



The Correlation between Clean and Healthy Living Behavior and Diarrhea Incidence in Children Under Five Years Old: A Literature Review Study

Dwiana Mei Desti Setyarini¹, Nur Hidaayah²

¹Departement of Public Health, Faculty of Health, Universitas Nahdlatul Ulama Surabaya, East Java, Indonesia

²Departement of Nursing, Faculty of Nursing and Midwifery, Universitas Nahdlatul Ulama Surabaya, East Java, Indonesia

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CORRESPONDENCE

E-mail: nurhid@unusa.ac.id
dwiana.km15@student.unusa.ac.id

A B S T R A C T

Diarrhea is a disease often accompanied by mortality and morbidity. Its incidence increased 1% per year from 300 thousand household samples. Lack of Clean and Healthy Living Behavior (in Indonesia, namely of a program is *Perilaku Hidup Bersih Sehat* or *PHBS*) can affect the incidence of diarrhea. This paper analyzes the correlation between *PHBS* and diarrhea incidence in children under five years old. The four *PHBS* indicators are exclusive breastfeeding, healthy latrines, clean water, and handwashing with soap (HWS). This research was a literature review study. We used a database of google scholar and the garuda portal. In addition, journal screening included three stages. The first stage was the selection of free access journals. Then, the second stage was the selection of titles and abstracts according to the keywords (*PHBS*, Diarrhea, and Children under five years old) and publication year. The third stage was selecting the background, method, results, and discussion. Eleven papers explained the correlation between the *PHBS* and diarrhea incidence in children under five. There were five articles revealing the association between the incidence of diarrhea and four *PHBS* indicators. In addition, *PHBS* indicators most associated with diarrhea sequentially were handwashing with soap (11 publications), exclusive breastfeeding (10 journals), healthy latrines (8 papers), and clean water (6 documents). In conclusion, exclusive breastfeeding, clean water, healthy latrines, and handwashing with soap correlate to diarrhea incidence in children under five years old. Health workers should provide health education regarding *PHBS*.

INTRODUCTION

Diarrhea is an abnormality in defecation with a frequency of three or more times. It is one of the environmental-based diseases. Unfortunately, it is the leading cause of morbidity and mortality. Based on data from the World Health Organization (WHO), diarrhea is a global problem with the potential for Extraordinary Events often accompanied by morbidity and mortality. Nearly 1.7 billion cases of diarrhea occur in children under five years, with a mortality rate of 525,000 each year (World Health Organization, 2017).

The incidence of diarrhea in Indonesia from 2016 to 2017 experienced a very drastic increase to 1,527 cases and 28 deaths with a Case Fatality Rate (CFR) of 1.97%. According to Basic Health Research (2018), diarrhea is a disease often accompanied by mortality and morbidity. Its incidence increased 1% per year from 300 thousand household samples. In addition, there were two provinces with the highest incidence of diarrhea, namely East Nusa Tenggara (214 cases and four deaths with a CFR of 1.87%) and Papua (122 cases and 28 deaths with a CFR of 22.95%) (Kementerian Kesehatan RI, 2019).

Diarrhea is still a health problem, especially in developing countries. Indonesia is one developing country with high diarrhea morbidity and mortality (Buletin, 2016). Based on the diagnosis by health workers, the highest prevalence of diarrhea was in the age group of 1-4 years (11.5%), infants (9%), and over 75 years (7.2%). In addition, a high prevalence of diarrhea was in women, rural areas, low education, and fishermen (Kementerian Kesehatan RI, 2020).

Lack of Clean and Healthy Living Behavior (in Indonesia, namely of a program is *Perilaku Hidup Bersih Sehat* or *PHBS*) can affect the incidence of diarrhea, especially in toddlers (Grafika, Sabilu en Munandar, 2017). In addition, four *PHBS* indicators are exclusive breastfeeding, healthy latrines, clean water, and handwashing with soap (HWS). This paper analyzes the correlation between *PHBS* and diarrhea incidence in children under five years old.

METHOD

This research was a literature review study on people with diarrhea, especially children under five years old. We used a database of google scholar and the garuda portal. In addition, journal screening included three stages. The first stage was the selection of free access journals. Then, the second stage was the selection of titles and abstracts according to the keywords and publication year (from 2015 to 2020). Keywords were *PHBS*, Diarrhea, and Children under five years old. The third stage was selecting the background, method, results, and discussion.

RESULTS

Eleven papers explained the correlation between the *PHBS* and diarrhea incidence in children under five in this study.

