



## Research article



# Determinant Factors That Influence Open Defecation Behavior In Rural Communities In Indonesia

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### Abstract

The problem of sanitation development in Indonesia is a socio-cultural challenge. one of which is the behavior of people who are used to doing OD. OD behavior can be influenced by various factors, both internal and external, including education, occupation, income, knowledge, attitudes, and physical environment. The purpose of this study is to determine the determinant factors that influence the behavior of open defecation. This research uses a cross-sectional approach located in Kedawang Village, Nguling Village, Kedawang Village, Pasuruan Regency. This research was conducted from December 2020 – May 2021. The sampling technique used was purposive sampling with a total sample of 126 people who were selected based on inclusion and exclusion criteria. Data were analyzed using IBM SPSS statistics 20 software with a significance level of 0.05. The majority of respondents, namely 64 people or 50.8% of respondents have attitudes with fewer categories. On average, respondents have less perception of 83 people or 65.9%, lack of knowledge (99.2%), and less physical environment (114%). Meanwhile, the open defecation behavior carried out by the community was in the frequent category (56.3%). The results show that from several factors analyzed, the factors that influence open defecation behavior are attitude (sig 0.000) and perception (sig 0.000). Factors that influence open defecation behavior are attitudes and perceptions. Poor attitudes and perceptions will result in people doing open defecation behavior.

## INTRODUCTION

Open Defecation (OD) is one of the unhealthy lifestyle behaviors, what is meant by open defecation or Open Defecation is the behavior or act of throwing feces or human waste in open places such as rice fields, fields, bushes. Shrubs, rivers, beaches, forests, and other open areas and allowed to spread to contaminate the environment, soil, air, and water [1].

Lack of sanitation and poor personal and environmental hygiene, related to the transmission of several infectious diseases, namely diarrhea, cholera, typhoid fever, and paratyphoid fever, dysentery, hookworm disease, ascariasis, hepatitis A and E, skin diseases, trachoma, schistosomiasis, cryptosporidiosis, malnutrition, and diseases related to malnutrition. The prevalence of cases of illness per year in Indonesia due to poor sanitation is 72%

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diarrhea, 0.85% worms, 23% scabies, 0.14% trachoma, 0.57% Hepatitis A, 0.02% Hepatitis E, and 2.5 malnutrition. %, while the cases of death due to poor sanitation were diarrhea by 46%, helminthiasis 0.1%, scabies 1.1%, Hepatitis A 1.4%, and Hepatitis E 0.04% [2].

According to the Joint Monitoring Program (JMP) WHO report or UNICEF 2015, as many as 2.4 billion people in the world still do not have a toilet, the first position is occupied by India. About 626 million people with a population of about 1.3 billion people still defecate in the grass, bushes, or rivers. Indonesia is the second country that has open defecation rates, and around 946 or one in eight people in the world still defecate in the open, around 51 million Indonesians still defecate openly, including rivers and beaches, a total of 12.9% of Indonesia's population does not yet have adequate toilets. The population in Indonesia in 2016 who still defecated openly was 16,209,333 households out of a total of 67,453,504 households, there were 24.03% of the Indonesian population still defecating openly. According to the Joint Monitoring Program (JMP) WHO 2017 report, the total population of open defecation in Indonesia is 31 million people [3]. Meanwhile, data on open defecation in East Java in 2017 was 1,624,673 households. Access to proper sanitation in East Java Province in 2018 reached 89.71% [4].

