al., (2022) stated that toddlers who live in houses that have humidity levels that do not meet the requirements will be 4.5 times more likely to develop pneumonia compared to toddlers who live in houses that have humidity levels that meet the requirements [22]. The high humidity level of the respondents' houses was due to the lack of sunlight entering the respondents' houses. The lack of lighting is caused by the location of the respondent's house which is in a residential area that is close to houses and residents. In addition, the location of respondents' houses that are close to rivers and often exposed to floods can also be one of the factors causing respondents' houses to be damp.

Housing density

Table 10. Home Occupancy Density

Home Occupancy Density	Number of Patient Homes	Percentage
Dense <9m2/person	1	10
Not Dense ≥9m2/person	9	90
Sum	10	100

Based on the results of observations made on the residential density of houses for toddlers with pneumonia in Pakusari District, Jember Regency, it is known that out of 10 houses observed, there are 1 (10%) respondent's house that are densely populated and there are 9 (90%) respondents' houses that are not densely populated. Research from Indallah, (2022) states that houses that are not densely populated can reduce the risk of pneumonia by 3.5 times [28]. In addition, there is one of the respondents' houses that is densely populated. The respondent's house, which is densely populated, is inhabited by 9 people with a housing area of 72 m2. The density of housing from the respondents' homes can be one of the risks that cause pneumonia. Research from Indallah, (2022) states that toddlers living in densely populated houses are 3.5 times more likely to develop pneumonia compared to toddlers who do not live in densely populated houses [28]. This is in line with research conducted by Situmorang, (2020) which obtained results that there is a relationship between housing density and the incidence of pneumonia [29].

Physical condition of the house

Table 11. Physical Condition of the House

Respondent's identity		Observation Results	Information
Name	Address	(%)	
FZ	Pakusari Village	70	Good
RR	Pakusari Village	70	Good
FJ	Pakusari Village	65	Not Good
CL	Jatian Village	60	Not Good
ZR	Jatian Village	65	Not Good
VN	Jatian Village	75	Good
ICE	Subo Village	60	Not Good
AC	Sumberpinang Village	75	Good
KR	Kertosari Village	85	Good
AN	Kertosari Village	75	Good

Information:
1. >65%, the physical condition of the house is good
2. 34%-65%, the physical condition of the house is not good
3. <34%, the physical condition of the house is bad

Based on the results of the observation of the physical condition of the houses of toddlers with pneumonia in Pakusari District, Jember Regency, it is known that of the 10 respondent houses that were observed, there were 6 (60%) houses of toddlers with patients in Pakusari District, Jember Regency had good physical condition of the house and there were 4 (40%) houses of toddlers with patients in Pakusari District, Jember Regency had poor physical condition of the house. Based on the results of measurement and observation of the physical condition of the house, there were 4 respondent houses that had poor physical condition of the house, where most of the respondents' houses that had poor physical condition of the house had the condition of the ceiling, floor of the house, ventilation of the house, kitchen smoke pits, lighting, humidity, temperature, and density of occupancy that were not in accordance with the requirements of the existing physical condition of the house. Poor physical environment conditions of the house and not meeting the requirements of a healthy house can be a place for the growth and development of pneumonia agents [4]. This is in line with Mulyani's (2020) research where there is a strong relationship between the achievement of healthy homes and the incidence of pneumonia in Jember Regency [5].

