

Overview of Knowledge and Behavior of Clean and Healthy Living Patterns Post Flood

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ABSTRACT

Pucangsawit Village is the area with the highest incidence of flooding in the City of Surakarta, occurring up to six times per year, which increases the risk of health problems due to limited access to clean water and environmental sanitation. This condition highlights the importance of implementing Clean and Healthy Living Behavior as a preventive measure against post-disaster health issues. This study aimed to describe the level of knowledge and behavior related to Clean and Healthy Living Behavior among the community after flooding in Pucangsawit Village, Jebres District, Surakarta. A descriptive study with a quantitative approach was conducted. A total of 54 respondents were selected using proportional random sampling. Data were collected through questionnaires and analyzed using univariate analysis. The results indicated that a majority of respondents had a high level of knowledge (83.3%) and demonstrated good practices (59.3%) regarding Clean and Healthy Living Behavior. These findings suggest that the community has adequate understanding and implementation of healthy living practices after flooding. It can be concluded that good knowledge plays an important role in shaping healthy behavior; therefore, continuous monitoring and health education are necessary to maintain and improve the application of Clean and Healthy Living Behavior in preventing health problems following flood disasters.

Keywords: Clean and Healthy Living Behavior; Flooding; Knowledge; Post-disaster

INTRODUCTION

A disaster is an emergency situation that can cause suffering, death, material damage, and disruption to human life, and is often beyond human control (1). According to the Law of the Republic of Indonesia (2), disasters are classified into natural and non-natural types. One of the most frequent natural disasters is flooding, defined as the overflow of water that inundates normally dry land due to heavy rainfall, inadequate drainage systems, and climate change (3). Flooding not only causes environmental damage and economic losses but also poses serious public health risks, including increased incidence of diarrhea, dengue fever, acute respiratory infections, and skin diseases due to limited access to clean water and poor sanitation. Globally, Asia is among the regions with the highest flood risk, with countries such as China, India, Bangladesh, and Indonesia having large affected populations (4). In Indonesia, high annual rainfall and suboptimal river management contribute to frequent flooding (5), with 547 flood events recorded in 2022 (6) and Central Java Province reporting 193 incidents, ranking second among disaster types (7,8).

Surakarta City is a flood-prone area due to its low-lying location along the Bengawan Solo River, with Pucangsawit Sub-district experiencing the highest incidence (9). On February 4, 2024, flooding affected 1,018 residents (10), indicating high community vulnerability, particularly in terms of health. Implementing Clean and Healthy Living Behavior (CHLB) is an important strategy to reduce the health impacts of flooding. CHLB refers to efforts to empower communities by improving knowledge, attitudes, and behaviors to maintain and enhance health (11–13).

METHODS

This study used a quantitative, descriptive approach. This approach was chosen because it aimed to provide an overview of the level of knowledge and behavior regarding Clean and Healthy Living in the post-flood community in Pucangsawit Village, Jebres District, Surakarta City. The main focus of this study was to assess the knowledge and behavior of household heads in implementing Clean and Healthy Living as an effort to prevent health problems after the 2024 flood disaster. The population in this study was all household heads residing in Neighborhood Association (RW) 06, Pucangsawit Village, Jebres District, Surakarta City. The population of this study was 119 and then calculated using the Slovin formula with the result 54.34 then rounded to 54. The research sample consisted of 54 heads of households, which were determined using proportional random sampling, which randomly selected samples based on the proportion of heads of households in each neighborhood unit (RT) in RW 06. Data collection was carried out door to door, which randomly selects the sample based on the proportion of household heads in each neighborhood unit (RT) within RW 06.

After selecting respondents, the researcher collected data by visiting their homes door-to-door and during community meetings. The researcher introduced herself, explained the purpose of the study, and requested that respondents sign an informed consent form to participate. Next, respondents were asked to complete a questionnaire prepared by the researcher. The instrument used in this study was a closed-ended questionnaire consisting of two parts: a knowledge questionnaire and a Clean and Healthy Lifestyle behavior questionnaire. The knowledge questionnaire assessed respondents' understanding of the definition of a Clean and Healthy Lifestyle, the benefits of a Clean and Healthy Lifestyle, the objectives of a Clean and Healthy Lifestyle, and their understanding of 14 indicators of a Clean and Healthy Lifestyle. These 14 indicators include: childbirth assisted by a health worker, exclusive breastfeeding, monthly weighing of infants and toddlers, use of clean water, handwashing with soap, use of a healthy toilet, eradicating mosquito larvae, daily consumption of fruits and vegetables, daily physical activity, not smoking indoors, use of health insurance, tooth brushing, daily house cleaning, and proper waste disposal.

