






Literature Review: Predisposing, Enabling and Reinforcing Factors that Influence Community Open Defecation Behavior in Indonesia

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Abstract. Open defecation is a condition where a person defecates in an open place which can cause environmental pollution and trigger many diseases such as diarrhea and cholera. In Indonesia, in 2020 there were 19 million people still doing open defecation. Thus from that data, Indonesia became the 4th country with the highest open defecation population in Southeast Asia. This study aims to identify the factors that influence the open defecation behavior of Indonesian people. This research used the literature review method by collecting, analyzing, integrating, and presenting data from previous studies relevant to this research. Literature selection refers to the PRISMA flow diagram. The review is limited to research articles in 2017–2022 indexed by Scopus and Crossref for international journals and indexed by Sinta and Garuda for national journals. Based on the selection results, 31 relevant types of research were obtained for review. It was found that predisposing factors that influence the open defecation behavior of Indonesian people include education, knowledge, occupation, economic status, attitudes, and habits. Enabling factors include land availability, latrines availability, clean water availability, latrine conditions, and geographical conditions. Reinforcing factors include the role of health workers, community leaders, families, and cadres.

Keywords: predisposing factors · enabling factor · reinforcing factor · open defecation

1 Introduction

Health problems are complex and multifactorial problems. In theory, HL has not yet described how environment, behavior, health services, and heredity are interrelated in determining health status. In developing countries, environmental problems are one of the factors that are often faced, ranging from sanitation, drinking water supply, housing, garbage disposal, and wastewater disposal [1]. Based on data from the World Health Organization (WHO) in 2010, Indonesia is included as the country with the second lowest access to sanitation in East Asia after China [2]. In 2019, Indonesia has succeeded

in increasing access to sanitation, but it is still the 4th lowest in Southeast Asia after Cambodia, Laos, and the Philippines, where 22.6% of the population has no access to good sanitation [3]. Meanwhile, based on data from the Central Bureau of Statistics (BPS), in 2020 there were 20.47% of households that had not accessed proper sanitation [4].

The low access to sanitation in Indonesia can be explained by the processing and disposal of human waste, which is related to defecation behavior. Based on data from the United Nations Children's Fund (UNICEF) and WHO in 2020, 494 million people in the world still practice open defecation (OD) [5]. Meanwhile in Southeast Asia, where most of them are developing countries, 34% of the population does not defecate properly [6]. In 2020 there are still more than 19 million people in Indonesia who do not use toilets or defecate in fields, bushes, ditches, canals, or other open spaces [7]. This high number ultimately brought Indonesia to be the country with the 4th percentile of the population with OD in Southeast Asia after Cambodia, Laos, and Myanmar in 2020 [8].

There is still a high number of OD in Indonesia, indicating that OD behavior is still often neglected. According to Fatonah (2005) in Hapsari & Isgantoro (2014), human feces contain pathogens that can be transmitted through hands and contaminate food [9]. Not only hands, but pathogens in feces can also be transmitted through water, vectors and soil [1], which can trigger various diseases. OD and poor sanitation are the most dominant factors causing various diseases, especially diarrheal infections, intestinal worms, typhus, cholera and so on. A study showed that the prevalence of diarrhea in children under five was higher in non-open defecation-free (non-ODF) areas compared to ODF areas [10]. Diarrhea, among others, is caused by infection with microorganisms, such as bacteria, viruses, parasites and others [11], one of which can occur due to environmental factors [12]. Not only diarrhea, according to the results of Mirebalais research (2010) in Griffiths et al. (2021), in one of the markets located in Haiti, a country that experienced a major cholera epidemic in 2010, it was stated that OD was the dominant factor as a source of cholera [13].

In Indonesia, the government has conducted various efforts to reduce the number of open defecation to prevent the emergence of various diseases due to this behavior. One of them is the establishment of a Community-Based Total Sanitation program. In this program, the achievement of Open Defecation Free (ODF) becomes the first pillar in the achievement indicators. This effort is supported with 2020–2024 Mid-Term Development Plan, regarding the 2020–2024 Environmental Health Action Plan Activities. Several projects have been launched, including increasing the percentage of villages to stop OD [14]. In the plan to increase the percentage of Open Defecation Free (ODF) village, the government targets an increase to a total of 90% from the previous year in 2020, there are only 36.2% of villages that have implemented ODF well [14, 15]. This effort is in line with the 2030 Sustainable Development Goals (SDGs) to stop OD and equitable access to sanitation and hygiene [16]. To realize the Action Plan Activities for environmental sanitation (2020–2024) as previously mentioned, the establishment of effective and efficient policies and efforts plays an important role in increasing public awareness to support the realization of Indonesia's 100% access to sustainable sanitation by 2030.

In an effort to improve public health, policies and health programs are needed that are in accordance with the conditions of the community. Lawrence Green in his theory

explains how various factors can influence people's behavior, including predisposing, enabling, and reinforcing factors. This can be linked to the OD behavior that still occurs in Indonesia, which is influenced by various factors. So there needs a further study of the factors that influence the behavior of OD people in Indonesia, so that it can be a reference in the formation of appropriate policies. In previous studies, there have been many studies on this problem in various regions in Indonesia, but there is still no specific study that discusses this problem broadly and in-depth. Therefore, in this study, further analysis and synthesis will be conducted regarding the predisposing, enabling, and reinforcing factors that influence the behavior of OD people in Indonesia, using the literature review method, namely collecting, evaluating, integrating, and presenting data from various articles of researchers [17].

