

The Correlation of Mothers' Knowledge of Childhood Diarrhea and Early Management of Acute Diarrhea in Children under Five in Aceh, Indonesia

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Abstract: The increasing death rate of children under-five associated with diarrhoeal diseases has urged people to make efforts in order to decrease the children's mortality and morbidity rate. Mother as primary caregiver to children under five, is playing an important role to minimize the effects of acute diarrhea. This research aims to investigate the correlation of mothers' knowledge of childhood diarrhea with early management of acute diarrhea in children under five in Aceh, Indonesia. This descriptive-correlational study was conducted with 86 mothers of children aged 2 to 5 years using purposive sampling. The results showed that there was a correlation of the mothers' knowledge and the early management of acute diarrhea in children under five (p-value = 0.005). The mother's knowledge associated with the intake of oralite (p-value = 0.019) and nutrition (p-value = 0.000). However, there was no correlation of the mothers' knowledge and zinc intake (p-value = 0.089). It is suggested to maintain health promotion related to early management of acute diarrhea in children under five. In addition, the importance of zinc provision is proposed to increase the knowledge and create positive attitude among mothers.

1 INTRODUCTION

Diarrhea is the second cause of death in children under five years (toddlers) and major health problems in children around the world, especially children under five years old (Unicef, 2018). Globally, around 1.7 billion cases of diarrhea occur in children every year (WHO, 2017). In Indonesia, diarrhea is an endemic disease and is also a potential disease of extraordinary events which is often followed by death. In 2016, there were outbreaks in 3 provinces and 3 districts with a total of 198 cases and 6 deaths reported with 3.04% Case Fatality Rate (CFR) for diarrhea (Indonesian Ministry of Health, 2017). This means that there was an increasing number of CFR by 0.57% in 2015 with 18 outbreaks of diarrhea spread in 11 provinces, 18 districts/cities, with a total of 1.213 people and 30 CFR deaths (2.47%) (Indonesian Ministry of Health, 2016). In 2016, there were 584 cases of diarrhea and increased to 738 cases in 2017 in Kuta Baro Public

Health Centre; ranked second highest in Aceh Besar District (Aceh Besar District Statistic Bureau, 2018).

There are several causes of diarrhea such as infection of microorganisms that are mostly carried by water contaminated with faeces, malnutrition, and unhealthy sources of drinking water (WHO, 2017). Other factors such as exclusive breastfeeding, latrine feasibility and mother's knowledge of diarrhea also influenced the incidents of diarrhea in children under five (Setiawan & Luh, 2017). The management of diarrhea in health facilities is conducted through the five-step program to treat the diarrhea (Lintas Diarrhea) which includes providing the "Oral Rehydration Therapy" ORT (oralite), providing zinc, continuing the breastfeeding and food, giving antibiotics selectively and providing health education to mothers / caregivers. The health education provided to mothers related to how to administer ORS, zinc, breast milk / food and signs to immediately refer the children to the health workers (Ministry of Health RI, 2011).

Early treatment for children with acute diarrhea (without bleeding) can be conducted in the household by the mother/caregiver aimed to prevent dehydration and malnutrition. Mother is a primary caregiver for toddler and is very instrumental in preventing and handling diarrhea at home (Hutasoit, Soenarto, & Widiyandana, 2017). Improper management both at home and in health facilities is the main cause of death from diarrhea. Therefore, reducing the number of deaths due to diarrhea, need a rapid and appropriate management in order to reduce the occurrence of dehydration due to the excessive fluid loss (Kosasih, Sulastri, Suparto, & Sumartini, 2015)

In order to reduce the incidence of diarrhea in infants, the role of the mother is very important so that knowledge is needed in the management of diarrhea. In fact, good knowledge of diarrhea is not necessarily capable of managing diarrhea in toddlers. The purpose of this study was to identify the relationship of mother's knowledge about diarrhea with the early management of acute diarrhea in infants in the working area of Kuta Baro Health Centre in Aceh Besar District.

2 METHODS

This is a quantitative research with descriptive correlative method. The study population was mothers who had 2 - 5 years old children in Kuta Baro sub-district, the work area of Aceh Besar Health Centre. Kuta Baro Sub district is an area with the second largest number of diarrhea cases in Aceh Besar district. Sampling is conducted by proportional random sampling, where sampling from each villages is balanced or proportional to the number of subjects in the village. Researchers determined sampling in five villages with the highest number of toddlers in the working area of Kuta Baro Health Centre with a total population of 348 toddlers. Furthermore, the researchers determined the subject to be respondent using the inclusion criteria. There were 86 mothers with children aged 2 - 5 years who had diarrhea in the last six months was participated in the study.

Data collection was conducted on 19 May to 2 June 2018 using questionnaires designed by the researchers. The questionnaires had passed the validity and reliability test. There were 2 questionnaire's sections utilised for this study, a section to measure the variables of mothers' knowledge about diarrhea and another section to measure the early management variables for diarrhea

in the last 6 months. The second questionnaire's section consisted of 3 parts, the first part was to measure the administration of ORS, the second part was to measure zinc administration in children when diarrhea, and the third was to measure nutrition provided to children when diarrhea. The data were analysed statistically by Chi-Square analysis to determine the relationship of mothers' knowledge about diarrhea and early management of acute diarrhea in infants in Kuta Baro Aceh Besar Health Centre. Data analysis also conducted to determine the correlation of mothers' knowledge about diarrhea and the behaviour of providing ORS, zinc supplement and food to infants during diarrhea.