The Existence of Staphylococcus aureus in the Home of Toddlers with Pneumonia

Table 12. Presence of Staphylococcus aureus

Presence of Staphylococcus aureus	Number of Patient Homes	Percentage
Exist	1	10
None	9	90
Sum	10	100

Based on the results of measuring the presence of Staphylococcus aureus in the house of a toddler with pneumonia in Pakusari District, Jember Regency, it is known that of the 10 respondent houses that were measured, there was 1 respondent house with Staphylococcus aureus bacteria in their house and as many as 9 respondent houses did not have Staphylococcus aureus bacteria in their houses. Staphylococcus aureus bacteria that were not found in respondents' homes were caused by sunlight entering the house so that Staphylococcus aureus bacteria died. According to Vindrahapsari (in Lestiyaningsih, 2020), exposure to sunlight containing ultraviolet rays can cause the growth rate of bacteria to stop because the bacteria will undergo irradiation and will result in bacteria dying [30]. This is in line with research conducted by Septiati and Pudjowati, (2018) obtained the result that ultraviolet light can effectively reduce Staphylococcus aureus bacteria [31].

The optimal temperature and humidity that do not support Staphylococcus aureus bacteria to grow and develop optimally in the homes of the respondents who were measured can be another factor in the absence of Staphylococcus aureus bacteria in the homes of the

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respondents who were measured. Staphylococcus aureus bacteria can grow and develop optimally at a temperature of 37 ºC and a humidity level of 85% [32].

Based on the results of temperature and humidity measurements in the house, the respondents obtained an average temperature of 30.13 ºC and an average house humidity level of 73.42%. This can be one of the factors for the absence of Staphylococcus aureus bacteria in the homes of respondents who were measured. In addition, the most common and most common pathogenic bacteria found in the homes of toddlers with pneumonia is Streptococcus pneumoniae bacteria can also be another factor in the absence of Staphylococcus aureus bacteria in the homes of respondents who were measured [25]. This is in line with research conducted by Erica Yola Pramana Putri et al., 2022 which obtained results that Streptococcus pneumoniae bacteria and influenza viruses are the most common pneumonia-causing microorganisms found with their indirect transmission patterns, namely through the air [33].

The relationship between the physical condition of the house and the presence of Staphylococcus aureus in the home of toddlers with pneumonia

Table 13. The Relationship between Home Physical Conditions and the Presence
of Staphylococcus aureus

Physical Condition of the House	Presence of Staphylococcus aureus					
	Exist		None		Total	
	N	%	N	%	N	%
House ceiling						
1. None	-	-	-	-	-	-
2. It is dirty, difficult to clean, less than 2.75 meters high, not waterproof, and prone to accidents	1	12,5	7	87,5	8	100
3. Yes, clean, more than 2.75 meters high, waterproof and not prone to accidents	-	-	2	100	2	100
House walls						
1. Not a wall (made of woven bamboo/thatch)	-	-	-	-	-	-
2. Semi-permanent/non-waterproof board/ half-wall	-	-	1	100	1	100
3. Permanent, waterproof/wall-proof board	1	11,1	8	88,9	9	100
House floor						
1. Soil	-	-	-	-	-	-
2. Bamboo boards/webbing close to the ground/ cracked and dusty stucco	1	20	4	80	5	100
3. Plaster/tile/ceramic/board (stilt house)	-	-	5	100	5	100
The existence of house windows						
1. None	-	-	1	100	1	100
2. Exist	1	12,5	8	87,5	9	100
Ventilation of the house						
1. None	-	-	-	-	-	-
2. Yes, permanent ventilation area <20% of floor area	1	11,1	8	88,9	9	100
3. Yes, permanent ventilation area ≥20% of floor area	-	-	1	100	1	100
Kitchen smoke pits						
1. None	-	-	1	100	1	100
2. Yes, the area of the kitchen smoke pit <20% of the floor area	1	14,2	6	85,8	7	100
3. Yes, the area of the kitchen smoke pit ≥20% of the floor area	-	-	2	100	2	100
Home lighting						
1. Home lighting <60 lux	1	10	9	90	10	100
2. Home lighting ≥60 lux	-	-	-	-	-	-
Home temperature						
1. House temperature over 30°C or less than 18°C	1	16,6	5	83,4	6	100
2. Home temperature around 18-30°C	-	-	4	100	4	100
Home humidity						
1. Home humidity more than 60%Rh or less than 40%Rh	1	10	9	90	10	100
2. Home humidity around 40-60% Rh	-	-	-	-	-	-
Housing density						
1. Dense <9m²/person	1	100	-	-	1	100
2. Not Dense ≥9m²/ person	-	-	9	100	9	100