2 Method

2.1 Data Source

The data collection in this study used e-resources on four databases from Proquest, Pubmed, and Scopus as sources for international journals, and the Garuda (Garba Rujukan Digital) data base as a source for national journals, and Google Scholar as an additional source for obtaining information articles that may not be published in indexed journals. The search for articles was conducted from March to May 2022. Article searches conducted based on the advanced search with the use of AND/OR notation to make it more effective. Searching for international journals using English keywords including: "factor", "determinant", "affect", "open defecate", and "defecate careless". While searches for national journals use Indonesian keywords including: "faktor", "pengaruh", "determinan", and "buang air besar sembarangan".

The inclusion criteria in this study include: (1) articles sourced from international journals indexed by Scopus and Crossref, and national journals indexed by Sinta and Garuda; (2) the articles used Indonesian and English; (3) The study was conducted from 2017 to 2022; (3) the independent variables studied include predisposing, enabling, reinforcing factors and the dependent variable include open defecation behavior; (4) the population is Indonesian society in the family scope; (5) the design study used a cross-sectional study; and (6) the articles were fully accessible.

2.2 Data Extraction

The data extraction process refers to the PRISMA flow diagram which includes 4 stages, namely identification, screening, eligibility, and include [18]. At the identification stage, 5,192 articles were obtained. From these articles, 2,057 articles were duplications, remaining 3,135 articles were entered in the next stage. The screening stage was conducted by inclusion and exclusion criteria, and 3,102 articles were removed because they did not meet the specified criteria, there were 33 articles remaining. Then, the articles that passed were tested for eligibility with 2 validators using the Joanna Briggs Institute (JBI) Critical Appraisal in cross-sectional analysis [19], and found 31 articles that passed the eligibility test for further analysis. The following are the results of the article selection (Fig. 1).

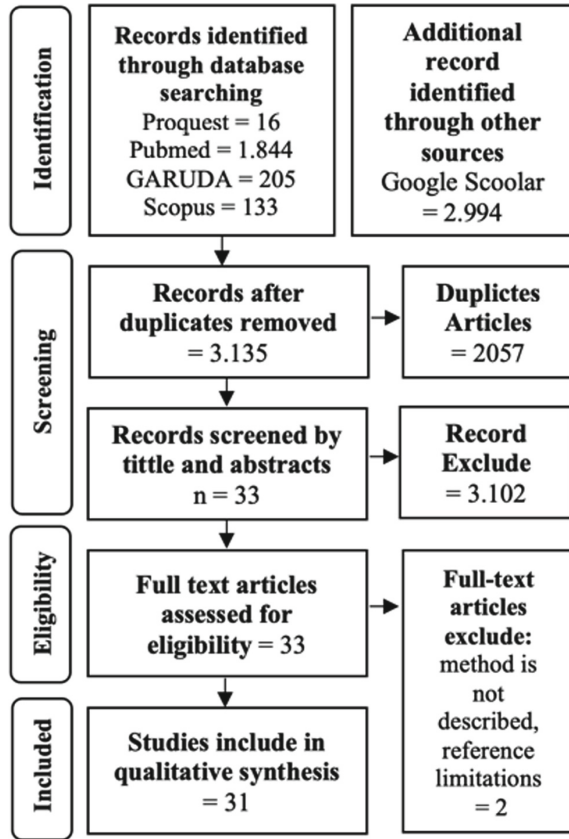


Fig. 1. PRISMA flow diagram of the systematic search and data extractions

3 Results

Based on the selection results, 31 articles were selected to the next stage for further analysis. Overall the articles that passed using the cross-sectional study method and the research population were Indonesian people in the family scope. The articles published in national journals found 27 Indonesian articles indexed by SINTA and GARUDA, 4 English articles from international journals indexed by Scopus and Crossref. Articles published from 2017–2021 with 5 articles published in 2017, 5 articles published in 2018, 5 articles published in 2019, 9 articles published in 2020, and 7 articles published in 2021. For the instruments used in the study, questionnaires were used by conducting interviews or observations. From the total articles, 18 articles examine factors related to OD behavior, 4 articles examine factors related to defecation and 9 articles examine factors related to the use of latrines. The entire article describes how the independent variables which include predisposing, enabling, and reinforcing factors affect the dependent variable, namely open defecation (OD) behavior. The results of the article analysis are summarized in Table 1.

Based on the results of the analysis, there were 16 independent variables studied in all articles. These variables include 7 predisposing factors, 5 enabling factors and 4 reinforcing factors. The summary results are presented in Table 2.

4 Discussion

4.1 Predisposing Factor

Lawrence Green (2005) in his theory states that predisposing factors are easy factors that underlie a person's behavior, where these factors can be a review in inhibiting or supporting the occurrence of a behavior. Facilitating factors include knowledge, attitudes, cultural values, perceptions or habits, education, age, sex, and occupation [20]. Meanwhile, based on the results of the review, the predisposing factors that influence the open defecation behavior of people in Indonesia are as follow.