Table 1. Summary of literature review findings

| Num | Authors and year of publication | Title | Method | Findings |
|-----|---|---|--|---|
| 1 | Ahmad Ruhardi, Dini Yuliansari (Ruhardi & Yuliansari, 2021) | The correlation between <i>Perilaku Hidup Bersih dan Sehat (PHBS)</i> and diarrhea incidence in children under five years old | a Research design: Case-Control. b Sample: 52 respondents c Sampling: Purposive sampling. d Data analysis: chi-square test. | a There were clean water facilities for the community – dug wells (805 units), springs (25 units), Indonesian regional water utility company (1,814 units). b 46.1% of children aged 1 to less than two years had diarrhea c There was no association between the use of clean water and healthy latrines with diarrhea incidence in children under five years old. |

| Num | Authors and year of publication | Title | Method | Findings |
|-----|---|--|---|---|
| | | | | Meanwhile, exclusive breastfeeding and handwashing correlated with diarrhea incidence in toddlers. |
| 2 | Agus Dwi Pranata, Eddy, Chairul Asni (Pranata <i>et al.</i> , 2020) | The correlation between healthy behavior and diarrhea incidence among children aged 1-4 Years old in the work area of Langsa Barat Public Health Centre. | a Research design: Analytic Survey. b Method: retrospektif or deskriptif. c Sampling: propositional sampling. d sample: 97 respondents e Data analysis: chi-square test | a 22.7% of children aged 1-4 years old had diarrhea. b 25.8% of respondents had less PHBS. c 56% of respondents correlated less PHBS and diarrhea incidence. d The statistical test obtained $p=0.000$, so there was an association between PHBS and diarrhea incidence. e There were still cases of diarrhea in children aged 1-4 years old. The most predisposing factor for diarrhea was the use of unhealthy latrines. |
| 3 | Wiqodatul Ummah, Santy Irene Putri (Ummah & Putri, 2020) | The Relationship of Clean and Healthy Living Behavior (PHBS) Household Arrangements with The Event of Diarrhea in Children in Polindes Palaan Ngajum | a Research design: cross-sectional. b Sampling: purposive sampling. c Sample: 30 respondents. | a 65.7% of respondents correlated PHBS and diarrhea incidence. b The community should improve PHBS. |
| 4 | Laila J.F Jannah, Retno Mardhiati, Nurul Huriyah Astuti (Jannah <i>et al.</i> , 2019) | The Relationship between Clean and Healthy Behavior (PHBS) of The Household Part with The Incidence of Childhood Diarrhea | a Research design: Analytic Survey. b Method: cross-sectional. c Sample: 90 respondents. d Data analysis: chi-square test. | a Less PHBS predisposed the incidence of diarrhea in 83.9% of children under five years old. b 65.5% of children aged 12-24 months experienced diarrhea. c 39.2% of children aged 25-59 months had diarrhea. d Statistical test obtained $p<0.05$. Thus, there was a correlation between PHBS and the incidence of diarrhea in children under five years old. |
| 5 | Toyibah, Miftah Apriani & Apriani, 2019) | The association between <i>Perilaku Hidup Bersih dan Sehat (PHBS)</i> and diarrhea incidence among children under five years old | a Research design: Analytic Survey. b Method: cross-sectional. c Sample: 88 respondents. d Data analysis: chi-square test. | a 58% of respondents experienced diarrhea, while 42% did not experience it. b 47.7% of respondents did not use the toilet. c 45.5% of respondents did not do handwashing. d 71.4% of respondents with less knowledge experienced diarrhea. e 71.4% of respondents who did not use the toilet experienced |

