

Handwashing Training for Hotel Employees to Reduce the Incidence of Traveler Diarrhea Disease in Tourists

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Abstract

Traveler diarrhea is known as Bali's belly and is often suffered by foreign tourists who visit Bali Island. These activities aimed to see the diarrhea status and knowledge level of hotel employees of the hand washing method. We held this community devotion at a hotel in the Kalibukbuk District, Buleleng – Bali Province, in April 2023. The objective of these activities was for all the hotel employees, a number 44 people. The subjects were chosen by the total sampling method. The inclusion criteria are the hotel employees were registered and willing to participate. The inclusion criteria are sick and on duty. The data collected are the results of a complete fecal laboratory and the level of knowledge about excellent and correct hand washing. Complete fecal data was collected by observation, while knowledge level data was collected by the self-administered questionnaire method. Furthermore, the data were analyzed in a univariate descriptive. Of the forty-four service participants, twenty-one were willing to collect fecal samples. The results of laboratory tests were obtained 100% of the hotel staff had complete fecal results within normal limits based on indicators of color, texture, fecal consistency, the appearance of bacteria, fungi, parasites, viruses, blood, leucocytes, pus, meat fiber, sugar and fat in feces and potential fecal, hydrogen (pH). The staff's knowledge level score about handwashing increased from 75.7 before counseling to 99.2 after counseling. Hotel employees are free from traveler's diarrheal disease and their level of knowledge increases after being given a campaign on proper and correct handwashing methods. So, it is advisable to routinely conduct fecal examinations once every one year and keep. Updating the knowledge and skills of staff in washing hands appropriately and correctly as an effort to prevent disease, especially travelers' diarrhea.

Keywords: Traveler's diarrhea; tourists; prevention; hand washing; devotion

INTRODUCTION

Traveler's diarrhea (TD) is the most common disease of tourists visiting developing countries, including Indonesia. (Connor, 2014) TD is diarrhea experienced by tourists due to exposure to pathogens in their destination area. Traveler's diarrhea, also known as Bali Belly, is a digestive problem that can occur from eating food contaminated with viruses or bacteria. It is called Bali Belly because tourists, especially foreign tourists, are infected with diarrhea in Bali.

There are rare reports of diarrhea among tourists because the diarrhea experienced by most tourists is mild. A prospective follow-up study at the travel clinic of Leiden University Medical Center in The Netherlands found 39% categorized mild diarrheal disease. (Darius Soonawala, 2011) Attack rates range from 30% to 70% of travelers, depending on the destination and season of travel. (Connor, 2014) TD occurs in 15–50% of individuals traveling to high-risk regions of tropical or semitropical areas of Latin America, the Caribbean (Haiti and the Dominican Republic), southern Asia, and Africa. (DuPont, 2011) Based on research on foreign tourists visiting Bali, a study found that 25.5% of tourists claimed to have diarrhea. Four in 35 (11.4%) tourists experienced severe diarrhea to require medical treatment. (Luh Seri Ani, 2016)

Bali has an elevated risk of diarrhea based on the significant incidence among tourists in Bali. Other countries with an increased risk of diarrhea include Latin America, Africa, Asia, and parts of the Middle East, with an attack rate of 20-75%. Countries with medium risk include China, Southern Europe, Israel, South Africa, Russia, and some Caribbean Islands (especially Haiti and the Dominican Republic), with an incidence rate of 8 - 20%. Canada, the United States, Australia, New Zealand, Japan, Northern Europe, and a few islands in the Caribbean are at minimal risk. Indonesia is a country with a high rate of tourist diarrhea attacks. (Kadek Dwi Pramana, 2023)

The cause of diarrhea is bacteria and viruses, namely *E. coli*, *Vibrio cholerae*, *Aeromonas* sp, *Shigella flexneri*, *Salmonella* sp, *Entamoeba histolytica*, *Ascaris lumbricoides*, Rotavirus, *Candida* sp, *Vibrio* NAG, *Trichuris trichiura*, *Plesiomonas shigelloides*, *Ancylostoma duodenalis* and *Blastocystis hominis*. (Kadek Dwi Pramana, 2023) While the risk factors for diarrhea are: the level of cleanliness of the country of origin and the tourist destination, the age of tourists, the type of travel and food served at home or in restaurants, and genetics. Similar risk factors are found in foreign tourists visiting the island of Bali. Risk factors for diarrhea in foreign tourists in Bali are the age of tourists, country of origin, length of stay in Bali, and hand washing habits. (Luh Seri Ani, 2016) Another study found the incidence of diarrhea in foreign travelers was consumption of street food and traditional barbecued pork. (Ni Wayan Mega Sri Wahyuni, 2019)

