

RESEARCH ARTICLE

# Description of latrine sanitation conditions and pollution risk factors in Fatukona Village, Takari District, Kupang Regency

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## Abstract

Conclusion Cubluk latrines 115 KK, plengsengan 5 KK, and gooseneck 30 KK don't meet health requirements. The conditions in Fatukona Village are all related to one main problem that until now has not been resolved, namely the problem of rural sanitation. The formulation of the problem in this study is How to Describe the Sanitary Conditions of Latrines and Risk Factors for Pollution in Fatukona Village, Takari District. The purpose of the study was to determine the sanitary condition of latrines and pollution risk factors in Fatukona Village, Takari District. The research method used is simple random sampling. The results showed that the condition of the latrine building in the cubluk latrine 84 KK plengsengan 1 KK did not meet the health requirements. The sanitary condition of the cubluk latrine floor is 115 households, 5 families and 25 families of gooseneck latrines don't meet health requirements. The availability of infrastructure facilities in latrines at 115 families' cubluk latrines, 4 families of plengsengan, and 29 families of gooseneck latrines don't meet health requirements. Sanitation of fecal drain holes in cubluk latrines 107 families plengsengan 4 families don't meet health requirements. Risk factors for high pollution in cubluk latrines 64 households, plengsengan 5 families, and Gooseneck 11 families. Conclusion Cubluk latrines 115 KK, plengsengan 5 KK, and gooseneck 30 KK do not meet health requirements.

**Keywords:** Sanitary, Latrines, Pollution

## INTRODUCTION

Sanitation is a surveillance effort aimed at environmental factors that can be a link in the chain of disease transmission (Chandra, 2007). The term sanitation also refers to the maintenance of hygiene conditions through efforts to provide facilities and services for the disposal of human waste such as urine and feces. Sanitation is related to environmental health that affects the degree of public health. Poor sanitation conditions will have a negative impact on many aspects of life, ranging from the decline in the quality of the community's environment, increasing number of diarrhea events, polluted drinking water sources for the community and emergence of several diseases (Sinaga, 2020).

Latrine sanitation is an important element in environmental sanitation, considering the quantity and characteristics of feces produced by humans, it is necessary to have disposal techniques that meet sanitary requirements so as not to cause odor, comfort, or health problems for humans (Dunggio, 2012). Latrine sanitation is influenced by the condition of the latrine house building, the condition of the latrine floor, the availability of infrastructure facilities such as clean water, soap, and hygiene equipment, the condition of the fecal drain hole and the distance between the septic tank and the clean water source (Arnita, 2011).

Based on the 2020 health profile (Ma'ruf, 2020), the percentage shows that families who have access to proper sanitation (healthy latrines) in East Nusa Tenggara are 87%, while the percentage of households that have access to proper sanitation in East Nusa Tenggara is among the provinces that have the third lowest access with a percentage of 69.7% after Papua 40.31% and West Sumatra 68.11%. The percentage of households with access to decent sanitation by regional type in 2018-2020 increased to 4.95%. When viewed according to the type of area, the percentage in urban areas tends to be higher than in rural areas. Proper sanitation in urban areas in 2018 was 80.48%, in 2019 82.27%, and in 2020 83.66%. While in rural areas in 2018 there were 67.44%, in 2019 71.17%, and year 2020 74.27%. During this period, the percentage for rural and urban areas increased, namely urban areas by 3.18% and rural areas by 6.83%. Fatukona Village is included in one of the working areas of the Takari health center. The residents of Fatukona Village are a group of people who live in remote areas whose settlements are far from the urban center. The conditions found in Fatukona Village, Takari District, are all related to one main problem that until now has not been resolved, namely the problem of rural sanitation (Taneo, 2019).