Education

According to Green (2005), education is an influential factor in a person's knowledge, attitudes, perceptions, beliefs, and assessments of health, including defecation behavior [21]. Other studies conducted in Nigeria [22], Ghana [23] and Ethiopia [24] also stated that education level had a significant effect on OD behavior. This could be because low education affects the lack of understanding about the provision of sanitation facilities and the impact of OD [25].

Based on the results of the review, the article that mentions the relationship between education and OD behavior explains that people who do not receive education or belong to a low level of education, namely Elementary School and Junior High School tend to do OD, because people with low education have limitations in obtaining information and understanding related to OD so they consider OD as a natural thing (P2, P7, P24). Low education prevents people from receiving information, so they have little knowledge. This has an impact on the limited ability to assess, understand and analyze behaviors that have positive and negative impacts.

However, education is not always the main factor in shaping behavior. Based on the results of the review, 5 articles explained that low education did not affect OD behavior. The other factors influence the occurrence of behavior such as knowledge, attitudes, and non-formal education. Higher education does not guarantee that a person will know more about OD behavior than people with low education (P29), and higher education does not always make a person sure to apply what is known (P18, P27). When OD behavior has become a habit, it will be difficult to change. These results are supported with the research in Nepal, which states that education has no significant effect on OD behavior, where despite low education, the Nepalese government itself has increased the coverage of latrines to reduce the number of OD [26].

Knowledge

Knowledge is the introduction of sources of information and ideas obtained by individuals both from individual experiences and the experiences of others so as to trigger the individual to solve the problems experienced [9, 35]. Knowledge, insight and understanding of bad and good things in an action are important domains in formulating an

Table 1. Results of article analysis

Code	Author/s	Year of Research	Sampling Technique	Respondent	Data Analysis Technique	Results
P1	Frijji Linggar; A.L. Rantetampang; Rosmin Tingginehe; Anwar Mallongi	2018	Total sampling	73 family heads	Chi-square test	There is an effect between knowledge, attitude (predisposing factor), and the role of health workers, the role of community leaders, the role of cadres, (reinforcing factor) with defecation behavior in the latrine [27]
P2	Rizma Izzati Makkiyah Giraldi; Putri Nabilah Ramadhani; R. Azizah; Juliana Jalaludin	2020	Probability random sampling with proportional random sampling	60 representatives of family members aged > 17 in ODF Villages and 68 in non ODF Villages	Mann-whitney U test	There are differences in OD behavior on education and income (predisposing factors) in ODF and Non-ODF areas [28]

(continued)

Table 1. (continued)

Code	Author/s	Year of Research	Sampling Technique	Respondent	Data Analysis Technique	Results
P3	Santy Margaritha Dasi; Putri Nabilah Ramadhani	2020	Probability random sampling with proportional random sampling	60 representatives of family members aged > 17 in ODF Villages and 68 in non ODF Villages	Mann-whitney U test	There are differences in OD behavior between land availability, latrine ownership, house distance, or geographical (enabling factor) in ODF and Non-ODF areas [29]
P4	Aria Gusti; Helmidawati; Nizwardi Azkha	2021	Proportional to size random sampling	107 families with only one toddler	Chi-square test	OD determinants include knowledge, attitude (predisposing factor), and availability of latrines (enabling factor) [30]
P5	Titik Agustyaningsih; Angraini Dwi Kurmia; Retno Yumita Larasati	2019	Quota sampling	78 residents who are still OD	Spearman rank test	There is a relationship between knowledge (predisposing factor) and physical environment (enabling factor) with OD behavior [31]

(continued)

Table 1. (continued)

Code	Author/s	Year of Research	Sampling Technique	Respondent	Data Analysis Technique	Results
P6	Zurni Seprina; RatnamJuwita; Siti Azizah	2020	Purposive sampling	42 family heads or their representatives aged 15–59 years	Chi-square test	There is a relationship between knowledge, attitudes (predisposing factor), ownership of latrines (enabling factor), the role of community leaders (reinforcing factor) with OD behavior [32]
P7	Gandha Sunaryo Putra; Ria Risti Komala Dewi	2020	Proportional random sampling	84 family heads	Chi-square test	There is a relationship between education, economy, and culture (predisposing factors) with OD behavior [33]
P8	Bening Kusuma Ramadhini; Putri Nabilah Ramadhani	2020	Probability random sampling with proportional random sampling	60 representatives of family members aged > 17 in ODF Villages and 68 in non ODF Villages	Mann-whitney U test	There are differences in OD behavior between attitudes, knowledge (predisposing factors) in ODF and non ODF villages [34]

(continued)

Table 1. (continued)

Code	Author/s	Year of Research	Sampling Technique	Respondent	Data Analysis Technique	Results
P9	Nina	2018	Accidental sampling (total sampling)	97 representatives of each family (Housewife)	Chi-square test	There is a relationship between knowledge, economy (predisposing factor) and facilities (enabling factor) with OD behavior [35]
P10	Vera Yulyani; Christin Angelina Febriani; Shahrudin MS; Dessy Hermawan	2021	Proportional random sampling	377 family heads	Chi-square test and logistic regression analysis	There is a relationship between land availability, latrine ownership (enabling factor), and OD behavior [36]
P11	Sherly Vermita Warlenda; Ria Anggia Dwi Radifa; Nila Puspita Sari; Arief Wahyudi	2020	Purposive sampling	91 family heads who are still OD	Chi-square test	There is a relationship between knowledge, attitude, income (predisposing factor) and latrine conditions (enabling factor) with OD behavior [37]