A behavior questionnaire was also developed based on these 14 indicators of a Clean and Healthy Lifestyle, reflecting respondents' actual practices in their daily lives after the flood, ranging from personal hygiene behavior, environmental cleanliness, utilization of health services, to disease prevention.

The research instrument underwent validity and reliability testing before use. The collected data were analyzed quantitatively using univariate descriptive analysis, calculating the frequency distribution and percentage of each variable, and then presented in tabular and narrative form.

This research was conducted in accordance with ethical research principles, including providing clear information regarding the research objectives and procedures, voluntary informed consent, guaranteeing the confidentiality of respondents' identities, and allowing respondents to withdraw at any time without consequence.

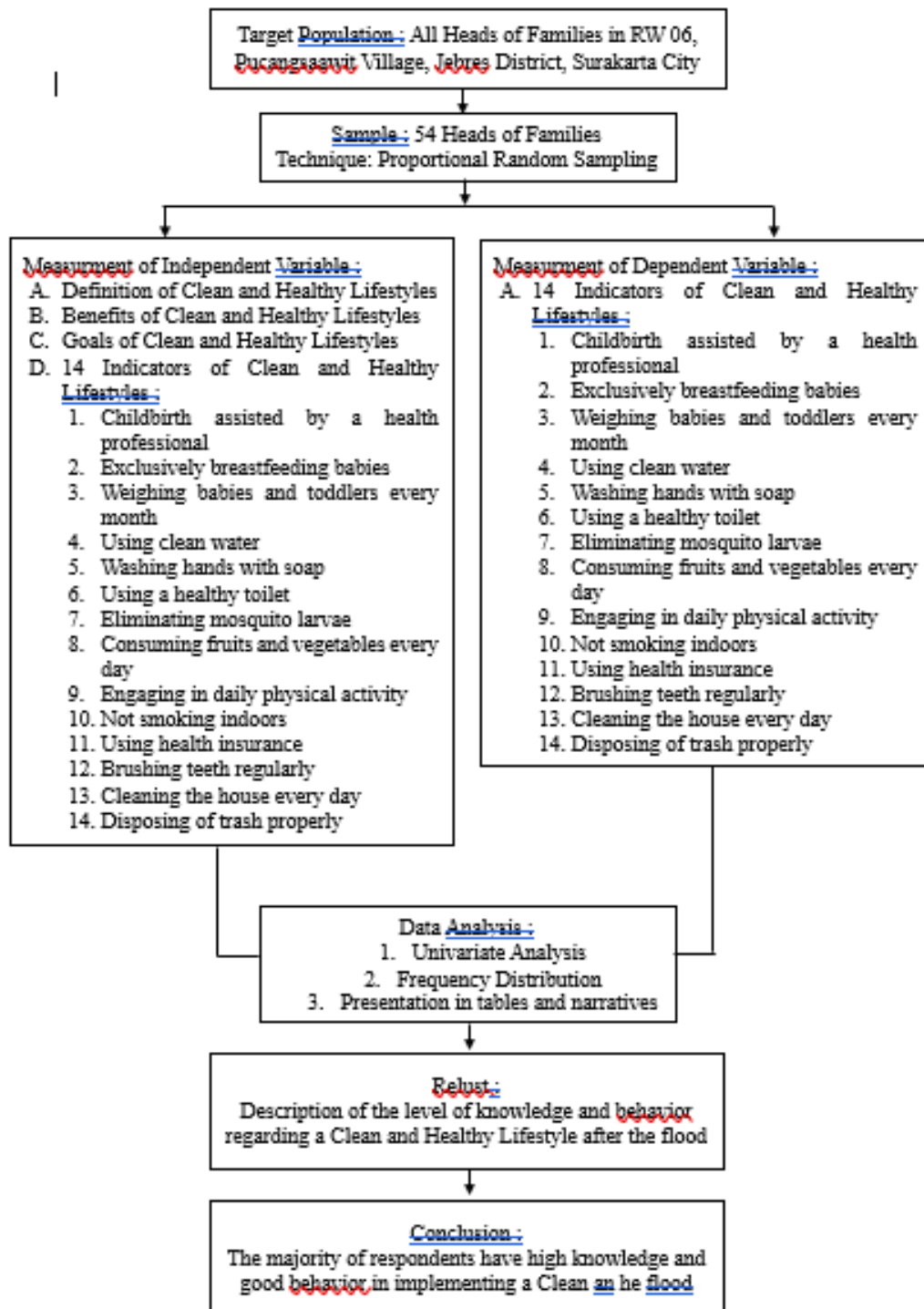


Figure 1. Research Stages Flowchart

RESULTS

Respondent characteristics based on age

Table 1 Frequency Distribution by Age

| No | Age Category | Frequency | % |
|-------|-----------------|-----------|-------|
| 1. | Age 26-35 years | 10 | 18,5 |
| 2. | Age 36-45 years | 13 | 24,1 |
| 3. | Age 46-55 years | 17 | 31,5 |
| 4. | Age 56-65 years | 5 | 9,3 |
| 5. | Age > 65 years | 9 | 16,7 |
| Total | | 54 | 100.0 |

Source: Primary Data (2025)

Based on Table 1, the frequency distribution of respondents by age in RW 6, Pucangsawit Village, Surakarta, in December 2025 shows that the majority of respondents were in the 46–55 age category, namely 17 respondents (31.5%).

Respondent Characteristics by Gender

Table 2 Frequency Distribution by Gender

| No | Category Gender | Frequency | % |
|-------|-----------------|-----------|------|
| 1. | Male | 37 | 68,5 |
| 2. | Female | 17 | 31,5 |
| Total | | 54 | 100 |

Source: Primary Data (2025)

Based on Table 2, the frequency distribution of respondents by gender in RW 6, Pucangsawit Village, Surakarta, in December 2025 shows that the majority of respondents were male, at 37 respondents (68.5%).