| Num | Authors and year of publication | Title | Method | Findings |
|-----|---|---|---|---|
| | | | | diarrhea. f 72.9% of respondents who did not do handwashing had diarrhea g There was a correlation between knowledge and <i>PHBS</i> with diarrhea incidence in children under five years old. |
| 6 | Hilda Irianty, Ridha Hayati, Yeni Rizal (Irianty <i>et al.</i> , 2018) | The relationship between <i>Perilaku Hidup Bersih dan Sehat (PHBS)</i> and diarrhea incidence among children under five years old | a Research design: Analytic Survey. b Method: cross-sectional. c Sample: 76 respondents. d Data analysis: chi-square test. | a 63.2% of children under five years old had diarrhea in the last three months. b 46.1% of children aged 25-48 months had experienced diarrhea. c 92.3% of respondents with no exclusive breastfeeding had diarrhea. d 68.8% of respondents who did not use clean water experienced diarrhea. e 53.8% of respondents did not use the toilet. f 48.7% of respondents did not do handwashing. g 24.3% of respondents who did not do handwashing experienced diarrhea. |
| 7 | Mustakharramal Haera Usman, Nursalim, Sri Darmawan (Usman <i>et al.</i> , 2018) | The correlation between <i>Perilaku Hidup Bersih dan Sehat (PHBS)</i> and diarrhea incidence in Samataring Public Health Center, East Sinjai District, Sinjai Regency | a Research design: Analytic Survey. b Sample: 62 respondents. c Data analysis: chi-square test. | a 29% of respondents who did not use clean water had diarrhea. b 40.3% of respondents who did not do handwashing had diarrhea. c 37.1% of respondents who use unhealthy latrines experienced diarrhea. d Lack of <i>PHBS</i> could cause diarrhea, especially in children under five years old. |
| 8 | Eka Saraditha Safitri, Devi Rahmayanti, Herawati (Safitri <i>et al.</i> , 2017) | <i>Perilaku Hidup Bersih Dan Sehat</i> in the Household and the incidence of diarrhea among children under five years in the riverside | a Research design: cross-sectional. b Sample: 82 respondents. c Data analysis: Slovin test. | a 13.4% of respondents had less <i>PHBS</i> . b There was a correlation between less <i>PHBS</i> with the frequency of diarrhea in respondents, namely, three times of diarrhea as much as two respondents, four times of diarrhea as much as one respondent, five times of diarrhea as much as three respondents, and more than five times as much as five respondents. c There was a correlation between <i>PHBS</i> and the incidence of diarrhea in toddlers. The cause of diarrhea is food infected with bacteria, and the most common |

| Num | Authors and year of publication | Title | Method | Findings |
|-----|--|--|--|---|
| | | | | bacteria in children under five years old is <i>E. coli</i> . |
| 9 | Afford Hendra Wongkar, Maria Merry Futunanembun (Wongkar & Futunanembun, 2017) | The correlation between <i>Perilaku Hidup Bersih dan Sehat (PHBS)</i> in mothers and diarrhea incidence among children under five years old in Tompasso Public Health Center, South Minahasa Regency | a Research design: Descriptive Analytic. b Method: cross-sectional. c Sample: 30 respondents. d Data analysis: chi-square test. | a 30% of respondents did not use clean water. b 43% of respondents did not do handwashing. c 27% of respondents did not use healthy latrines. d 33% of respondents had less <i>PHBS</i> . e The highest incidence of diarrhea in children aged 1-3 years was 27%. f Statistical test obtained $p=0.000$. Thus, there was a correlation between <i>PHBS</i> in mothers and diarrhea incidence in children under five years old. g Respondents with good <i>PHBS</i> did not experience diarrhea in their children. On the other hand, respondents with less <i>PHBS</i> had diarrhea. |
| 10 | Elisabeth Maria Mas, Atti Yudiermawati, Neni Maemunah (Mas <i>et al.</i> , 2017) | The association between <i>Perilaku Hidup Bersih dan Sehat (PHBS)</i> in mothers and diarrhea incidence among children aged 1-5 years old in at the Mawar Integrated Health Post, Merjosari Village, Dinoyo Health Center Area, Malang | a Research design: cross-sectional. b Sample:40 respondents. c Instrument: questionnaire. d Data analysis: Spearman rank test. | a 73.33% of respondents had good <i>PHBS</i> . b 93.33% of respondents did not experience diarrhea. c The results of data analysis yielded $p=0.014$. Thus, there was a correlation between <i>PHBS</i> in mothers and diarrhea incidence in children aged 1-5 years with a correlation value of 0.445. |
| 11 | Isnaniar, Yuni Indri Lestari (Isnaniar & Lestari, 2017) | The correlation between <i>Perilaku Hidup Bersih dan Sehat (PHBS)</i> in mothers and diarrhea incidence in Garuda Public Health Center, Pekanbaru | a Research design: cross-sectional. b Sampling: Accidental sampling c Sample:33 respondents. d Data analysis: Chi-square test. | a. 54.5% of children under five had experienced diarrhea in the last six months. b. 83% of children under five had diarrhea for less than three days, while 16.67% had diarrhea for more than equal to three days. c. 18.2% of respondents did not use clean water, 45.5% did not do handwashing, and 6.1% did not use healthy latrines. d. Lack of <i>PHBS</i> affected diarrhea incidence, namely clean water use (50% of respondents), handwashing (100% of respondents), and use of healthy latrines (13.33% of respondents). |

Table 1 explains that most articles correlate *PHBS* (exclusive breastfeeding, healthy latrines, clean water, and handwashing with soap) and diarrhea incidence in children under five years old.