(continued)

Table 1. (continued)

Code	Author/s	Year of Research	Sampling Technique	Respondent	Data Analysis Technique	Results
P12	Sunarti	2020	Proportional random sampling	62 family heads	Chi-square test and logistic regression analysis	There is a relationship between knowledge, attitude, education, income (predisposing factor), and latrine ownership (enabling factor) with OD behavior [38]
P13	Hetty Ismainar; Tety Kumiasari; Ahmad Hanafi	2021	Proportional random sampling	194 family heads	Chi-square test and logistic regression analysis	There is an influence between income, habits (predisposing factor), access to latrines (enabling factor), and support from community leaders, development of health workers, and (reinforcing factor) on OD behavior [39]

(continued)

Table 1. (continued)

Code	Author/s	Year of Research	Sampling Technique	Respondent	Data Analysis Technique	Results
P14	Nila Puspita Sari; Susanti	2021	Simple random sampling	191 family heads	Chi-square test	There is a relationship between knowledge, attitude, economy (predisposing factor), availability of facilities (enabling factor), and the role of health workers (reinforcing factor) with OD [40]
P15	Husna; Suci Mailanie	2017	Purposive sampling	55 family heads	Chi-square test	There is an influence between knowledge (predisposing factor), and latrine ownership (enabling factor) with OD behavior [41]
P16	Alfan Aulia; Nurjazuli; Yusniar Hanani Darudiati	2019	Proportional random sampling	55 family heads	Chi-square test	There is a relationship between attitude (predisposing factor) and ownership of latrines, availability of clean water (enabling factor) with OD behavior [42]

(continued)

Table 1. (continued)

Code	Author/s	Year of Research	Sampling Technique	Respondent	Data Analysis Technique	Results
P17	Faikoh Kurratun Fajriah; Setiawan; Ermita Sari	2021	Random sampling	87 family heads/wife	Chi-square test	There is a relationship between intention to act (predisposing factor), ownership of latrines, geographical conditions (enabling factor), and support from health workers, village apparatus support (reinforcing factor) with OD behavior [43]
P18	Hayana; Hastuti Marlina; Anggun Kurnia	2017	Probability sampling through simple random sampling	191 family heads	Chi-square test	There is a relationship between knowledge, income, attitudes, habits (predisposing factors) with OD behavior [44]

(continued)

Table 1. (continued)

Code	Author/s	Year of Research	Sampling Technique	Respondent	Data Analysis Technique	Results
P19	Anna Dwiana; Lucky Herawaty	2017		100 family heads	Chi-square test	There is a relationship between knowledge (predisposing factor) and the availability of latrines (enabling factor) with defecation behavior [45]
P20	Hilmi Sulaiman Rathomi; Eka Nurhayati	2017	Cluster random sampling	210 family heads or their representatives	Chi-square test and spearman rank analysis	There is a relationship between knowledge, attitude (predisposing factor), and latrine ownership (enabling factor) with OD behavior [46]
P21	Laeli Apriyanti; Bagoes Widjanarko; Budi Laksono	2018	Purposive sampling	103 family heads who received latrine assistance	Chi-square test	There is a relationship between knowledge, attitude (predisposing factor), and family support (enabling factor) with the use of latrines [47]

(continued)

Table 1. (continued)

Code	Author/s	Year of Research	Sampling Technique	Respondent	Data Analysis Technique	Results
P22	Sondang Siahaan; Rina Fauziah	2018	Purposive sampling	87 families who living on the riverbank	Chi-square test	There is a relationship between knowledge, behavior after defecation (predisposing factor), and availability of latrines (enabling factor) with defecation behavior [48]
P23	Ana Marisa Hidayat; Akhmad Fauzan; Asrianwaty	2019	Proportional random sampling	76 family heads	Chi-square test	There is a relationship between knowledge, economy (predisposing factor), and the use of cemplung latrines [49]
P24	Wiji Oktasari; Budi Laksono; Dyah Rini Indriyanti	2017	Proportional random sampling	93 family heads who received latrine assistance	Chi-square test	There is a relationship between education, knowledge, economy (predisposing factor), and the availability of clean water (enabling factor) with the use of latrines [50]

(continued)

Table 1. (continued)

Code	Author/s	Year of Research	Sampling Technique	Respondent	Data Analysis Technique	Results
P25	Dhea Pramesti Regita; Tri. Joko; Mursid Rahardjo	2019	Proportional random sampling	97 family heads or their representative aged 26–46 years (adults)	Chi-square test	There is a relationship between education, occupation, income, knowledge, attitude (predisposing factor), and latrine ownership (enabling factor) with defecation behavior [21]
P26	Yulia Irma Ulina; Ayi Darmana; Nur Aini	2019	Total sampling	71 family heads	Chi-square test and logistic regression analysis	There is a relationship between knowledge, education, attitude, occupation (predisposing factor), and information on health workers (enabling factor) with the behavior of not using latrines [51]

(continued)

Table 1. (continued)