Based on data obtained from the Fatukona Village office, Takari District, in April 2022, there was a population of 1768 people with a total of 421 households. Data shows that the number of latrines owned reached 378 families (89.78%) while those without latrines were 43 families (10.21%). Residents who use gooseneck latrines reach 11 families (2.61%), while residents who use cubluk latrines reach 287 families (68.17%). Based on the data above, a research problem can be formulated, namely Overview of Latrine Sanitation Conditions and Risk Factors for Pollution in Fatukona Village, Takari District, Kabuperan, Kupang. The purpose of the study was to determine the description of latrine sanitation conditions and pollution risk factors in Fatukona Village, Takari District, Kupang Regency (Taneo, 2019).

A latrine is a room that has a human waste disposal facility consisting of a squat or seating area with a gooseneck equipped with a feces and a water storage unit to clean it. Healthy latrines are effective faecal disposal facilities to stop disease transmission (kementerian kesehatan RI, 2012). Sanitation is one of the measures intended for health maintenance and disease prevention in the physical, social, economic, and cultural environment, and so on (Notoatmodjo, 2010). The requirements for a healthy latrine according to Permenkes RI No. 3 of 2014 (Kemenkes, 2014) are, The upper building of the latrine (wall and roof), serves to protect users from weather and other disturbances and the middle building of the latrine which has two parts, namely the sanitary sinkhole (feces and urine) is equipped with gooseneck construction. In simple construction (semi-sanitary), holes can be made without gooseneck construction, but they must be closed (Entjang, 2000). The latrine floor is made of waterproof material, is not slippery and has a channel for the discharge of used water into the wastewater disposal system (Asiah, 2019).

The building under the latrine is a shelter for processing and decomposing feces / feces that functions to prevent pollution or contamination from feces through disease-carrying vectors either directly or indirectly (Azwar, 1980). There are two types of buildings under latrines, namely septic tanks that function as shelters for human waste (feces and urine) (Novitry and Agustin, 2017). The solid part of human waste will be left in the septic tank, while the liquid part will come out of the septic tank and be absorbed through the field or infiltration well. If it is not possible to carry out infiltration, a filter is created to administer the liquid. A septic tank is a watertight tub that functions

as a reservoir for human waste (feces and urine) (Soedjono and Rohmani, 2016). The solid part of human waste will be left in the septic tank, while the liquid part will come out of the septic tank and be absorbed through the field or infiltration well. If it is not possible to infiltrate, filters are made to manage liquids and cubluks that function to accommodate solid and liquid waste from latrines that enter every day and will absorb wastewater into the soil by not polluting groundwater, while the solid part of the waste will biodegrade (Bitu, 2019).

According to Permenkes RI No. 3 of 2014 (Permenkes, 2014), the standard requirements for latrines are:

