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Assesment of Healthy Housing Sanitation in Bengkuring Residence Area, North Sempaja Sub-Dictrict, Samarinda City

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Abstrak

Kondisi rumah yang bersih dan memenuhi syarat kesehatan dapat mengurangi risiko penyakit berbasis lingkungan. Kriteria rumah sehat, diperlukan ketercapaian pencahayaan, ventilasi, air bersih, dan sarana sanitasi yang memadai. Penelitian ini bertujuan untuk mengevaluasi kondisi sanitasi perumahan dan pemukiman serta melakukan inspeksi terhadap kriteria rumah sehat pada perumahan di area Bengkuring. Metode penelitian ini merupakan studi deskriptif, dengan menggunakan teknik observasi dan wawancara secara langsung, Adapun sampel penelitian adalah 30 KK dengan purposive sampling. Hasil penelitian menunjukkan bahwa dari 30 rumah yang diperiksa, 47% dikategorikan sebagai tidak sehat. Faktor-faktor penyebab melibatkan lokasi rumah di atas rawa, keberadaan bangsalan, bahan bangunan yang tidak ideal, dan kepemilikan rumah oleh individu yang sudah tidak produktif. Perlunya perhatian lebih lanjut terkait pencahayaan, pembuangan air limbah, akses udara, dan cahaya di dalam rumah. Selain itu, pentingnya peningkatan pemahaman dan kesadaran masyarakat dalam menciptakan hunian yang memenuhi standar kesehatan.

Abstract

The condition of a clean home that meets health standards can reduce the risk of environmentally-based diseases. Healthy home criteria require the achievement of proper lighting, ventilation, clean water, and adequate sanitation facilities. This study aims to evaluate the sanitation conditions of housing and settlements and conduct an inspection of healthy home criteria in housing areas in Bengkuring. This research method is descriptive, using direct observation and interviews. The research sample consists of 30 households selected through purposive sampling. The results show that of the 30 homes inspected, 47% were categorized as unhealthy. Contributing factors include the location of the homes on swampland, the presence of waste dumps, the use of non-ideal building materials, and homeownership by individuals who are no longer productive. There is a need for more attention to lighting, wastewater disposal, air circulation, and natural light inside the house. Additionally, increasing public understanding and awareness is crucial to creating housing that meets health standards.

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INTRODUCTION

A house is a basic human need that functions as a place of residence, providing shelter from climate change and other living creatures, as well as serving as a space for the development of family life (Dwiyan Delyuzir, 2020). A house as a place of residence must meet the criteria of comfort, safety, and health to support its inhabitants in living a comfortable and productive life. Homes can be classified into healthy homes and unhealthy homes (Diandra et al., 2020). According to the World Health Organization (WHO), housing refers to a physical structure used as a place of residence, supported by the surrounding environment, region, services, and facilities essential for physical and mental health. Optimal health can be achieved by creating healthy and habitable homes. The definition of a habitable home is based on four main categories: 1) provision of clean drinking water, 2) sufficient building area (at least 7.2 m^2 of living space per person), 3) the durability of the building (sustainable housing), and 4) access to proper sanitation (Environment, Climate Change and Health, 2018).

House cleanliness is one of the key aspects of public health issues. The frequency of diseases remains high, particularly waterborne diseases. This indicates that there are still ongoing problems in the environment (Ahyanti, 2020). A house that is kept clean and meets health standards helps minimize the occurrence of environment-related diseases. Some diseases caused by unhealthy home environments include tuberculosis (TB), dengue fever, influenza, diarrhea, polio, and skin diseases (Sukesi et al., 2020).