Code	Author/s	Year of Research	Sampling Technique	Respondent	Data Analysis Technique	Results
P27	Willem Lukas Selan; Petrus Romeo; Marselinus Laga Nur	2020	Simple random sampling	72 family heads	Chi-square test	There is a relationship between knowledge, attitude (predisposing factor), and availability of clean water (enabling factor) with the use of latrines [52]
P28	Vera Yulyani; Dina Dwi N; Dina Kurnia	2018	Proportional random sampling	399 family heads	Chi-square test and logistic regression analysis	There is a relationship between knowledge, attitude, economy (predisposing factor), latrine conditions, availability of clean water (enabling factor), and health workers (reinforcing factor) with latrine use behavior [53]

(continued)

Table 1. (continued)

Code	Author/s	Year of Research	Sampling Technique	Respondent	Data Analysis Technique	Results
P29	T. Samsul Hilal; Ahmad Husaini; Andi Ahmadiyah Nurussabil	2020	Proportional simple random sampling	99 family heads or housewives	Chi-square test	There is a relationship (predisposing factor) of clean water facilities (enabling factor), and the role of community leaders (reinforcing factor) with the behavior of using latrines [54]
P30	Erma; Andi Yusuf; Rahmawati Aziz	2021	Purposive sampling	95 family heads	Chi-square test and logistic regression analysis	There is a relationship between income (predisposing factor) latrine conditions (enabling factor), and support from community leaders (reinforcing factor) with latrine use behavior [55]

(continued)

Table 1. (*continued*)

Code	Author/s	Year of Research	Sampling Technique	Respondent	Data Analysis Technique	Results
P31	Agus Darmawan; Taswin; Hastri Mailoa	2021	Total sampling	48 family heads	Chi-square test	There is a relationship between knowledge (predisposing factor) and the availability of latrines (enabling factor) with latrine use behavior [56]

Table 2. Independent variables recap data

No	Variable	Sub Variable	Number of Articles Reviewed		Number of Articles Showing Affect			Number of Articles Showing No Affect		
			f	%	No. Article	f	%	No. Article	f	%
1	Predisposing	Education	12	38.71	P2, P7, P10, P12, P24, P25, P26	7	58.33	P1, P16, P18, P27, P29	5	41.67
2		Knowledge	26	83.87	P1, P4, P5, P6, P8, P9, P11, P12, P14, P15, P18, P19, P20, P21, P22, P23, P24, P25, P26, P27, P28, P29, P31	23	88.46	P7, P16, P30	3	11.54
3		Occupation	3	9.68	P25, P26	2	66.67	P10	1	33.33
4		Income	17	54.84	P2, P7, P9, P10, P11, P12, P13, P14, P18, P23, P24, P25, P28, P30	14	82.35	P6, P19, P21	3	17.65
5		Attitude	19	61.29	P1, P4, P6, P8, P10, P11, P12, P14, P16, P17, P18, P20, P21, P25, P26, P27, P28, P31	18	94.74	P19	1	5.26
6		Habit	3	9.68	P7, P13, P18	3	100	-	0	0

(continued)

Table 2. (continued)

No	Variable	Sub Variable	Number of Articles Reviewed		Number of Articles Showing Affect			Number of Articles Showing No Affect		
			f	%	No. Article	f	%	No. Article	f	%
7		Sex	1	3.23	-	0	0	P27	1	100
8	Enabling	Land Availability	2	6.45	P3, P10	2	100	-	0	0
9		Latrine Availability	15	48.39	P3, P4, P6, P9, P10, P12, P14, P15, P16, P17, P19, P20, P22, P25, P31	15	100	-	0	0
10		Water Availability	10	32.26	P16, P24, P27, P28, P29	5	50	P11, P13, P17, P21, P25	5	50
11		Latrine Condition	4	12.90	P5, P11, P28, P30	4	100	-	0	0
12		Geographical Location	4	12.90	P3, P13, P17	3	75	P21	1	25
13	Reinforcing	Health Workers Role	12	38.71	P1, P13, P14, P17, P26, P28	6	50.00	P4, P16, P18, P19, P21, P29	6	50.00
14		Community Leaders Role	9	29.03	P1, P6, P13, P17, P29, P30	6	66.67	P16, P19, P21	3	33.33
15		Family Role	1	3.23	P21	1	100	-	0	0
16		Caders Role	1	3.23	P1	1	100	-	0	0

action including open defecation (OD) behavior [44, 57]. According to the results of the review, 26 articles (83.87%) examined the relationship of knowledge to OD behavior, and 23 articles (88.46%) stated that there was a relationship between knowledge and OD behavior.

Knowledge is a person's domain to take an action, if an action is not based on knowledge, the action will not last long [33]. Based on the results of a review of articles showing the relationship between knowledge and OD behavior, it is explained that OD was conducted by people with low knowledge, where they do not know the impact caused by OD. Low knowledge can be caused by a low level of education (P5, P6, P11, P17, P23), causing a lack of ability to understand the information obtained. In addition, it can also be caused by a lack of enthusiasm, awareness and willingness of the community to find out what is not yet known, including OD behavior (P1, P9, P19). People who work at indefinite times also contribute to low knowledge, for example planters, laborers and fishermen who prefer to work instead of participating in health activities, so that their knowledge about OD behavior is limited and tends to do OD (P11, P18, P19, 31). However, these results are not in line with research conducted in a region in Ghana. The study states that knowledge has no effect on OD behavior, where there are economic and socio-cultural factors that are more influential on defecation behavior in latrines [23].