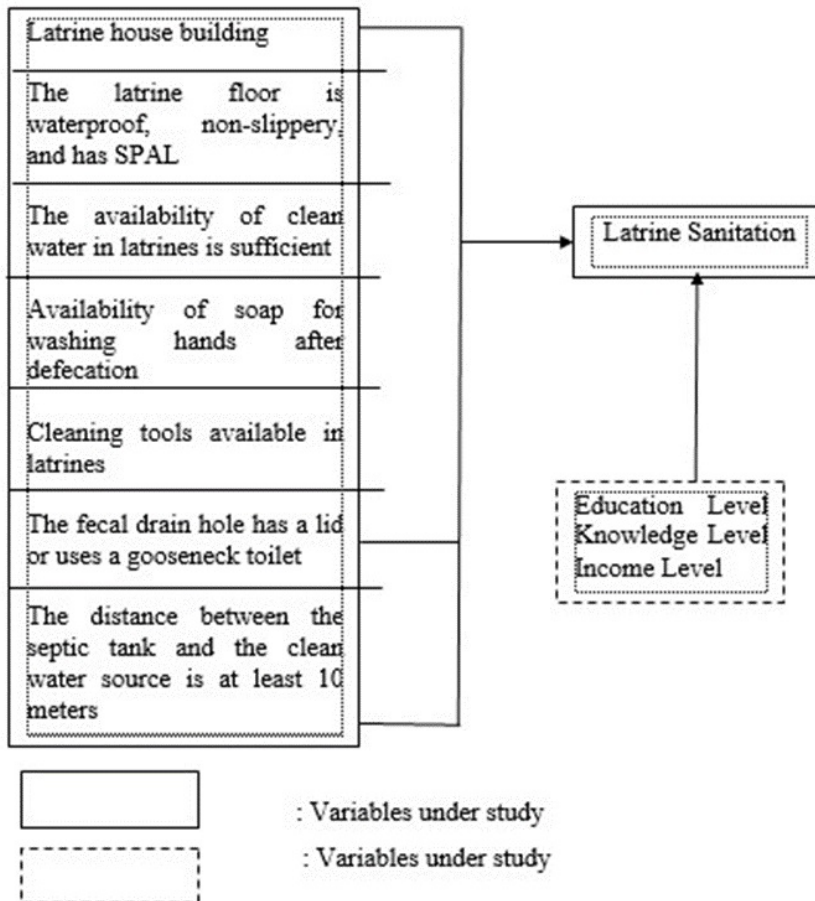


Figure 1. Standard for latrines

## MATERIALS AND METHODS

The type of research used to analyze research is a survey using a descriptive quantitative design. The population in this study is all houses that have latrines in Fatukona Village, Takari District, Kupang Regency totaling 378 households. Samples were taken using the calculation of the Lames Show Formula (1990) by requiring an error rate of 10% to obtain a sample of 158 households. The data collection techniques used were questionnaires, interviews, and observations. Data analysis techniques used in this study are coding, data editing, data entry, and data cleaning. Data analysis used descriptive analysis.

## RESULTS AND DISCUSSION

### Results

**Table 1.** Types of latrines

Number	Types of Latrines	Sum	%
1	Cubluk	115	73
2	Plengsengan	5	3
3	Gooseneck	38	24
	Total	158	100

Table 1 shows that the highest number of respondents in the type of cubluk latrine was 115 families (73%), gooseneck 38 families (24%), and plengsengan as many as 5 families (3%).

**Table 2.** Sanitary conditions of latrine house buildings

Number	Sanitation of Latrine House Building	Cubluk		Plengsengan		Gooseneck	
		Sum	%	Sum	%	Sum	%
1	Health Requirements	31	27	4	80	38	100
2	Not Eligible for Health	84	73	1	20	0	0
	Total	115	100	5	100	38	100

Table 2 shows that the sanitation of latrine houses that meet health requirements in cubluk latrines is 31 households (27%), those that do not meet health requirements are 84 families (73%) and plengsengan latrines that meet health requirements are 4 families (80%) and those that do not meet health requirements are 1 family (20%) while for gooseneck latrines from 38 households 100% meet health requirements.

**Table 3.** Sanitary condition of latrine floors

Number	Latrine Floor Sanitation	Cubluk		Plengsengan		Gooseneck	
		Sum	%	Sum	%	Sum	%
1	Health Requirements	0	0	0	0	13	43
2	Not Eligible for Health	115	100	5	100	25	66
	Total	115	100	5	100	30	100

Table 3 shows that the sanitation of latrine floors that do not meet health requirements in cubluk latrines is 115 households, plengsengan is 5 families while gooseneck latrines that meet health requirements are 13 families (43%) and those that do not meet health requirements are 25 families (66%).

**Table 4.** Availability of infrastructure facilities

No	Availability of Infrastructure Facilities in Latrines	Cubluk		Plengsengan		Gooseneck	
		Sum	%	Sum	%	Sum	%
1	Health Eligibility	0	0	1	20	9	24
2	Not Eligible for health	115	100	4	80	29	76
	Total	115	100	5	100	38	100

Table 4 shows that the availability of infrastructure facilities for cubluk latrines that do not meet health requirements is 115 families (100%) and plengsengan latrines that meet health requirements as many as 1 families (20%), and for those that do not meet health requirements as many as 4 families (80%) while gooseneck latrines that meet health requirements are 9 families (24%) and those that do not meet health requirements are 29 families (76%).