Bali is one of Indonesia's islands and a favorite tourist destination, especially for foreign tourists. The number of tourist visits increased again after the pandemic storm ended. The Bali Tourism Office reported that the number of foreign tourists visiting Bali after the pandemic was fifty-one people in 2021 and increased sharply to 2.1 million in 2022. (Bali, 2023)

The increase in the number of tourists visiting also needs to be aware of the possibility of increasing incidences of infectious diseases, including the incidence of traveler's diarrhea in tourists. Based on recent viral news, some local and international tourists have experienced diarrhea when visiting Bali. This issue is even more exciting when the one who shares Bali Belly is an artist. If this is left unchecked, it will impact the psychology of tourists visiting Bali. The problem of diarrhea in foreign tourists will affect the number of international tourist visits and indirectly impact the economy of the Balinese people; where tourism is one of the sources of income in Bali, there is even making tourism the primary source of livelihood for Balinese residents.

Diarrheal diseases in tourists can be prevented through good and correct handwashing behavior. Handwashing activities are increasingly common among hotel staff and guests, but good and correct handwashing skills are not yet possessed by all hotel staff. Education needs to be done to improve the knowledge and skills of hotel staff. Several published community service activities have found that health education can improve the knowledge and skills of community

service participants. (Anastasia Putu Martha Anggarani, 2022) (Kadek Ayu Erika, 2023) (Sukmawatia, 2023)

Buleleng Regency is in the northern region of the island of Bali, which is also becoming one of the tourist destinations. Buleleng Regency is a tourist destination (TD) that local and foreign tourists often visit. One of the TD that tourists often see is the beach in the Lovina Region. In Lovina Village, many hotels, bars, restaurants, and food vendors provide for tourists. Although food and environmental hygiene is always maintained, the incidence of diarrhea in tourists visiting the hotel remains. Based on this, this service was held for hotel employees to prevent diarrhea in tourists who visit or stay at the hotel or who visit Buleleng.

METHOD

We held this community service at Kalibukbuk-Buleleng Village Hotel Bali-Province, on April 14, 2023, from 9.00 – 15.00 WITA. The target of this activity is Hotel Staff, especially those on duty in Bars and restaurants. The number of participating hotel staff is forty-four people.

The methods conducted in this service are complete fecal examination for hotel staff who serve as food handlers, lectures on the importance of preventing traveler's diarrheal diseases, and demonstrations on how to wash hands properly and correctly. Service participants bring fecal samples in pre-prepared pots from their homes. Before conducting the stool examination, all participants were explained the fecal examination's purpose, benefits, and side effects. Furthermore, they are asked for their willingness to follow the analysis of feces under the procedure. Of the forty-four participants who participated, only 21 people were willing to collect stool samples. Furthermore, the collected stool samples are sent to the clinical lab of RSUD Singaraja-Bali for examination.

The socialized prevention of traveler's diarrhea to all participants used the camping method. The participants got some information in a room for ± 60 minutes and continued to discuss the hotel staff's understanding of traveler's diarrhea prevention. At the same time, demonstration activities on how to wash hands correctly and adequately are conducted with direct practice methods at the hand washing place available at the service.

The data collected at this service is an overview of the fecal examination results and the hotel staff's level of knowledge about preventing traveler's diarrheal disease. Data were collected by observation and interviews. Observations were conducted to obtain data on the description of fecal examination, while interviews were conducted to obtain data on the level of knowledge about the prevention of traveler's diarrheal disease. The service data were analyzed descriptively, qualitatively, and quantitatively.

RESULTS

Characteristics of service participants

A total of forty-four hotel employees participated in this service activity. Table 1 shows Most employees aged 30-39 years (40.9%), with male gender (77.3%), education level is diploma (56.8%) with the length of service 6-10 years (72.7%).