Occupation

Occupation is a condition where a person has responsibility for what he does [58]. According to Soemardji (1999) in Wijayanti et al. (2016), the influence of occupation on behavior is related to a person's psychological condition, where someone who does not have a job condition, they don't have the responsibility to adapt to the environment [59]. According to the results of the review, 3 articles (9.68%) examined the relationship between occupation and open defecation (OD) behavior, and 2 articles (66.67%) stated that there was an influence between occupation and open defecation behavior (P25, P26). This is supported with research conducted in Raipur India, where employment status has a significant effect on OD behavior [60].

Based on the results of the review, individuals who occupation in the informal sector are tend to do OD than in the formal sector. The results showed that informal jobs such as farmers, laborers, traders, fishermen, and other tend to occupation not at certain times so access to latrines is also not always available when needed. In addition, informal jobs with uncertain salaries also affect the ability to meet their needed (P25). They will prioritize primary needs over the need for latrine facilities [21].

Economic Status

Economic status is a person's ability to meet needs in accordance with existing income and become one of the factors in facilitating behavior change [61]. Economic conditions affect the ability of individuals to provide sanitation facilities including the availability of latrines [62]. According to the results of the review, 17 articles (54.84%) examined the relationship between economic status and OD behavior, and 14 articles (82.35%) of them stated that there was a relationship between economic status and OD behavior. This study is also consistent with the results of a study in Ghana, which states that individuals with low economic levels are 0.62 times more likely to have OD compared to individuals with high economic levels [62]. The results of studies in other countries

such as sub-Saharan Africa [25] and Nigeria [22] also mention that OD behavior tends to occur in people with low economic status.

Based on the results of the analysis, people with low economic levels are tend to do OD. In research that shows a link between economic status and OD behavior, it is explained that the relationship lies in the individual's ability to meet needs. Someone with a low economic condition will prioritize primary needs compared to the fulfillment of health facilities [63]. In addition, it also results in a lack of attention in caring for and maintaining the condition of the latrine, so the latrine looks dirty and makes them lazy to defecate in the latrine (P24). Meanwhile, research states that economic status has no relationship with OD because economic factors are not the dominant factor, although a person's economic status is classified as low if balanced with good knowledge, good defecation behavior will also be formed (P6, P19). In high-income communities, if they do not have the will to build latrines, they will continue to do OD (P21).

Attitude

Attitude is a person's response to a stimulus that is closed based on the experience of individuals or others and involves one's emotions ranging from feeling happy, not happy, agreeing, disagreeing, and so on so that it leads to the formation of behavior [37, 38, 64]. According to the results of the review, 19 articles (61.29%) examined the influence of attitudes on OD behavior and 18 articles (94.74%) of them stated that there was an influence between attitudes and OD behavior. Another study in Nigeria also states that negative attitudes are the main motivator for the formation of OD [22].

A negative attitude to an object is caused by an assessment of the results of a stimulus or someone's low outcome expectations, which causes a person behavior [27]. Based on the results of the review, it was found that people who still do OD are people who have a negative attitude towards defecation behavior. They assume that OD does not harm others, is more practical and comfortable and does not cause disease (P1, P11, P12, P16, P26). Attitudes are related to people's knowledge, where lack of knowledge about the negative impacts of OD encourages a person to give a negative response (P18, P28). However, sufficient knowledge has not been able to form a positive attitude as a whole because there is still an unpreparedness in taking an action [32]. Community knowledge in OD also influences the formation of attitudes, where when knowledge is good, it does not necessarily have a good attitude (P29, P11). Another study stated that jobs with low incomes, such as fishing, lead to negative attitudes towards the importance of building latrines. Construction of latrines is considered a waste of money, so they prefer to do OD (P31).

Habit

Habits are aspects of behavior that persist, occur automatically and without preparation [33]. Habits will be formed when someone performs the same action continuously and repeatedly for a long time [65]. According to the results of the review, 3 articles (9.68%) examined the relationship between habit and open defecation behavior, and all articles stated that there was an influence between habit and open defecation behavior (P7, P13, P18). Another study in Madhya Pradesh India also stated that the main reason people still practice open defecation is because of a habit that has been conducted for generations [66].

Based on the results of the review, it is known that people who still do OD are caused by the assumption that OD is a hereditary culture that has been going on for a long time, so it becomes a habit and is difficult to leave. These habits ultimately hinder the occurrence of changes in OD behavior for the better. In addition, the community's assumption that OD is considered easier and more practical will create a feeling of comfort that triggers the formation of OD habits (P18).

Sex

Sex is a concept to distinguish between men and women from a biological perspective [67]. Women tend to maintain body secrecy so that they will feel embarrassed when doing OD [52]. According to the results of the review, 1 article (3.23%) examined the relationship between sex and open defecation behavior, but the results of the study showed that sex did not affect OD behavior. This study supported with research in Ghana where sex is not associated with OD behavior [23]. This can be caused because sex is a complex and uncertain matter in determining the ability to act, each sex has the same opportunity to do OD, where they have sensitive body parts that are kept secret from the eyes of others (P27). However, a review study conducted in India had results that contradicted the results of this study. In the study, it was found that OD behavior has more impact on women, where they feel ashamed and insecure and allow sexual harassment if they are not able to maintain the privacy of their bodies so that the unavailability of latrines becomes an additional burden for women [68].

4.2 Enabling Factor

According to Green (2005) in Pakpahan et al. (2021), enabling factors are factors that facilitate the occurrence of a behavior [20]. Meanwhile, based on the results of the review, the enabling factors that influence the open defecation behavior of people in Indonesia are as follows.

