

Ownership of latrine in the household in Indonesia: a review

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ABSTRACT

Ownership of a household latrine has been proven to be associated with various diseases, including diarrhea. This study aimed to understand the factors related to ownership of latrine in the household, Indonesia. This study used a literature review design by collecting 15 articles screened according to the inclusion and exclusion criteria using the preferred reporting items for systematic review and meta-analysis (PRISMA) Model. It was found that attitude was significantly related to ownership of healthy latrines in the household. The level of knowledge, family income, the level of education, and the role of health practitioner were also the most significant variables in Indonesia during 2010 to 2020. The government needs to make the sanitation campaign and creative intervention to reach 100% open defecation free in Indonesia.

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1. INTRODUCTION

At the point six, one of the aims of the sustainable development goals (SDGs) is the availability of good sanitation, for better public health and welfare [1] Open defecation practice remains 18% in the rural population and 1% in the urban population worldwide. Nine of ten open defecations occur in rural areas, and the poor are more likely to do so [2].

During 2000 to 2017, Indonesia only could increase of 100 million people who had access to basic sanitation services [3]. Then, there was still 18% of the population in Indonesia who did not defecate properly in 2018 [4] and in 2019, 25 million Indonesians did not have access to healthy latrines, so they defecated in fields, shrubs, forests, ditches, roads, rivers or other open spaces [5].

In 2017, households that had access to proper and sustainable sanitation were 53.51%, it increased to 55.47% in 2018, and in 2019 increased to 66.57% [6]. However, disparities in health development related to healthy family indicators still occur in Indonesia [7] and in Cambodia, too [8]. One indicator of a healthy family is that the family has access to use a healthy latrine [9]. As in the results of a study in North of South Konawe, Southeast Sulawesi Province, it was found that 81% of respondents did not defecate in the toilet [10].

The increasing of household head education level has a positive effect on the ownership of latrines at the community level [11]. The education level of the household head is not absolutely influencing his

health knowledge [12]. It because, the ownership of the toilet is influenced by many aspects such as behavior, culture, social, geographical, and economic in various members of the community [13]–[15]. Moreover, the use of healthy latrines by households is influenced by support from community leaders and the role of health workers [16].

The attitude of the head of the household is a psychological predictor of latrine ownership and becomes one of the determinants in the consistency of using toilet in the household [17]. The parameters of the attitude and perception of household heads significantly affect consistent use of latrines [18], [19]. In addition, the ownership of the toilet also tends to be influenced by income [20] become the main aspect that influences latrine utilization [21] and the most important thing is family income as a determinant of household latrine ownership [22].

Ownership of a latrine is one of the factors associated to the incidence of diarrhea [23]. The most dominant cause of diarrhea in children under five is the use of family latrines [24]. The condition of household latrines has a strong relationship to the use of latrines and the incidence of diarrhea [25], [26]. Therefore, this study will collect all scientific articles from 2010 to 2020 in Indonesia that will be reviewed and made conclusions. The aim of this study is to find out the factors that influence the elimination of family latrines in Indonesia and the results of this study can be used to achieve open defecation free (ODF) in Indonesia.

2. METHOD

This literature review design used some articles started from first of October 2020. This study uses the e-data bases such as; Google Scholar, Neliti.com, and ProQuest. Keywords and term used in this study consist of Indonesian and English. In English are; latrine, family toilet, household toilet, ownership of family toilet, ownership of household toilet, and ownership of toilet. In Bahasa Indonesia are: *jamban*, *jamban keluarga*, *jamban rumah tangga*, *kepemilikan jamban keluarga*, *kepemilikan jamban rumah tangga*, dan *kepemilikan jamban*.

This literature review research had the following inclusion criteria: scientific journals published in the last 10 years starting from 2010 to 2020. The articles were only those conducted in Indonesia. The subjects observed in this study were ownership of latrine in the household. Regarding ownership of latrine in the household, scientific journals are taken not in abstract only published but must be in full text (full text was available). The PRISMA model was also used for include and exclude the criteria of the articles (<http://www.prisma-statement.org/>). After dwelling articles were evaluated for any strong findings on ownership of the latrine in the household, totally 15 articles picked for the final inclusion as shown in Figure 1.