Table 2. The correlation between Four *PHBS* indicators and diarrhea incidence in children under five

| Num. | Authors and publication year | The correlation between Four <i>PHBS</i> indicators and diarrhea incidence | | | |
|------|-------------------------------|--|-------------|------------------|-----|
| | | exclusive breastfeeding | clean water | Healthy latrines | HWS |
| 1 | Ruhardi & Yuliansari (2021) | √ | - | - | √ |
| 2 | Pranata <i>et al.</i> (2020) | √ | - | √ | √ |
| 3 | Ummah & Putri (2020) | √ | √ | √ | √ |
| 4 | Jannah <i>et al.</i> (2019) | √ | √ | √ | √ |
| 5 | Toyibah & Apriani (2019) | - | - | √ | √ |
| 6 | Irianty <i>et al.</i> (2018) | √ | √ | √ | √ |
| 7 | Usman <i>et al.</i> (2018) | √ | √ | √ | √ |
| 8 | Safitri <i>et al.</i> (2017) | √ | √ | - | √ |
| 9 | Wongkar & Futunanembun (2017) | √ | √ | √ | √ |
| 10 | Mas <i>et al.</i> (2017) | √ | - | - | √ |
| 11 | Isnaniar & Lestari (2017) | √ | - | √ | √ |

Table 2 shows five articles revealing diarrhea is associated with all *PHBS* indicators. In addition, *PHBS* indicators most associated with diarrhea sequentially were handwashing with soap (11 publications), exclusive breastfeeding (10 journals), healthy latrines (8 papers), and clean water (6 documents).

DISCUSSION

1. Exclusive breastfeeding and incidence of diarrhea in children under five years old

Clean and Healthy Living Behavior (*PHBS*) is essential to prevent diarrhea in children under five years old. It includes four indicators – exclusive breastfeeding, clean water use, healthy latrines, properly disposing of baby feces, and handwashing with soap. Exclusive breastfeeding is crucial because it is the best natural food source for children. (Wongkar & Futunanembun, 2017). Meanwhile, formula milk needs to pay attention to the hygiene of the baby's feeding bottles. However, some parents neglect to wash the feeding bottles properly because of busy work (Pranata *et al.*, 2020).

Exclusive breastfeeding provides excellent protection for children because it plays a vital role in increasing the immune system. A previous study conducted by Grafika *et al.* (2017) in the working area of the Benu-Benu Public Health Center, Kendari, involved 104 children under five years old. Respondents were divided into 52 in the case group and 52 in the control group. The study found that respondents (35 children under five years old) without exclusive breastfeeding had a greater risk of diarrhea than those with exclusive breastfeeding. In addition, the incidence of diarrhea in children under five years old without exclusive breastfeeding had a percentage of 67.3%. This percentage was much higher than the incidence of diarrhea in children under five years old with exclusive breastfeeding (32.7%). In addition, a similar study by Isnaniar & Lestari (2017) at the Garuda Public Health Center,

Pekanbaru, implicated 33 children under five years old, 15 toddlers in the case group, and 18 in the control group. The study revealed that respondents without exclusive breastfeeding were at a greater risk for diarrhea than those with exclusive breastfeeding. Respondents who stop exclusive breastfeeding and not good maternal behavior in breastfeeding can cause diarrhea.

2. Clean water uses and incidence of diarrhea in children under five years old

People who live at the riverside had poor *PHBS*. They did not wash fruits and vegetables in running water. In contrast, fruits and vegetables that will be cooked should be washed with running water so that the dirt that sticks can dissolve with the water. One predisposing factor for diarrhea was a water source not 10 meters from a garbage dump or a sewage disposal site. This condition could contaminate the water with bacteria, especially *E. coli*. In addition, the water source should flow, and the water storage must have a cover (Safitri *et al.*, 2017).

In addition, research by Asih & Saragih (2019) in Palembang involved 51 children under five years old. Respondents were divided into 28 in the case group and 23 in the control group. The study found that respondents (17 children under five years old) who did not use clean water had a greater risk of diarrhea than those who used clean water. In addition, the incidence of diarrhea in children under five years old who did not use clean had a percentage of 68%. This percentage was much higher than the incidence of diarrhea in children under five years old who use clean water (42%).