Respondent Characteristics Based on Last Education

Table 3 Frequency Distribution by Last Education

| No | Category Education Level | Frequency | % |
|-------|--------------------------|-----------|------|
| 1. | No schooling | 3 | 5,6 |
| 2. | Elementary school | 15 | 27,8 |
| 3. | Junior high school | 11 | 20,4 |
| 4. | High school | 20 | 37 |
| 5. | Diploma 3 | 1 | 1,9 |
| 6. | Bachelor | 4 | 7,4 |
| Total | | 54 | 100 |

Source: Primary Data (2025)

Based on table 3, the frequency distribution of respondents based on education in RW 6, Pucangsawit Village, Surakarta in December 2025 shows that the majority of respondents had a high school education level, namely 20 respondents (37.0%).

Knowledge of Clean and Healthy Lifestyles

Table 4 Frequency Distribution of Knowledge of Clean and Healthy Lifestyles

| No | Category Knowledge | Frequency | % |
|----|----------------------|-----------|------|
| 1. | High ($\geq 75\%$) | 45 | 83,3 |
| 2. | Moderate (56-74%) | 9 | 16,7 |
| | Total | 54 | 100 |

Source: Primary Data (2025)

Based on Table 4, the frequency distribution of post-flood PHBS knowledge levels in RW 6, Pucangsawit Village, Surakarta, in December 2025, shows that the majority of respondents had a high level of knowledge, namely 45 respondents (83.3%).

Clean and Healthy Lifestyle Behavior

Table 5 Frequency Distribution of Clean Living Behaviors

| No | Behavior Category | Frequency | % |
|----|-------------------|-----------|------|
| 1. | Good (76-100%) | 32 | 59,3 |
| 2. | Adequate (60-75%) | 22 | 40,7 |
| | Total | 54 | 100 |

Source: Primary Data (2025)

Based on Table 5, the frequency distribution of clean and healthy living behaviors after the flood in RW 6, Pucangsawit Village, Surakarta, in December 2025, shows that the majority of respondents (32 respondents) had good clean and healthy living behaviors. This indicates that most respondents had implemented clean and healthy living behaviors after the flood.