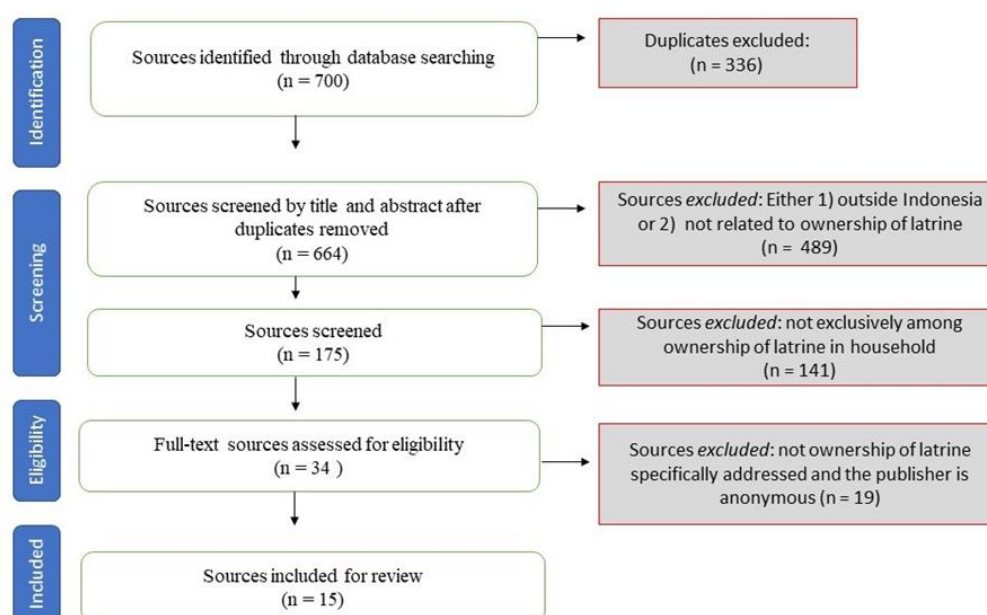


Figure 1. Modified from PRISMA flow diagram for screening articles of ownership of latrine in the household in Indonesia

This study found 15 studies about ownership of latrine in Indonesia (Table 1) (see Appendix). Variables that most have significant correlation with ownership of latrine in Indonesia were attitude, knowledge, family income, level of education, and role of health practitioner. For attitude variables that significantly correlated with the ownership of latrine could be seen in the study numbers 3, 4, 5, 6, 7, 8, 9, 10, 11, and 13. Knowledge factors could be founded in number 3, 4, 6, 7, 8, 9, 12, 13, and 14. Family income/economic status are in the number 3, 6, 9, 10, 11, 12, 13, and 15. Level of education variables could be found in the study number 3, 4, 5, 6, 7, and 13. Role of health worker showed in the number 1, 9, 12, 13, and 14.

3. RESULTS AND DISCUSSION

In this study, we found all of the articles published from 2010 to 2020 in Indonesia about ownership of latrines in the household. The majority of findings showed the ownership of latrines in the household was more than 50%. It has been describing what happened in the community. From Indonesia national data 2021 were showed merely 81.3 households have access to the latrine in Indonesia [42]. In the fact, ownership of latrine in the household has significantly predictor to some popular disease like diarrhea, cholera, pneumonia, typhoid also social network [20]. The government must be serious to overcome this condition, like making the priority program 100% open defecation free (ODF).

From all independent variables, it was found the attitude as the top predictor of ownership of latrine in the household. The previous study from Ethiopia showed the same result [17]. Attitudes are often associated with a person's behavior or actions towards something because people who have a low standard of living will practice defecating in the open air [43]. This is different from the results of ethnographic studies in Ecuador which reported the absence of health facilities and individual factors from rural communities that cause someone to defecate in the open [44]. Therefore, ownership of a latrine in the household will exist if the head of the family or household members has a good attitude towards the importance of having a latrine in their own house (private).

The level of knowledge in this study as the second predictor of ownership of latrine. This is not too different with the results of previous research conducted in India [45], [46]. The level of knowledge is often associated with a person's behavior. People's behavior is different in facing change. Such as socio-cultural factors as the cause of the inhibition of latrine construction in India [47]. This shows the need for seriousness in detail from various aspects by the government in making a project to build latrines in the community.

The third variable that related to ownership of latrine in this study was family income. The results of this study are in line with previous research in India conducted by Shakya which shows that one of the main factors of family latrine ownership in household households in India is household income [20]. Then it is supported by the results of research in North West Ethiopia which has the result that households with low incomes are three times more likely to have no latrine in their household [22]. Therefore, the economic level of the household or family income is one of the factors related to ownership of a latrine in the household. For policy makers, it is necessary to implement innovative programs such as joint venture of money for latrine each household that does not have a latrine.

Based on the findings of this study, the role of health practitioners as fourth variable that significant to ownership of latrine in this study. This result is in line with previous research conducted by Ross which stated that the role of health workers has a very significant effect on household ownership of latrines [48]. Therefore, the role of health workers is very important in changing people's behavior. So, it is necessary to improve health services at the primary level, especially in places with low family latrine ownership coverage. The training about healthy latrines and the indicators of healthy household could be useful to increase the health personal's capacity and knowledge.

The educational level also significantly related to ownership of latrine in this study. It was not very different with the result from previous review study in Indonesia which revealed that the level of education, level of knowledge, and attitude are the variables that are most associated to ownership of latrine in Indonesia [49]. Then, another study in Ethiopia showed the demographic factors were significantly associated with availability of the toilet in the households [50]. Based on a study in Thailand, it shows that to overcome the latrine problem in the country it is necessary to make several important points such as a strong policy for latrine construction, integration of latrine development into health development, the right approach and strategy, adequate health facilities, and the will of the community [51]. The importance of campaigns and priority programs on sanitation carried out by the government.