Good housing conditions can prevent diseases, improve quality of life, reduce poverty, and help mitigate climate change. Housing is becoming increasingly important for health, given urban growth, an aging population, and climate change. Healthy housing must meet standards for sanitation, lighting, and protection from hazards such as injuries, mold, and pests to support physical, mental, and social well-being. Local community factors and the surrounding environment also influence the health of homes, including access to services, green spaces, transportation options, and protection from waste, pollution, and natural disasters (Environment, Climate Change and Health, 2018)

A study conducted in the Medan Belawan sub-district showed that poor sanitation can impact public health, leading to diseases such as diarrhea and skin conditions like scabies. In this study, the community lacked proper sanitation facilities, such as healthy latrines, and instead built toilets/WCs near the riverbank and used river water for other needs. The lack of knowledge and insufficient socialization regarding sanitation and cleanliness were identified as factors contributing to the poor hygiene behavior of the residents in the area (Susilawati, 2023).

Samarinda is a city located along the river with a flat lowland topography. The Mahakam River is the main river that divides the city of Samarinda. According to the 2019 Samarinda Slum Area Layout Plan by the Samarinda Housing and Settlement Service, as the capital of East Kalimantan Province, Samarinda faces social problems due to urbanization and uncontrolled population growth. The demand for sufficient residential space cannot keep up with the growth of the area, leading to the

emergence of illegal settlements along the riverbanks and residential buildings that do not consider spatial function compatibility and technical feasibility (Samarinda et al., 2019). Based on data from the East Kalimantan Health Service, the number of households with access to proper sanitation (healthy latrines) in 2021 was 889,230 households. In 2022, this number decreased to 455,840 households, and in 2023, the number increased to 618,882 households. The percentage of villages in East Kalimantan implementing Community-Based Total Sanitation (STBM) in 2021 was 83.6%. However, in 2022, this percentage dropped to 35.1%, and by 2023, only 0.8% of the population was implementing STBM (Kesehatan, 2023).

Therefore, to evaluate the sanitation conditions of housing and settlements in the city of Samarinda, direct inspections are necessary to assess the criteria of healthy homes in the area.

METHOD

This study uses a descriptive observational method that involves direct observation and interaction with the community through interviews. Data collection was conducted in November 2023, located at Neighborhood Unit No. 37, Bengkuring Housing, Bengkuring Raya Street, North Sempaja Village, North Samarinda District, Samarinda City, East Kalimantan Province. The population sampled consisted of 30 representative households from all the houses in Neighborhood Unit No. 37, Bengkuring Housing.

The research design is observational, observing the real situation of Bengkuring Housing without any interventions. The sampling technique used was purposive sampling from Terong Street, Neighborhood Unit No. 37, Bengkuring Housing. The data sources used were primary data obtained through techniques such as observation, questionnaires, interviews, and documentation. The instruments used during data collection were questionnaires, mobile phone cameras, and writing tools.

The sampling process began with the use of a questionnaire. The questionnaire contained questions designed regarding healthy homes based on the technical guidelines for healthy home assessments (Indonesian Ministry of Health, 2002), which include aspects to be observed and directly asked to the informants. The data obtained will then go through the Data Analysis process. Data analysis includes coding and tabulation. Each questionnaire sheet is assigned a sequential code to facilitate data input. Before inputting the data, each household is assigned a score using the Professional Adjustment method with a range according to the SSDI form, represented in the following weighting :

1. House Component (25/80 x 100%) : 31
2. Sanitation Facility (20/80 x 100%) : 25
3. Behaviour (35/80 x 100%): 44

Additionally, each item has a score range of 0 to 3, depending on the specific question item. Based on these guidelines, the final scoring result is obtained by multiplying the item score by the corresponding weight. The calculated scores are then tabulated into a table. Subsequently, each household will be categorized as follows :

(a) Healthy House ≥ 1068
(b) Unhealthy House < 1068

The output will be a descriptive table showing the number of households categorized as healthy houses and unhealthy houses. The research results will

also provide descriptive information regarding the physical condition of the houses and the behaviors of the inhabitants related to maintaining a healthy home.