Table 1. Proportion of Respondents' Characteristics

Characteristics (n=44)		<i>n</i>	%	
Age (Year)	20-29	6	13.6	
	30-39	18	40.9	
	40-49	16	36.4	
	≥ 50	2	9.1	
Sex	Male	34	77.3	
	Female	10	22.7	
Education	Senior	High	19	43.2
	School			
	Diploma	25	56.8	
Length of Work (years)	1-5	9	20.4	
	6-10	32	72.7	
	≥ 11	3	6.9	

Complete Stool Examination

A total of twenty-one employees collected fecal samples for the clinical laboratory staff of RSUD Buleleng for examination. Figures 1 and 2 show officers receiving stool samples from participants and placing them in containers for transport to the laboratory.



Figure 1. Participants collected stool samples.



Figure 2. Participants put the feces sample into containers.

Table 2 shows the examination of expected complete stool results in all (100%) participants who checked feces.

Table 2. Feces laboratory test results

Indicator of feces	Normal (n, %)	Abnormal (n, %)
Colour	21 (100)	0 (0)
Texture	21 (100)	0 (0)
Consistency	21 (100)	0 (0)
Harmful bacteria, fungi, parasites, viruses, blood, mucus, pus, or poorly digested meat fibers.	21 (100)	0 (0)
PH	21 (100)	0 (0)
Sugar contains	21 (100)	0 (0)
Fat contains	21 (100)	0 (0)

Traveler's diarrheal disease prevention lecture

The participants receive traveler diarrhea prevention materials. They were enthusiastic about listening to the speaker, as shown in picture three.



Figure 3. Service participants listened to the speaker's presentation about the prevention of Traveler diarrhea disease.

Table 3 shows the scores knowledge of participants increased in the pretest and posttest. The score of participants before a lecture at 75.5 increased to 99.2 after exposure to the material.

Table 3. Pretest and posttest results in knowledge about the prevention of traveler diarrheal disease

Questioners	Pretest (n =44)		Posttest (n =44)	
	True (n %)	False (n%)	True (n %)	False (n %)
Fresh food can contain diarrhea germs	23 (52.3)	21 (47.7)	42 (95.5)	2 (4.5)
Cold food can cause diarrhea	24 (54.5)	20 (45.5)	43 (97.7)	1 (2.3)
Hand washing can prevent diarrheal diseases	30 (68.2)	14 (31.8)	44 (100)	0 (0)
Hand washing should be done when:				
After meal	44 (100)	0 (0)	44 (100)	0 (0)
Before meal	44 (100)	0 (0)	44 (100)	0 (0)
Before serve, the food	30 (68.2)	14 (31.8)	44 (100)	0 (0)
Before cooking	25 (56.8)	19 (43.2)	44 (100)	0 (0)
After slag	40 (90.9)	4 (9.1)	44 (100)	0 (0)
after peeing	40 (90.9)	4 (9.1)	44 (100)	0 (0)
Mean of score	75.7	24.3	99.2	0.8

Demonstration of washing hands properly and properly

Participants tried demonstrating handwashing live and watched how to wash their hands properly and correctly. Participants seemed very enthusiastic when introduced and tried the septic hand washing method, with 2 minutes needed for each hand washing procedure. Figures 4 and 5 show anticipating participants practicing hands-on handwashing.



Figure 4. Participants together practice hand washing.



Figure 5. Participants practice washing their hands individually.

DISCUSSION

Hotel employee fecal examination is one of the activities held as community service at The Hotel. The investigation found that all fecal samples (100%) assessed by the laboratory were standard. Stool (faeces) is an important body substance which must be checked for the presence of disease-causing microorganisms. (A., 2012) A stool examination is a test on stool samples or feces to diagnose digestive system diseases, including diarrheal conditions. A study employed a cross-sectional online survey design, targeting individuals 16+ years old within Liverpool City Region, UK found older age and lower income were associated with willingness to provide stool samples. (Rowan Davies, 2022)

This examination can detect the presence of infections due to bacteria, viruses, and parasites as the cause of diarrhea. Observing fecal samples includes several aspects, including color, consistency, amount, shape, odor, and the presence or absence of mucus. In addition, analysts often also check blood levels, fat, meat fiber, and other components. The test results are said to be normal if the following conditions are found, including (1) the stool looks brown, soft, and has a good consistency, (2) the stool is not bloody, slimy, purulent, and does not contain undigested meat fiber, harmful bacteria, viruses, fungi, or parasites, (3) cylindrical feces, (4) fecal pH ranges from 7.0 – 7.5, (5) feces contain less than 0.25 grams per deciliter (g/dL), less than 13.9 mmol per liter (mmol/L) of sugar as a reducing factor, and (6) feces contain 2-7 grams of fat per 24 hours (g/24h). Knowing the results of the complete fecal examination gives confidence that employees do not suffer from diarrheal diseases or are not a source of transmission of diarrheal diseases. In addition, the inspection also gives employees trust and confidence in providing services to guests or tourists who stay at the hotel or enjoy the dishes provided by the hotel. (A.M. Sarayar, 2023)