**Table 5.** Sinkhole sanitation

No	Sinkhole Sanitation	Cubluk		Plengsengan		Gooseneck	
		Sum	%	Sum	%	Sum	%
1	Health Requirements	8	7%	1	20	38	100
2	Not Eligible for Health	107	93%	4	80	0	0
	Total	115	100	5	100	38	100

Table 5 shows that fecal drain holes in cubluk latrines that meet health requirements are 8 families (7%), those that do not meet health requirements are 107 families (93%), and plengsengan latrines that meet health requirements are 1 family (20%) and those that do not meet health requirements are 4 families (80%).

**Table 6.** Septic tank distance to clean water source

No	The Distance Between Clean Water Sources and Septic Tanks	Cubluk		Plengsengan		Gooseneck	
		Sum	%	Sum	%	Sum	%
1	Health Requirements	115	100	5	100	38	100
2	Not Eligible for Health	0	0	0	0	0	0
	Total	115	100	5	100	38	100

Table 6 shows that from a total sample of 158 households (100%), the septic tank distance is far from the clean water source.

**Table 7.** Sanitary conditions of latrines

No	Latrine Sanitation	Cubluk		Plengsengan		Gooseneck	
		Sum	%	Sum	%	Sum	%
1	Health Requirements	0	0	0	0	8	21
2	Not Eligible for Health	115	100	5	100	30	79
	Total	115	100	5	100	38	100

Table 7 shows that the unqualified cubluk latrines were 115 households, 5 families, 8 qualified gooseneck latrines (21%), and the unqualified 30 families (79%).

**Table 8.** Risk Factors for Pollution

No	Risk Factors for Pollution	Cubluk		Plengsengan		Gooseneck	
		Sum	%	Sum	%	Sum	%
1	Tall	64	56	5	100	11	29
2	Keep	44	38	0	0	20	53
3	Low	7	6	0	0	7	18
	Total	115	100	5	100	38	100

Table 8 shows that cubluk latrines with high pollution risk factors with as many as 64 families (56%), medium pollution risk factors with as many as 44 families (38%), and low pollution risk factors as many as 7 families (6%), while gooseneck latrines high pollution risk factors as many as 11 families (29%), medium pollution risk factors as many as 20 families (53%) and low pollution risk factors as many as 7 families (8%) and for plengsengan latrines the risk factors for pollution are higher as many as 5 families (100%).

**Discussion**

The results showed that of the 115 households that used cubluk latrines, there were 31 households (27%) that met health requirements and 84 families (73%) did not meet health requirements. The types of cubluk latrine walls used by the people of Fatukona Village are 95 families using babu, 2 families using zinc, 12 families using coconut leaves, and 6 families not having latrine walls while the

condition of the roof of the latrine houses 2 families using zinc 23 families using bay leaves, 12 families using coconut leaves and 78 families not having a roof. Based on the results of interviews with 6 families whose latrines do not have walls and roofs, this is because the latrine walls are weathered and eaten by termites (M. Kafoermatten, 1980), this is also caused by people being too busy working in the fields so that the condition of the latrines is not considered (Herawati, 2018). The condition of the plengsengan latrine 4 families (80%) meet health requirements and 1 family (20%) does not meet health requirements. The type of plengsengan latrine wall used by the people of Fatukona Village 4 KK uses a wall and 1 family uses bamboo while the type of roof used by 4 KK uses zinc and 1 KK does not have a roof (Maryunani, 2013).

The results of Ghali Ghali Ma'ruf's research in Nagari Sungai Buluan Selatan, Padang Pariaman Regency in 2020 concerning the Overview of Types and Conditions of Community Latrines from 45 samples of latrines equipped with walls as much as 86.7% and latrines with protective roofs as much as 48.9%. This is caused by low economic conditions (Maruf, 2022).