RESULT AND DISCUSSION

Based on the results of the study conducted in RT 37 Bengkuring Housing, several conditions are outlined in Table 1 and Table 2. Table 1 shows that 33.3% of the houses sampled in the study do not have ceilings (plafonds). Even when ceilings are present, they are dirty, difficult to clean, and pose a potential safety hazard. This condition means that the house's ceiling component does not meet the requirements. Additionally, 20% of the houses have walls that are not made of brick, 23% lack ceramic flooring, 3% of the bedrooms do not have windows, and 7% of the houses lack windows in the living room. Regarding ventilation, a significant portion (43%) of the houses have a ventilation area of less than 10% of the floor area, which does not meet the healthy housing ventilation standards. This issue is also evident in the lack of proper exhaust vents in the kitchen area, where 53% of the houses do not have exhaust vents that meet the required proportion to floor area. In terms of lighting, 67% of the houses have inadequate lighting, which hinders daily activities, especially those requiring precision and detail.

Table 1. Results of Healthy House Inspection in Bengkuring Housing, North Sempaja, Samarinda City, 2023

A	House Component	Frequency (n)	Percentage (%)
1	Ceiling Condition		
	Does Not Meet Requirements	10	33.3
	Meets Requirements	20	66.7
2	Wall Condition		
	Not a wall (made of bamboo matting/grass)	6	20
	Semi-permanent/half wall/unplastered brick or stone walls/wood that is not water-resistant	3	10
	Permanent (wall/plastered brick or stone) water-resistant wood	21	70
3	Floor Condition		
	Soil	0	0
	Wood/Bamboo matting near the soil/plastering that is cracked and dusty	7	23.3
	Plastered/tiles/ceramics/wooden (stilt house)	23	76.7
4	Bedroom Window		
	None	1	3.33
	Yes	29	96.67
5	Living Room Window		
	None	2	6.67
	Yes	28	93.3
6	Condition of Ventilation		
	None	1	3.33
	Yes, ventilation hole < 10% of the floor area	13	43.4
	Yes, ventilation hole > 10% of the floor area	16	53.3
7	Condition of Kitchen Ventilation Hole		
	None	2	6.67
	Yes, ventilation hole < 10% of the kitchen floor area	16	53.3
	Yes, ventilation hole > 10% of the kitchen floor area	12	40
8	Lighting Condition		
	Not bright, cannot be used for reading	0	0
	Dim, making it difficult to read normally	20	66.7
	Bright and not glaring, suitable for normal reading	10	33.3
	Total	30	100.00%

B	Sanitation Facility	Frequency (n)	Percentage (%)
1	Clean water facility		
	None	0	0
	Available, not owned personally and does not meet health standards	0	0
	Available, personally owned but does not meet health standards	0	0
	Available, not personally owned but meets health standards	30	100
2	Toilet (feces disposal facility)		
	None	0	0
	There is one, not a goose neck, no lid, directed to the river/pond	0	0
	There is one, not a goose neck, with a lid (goose neck), directed to the river/pond	0	0
	There is one, not a goose neck, with a lid, septic tank	0	0
	There is one, goose neck, septic tank	30	100
3	Wastewater disposal facility		
	None, causing irregular pooling in the yard	0	0
	There is one, absorbed but pollutes water sources (distance to water source <10m)	0	0
	There is one, directed to an open drainage ditch	25	83.3
	There is one, absorbed but pollutes water sources (distance to water source >10m)	0	0
	There is one, channeled to a closed drain (city sewer) for further treatment	5	16.7
4	Waste disposal facility (trash bin)		
	None	0	0
	There is one, but it is not waterproof & not covered	0	0
	There is one, waterproof & not covered	0	0
	There is one, waterproof & covered	30	100
	Total	30	100.00%

C	Occupant Behavior	Frequency (n)	Percentage (%)
1	Opening the bedroom window		
	Never	3	10
	Rarely	12	40
	Everyday	15	50
2	Opening the living room window		
	Never	5	16.6
	Rarely	11	36.7
	Everyday	14	46.7
3	Cleaning the house and yard		
	Never	0	0
	Rarely	4	13.3
	Everyday	26	86.7
4	Disposing of infant and toddler feces into the toilet		
	Disposed into the river/garden/pond/irregularly	6	20
	Sometimes into the toilet	0	0
	Disposed into the toilet every day	24	80
5	Disposing of trash in a trash bin		
	Disposed into the river/garden/pond/irregularly	2	6.7
	Sometimes in a trash bin	3	10
	Disposed in a trash bin every day	25	83.3
	Total	30	100.00%