Land Availability

The land availability affects the ability to build latrine facilities. A healthy latrine is a latrine that has a septic tank to collect feces [29]. Limited land can make it difficult for someone to provide health facilities including the construction of latrines [69]. According to the results of the review, 2 articles (6.45%) examined the relationship between land availability and open defecation behavior, and two articles stated that there was a relationship between land availability and open defecation behavior. Supported with the research in India, which states that land availability affects latrine ownership [70].

Based on the results of the analysis, people with limited land availability and not their land are tend to do OD (P3). The narrow land causes the community to be unable to build latrine facilities including septic tanks so they prefer to do OD. Meanwhile, another study states that the location of land in vulnerable areas such as mountainous areas causes people to worry about landslides and land prices will drop due to holes in the ground, so people prefer to do OD, rather than having to build defecation facilities (P10).

Defecation Facility

Facilities are all types of facilities to conduct an activity and are one of the easy factors in realizing changes in health behavior [71]. The facilities needed to carry out defecation include the availability of healthy latrines and the availability of clean water. According to the results of the review, 15 articles (48.39%) examined the relationship between latrine availability and OD behavior, and all articles stated that there was a link between latrine availability and OD behavior. This study supported by previous research in Nepal, where families who do not have latrines have a 42.5% chance of having OD compared to families who have latrines. By having their latrine, someone will be freer to use it whenever needed [23].

Based on the results of the analysis, people who do not have latrines tend to do OD. The absence of healthy latrine facilities occurs in people with low economic levels, where as previously mentioned that people with low economic levels will prioritize meeting primary needs compared to building healthy latrines because they are considered to require large costs (P14, P19, P20, P22, P31). These results supported with the research conducted in Malang City, which states that low economic conditions cause households to find it difficult to build and maintain latrines [63]. Geographical conditions also affect the availability of healthy latrines, the narrow area of which prevents people from building latrines and septic tanks (P3). The location of houses that are not supportive, such as flood-prone areas, also causes people to prefer to drain latrine waste into the river compared to building latrines (P22). In addition, the lack of public knowledge about the benefits of building healthy latrines causes people to prefer to do OD (P12, P14, P15, P31), there are even people who refuse to be given latrine construction assistance by the government because they feel they do not need latrines (P16).

For the availability of clean water, there were 10 articles (32.26%) that examined the relationship between the availability of clean water facilities and OD behavior, and 5 articles (50%) stated that there was a relationship between the availability of clean water and OD behavior. This study supported with a study conducted in Ethiopia where limited clean water has a relationship with OD behavior, these limitations cause households to be unable to maintain the cleanliness of their [72].

The availability of water is influenced by the geographical conditions of the community starting from the drought during the dry season (P24, P27), the lack of water catchment areas because the land is used as rice fields (P16). And the number of water sources (wells) is insufficient (P29). The lack of water availability causes people to be lazy to use latrines because they have to lift water from other places both to clean themselves after defecating and to clean latrines. Meanwhile, the study stated that the availability of water did not affect OD behavior, it was due to low knowledge. And people felt more comfortable doing OD (P11). In addition, the location of houses close to rivers and ditches causes people to be reluctant to build latrines even though there is sufficient water (P13).

Latrine Condition

The condition of good facilities affects a person's willingness to use these facilities, where poor latrine conditions have an impact on the low use of latrines [73]. According to the results of the review, 4 articles (6.68%) examined the relationship between latrine conditions and open defecation behavior, and all of them stated that there was

a relationship between latrine conditions and open defecation behavior (P5, P11, P28, P30). Supported with the research conducted in Ethiopia where households that do not clean their latrines regularly are 5.5% more likely to have OD than households that clean their latrines regularly [74]. Based on the results of the review, it was found that people with poor latrine conditions tended to do OD. These conditions include clogged drains, have never been cleaned, cause unpleasant odors and unsafe seating conditions, so they cannot provide comfort in the morning to the wearer and prefer to do open defecation.

Geographical Condition

Geographical conditions are related to the proximity of the house to a location that allows OD. According to Karr, the right conditions and situations can enable or facilitate a person to realize certain behaviors [1]. According to the results of the review, 4 articles (12.90%) examined the relationship between geographical conditions and open defecation behavior, and 3 articles (75%) which stated that there was a relationship between geographical conditions and open defecation behavior. Based on the results of the review, people with geographical conditions in the form of housing locations close to rivers are more likely to carry out OD than defecate in the latrine (P3, P13, P17). This is related to the ease of accessing the location so that the community does not feel the need to build latrines and chooses to do open defecation. Supported with the research conducted in Tidore, where based on the results of research through in-depth interviews and focus group discussions (FGD), it is known that people with houses located close to the beach cause soil conditions to become moist, so that latrine buildings rot quickly. This is what ultimately causes the community to be reluctant to build private latrines and prefer to do OD because of the ease of access to the location [75].

4.3 Reinforcing Factor

Reinforcing factors are related to factors that can strengthen the formation of action or called driving factors. Included in the driving factors are social or community support that can trigger someone to take action for change [20]. As for the results of the review, several factors influence the open defecation behavior of people in Indonesia as follows.