Employee occupational health and safety (OHS) concerns several aspects, namely the health of the hotel environment, employee personal health, accident prevention, handling, and overcoming. (Kurniansah, 2023). Based on the regulation of the minister of health of the Republic of Indonesia number 48 of 2016 concerning office occupational safety and health standards, point 17 paragraph 3 states that early discovery of disease cases and assessment of health status are carried out through pre-placement or pre-employment health examinations, periodic medical examinations, special medical examinations, and pre-retirement health examinations. Regular

examination is an effort to find out the initial health problems as early as possible for prevention and find out work capacity by assessing the health condition of a specific time in employees who have done their work. Periodic medical examinations are conducted at least once every year; the rest are adjusted to the needs. (RI, 2016). Different things were found in the hotel employee study, it was found that employee body hygiene checks were only conducted a few times and (Kurniansah, 2023)

In this hotel service program, the committee also shares information to increase the ability to wash hands properly and correctly to prevent diarrheal diseases for tourists staying at the hotel. Excellent and correct handwashing socialization is conducted by lecture and demonstration methods. In the demonstration activity, participants seemed very enthusiastic when introduced and tried the septic hand washing method, with 2 minutes needed for each hand washing procedure. Through lecture activities on proper and correct hand washing methods, there was also an increase in pre-test and post-test knowledge scores in participants. The score of participants before being given the material was obtained at 75.5 increased to 99.2 after exposure to the material. In other words, the hotel employees' knowledge of proper and proper hand washing is good. This study follows a study conducted in three Integrated Service Centers (ISC) out of five ISC located in Selagalas Village, the working area of the Cakranger Health Center, which found that handwashing with soap education effectively increases respondents' knowledge and attitudes toward preventing diarrhea. (Ni Komang Dessy Kumarayanti, 2020) In contrast to the results in the Rendang tourist area, Karangasem found there are not relationship between food handlers' knowledge and behavior regarding traveler's diarrhea. (Ni Kadek Rima Pebrianti, 2021) However, it is necessary to conduct education and training programs on traveler's diarrhea prevention on food handlers to improve knowledge, attitudes and behaviors about Traveler's Diarrhea to reduce cases of Traveler's Diarrhea. When food handlers fail to maintain cleanliness, it can put people at risk of getting sick from bacteria. This is especially true for diarrheal diseases, which can be spread by food handlers who carry the bacteria. (D.A. Indah Gitaswari, 2019)

Handwashing activities with proper and correct procedures are one of the efforts to improve the occupational health of hotel employees through increasing occupational health knowledge and cultivating clean and healthy living behavior (CHLB) in the workplace. Based on the Regulation of the Minister of Health of the Republic of Indonesia Number 48 of 2016 concerning Office Occupational Safety and Health Standards, CHLB culture held in offices is a clean and healthy living behavior and safety in offices, including washing hands with clean water and soap. (RI K. , 2016) Hand washing can prevent diseases, including diarrhea. This disease occurs due to germs such as Salmonella, E. coli, and norovirus infection. They can stick to your hands and enter your mouth, causing symptoms of diarrhea. Diarrhea-causing germs can be acquired after people use the toilet or change diapers. They can transfer to the human body in other ways, such as after managing raw meat containing animal waste. One gram of feces can have a trillion germs. (Rendi Ariyanto Sinanto, 2020)

Diarrhea is an abnormal change in bowel movements characterized by a thinner stool consistency and a more regular frequency than usual. Diarrhea in Indonesia is still an endemic disease and can potentially become an extraordinary event that can cause death. By community-based total sanitation can prevent, which consists of five pillars, one of which is handwashing with soap. (Ni Komang Dessy Kumarayanti, 2020). The study results found that hand washing with soap/hand hygiene in preventing infection is highly effective. Hand washing with soap has been

proven to reduce the risk of disease. Handwashing with soap is a pillar of community-based total sanitation, with six-step handwashing. Hand sanitizers and soap can reduce the number of bacterial colonies on the hands, and sanitizers containing 70% alcohol are very effective in reducing the number of germs. (Rendi Ariyanto Sinanto, 2020)