All respondent houses (100%) have their own clean water supply and meet health standards. Similarly, the ownership of toilets that meet the requirements (with appropriate sanitary tanks and septic systems) is also ensured. However, the waste disposal systems remain problematic, with 83% of households still disposing of wastewater into open drains. As for the residents' behavior, 20% of the community members still dispose of feces into rivers or

inappropriately. Additionally, 7% of households have improper waste management habits. Table 1 concludes that several houses still do not meet the healthy housing criteria. This is consistent with the concept of a simple yet habitable healthy house, which includes proper layout and building design, provision of clean and safe drinking water for daily use, availability of sanitation facilities, roofs that are leak-proof, floors that are waterproof and easy to clean, well-ventilated rooms, and sufficient natural lighting (Ratnasari et al., 2019).

Tabel 2. Healthy Home Inspection Results Category for Bengkuring Housing, North Sempaja, Samarinda City in 2023

Indicator	n	%
Healthy House	16	53.0
Unhealthy House	14	47.0
Total	**30**	**100%**

Based on Table 2, the results of the observation and interview examination regarding household plumbing/PDAM facilities with risky and non-risky categories show that out of 30 households, 9 households are at risk of contamination, which is equivalent to (30%). Meanwhile, for households that are not at risk of contamination, there are 21 households, which accounts for (70%). According to the Decree of the Minister of Health of the Republic of Indonesia Number 829/MENKES/SK/VII/1999 concerning Housing Health Requirements and Technical Guidelines for Healthy House Assessment, Directorate General of PPM & PL Depkes RI, 2002, a healthy house must meet several requirements, including fulfilling physiological needs (adequate lighting, humidity, noise control, etc.), meeting the psychological needs of the house occupants (adequate private space for privacy), preventing the transmission of diseases, and preventing accidents (such as houses that are not prone to leaks, not easily flammable, etc.) (Goenadi, 2022).

In line with the findings, when viewed from the aspects of house components, there are still several houses built on swamps, and there are still issues with damaged structures in RT 37. Additionally, some houses are made of wood, and there are houses that have been standing for a long time, with occupants who have reached non-productive ages, meaning there is no workforce available to repair wall cracks or renovate the house. Some households have been led by elderly women, which further reduces the possibility of house renovations. Non-productive age refers to the non-productive members of society, who are often influenced by low education, leading to limited or insufficient knowledge, limited capital for business, and an inability to carry out certain activities (Irawati et al., 2023).

Some houses still lack ceilings, with only wooden frames and zinc roofs. There are houses with wooden walls or walls that have already cracked. Some households rarely open their bedroom windows, and several residents still do not have windows or proper ventilation in their kitchen areas. Some houses rely more on artificial lighting because the natural light openings are limited, only depending on the door for light. According to Rissa Damayanti (2018), lighting is often used as a parameter for assessing the environmental conditions of a room. Natural lighting can be achieved, provided that the light openings in the room are effective, around 2 meters from the floor surface (windows or light openings), and there are no tall plants or trees nearby that could block the entry of light into the room (Damayanti & Utomo, 2018). In addition to being a source of airflow, windows or

ventilation openings function as a means of exchanging the air inside the room with the air from outside naturally, without the need for assistance from devices such as fans or other electronic equipment (Nugraha, 2019). Lighting and air circulation are important factors in reducing humidity inside a room. High humidity levels in a room, whether caused by insufficient light, poor air quality, or non-standard flooring, can lead to an increase in indoor air moisture due to the evaporation of liquids. This creates an environment where disease-causing bacteria can thrive, which may contribute to the development of illnesses such as Acute Respiratory Infections (ISPA) among the residents (Medhyna, 2019). Therefore, ventilation/windows, room layout, and lighting must be properly designed to maintain optimal humidity levels in the room.