Based on the Health Profile Data of Pasuruan Regency in 2015, it was seen that the population with access to healthy latrine facilities was 65.39%, totaling 65.39 households. In 2016 the number of people with access to proper sanitation (healthy latrines) was 166,474 people out of a total population of 196,202 people or 68.75%. In 2017 the access of households using or accessing healthy latrines increased by 74.29%. The development of access to basic sanitation (healthy latrines) in 341 villages 24 sub-districts in Pasuruan Regency in 2017 reached 326,836 families (74.39%)

with access to permanent healthy latrines/Jamban Sehat Permanen (JSP) as many as 224,404 families (47.85%), semi-permanent healthy latrines/Jamban Sehat Semi Permanen (JSSP) as many as 78,449 households (17.21%), as many as 23,983 (5.56%) still use Sharing or ride with other families. Families who still defecate are still high at 112,719 (29.38%), the number of villages with OD is 25 villages (5.75%) out of 365 villages [5]. In 2017 the access of households using or accessing healthy latrines increased when compared to the previous year, but based on the results of preliminary studies that have been conducted by researchers directly and periodically in interviewing health cadres in Kedawang Village and the Kedawang Village Head said that the people there still defecate carelessly on the beach. Some residents already have latrines and some do not. For people who do not have latrines, the government has followed up by providing subsidies in the form of toilets to make latrines that are following good criteria according to health. However, people still do not have awareness even though throwing feces in latrines can make the environment clean and not polluted and maintain body health.

The problem of sanitation development in Indonesia is a socio-cultural challenge, one of which is the behavior of people who are accustomed to doing OD [6]. OD behavior can be influenced by various factors, both internal and external. According to research [7] shows that there is a significant relationship between education, occupation, income, knowledge, attitudes, and physical environment on OD behavior. Then followed by research conducted by [8] showing that factors related to open defecation behavior are age, education level, economic status, knowledge, and physical environment to open defecation.

## **METHODS**

### ***Study design***

The design used in this study using quantitative descriptive statistical methods with a cross-sectional study approach.

### ***Setting and sample characteristics***

The location of the research was conducted in Kedawang Village, Nguling Subdistrict, Kedawang Village, Pasuruan Regency. The population in this study were residents in Nguling Subdistrict, Kedawang Village, Lampean Hamlet with a total of 185 people. The sampling technique used was purposive sampling with a total sample of 126 people who were selected based on inclusion and exclusion criteria. The sample inclusion criteria included residents who defecated openly in Nguling Subdistrict, Kedawang Village, aged 17-65 years, were able to communicate well and could read and write. While the inclusion criteria in this study were respondents who were sick, refused to be respondents, and could not read and communicate well

### ***Instruments***

The research questionnaire consisted of a demographic data questionnaire, OD behavior based on research [9], a knowledge, attitude, and physical environment questionnaire taken from [10] and modified by the researcher. While the perception questionnaire is based on research [11]. All questionnaires have been tested for validity and reliability and are declared valid ( $r_{\text{count}} > r_{\text{table}}$ ) and reliable (Cronbach alpha  $> 0.60$ ). The identity questionnaire consisted of age, gender, education level, and occupation. The attitude questionnaire consists of 10 questions using a Likert scale. Answers are measured with a score of Agree = 2; Disagree = 1 on favorable statements, and vice versa on unfavorable questions. The perception questionnaire consists of 10 statements with a score of strongly agree =

4; agree=3; disagree = 2; and disagree = 1 on favorable statements, and vice versa on unfavorable statements. Meanwhile, the open definition behavior questionnaire consists of 10 statements with an answer score of yes = 3; sometimes= 2; and not = 1 in favorable statements and vice versa. The knowledge questionnaire consists of 15 questions while the physical environment consists of large points of statements, where for these two questionnaires the correct score is 1 and the incorrect score is 0.

### ***Data Collection***

Data collection was carried out from May 2020-May 2021, questionnaires were distributed by researchers to residents who met the research sample criteria of 126 people.

### ***Data Analysis***

Data were analyzed using IBM SPSS statistics 20 software with a significance level of 0.05. Demographic data were analyzed using frequency and percentage distribution tables. Multivariate analysis to determine the determinant factors using ordinal logistic regression.

### ***Ethical Considerations***

This study was approved by the Ethical Review Board (ERB) Committee of the University of Muhammadiyah Malang, Indonesia (Number: E.5.a/095/KEPK-UMM/V/2020).