Based on the results of observation of the physical condition of the house and the measurement of the presence of Staphylococcus aureus in the house of toddlers with pneumonia in Pakusari District, Jember Regency, it is known that there are 1 (10%)

respondent houses that contain Staphylococcus aureus bacteria and there are 9 (90%) respondent houses that do not contain Staphylococcus aureus bacteria. The respondent's house with Staphylococcus aureus bacteria had a ceiling and floor condition that did not meet the requirements. The condition of the ceiling and floor of the respondent's house that did not meet the requirements caused dust from the roof of the house and cracks in the floor of the respondent's house. Dust from the roofs and floors of the respondents' houses can be a medium for Staphylococcus aureus bacteria to grow and develop properly [34]. This is in line with research conducted by White et al., (2020) who obtained the result that dust can affect Staphylococcus aureus bacteria to grow and develop [35]. The condition of the ceiling of the respondent's house which has a height of less than 2.75 meters and the floor of the respondent's house which is not waterproof resulted in the condition of the respondent's house becoming damp.

The respondent's house also had a house humidity that did not meet the requirements. Based on the results of humidity measurements, it was known that the humidity of the respondents' house was 70.6% Rh. The humid house condition can also make Staphylococcus aureus bacteria live and develop [32]. This is in line with research conducted by Anggraini and Hamdani, (2020) who obtained the results that there is a relationship between air humidity and the presence of Staphylococcus aureus bacteria [36]. Research conducted by Rahmawati, (2018) stated that Staphylococcus aureus bacteria were found on non-waterproof floor conditions [37].

The condition of the respondent's house also has a house ventilation area and a kitchen smoke pit <20% of the floor area. This can make Staphylococcus aureus bacteria grow and develop. The area of house ventilation and kitchen smoke holes with an unqualified size will affect the air exchange or the length needed so that pathogenic bacteria can grow and develop [20]. The condition of the respondent's house, which has a ventilation area of <20% of the floor area of the house, resulted in the condition of the respondent's house containing Staphylococcus aureus bacteria becoming less natural lighting. Based on the results of lighting measurements, the respondent's house has lighting of 25 Lux.

Lighting of respondents' homes that do not meet these requirements can result in Staphylococcus aureus bacteria being able to grow and develop. This is because poor house lighting can cause the house room to become damp [20]. In addition, the condition of the respondent's house where there is Staphylococcus aureus bacteria in his house has a densely populated house condition. This can also be one of the factors causing the presence of Staphylococcus aureus bacteria in the respondent's house. This is because the more residents of the house are in the room of the house, it will result in an increase in the level of air humidity in the house due to sweat and moisture that comes out when the residents of the house breathe [38].

CONCLUSIONS AND RECOMMENDATIONS

The physical condition of the house of toddlers with pneumonia in Pakusari District, Jember Regency, 60% have good house physical condition and 40% have poor house physical condition. Most of the homes of toddlers with pneumonia in Pakusari District, Jember Regency were not found Staphylococcus aureus bacteria in the house and only 10% of the respondents' houses had Staphylococcus aureus bacteria in the house. The house of a toddler with pneumonia in Pakusari District, Jember Regency where Staphylococcus aureus bacteria is present has a physical condition of the house with the ceiling, floor of the house, house ventilation, kitchen smoke pit, lighting, temperature, humidity, and occupancy density that are not in accordance with the requirements. The suggestion that can be given is that the Pakusari Health Center can make efforts to promote health and optimize sanitation clinics. The Jember Regency Health Office can design programs to increase the number of healthy

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houses such as plastering programs and the provision of glass tiles. People must clean their houses often and have enough lighting in the house.

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