The Minister of Tourism and Creative Economy for tourism business also enforced the culture of preferred and correct hand washing actors in the Clean, Health, Safety & Environment (CHSE) program or Cleanliness, Health, Safety, and Environmental Sustainability. The expected result of implementing the CHSE program is the provision of certification to business actors in the tourism sector. Certification can be a guarantee to tourists and the public that the products and services provided have met health, hygiene, safety, and environmental sustainability protocols. With CHSE certification, people no longer need to worry about doing tourist activities. In other words, CHSE is essential in developing quality tourism during the COVID-19 pandemic, even after the pandemic has passed. (RI K., 2021)

The implementation of the CHSE program requires the support of various parties. The results of the study explained that the Bali Provincial Tourism Office as a facilitator, regulator, and catalyst, has a role in implementing programs implemented as well as the implementation of CHSE to suppress the spread and education of infectious disease prevention in hotel and restaurant businesses and gain the trust of prospective tourists coming to Bali so that the wheels of Bali's economy could run. These activities involve various parties such as associations, academics, government institutions, national media, business actors, Balinese people, and tourists who want to go to Bali. (Kresnanda Yuliono, 2022). In addition, some factors play a role in the implementation of the CHSE program consisting of internal and external factors. Intern characteristics such as the support of health facilities and infrastructure and external factors, namely cooperation and coordination between related parties, public policies, and customer awareness, significantly affect the implementation of CHSE Health protocols (Lu'luwatin Rosdiana Aprilia, 2021)

This service activity has limitations in its implementation. Not all hotel staff can socialize with proper, correct handwashing methods, and conduct fecal examinations due to mismatches in the schedule of activities with work schedules at the hotel. In this case, service activities are conducted at two separate times so that all staff can participate in the socialization activities. This service activity has limitations in its implementation. Not all hotel staff can participate in socializing proper and correct handwashing methods and conducting fecal examinations due to mismatches in the schedule of activities with work schedules at the hotel. To overcome this problem, service activities are conducted at 2 unconventional times, so that all staff can participate in the socialization activities.

CONCLUSION

The service activities went well, and according to expectations, all hotel employees were in good health, no one suffered from diarrhea, and there was an increase in knowledge and ability in proper and correct hand washing methods. However, this service suggests routinely conducting health and hygiene checks on employees through implementing CHSE culture.