DISCUSSION

The study, conducted in December 2025 involving 54 household heads, found that the majority of respondents (83.3%) had a high level of knowledge about post-flood clean and healthy lifestyles, despite the last flood occurring in February 2024. This finding indicates that the community retained an understanding of the increased environmental health risks following flooding, including diarrhea, skin infections, and leptospirosis, as well as the importance of sanitation and clean water use.

Within the framework of health behavior theory, knowledge is a predisposing factor that influences risk perception and an individual's readiness to take preventive measures. Therefore, the high level of knowledge among respondents reflects adequate cognitive capacity, which can serve as a strong foundation for the development and maintenance of appropriate health behaviors even after a considerable time has passed since the flood event.

These findings align with Wulandari et al., who stated that knowledge contributes to public health preparedness in the context of flood disasters (14). Hadisti et al., also confirmed that communities with a good understanding of post-flood infectious disease prevention demonstrated greater readiness to implement preventive measures (15). This similarity in results reinforces the theoretical assumption that knowledge serves as an early determinant in the chain of behavior change. However, unlike some studies that found varying levels of knowledge due to limited access to information in affected areas, the results of this study

indicate that communities were relatively capable of optimally accessing and internalizing health information (16).

This increase in knowledge may be influenced by direct experience with flooding and health education interventions. Pangaribuan et al., demonstrated that post-flood health education effectively improved community understanding of hygiene and sanitation practices (17). Rahmawati et al and Sari et al., added that disaster experiences strengthen risk perception, which ultimately improves contextual understanding of health threats (18, 19). Furthermore, the role of digital technology cannot be ignored. Jannah et al and La Ramba et al., showed that the use of digital media and mobile health expanded public health literacy, especially in emergency situations (20, 21). This suggests that increased knowledge is influenced not only by face-to-face education but also by access to technology-based information.

Regarding behavior, the majority of respondents (59.3%) were in the good category in implementing a Clean and Healthy Lifestyle after the flood. In theory, health behavior is influenced by the interaction between predisposing factors (knowledge), supporting factors (availability of sanitation facilities), and reinforcing factors (social support and education). This finding supports research by Syarifuddin et al and Yuliana et al., which showed that post-flood outreach and education improved community hygiene practices (22, 23). Marni et al., also found that a community empowerment approach through the involvement of health cadres contributed significantly to the sustainability of environmental hygiene practices (24).

Furthermore, Yessi et al., reported a significant relationship between knowledge levels and Clean and Healthy Lifestyle behavior. The results of this study showed a similar pattern, where high levels of knowledge were followed by a predominance of good behavior. However, the percentage of good behavior (59.3%) was lower than the level of knowledge (83.3%), indicating a possible gap between knowledge and practice. This phenomenon is consistent with the theory that knowledge is a prerequisite, but it does not necessarily guarantee behavior change without the support of environmental and social factors (25).

Overall, the results of this study strengthen empirical evidence that high levels of knowledge, direct experience with disasters, educational support, and access to digital information contribute to the formation of Clean and Healthy Lifestyle behaviors after floods. However, the disparity between levels of knowledge and practice highlights the importance of sustainable, community-based interventions to bridge the gap between cognitive aspects and behavioral implementation. An integrative health promotion strategy combining education, community empowerment, and the use of digital technology is key to strengthening public health resilience in flood-prone areas.

CONCLUSION

This study shows that the majority of respondents in RW 06, Pucangsawit Village, have a high level of knowledge about clean and healthy lifestyles after the flood and good level of clean and healthy lifestyle behavior. This reflects that the community has understood and implemented efforts to maintain personal and environmental hygiene as a preventative measure for post-flood diseases. Based on these findings, it is recommended that the community maintain and improve the implementation of clean and healthy lifestyles, community health centers and village governments strengthen ongoing health education, and further researchers examine other factors that influence clean and healthy lifestyle behavior with a more analytical research design.

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