## **RESULTS**

### ***Characteristics of the Respondents***

The results in this study include general data and specific data. General data are respondent characteristics such as (1) name, (2) age, (3) gender, (4) education level, (5) occupation. Specific data contains the objectives of the research, namely questionnaires about attitudes,

perceptions, knowledge, physical environment, and open defecation behavior

Based on table 1 the average number of respondents aged 31-40 years was 81 people or 64.3%. Most of the respondents were male with details of male as many as 64 people or 50.8% and women as many as 62 people or 49.2%. With the highest education level, namely SD as many as 107 people or 84.9% and the majority of respondents work as fishermen and housewives with a value of 53 people or 42.1%.

Table 1  
Demographic characteristics

Indicators	f	%
Gender		
Man	67	53,2
Woman	59	46,8
Age (month)		
17 - 25	3	2,4
26 - 35	60	47,6
36 - 45	56	44,4
46 - 55	4	3,2
56 - 65	3	2,4
Mean ± SD (36,30 ± 6,38)		
Education		
Primary school	110	87,3
Junior high school	1	0,8
Islamic boarding school	15	11,9
Work		
Housewife/not working	57	45,2
Trader	7	5,6
Fisherman	53	42,1
Driver	9	7,1

The results of the attitude description obtained, the majority of respondents, namely 64 people or 50.8% of respondents had attitudes with fewer categories. On average, respondents have less perception of 83 people or 65.9%, lack of knowledge (99.2%), and less physical environment (114%). Meanwhile, the open defecation behavior carried out by the community was in the frequent category (56.3%).

Based on the table above, the results show that of the several factors analyzed, the factors that influence open defecation behavior are attitudes (sig 0.00) and

perceptions (sig 0.000). Total Percentage (%).

Table 2  
Identify the factors that influence the behavior of open defecation

Indicators	f	%
Attitude		
Well	15	11,9
Enough	47	37,3
Not enough	64	50,8
Perception		
Well	1	0,8
Enough	42	33,3
Not enough	83	65,9
Knowledge		
Well	1	0,8
Not enough	125	99,2
Physical Environment		
Well	12	9,5
Not enough	114	90,5
Open Defecation Behavior		
Not enough	21	16,7
Enough	34	27,0
Often	74	56,3

Table 3  
Crosstabulation and analysis of determinant factors that influence open defecation behavior

Related Factors	Category	p
Gender	Man Woman	0,990
Age	17 - 25 26 - 35 36 - 45 46 - 55 56 - 65	0,220
Education	Primary school Junior high school Islamic boarding school	0,170
Work	Housewife/not working Trader Fisherman Driver	0,090
Attitude	Well Enough Not enough	0,000
Perception	Well Enough Not enough	0,000
Knowledge	Well Not enough	0,399
Physical Environment	Well Not enough	0,908
Gender	Man Woman	0,990

## DISCUSSION

Most of the respondents have bad behavior towards the function or use of latrines. This is because behavioral predisposing factors include attitudes and perceptions of the people of Kedawang Village that are not good, so they affect the behavior of individuals. Meanwhile, in general, predisposing factors can be said as personal considerations of an individual or group that affect the occurrence of a behavior. These considerations can support or prevent the occurrence of a behavior [12].

According to Bhatt's research, the behavior of open defecation is chosen by the community because they think this activity is a way of socializing with others, giving them autonomy, is a habit, and provides a sense of comfort.

An individual is very closely related to their respective attitudes as their characteristics. Attitude in general is often interpreted as an action taken by an individual to respond to something. According to [13], attitude is defined as a reaction or response that arises from an individual to an object which then raises individual behavior towards the object in certain ways. The realization of an attitude into action, according to [14], requires a condition that allows a person to apply something. This means that a good attitude does not necessarily result in a good action. Because changes in attitudes towards a better direction will affect the occurrence of community participation which is the main capital for the success of health programs.