The results showed that the sanitation of the latrine floor in the cubluk latrine of 115 households did not meet health requirements. This is because cubluk latrines are made of digging holes and then arranging wood or bamboo on top of the hole as a place to stand (Nurmalawati et al., 2013). The condition of the cubluk latrine floor of the people of Fatukona Village is 91 KK uses wood and 24 KK uses bamboo. The sanitation of the 5 family plengsengan latrine floor does not meet health requirements. This is because 4 households use watertight latrine floors but do not have wastewater disposal channels, while 1 family uses plengsengan latrines that are not made of rough cement, the community only makes fecal drainage holes using cement connections and pipes to the fecal storage holes (Lemeshow, 1990). Gooseneck latrines 13 households (43%) meet health requirements and 25 families (66%) do not meet health requirements. This is because 6 households use latrine floors that are not watertight and slippery, and 19 households do not have wastewater sewerage (Purnama and Subrata, 2019).

The results of Ghali Ma'ruf's research in Nagari Sungai Buluan Selatan, Padang Pariaman Regency in 2020 concerning the Overview of Types and Conditions of Community Latrines from 45 latrine samples studied by latrine floors that met 93.3% health requirements and those that did not meet health requirements 6.7% (Maruf, 2022).

The results showed that the total availability of infrastructure facilities for cubluk latrines was 83 households not available clean water and 32 families were available clean water but were not equipped with soap for washing hands after defecation. In general, people usually use corn cobs, stones, or wood for Cebok Plengsengan latrines of 4 households (80%) did not meet health requirements and gooseneck latrines of 29 families (76%) did not meet health requirements. This is due to 26 households, not having soap and hygiene kits available while 3 families lack the availability of clean water. In general, the people of Fatukona Village consider it unnecessary to wash their hands after defecating and lack of clean water because the source of clean water is far from residential areas (Jefri, 2018).

The results of Ghali Ma'ruf's research in Nagari Sungai Buluan Selatan, Padang Pariaman Regency in 2020 concerning the Overview of Types and Conditions of Community Latrines from 45 samples, the availability of infrastructure facilities 100% meets health requirements (Maruf, 2022).

The results showed that fecal drain holes in cubluk latrines that met health requirements in as many as 8 families (7%), which did not meet health requirements in as many as 107 (93%), and plengsengan latrines 4 families (80%) did not meet health requirements. This is due to the latrine located behind the house so that people assume that the smell from the latrine is not smelled by the surrounding community (Sabartiyah, 2020).

The results of Ghali Ma'ruf's study from 45 samples of fecal drain holes that met health requirements were 91.1% and those that did not meet health requirements as much as 8.9%. This is due to people's lack of knowledge (Maruf, 2022).

We recommend that the fecal drain hole latrines in cubluk and plengsengan latrines use a cover so as not to cause unpleasant odors and disease-carrying vectors such as cockroaches and flies cannot enter the infiltration hole (Notoatmodjo et al., 2013).

The results showed that from a total sample of 158 households, the distance between latrines and clean water sources met health requirements. This is because clean water sources are far from residential areas (Daya, n.d.).

The results of Ghali Ma'ruf's research from 45 latrine samples studied found 44.4% of the latrine distance with a clean water source of less than 10 meters and 55.6% of the latrine distance with a clean water source of more than 10 meters. This is due to lack of knowledge and land (Maruf, 2022).

The sanitary condition of latrines in Fatukona Village, Takari District, based on the results of the study, found that the condition of respondents was not good, especially in Cemplung and plengsengan latrines, 100% did not meet health requirements and 21% gooseneck Jamba met health requirements and 79% did not meet health requirements (Soekidjo and Pendidikan, 2003).