In addition to the condition of the house related to ceilings and lighting, basic sanitation is also an important factor that affects the health of the house's occupants. In Indonesia, basic sanitation has not been fully implemented by the community and homeowners. (Celesta & Fitriyah, 2019). One of the findings in this study is that in terms of sanitation facilities, most household wastewater is directly discharged into open drainage channels near each house. In areas located in swamps, some households also discharge wastewater directly into the swamp. Wastewater is defined as the waste generated from household and community activities, including household waste, which requires a specific management system that meets the standards for wastewater management. In general, the common issue is environmental sanitation problems, particularly concerning the management system of domestic waste (Gobel et al., 2015). In a study conducted by Aolina (2020), it was stated that there is a significant relationship between the management of SPAL (Domestic Wastewater Treatment System) and the incidence of diarrhea, due to non-compliance with the required standards. Wastewater from households, industries, and public places contains harmful substances that can impact health and damage the environment. Domestic wastewater disposal systems (SPAL) that do not meet the required standards can become a high-risk area for the proliferation of diseases, emit unpleasant odors, disrupt aesthetics, and serve as breeding grounds for disease vectors (such as mosquitoes and rats), thus leading to various health issues (Aolina et al., 2020).

From the results above, it was also found that some household occupants dispose of used baby feces improperly, without first placing the waste in a toilet. Improperly disposed feces, such as in trash bins, rivers, and other places, can lead to contamination or affect the natural substances present in water and soil. Feces that are not properly and correctly disposed of can cause infectious diseases, one of which is diarrhea, which can disrupt the absorption of nutrients during digestion. In addition to being a source of disease, feces can also contaminate food, beverages, and insects (such as cockroaches and flies) that can spread other diseases like typhoid, dysentery, and cholera. Therefore, to prevent contamination of feces in the environment, each household should have a proper toilet for waste disposal, and residents must be educated about the proper and sanitary disposal of baby feces (Anisah, 2020).

Regarding waste disposal behavior, in RT 37, regular waste collection has been

implemented. However, some residents take the initiative to dispose of their own trash directly at the waste disposal site (TPS) to avoid the unpleasant odor from the waste. Waste can have negative impacts on both the community and the environment, such as health issues, serving as breeding grounds for disease vectors, increasing the incidence of diseases like dengue (DBD) due to vectors, causing accidents due to sharp objects mixed in the trash, and potentially leading to indirect health problems for nearby individuals (psychosomatic effects). Environmental impacts include damaging aesthetics, causing unpleasant odors, polluting the environment, contributing to flooding due to waste accumulation, and other related consequences (Ikhsan & Tonra, 2021). The issue of waste should not be viewed merely as a common environmental pollution problem. The ongoing waste problem in Indonesia is also a challenge that affects all sectors (Yulia, 2021).

CONCLUSION

This study shows that a majority of houses in Neighborhood Unit No. 37 Bengkuring Housing, North Sempaja, Samarinda City, do not meet the healthy housing standards according to the established criteria. Out of the 30 houses studied, only 16 were categorized as healthy homes. Several issues were found, including poor lighting, the disposal of wastewater into open drains, and insufficient air circulation and natural light inside the houses (due to the habit of not opening windows). The factors contributing to these conditions include the lack of enforcement of healthy housing policies prior to the development of housing areas, the limited active role of the community in addressing healthy housing aspects, and the lack of socialization activities on healthy housing practices.

To address these problems, efforts that can be made include improving the infrastructure of wastewater sanitation and conducting regular educational programs to raise awareness and promote active community participation. To create a housing environment that meets healthy housing criteria, active participation from the community and local government (village head, sub-district head, and their teams) is needed as infrastructure providers and policymakers. Environmental, infrastructure, and public health aspects should be prioritized in efforts to achieve the goal of creating areas that meet healthy housing standards..

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