Most of the respondents have a bad attitude towards the function or use of latrines. This is because of the habit of people who defecate in any place, especially on the beach, rivers, and rice fields so that it affects the behavior of each respondent. According to [13] Attitudes are influenced by several factors, namely work, experience, and education. Most of the work of the people of Kedawang Village areas fishermen as many

as 53 people or 42.1%. From this description, it can be concluded that the work environment plays a very important role in the mechanism of attitude formation [15]. While the majority of the last education of the Kedawang Village community is Elementary School as many as 107 people or 84.9%. [16] says that the formation of attitudes and the factors that influence the formation of a person's attitude are largely determined by personality, intelligence, and interests. Therefore, work and education greatly affect the attitude of the people of Kedawang Village towards open defecation.

Perception is the experience of objects, events, or relationships obtained by inferring information and interpreting messages. Perception is a process of relevant sensory cues and past experiences organized to give us a structured and meaningful picture of a particular situation [17]. Perception takes place when a person receives a stimulus from the outside world which is captured by his auxiliary organs which then enters the brain. In it occurs a thought process that ultimately manifests in an understanding [18].

Most of the respondents have a bad perception of the function or use of the latrine. This is because the people of Kedawang Village perceive defecation on the beach as a comfort, habit, convenience and this has been done from the start but has not experienced any health problems. According to [19], two factors influence perception, namely internal factors, including physiological, attention, interest, unidirectional needs, experience and memory, and mood. External factors include the size and placement of the object or stimulus, the color of the objects, the uniqueness and contrast of the stimulus, the intensity and strength of the stimulus, and motion.

This study is in line with research [7] regarding the Relationship between Friendly Owner Characteristics and Open

Defecation Behavior in the work area of the Connect Macan II Health Center which stated that there was a relationship between attitudes and open defecation behavior from the statistical test  $p\text{-value}=0.000$  and the value  $OR=2,646$  ( $95\%CI=1,791-3.909$ ). Respondents with bad attitudes have a risk of open defecation behavior 2,646b times greater for open defecation behavior than respondents with good attitudes. This is because the habit of people who defecate in the pool so that it affects the behavior of each respondent, many people only follow neighbors who defecate in the pool without knowing the magnitude of the danger that will be caused when open defecation.

Based on Osumano's research, it is stated that the practice of open defecation is influenced by beliefs and habits that are passed down from generation to generation. The community believes that sharing toilet facilities will make them feel uncomfortable with this condition because they feel that they are experiencing a spiritual experience so they prefer to defecate in the open. In addition, another perception from the community considers that open defecation

Supported by research [20] which states that attitudes affect open defecation behavior. This is evidenced by the significance value obtained from the results of the chi-square test, which is 0.000. Value  $0.000 < 0.05$  so  $H_0$  is rejected and  $H_a$  is accepted, which means that there is a relationship between defecation attitudes and open defecation status in Candisari District, Semarang City. This is influenced by their low knowledge about the use of healthy latrines.

In the theory of HBM (Health Belief Model) a person's perception of vulnerability and treatment recovery can influence decisions in his health behaviors. Likewise, the PRECEDE-PROCEED theory states that perception is a predisposing factor for the occurrence of the behavior. According to

[21], a person who has a perception of the threat when defecating is not good is at risk of 3 times to do open defecation, and someone who has a perception of the benefits of defecating in a toilet is not good at risk 5 times to do open defecation.

This study is in line with research [22] which states that perception affects open defecation behavior. This is evidenced by the significance value obtained from the results of the chi-square test, which is 0.000. Value  $0.000 < 0.05$  so  $H_0$  is rejected and  $H_a$  is accepted, which means that there is a relationship between perception and the status of open defecation in Kota Tinggi Pekanbaru. This is because of the habits that have been carried out from ancient times until now and do not feel any health problems, while open defecation can cause disease.

## CONCLUSION

Factors that influence open defecation behavior are attitudes and perceptions. Poor attitudes and perceptions will result in people doing open defecation behavior.

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