Health Workers Role

Health workers are people who devote themselves to the health sector and have the knowledge and/or skills through education in the health sector [27], where health workers have a vital role in helping the community to achieve the highest degree of health. According to the results of the review, 12 articles (38.71%) examined the relationship between the role of health workers and open defecation behavior, and 6 articles (50%) stated that there was a relationship between the role of health workers and open defecation behavior. In these studies, it can be concluded that health workers include all health workers who are involved in efforts to change OD behavior without any special criteria or certain health workers.

Based on the results of the review, it is known that people who feel that health workers are not supportive tend to do OD compared to the other way around. The community feels that health workers are not optimal in providing knowledge about the use of latrines (P1). The government has established programs to reduce the number of

OD in several regions. However, in its implementation by related health workers, it has not been carried out optimally, ranging from uneven implementation and the absence of evaluation and monitoring (P15, P16, P26). Another study in Tidore also mentioned the same thing, where based on the results of FGDs and in-depth interviews in the area, outreach activities on Clean and Healthy Living Behavior were not carried out routinely every month so that there were still many people who did OD [75].

The article states that there is no relationship between the role of health workers and OD behavior because health workers only become facilitators to provide insight to the community, but behavior change comes from the community's willingness to be better (P18). Other research showed that some health workers are not native to the area, making it difficult to gain public trust and requiring more effort to achieve behavior change (P21).

Community Leaders Role

A community leader is someone who is respected and considered important by the community, so their actions and statements become role models for them [43]. According to the results of the review, 9 articles (29.03%) examined the relationship between community leaders and open defecation behavior, and 6 articles (66.67%) found a correlation between open defecation behavior and the role of community leaders. Supported with a study which showed that people with poor support from community leaders were 3 times more at risk for OD than the other way around [76]. In these studies, it is stated that community leaders include all people who have authority and are involved in efforts to change OD behavior, without any special criteria or certain community leaders.

The absence of community support can be due to the fact that community leaders do not understand how OD behavior affects the community and do not provide good examples for it (P6, P13). In addition, the public's perception of the character is not good, causing the public to be less willing to do what is said (P29), making it difficult to achieve changes in OD behavior for the better. Supported with the research in Tidore, in the research area there are community leaders who do not set good examples, by still doing OD for reason that they are accustomed to defecating on the beach even though they already have a toilet. This behavior has the potential to become an example for the community and become a habit that is difficult to change [75]. Despite the fact that research indicates that the role of community leaders does not affect OD behavior, as community leaders' support does not necessarily affect people's behavior, there are certain conditions when other factors influence behavior change more powerfully.

Family Role

Family support is a form of attention, encouragement, attitudes and actions that individuals get from other family members through interpersonal relationships to provide assistance, emotional and assessment [59, 77]. According to the results of the review, 1 article (3.23%) examined the relationship between the role of the family and the behavior of OD, and it was found that the role of the family was related to the behavior of open defecation. This is in line with a study which states that family motivation affects OD behavior [78]. According to Friedman, the family has an affective function to teach other family members, in which the family plays a role in encouraging, initiating, contributing and intermediary [79], including in the health sector. When family members

are less supportive of changing OD behavior for the better, then other family members who are still doing OD, will tend to continue to do OD, because there is no support and motivation to change behavior for the better from those closest to them.

Cadres Role

A health cadre is someone appointed by the community and trained to mobilize the community to participate in the health sector [80]. Based on the results of the analysis, 1 article examined the relationship between the role of cadres and open defecation behavior, and it was found that the role of cadres had a relationship with open defecation behavior. Cadres act as facilitators in motivating, providing assistance, and providing information related to OD behavior with the help of health workers, with the aim that the community is motivated to want and be able to change OD behavior for the better. Based on the results of the study, it is known that people who think that the role of cadres is less supportive are more likely to do OD than vice versa. Cadres who play a role in realizing changes in OD behavior are Community Based Total Sanitation cadres with a duty to monitor by visiting residents' homes and making reports at the village level and being a motivator to change OD behavior [81, 82]. Cadres who are less active in inviting the community to use latrines and rarely monitor the condition of the community also affect the difficulty of changing OD behavior for the better (P1).

5 Conclusion

Based on the results of the literature review, it can be concluded that the predisposing factors that influence the open defecation behavior of people in Indonesia include education, knowledge, occupation, economic status, attitudes and habits. Enabling factors that influence the open defecation behavior of people in Indonesia include land availability, latrines availability, clean water facilities availability, latrine conditions, and geographical conditions. Meanwhile, reinforcing factors that influence the open defecation behavior of people in Indonesia include health workers role, community leaders role, family role and the cadres role. A single factor does not always have a direct impact on open defecation behavior, rather there is an interaction between factors that influences open defecation behavior, so it is important to consider the interrelationships between these factors when determining behavior change efforts. This research is expected to be a reference for policy makers and relevant agencies in determining appropriate interventions according to conditions in the community.

In this study, there are independent variables that influence open defecation behavior, but only one study examines these variables, which include the role of the family and the role of cadres. In addition to influencing factors, other factors that did not affect open defecation behavior were found, namely sex, but only one study examined this variable. This study has limited independent variables reviewed, several factors have not been studied by previous researchers in the last five years, but have the possibility of influencing open defecation behavior, including the influence of social sanctions, age, number of family members, and others. Future researchers are encouraged to study further the effects of these variables on open defecation.

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