REFERENCES

- A., K. S. (2012). Microbiological Stool Examination: Overview. *Journal of Clinical and Diagnostic research*, 503-509.
- A.M. Sarayar, F. L. (2023). Pencegahan dan Penatalaksanaan Terkini Penyakit Traveler Diarrhea untuk Wisatawan yang berkunjung ke Indonesia. *ISM*; 1(1), 36-4036.
- Admin. (2020). Kesehatan Keselamatan dan Keamanan (K3) bidang perhotelan. Ilmu Perhotelan Go.
- Anastasia Putu Martha Anggarani, R. K. (2022). Health Education (Demonstration) Quadriceps Setting for Preventing Knee Pain in the Elderly Group of The Foundation's Foundation Area Princess of Love. *Abdimas Umtas: Jurnal Pengabdian Kepada Masyarakat LPPM-Universitas Muhammadiyah Tasikmalaya*, 1-4.
- Bali, D. P. (2023). Data Resmi Kunjungan Wisatawan asing; Desember 2022. Denpasar: balirov.go.id.
- Connor, B. A. (2014). *Travelers' Diarrhea; Health Information For International Travel*. New York: Oxford University Press.
- D.A. Indah Gitaswari, S. B. (2019). Identifikasi Subtipe Enterotoxigenic Escherichia coli dan Enteroaggregative Escherichia coli dari Spesimen Usap Dubur Penjamah Makanan di Denpasar menggunakan Polymerase Chain Reaction. *E-Jurnal Medika Udayana*; 8(1).
- Darius Soonawala, J. A. (2011). Inconvenience Due to Travelers' Diarrhea: A Prospective Follow-Up Study. *BMC Infectious Diseases*; 11(322), 11-322.
- DuPont, J. d. (2011). New Developments in Traveler's Diarrhea. *Gastroenterol Hepatol (N Y)*; 7(2) PMC3061023, 88-95.
- Iwan Suryadi, S. R. (2018). Penerapan Hygiene dan Sanitasi Hotel Kusuma Kartika Sari di Kota Surakarta. *Journal of Industrial Hygiene and Occupational Health*; 2(2), 141-151.
- Kadek Ayu Erika, N. F. (2023). Healthy Lifestyle Education to Teenagers in The Adaptation Era of New Normal at SMK Negeri 7 Makassar. *Abdimas Umtas: Jurnal Pengabdian Kepada Masyarakat Era of New Normal at SMK Negeri 7 Makassar*, 4047-4052.
- Kadek Dwi Pramana, I. P. (2023). Faktor Yang mempengaruhi Kejadian Diare pada Wisatawan; a systematic Review. *Jurnal Keperawatan*; 15(1).
- Kresnanda Yuliono, I. N. (2022). Peran Dinas Pariwisata Provinsi Bali Dalam Implementasi CHSE pada Hotel dan Restoran di Bali. *Jurnal IPTA (Industri Perjalanan Wisata)*; 10(1), 93-99.
- Kurniansah, R. (2023). Kesehatan dan Keselamatan Kerja Karyawan di Hotel. <https://www.researchgate.net/>.
- Luh seri Ani, K. S. (2016). Traveler's Diarrhea Risk Factors on Foreign Tourists in Denpasar Bali-Indonesia May and August 2013. *Bali Medical Journal* 5(1), 152-156.
- Lu'luwatin Rosdiana Aprilia, S. M. (2021). Implementasi Protokol Kesehatan CHSE dalam Meningkatkan Kepercayaan Tamu di Hotel. *Jurnal Kepariwisata Destinasi, Hospitalitas dan Perjalanan*; 5(2), 1-15.
- Ni Kadek Rima Pebrianti, P. A. (2021). Hubungan Pengetahuan dan Sikap Terhadap Perilaku Food Handlers Tentang Traveler's Diarrhea di Daerah Wisata Kecamatan Rendang, Karangasem. *Community of Publishing in Nursing (COPING)*; 9(4); <https://doi.org/10.24843/coping.2021.v09.i04>, 480-490.
- Ni Komang Dessy Kumarayanti, I. G. (2020). Efektivitas Edukasi Cuci Tangan Pakai Sabun Terhadap Upaya Pencegahan Diare Di Kota Mataram. *Jurnal Kedokteran*; 9(2), 83-89.

- Ni Wayan Mega Sri Wahyuni, I. M. (2019). Risk Factor for Diarrhea among Travellers Visiting Bali. *Public Health and Preventive Medicine Archive (PHPMA)*: 7(2). DOI: <https://doi.org/10.15562/phpma.v7i2.222>, 121-126.
- Rendi Ariyanto Sinanto, S. N. (2020). Efektifitas Cuci Tangan Menggunakan Sabun Sebagai Upaya Pencegahan Infeksi: Tinjauan Literatur. *Jurnal Kesehatan Karya Husada*; 8(2), 96-111.
- RI, K. (2016). Peraturan Menteri Kesehatan Republik Indonesia Nomor 48 Tahun 2016 Tentang Keselamatan dan Kesehatan Kerja Perkantoran. Jakarta: Hukor Kemenkes RI. go.id.
- RI, K. (2021). Kementerian Pariwisata dan Ekonomi Kreatif dari Masa ke Masa. Jakarta: <http://sejarah.kemenparekraf.go.id>.
- Rowan Davies, M. I.-G. (2022). Public Acceptability of A Technology-Mediated Stool Sampel Collection Platform To Inform Community-Based Surveillance Of Infectious Intestinal Disease: A Pilot Study. *BMC Public Health*;22 (958) <https://doi.org/10.1186/s12889-022-13307-5>, 1-9.
- Sukmawatia, L. M. (2023). Health Education to Overcome Side Effects of Chemotherapy in Cancer Patients. *Abdimas Umtas: Jurnal Pengabdian Kepada Masyarakat LPPM-Universitas Muhammadiyah Tasikmalaya*, 4053-4059.
- Syamsiah, S. A. (2021). Pengaruh Edukasi Modul Kesehatan dan Keselamatan Kerja (K3) Dasar terhadap Pengetahuan Siswa Sekolah dasar Negeri Utama 2 Kota Tarakan. *Journal of Muslim Community Health (JMCH)*, 2(3), 129-137.