The results showed that of the 115 households that used cubluk latrines, the risk of pollution was high in as many as 64 households (56%), the risk of pollution was medium in 44 families (38%) and the risk of pollution was low 7 families (6%) (ASI, n.d.). Plengseng latrines with high pollution risk as many as 5 households (Tri, 2019). Gooseneck latrines from a total sample of 38 households have a high pollution risk of 11 families (29%), a medium pollution risk of 20 families (53%), and a low pollution risk of 7 families (18%) (Soekidjo and Pendidikan, 2003). High pollution risk factors are due to fecal drain holes for cubluk and plengsengan latrines do not have a cover, latrine floors are not watertight, latrine floors being slippery and not easy to clean, there are flies/cockroaches around the latrines, latrines have not been equipped with walls and roofs, do not have wastewater sewerage (SPAL), the distance between clean water sources and septic tanks is less than 10 meters (Suyono, 2014). For the risk of moderate pollution, latrines do not have roofs, wastewater disposal channels are not easily clogged, soap is not available in latrines and there is not enough clean water (Wahyuni et al., 2019).

This research is in line with research conducted by Asiah on the Sanitation Description of Family Latrine Facilities in Nanga Na'e Hamlet, Jala Village, Hu'u District, Dompu Regency in 2019. Pollution risk factors from 60 respondents 51.67% pollution risk is low, moderate pollution risk is 68.33%.

## CONCLUSIONS

The cubluk latrines used by the people of Fatukona Village mostly do not have a roof, cubluk latrines and plengsengan used by the Fatukona Village Community. The condition of the latrine floor does not meet health standards, the availability of soap and clean water in latrines is very lacking. Most people who use cubluk latrines do not have a cover in the fecal drain hole so that disease-transmitting animals can enter the cubluk. The distance between the septic tank and the drinking water source is more than 10 meters, cubluk latrines and plengsengan used by the people of Fatukona Village do not meet health standards. Risk factors for latrine pollution in Fatukona Village, Takari District, some people use latrines with high-risk factors.

## Author Contribution

Efi Srihayu Takib: Conceptualization, writing draft, writing review dan editing; Johny A.R Salmun, Mustakim Sahdan: Data curation, formal analysis.

## Conflict of Interest

There is no conflict of interest in this study.



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## Data Availability

We thank all respondents involved in this research project.