4. CONCLUSION

In sum, the attitude variable is the main factor related to household ownership of latrines. Then, the respondent's level of knowledge is the second causative factor. Economic level/family income is the third

contributing factor. The role of health workers has the fourth influence and the last is the level of education of the respondents who at least had a significant relationship to latrine ownership in Indonesia from 2010 to 2020. Researchers in environmental health need to enhance research on household latrine ownership in Indonesia. Then, the government need to provide the new creative programs to reach the target every household in the regions in Indonesia has 100% of the latrine.

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APPENDIX

Table 1. Characteristic of reviewed study

No	Author	Location	Sample	Study design: variables	Findings
1.	[27]	Tapanuli Selatan District, Nort Sumatera Province, Indonesia	184 respondents	Crossectional Study: ownership of latrine and level of knowledge, attitude, defecation habits, role of practitioner.	Only 20.6% percent have the latrine in their household and low education levels. The significant predictor was the role of the health practitioner.
2.	[28]	Leuwikidang village, kasokandel sub-district, majalengka district, West Jawa Province, Indonesia.	92 household	Crossectional study: ownership latrine and education level, occupation, income level, ownership clean water facilities, land ownership.	About 60.9% of households did not have a latrine. 53.3% have no job, approximately have good income; 41.3% and 66.3% of them have no source of water.
3.	[29]	Malikian Village, Mempawah District, West Kalimantan Province	64 household	Crossectional study: ownership latrine and education levels, income, knowledge, attitude, role of health practitioner.	About 62.5% household did not have the latrine. The all the independent variable that predictor with ownership of latrine except the role of health practitioner.
4.	[30]	Empakan village, Sintang District, West Kalimantan Province	62 respondents	Crossectional study: ownership latrine and educational level, income, knowledge, attitude, and culture.	55% of respondent did not have latrine in the household. Education, income, knowledge, attitude and culture are significant associated.
5.	[31]	Tambak Lorok village, Semarang district, Central of Jawa Province.	92 respondents	Crossectional study: Ownership latrine and Education, family income, knowledge, attitude, source of clean water, distance from house to river, family support, and support from community leaders.	65.2% respondents did not have the latrine. All of independent variables were predictor of ownership of latrine except the source of clean water and support from community leaders.
6.	[32]	Sukomulyo Village, Martapura, Palembang City.	213 head of households	Crossectional study: Ownership of latrine and level of education, level of knowledge, attitude, and family income.	About 60.1% families not have latrine in their household. The predictors are all of independent variables in this research.
7.	[33]	Polewali village, Bulukumba District, South of Sulawesi Province.	60 head of households	Crossectional study: Ownership of latrine and level of education, level of knowledge, and attitude.	The finding is about 18.3% of young aged and 6.7% female as a head of the household. All of them in the has low education level and 50% have latrine in their household.
8.	[34]	Six Eastern District in Indonesia	1,700 households	A formative study: Toilet ownership and demographic factors, psychosocial, normative factors, knowledge, attitude, and practice (KAP).	The study suggests that social norms play an important role in changing sanitation behaviors in the community.

9.	[35]	Ta aniuge village, Parigi Moutong District, Central of Sulawesi Province.	75 respondents	Crossectional study: Ownership of latrine and level of knowledge, source of water, family income, land ownership, and role of health practitioner.	70.7% of household is not have the latrine. All of independent variables is predictor of ownership latrine in the household.
10.	[36]	Setro Kalangan Village, Kudus District, Central of Jawa Province.	88 respondents: 44 case and 44 control	Case-control study: ownership of latrine and knowledge, attitude, practice, and family income.	Practice and family income have correlation with ownership of latrine in the household.
11.	[37]	Working Area at Public Helath Center (PHC) of Suak Tapeh in Banyuasin Regency South Sumatra Province	99 respondents	Crossectional study: ownership latrine and clean water availability, condition of latrine, habit, family income, and toward healthy latrine ownership.	57.6% do not have latrine in the household. The most dominant factor affecting ownership latrine is attitude.
12.	[38]	Kampung baru sub-district, Pekanbaru City, Riau Province.	74 households	Crossectional study: ownership latrine and age, sex, educational level, job, level of knowledge, family income, source of clean water, and role of health practitioner.	Level of knowledge, family income, and availability of clean water are predictors of ownership latrine in the household.
13.	[39]	Working Area at (PHC) of Rantau Baduah in Barito Kuala Regency South Kalimantan Province	91 households	Crossectional study: ownership latrine and socio-demographic factors, level of knowledge, attitude, and family income.	Factors that influence latrine ownership include knowledge, attitudes, and family income. Only 59.3% in this study the household which have the latrine.
14.	[40]	Busung Village, Simeulue District, Aceh Province.	64 households	Crossectional study: ownership of latrine and level of knowledge, level of education and role of health practitioner.	68.8% of the household have no latrine and all of independent variable is predictor of ownership of latrine of the household in this study.
15.	[41]	Walikukun village, Serang District, Banten Province.	87 households	Crossectional study: ownership of latrine and source of clean water, availability of land, family income.	67.8 % household not have latrine. All independent variables were very significantly as a predictor of ownership latrine in the household.