Meanwhile, Ruhardi & Yuliansari (2021) research had a different result. The study concluded that there was no significant correlation between the use of clean water and the incidence of diarrhea in children under five. The odds ratio (OR) was 1.19 with a value of $p=0.76$ ($p > 0.05$).

3. Use of healthy latrines and incidence of diarrhea in children under five years old

Indiscriminate disposal of feces is a source of disease spread. In addition to the lack of clean water use, people living on the riverside also experienced problems with the disposal of feces. River water contaminated with bacteria causes disease transmission. Some people already had toilets available, but they did not clean and dispose of the baby's wastes properly so that bacteria could grow and spread. This condition is caused by parents' lack of knowledge and busy work (Irianty *et al.*, 2018).

A previous study by Grafika *et al.* (2017) in Palembang involved 88 mothers of children under five. The study revealed that 30 respondents who did not use healthy latrines had a greater risk of diarrhea than those who used healthy latrines. The incidence of diarrhea in children under five who did not use healthy latrines was more significant (70.4%) than those who use healthy latrines (28.6%). Mothers with good *PHBS* can prevent diseases, such as diarrhea. In addition, similar research also revealed that some mothers disposed of baby's feces incorrectly. So it could be a risk factor for diarrhea. Mothers often put

diapers/trousers containing their child's feces on the bathroom floor. The mother did not know the impact and dangers of Indiscriminate disposal of feces (Pranata *et al.*, 2020).

4. Handwashing with soap (HWS) and incidence of diarrhea in children under five years old

Handwashing with soap provides excellent protection for children to prevent bacteria spread. Research conducted by Grafika *et al.* (2017) in the working area of the Benu-Benu Public Health Center, Kendari, involved 104 children under five years old. Respondents were divided into 52 in the case group and 52 in the control group. The study found that respondents who did not do HWS (30 respondents) had a greater risk of diarrhea than those who did HWS. The incidence of diarrhea in children under five who did not do HWS was more significant (57.7%) than those who did HWS (45.8%). Many people already knew the importance of handwashing, but sometimes they did not understand when to wash their hands (Irianty *et al.*, 2018). Thus, health workers must socialize with parents regarding how to wash their hands correctly and adequately (Toyibah & Apriani, 2019).

CONCLUSION

In conclusion, exclusive breastfeeding, clean water, healthy latrines, and handwashing with soap correlate to diarrhea incidence in children under five years old. Health workers should provide health education regarding *PHBS*.

REFERENCES

- Asih, N.P. en Saragih, S.K.D. (2019) “Hubungan Perilaku Hidup Bersih Dan Sehat (Phbs) Pada Tatanan Rumah Tangga Dengan Kejadian Diare Pada Balita Umur 0 – 5 Tahun”, *Jurnal 'Aisyiyah Medika*, 4(1), bll 63–77. doi:10.36729/jam.v4i1.234.
- Buletin (2016) *Menjaga Anak Balita Dari Diare Dan Usia Tepat Mendapatkan Makanan Tambahan*. Jakarta: Kawan Pustaka.
- Dwi Pranata, A., Eddy en Asni, C. (2020) “Hubungan Perilaku Sehat Dengan Kejadian Diare Pada Anak 1-4 Tahun di Wilayah Kerja Puskesmas Langsa Barat”, *JP2K (jurnal Pendidikan dan Praktik Kesehatan)*, 3(2), bll 178–188.
- Grafika, D., Sabilu, Y. en Munandar, S. (2017) “Faktor risiko kurangnya perilaku hidup bersih dan sehat (phbs) tatanan rumah tangga terhadap kejadian diare pada balita di wilayah kerja puskesmas benu-benu kota kendari tahun 2017”, *jurnal ilmiah mahasiswa kesehatan masyarakat*, 56(7), bll 1–10.
- Haera Usman, M., Nursalim en Darmawan, S. (2018) “Hubungan Antara Perilaku Hidup Bersih Dan Sehat (PHBS) Dengan Kejadian Diare di Wilayah Puskesmas Samataring Kecamatan Sinjai Timur Kabupaten Sinjai”, *Jurnal Ilmiah Kesehatan Diagnosis*, 12(1), bll 75–80.
- Hendra Wongkar, A. en Merry Futunanembun, M. (2017) “Hubungan Perilaku Hidup Bersih Dan Sehat (PHBS) Ibu Dengan Kejadian Diare Pada Balita di Puskesmas Tompasso Baru Kabupaten Minahasa Selatan”, *Journal Of Community & Emergency*, 5(1), bll 26–37.
- Hidayati, R. (2019) “Hubungan Perilaku Hidup Bersih dan Sehat (PHBS) Dalam Tatanan Rumah Tangga

Dengan Kejadian Diare Pada Balita di Puskesmas Lubuk Buaya Padang Tahun 2018”, *Journal of Social and Economics Research (JSER)*, 1(1), bll 1–9.