## REFERENCES

- Arnita, A. (2011). Gambaran sanitasi lingkungan di dusun bassiu desa gunturu kecamatan herlang kabupaten bulukumba. *Fakultas Ilmu Kesehatan Universitas Islam Negeri Alauddin Makassar*.
- ASI, R. T. D. P. (n.d.). Hubungan sanitasi dasar rumah tangga dan pemberian asi eksklusif terhadap kejadian diare pada balita di wilayah kerja puskesmas makrayu kota palembang tahun 2022.
- Asiah, A. (2019). *Gambaran sanitasi sarana jamban keluarga di dusun nanga na'e desa jala kecamatan hu'u kabupaten dompu tahun 2019* [Doctoral dissertation, Poltekkes Kemenkes Kupang].
- Azwar, A. (1980). *Pengantar administrasi kesehatan*. PT Grafiti Medika Pers, Jakarta.
- Bitu, Y. (2019). *Studi sanitasi jamban dan penyakit diare di kelurahan naioni kecamatan alak* [Doctoral dissertation, Poltekkes Kemenkes Kupang].
- Chandra, B. (2007). *Pengantar kesehatan lingkungan*. Jakarta: Egc.
- Daya, A. B. (n.d.). Faktor-faktor yang berhubungan dengan penggunaan jamban di gampong pawoh kecamatan susoh kabupaten.
- Dunggio, N. (2012). Faktor-faktor yang mempengaruhi perilaku masyarakat tentang penggunaan jamban di desa modelomo kecamatan tilong kabila kabupaten bone bolango tahun 2012. *Public Health Journal*, 1(1), 37234.
- Entjang, I. (2000). *Ilmu kesehatan masyarakat*. Citra Adiya Bakti.
- Herawati, N. (2018). Gambaran kondisi jamban keluarga di rt. 01/rw. 04 kelurahan napar kecamatan payakumbuh utara kota payakumbuh tahun 2018.
- Jefri, N. R. (2018). Faktor-faktor yang mempengaruhi penggunaan jamban di desa blimbing kecamatan dolopo kabupaten madiun.
- Kemendes. (2014). *Peraturan menteri kesehatan nomor 3 tahun 2014 tentang sanitasi total berbasis masyarakat*. Kementerian Kesehatan.
- kementerian kesehatan RI. (2012). *Profil kesehatan indonesia 2012*. Jakarta : Kementerian Kesehatan Republik Indonesia.
- Lemeshow, S. (1990). Adequacy of sample size in health studies. (No Title).
- M. Kafoermatten, s. G. G. d. D. D. M., DeAnnee S. Jutius. (1980). *Pedoman lapangan teknik sanitasi tepat guna*. World Bank.
- Ma'ruf, A. (2020). Profil kesehatan indonesia tahun 2020. *Kementerian Kesehatan RI*.
- Maruf, G. S. (2022). Gambaran jenis dan kondisi jamban masyarakat di nagari sungai buluah selatan kabupaten padang pariaman. *Jurnal Public Health*, 9(1), 1–7.
- Maryunani, A. (2013). Perilaku hidup bersih dan sehat. *Jakarta: Trans info media*, 12(125), 20–37.
- Notoatmodjo, S. (2010). *Metodologi penelitian kesehatan*. Rineka Cipta.
- Notoatmodjo, S., Krianto, T., Hassan, A., & Mamdy, Z. (2013). *Promosi kesehatan global*. Jakarta: Rineka Cipta.
- Novitry, F., & Agustin, R. (2017). Determinan kepemilikan jamban sehat di desa sukumulyo marta-pura palembang. *Jurnal Aisyah: Jurnal Ilmu Kesehatan*, 2(2), 107–116.
- Nurmalawati, N., et al. (2013). *Faktor-faktor yang berhubungan dengan penggunaan jamban oleh masyarakat di desa marek kecamatan kaway xvi kabupaten aceh barat* [Doctoral dissertation, Universitas Teuku Umar Meulaboh].
- Permenkes, R. (2014). *Peraturan menteri kesehatan republik indonesia nomor 75 tahun 2014, tentang pusat kesehatan masyarakat*. Jakarta: Menteri Kesehatan Republik Indonesia, 323.



- Purnama, S. G., & Subrata, M. (2019). Hubungan higiene, fasilitas dan sanitasi lingkungan dengan kualitas mikrobiologi serta identifikasi *eschericia coli o157: H7* pada sate lantuan. *Jurnal Kesehatan Lingkungan Indonesia*, 18(2), 104–112.
- Sabartiyah. (2020). *Pelestarian lingkungan hidup*. Alprin.
- Sinaga, Z. (2020). Sanitasi lingkungan penyebab diare pada anak. *Kompasiana*.
- Soedjono, E. S., & Rohmani, I. (2016). Kelayakan tangki septik/cubluk di kelurahan jambangan dan arah kecamatan jambangan kota surabaya. *Jurnal Purifikasi*, 16(1), 22–32.
- Soekidjo, N., & Pendidikan, P. (2003). Ilmu kesehatan masyarakat. *Jakarta: Rineka Cipta*.
- Suyono, M. (2014). Pencemaran kesehatan lingkungan. *Jakarta: EGC*.
- Taneo, L. Y. E. (2019). *Survei sarana jamban keluarga dan air bersih pasca pemicuan stbm di desa oesusu kecamatan takari kabupaten kupang* [Doctoral dissertation, Poltekkes Kemenkes Kupang].
- Tri, S. (2019). *Faktor yang berhubungan dengan kepemilikan jamban pada masyarakat di desa ombolata kecamatan alasa kabupaten nias utara tahun 2019* [Doctoral dissertation, INSTITUT KESEHATAN HELVETIA].
- Wahyuni, P., et al. (2019). *Determinan faktor yang berhubungan dengan perilaku open defecation di desa ngampal kecamatan sumberrejo kabupaten bojonegoro* [Doctoral dissertation, Universitas Airlangga].



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