- Irianty, H., Hayati, R. en Riza, Y. (2018) "Relation Clean And Healthy Living Behavior With The Incidence Of Diarrhea In Infants", *PROMOTIF: Jurnal Kesehatan Masyarakat*, 8(1), bll 1–10.
- Isnaniar en Indri Lestari, Y. (2017) “Hubungan Perilaku Hidup Bersih dan Sehat (PHBS) Ibu Dengan Kejadian Diare di Puskesmas Garuda Pekanbaru”, *Jurnal Photon*, 8(1), bll 155–160.
- Istiroha, I. en Sahak, M.A. (2016) “Perilaku Hidup Bersih dan Sehat (PHBS) Ibu Berhubungan Dengan Kejadian Diare Pada Balita”, *Journals of Ners Community*, 7(2), bll 201–207. doi:10.5281/j ners community.v7i2.270.
- Jamila faikhotul jannah, L., Mardhiati, R. en Astuti, N.H. (2019) “Hubungan antara Perilaku Hidup Bersih dan Sehat (PHBS) Tatanan Rumah Tangga dengan Kejadian Diare pada Balita The Relationship between Clean and Healthy Behavior (PHBS) of The Household Part with The Incidence”, *ARKESMAS*, 4(1), bll 125–133.
- Kementerian Kesehatan RI (2019) *Profil Kesehatan Indonesia 2018 [Indonesia Health Profile 2018]*.
- Kementerian Kesehatan RI (2020) *Profil Kesehatan Indonesia 2019 [Indonesia Health Profile 2019]*. Jakarta.
- Maria Mas, E., Yudiernawati, A. en Maemunah, N. (2017) “Hubungan Perilaku Hidup Bersih dan Sehat (PHBS) Ibu Dengan Kejadian Diare Pada Anak Balita (1-5 Tahun) di Posyandu Mawar Kelurahan Merjosari Wilayah Puskesmas Dinoyo Kota Malang”, *Nursing News*, 2(3), bll 488–500.
- Ruhardi, A. en Yuliansari, D. (2021) “Hubungan Perilaku Hidup Bersih dan Sehat (PHBS) Dengan Kejadian Diare Pada Balita”, *Prosiding Seminar Nasional Penelitian dan Pengabdian 2021*, 3(1), bll 16–22.
- Saefurahman, F.A. en Gunawan, A.T. (2015) “Hubungan Sanitasi Lingkungan Dan Phbs Dengan Kejadian Diare Pada Balita Di Desa Kebumen Wilayah Kerja Puskesmas I Baturraden Kabupaten Banyumas Tahun 2015”, *Buletin Keslingmas*, 34(3), bll 166–170. doi:10.31983/keslingmas.v34i3.3067.
- Saraditha Safitri, E., Rahmayanti, D. en Herawati (2017) “Perilaku Hidup Bersih dan Sehat Rumah Tangga Dengan Kejadian Diare Pada Balita Pinggiran Sungai”, *Dunia Keperawatan*, 5(1), bll 78–83.
- Toyibah en Apriani, M. (2019) “Hubungan Prilaku Hidup Bersih dan Sehat (PHBS) Dengan Kejadian Diare Pada Balita”, *Jurnal 'Aisyiyah Medika*, 4(1), bll 110–119.
- Ummah, W. en Irene Putri, S. (2020) “Hubungan Perilaku Hidup Bersih dan Sehat (PHBS) Tatanan Rumah Tangga Dengan Kejadian Diare Pada Balita di Polindes Palaan Ngajum”, *Jurnal Bidan Komunikasi*, 3(1), bll 9–15.
- Waromi, K., Akili, R.H. en Kawatu, P.A.T. (2016) “Hubungan Antara Perilaku Hidup Bersih Dan Sehat Rumah Tangga Dengan Kejadian Diare Di Desa Ranowanko Kecamatan Tombariri Kabupaten Minahasa Tahun 2015”, *Pharmacon*, 5(4), bll 284–290.
- World Health Organization (2017) *Diarrhoeal Disease*. Available at: Diarrhoeal Disease.