3 FINDINGS

Based on the demographic data, 60.5% of respondents were in the age range of 26 - 35 years, 60.8% were at the secondary education level, 90.7% of respondents are stay at home mothers and 79.1% had toddlers aged 2 - 3 years. The knowledge variables are categorized based on the total value of 100. The knowledge of mothers about diarrhea is categorized good if the value obtained is $\geq 76\%$, moderate if the value is 56 - 75% and less if the value is $<56\%$ (Notoatmodjo, 2010b). While the management variables are categorized according to the minimum standard of administering's behaviour of ORS, zinc and nutrient administration. The categorized considered good if the respondent's value reaches the maximum value and categorized less if the respondent's value is below the maximum value.

The analysis showed that 46.5% of respondents had good knowledge about diarrhea and 88.4% of respondents had poor ability in the early management of acute diarrhea in infants. The early management variables for toddlers examined based on three steps of early management of diarrhea, administration of ORS, zinc and nutrition. Univariate analysis results for these three steps showed that 52.3% of respondents had poor scores in providing ORS, 86% of respondents were not good at giving zinc supplementation and 57% of respondents were not good enough in the step of providing nutrition or food for toddlers when diarrhea.

Table 1: Early diarrhea management practice frequency distribution.

Early diarrhea management	Result	F	%
Providing ORS	Adequate	41	47.7
	Inadequate	45	53.3
Providing zinc supplementation	Adequate	12	14
	Inadequate	74	86
Providing food/nutrition	Adequate	37	43
	Inadequate	49	57

Table 2: The correlation of mothers' knowledge and early diarrhea management.

Knowledge	Practice				Total	
	Adequate		Inadequate			
	F	%	F	%	F	%
Good	9	22.5	31	77.5	40	100
Poor	1	2.2	45	97.8	46	100

Table 2 shows that 40 mothers had good knowledge about early diarrhea management. However, only 22.5% of respondents practiced the early management of diarrhea in children under five adequately. Whereas the 46 respondents who had knowledge, there were 45 (97.8%) respondents who did the early management of diarrhea in under-five children were inadequate category.

Chi square test results with CI = 95% ($\alpha = 0.05$) obtained p-value = 0.005, which means that there is a correlation of mother's knowledge about diarrhea and the early management of acute diarrhea in infants.

Table 3. The correlation of mothers' knowledge and ORT administration

Knowledge	ORT Administration				Total	
	Adequate		Inadequate			
	F	%	F	%	F	%
Good	25	62.5	15	37.5	40	100
Poor	16	34.8	30	65.2	46	100

Table 3 shows 40 respondents who had good knowledge and there were 25 (62.5%) respondents who took steps to administer ORS to toddlers in adequate category. Whereas, among 46 respondents with poor knowledge, 65.2% of them were not good enough in administering ORT to their children. Chi square test results with CI = 95% ($\alpha = 0.05$) obtained p-value = 0.019, which means that there is a relationship of mother's knowledge about diarrhea and the ability to give ORT to infants when diarrhea.

Table 4 shows that there were 40 respondents who had good knowledge and only 22.5% respondents were providing zinc supplementation.

Whereas 7 respondents who had poor knowledge also had inadequate practice in providing zinc supplementation. Chi square test results with CI = 95% ($\alpha = 0.05$) obtained p - value = 0.089 means there is no correlation of giving zinc supplementation for children and diarrhea in children under five.

Table 4: The correlation of mothers' knowledge and Zinc Supplementation.

Knowledge	ORT Administration				Total	
	Adequate		Inadequate			
	F	%	F	%	F	%
Good	9	22.5	31	77.5	40	100
Moderate	3	7.7	36	92.3	39	100
Poor	0	0	7	100	7	100

Table 5: The correlation of mothers' knowledge and providing food/nutrition.

Knowledge	ORT Administration				Total	
	Adequate		Inadequate			
	F	%	F	%	F	%
Good	27	67.5	13	32.5	40	100
Poor	10	21.7	36	78.3	46	100

Table 5 shows that of the 40 respondents who had good knowledge, 67.5% of respondents were giving food adequately for their children. While from 46 respondents with poor knowledge, most of them were not able to provide adequate nutrition for diarrhea children. Chi square test results with CI = 95% ($\alpha = 0.05$) obtained p-value = 0.000, which means that there is a significant relationship of mothers' knowledge about diarrhea and providing food/nutrition practice for diarrhea children.

4 DISCUSSION

The knowledge of mothers about diarrhea and early management of diarrhea in children under five were good (46.5%), moderate (45.3%) and the rest were poor (8.1%). The results of the statistical test using Chi Square revealed that there was a relationship of the knowledge of mothers with the early management performed by mothers in children with acute diarrhea (p value 0.005). This shows that the better of the mother's knowledge about diarrhea, the better the mother's management of children under five during diarrhea. On the other hand, the less knowledge of the mother, the least the mother's management will be. So that mothers who have insufficient knowledge improperly administer early childhood diarrhea.

Mothers' knowledge about diarrhea influencing the behaviour of mothers in providing appropriate diarrhea management. The results of the study on early management found that 62 (72.1%) mothers gave the ORT to their toddlers whom had the diarrhea. 52 mothers (60.5%) provide ORT until diarrhea in toddlers stopped and 64 mothers (74.4%) replaced ORT with sugar and salt solution if ORT is not available at home. This shows that the mothers' early management of acute diarrhea based on the administration of ORT is in the good category according to the knowledge of the mother. However, the management of the zinc administration step has not been conducted properly by the mother.

The mothers' behaviour of managing the diarrhea at home is influenced by several factors such as the mothers' level of knowledge. The better the knowledge, the better their actions in managing the diarrhea (Kosasih et al., 2015). Meanwhile, the mothers' knowledge is influenced by several factors such as education level, socio-economic factors, feeding practices and previous experience factors in managing the disease and ethnicity (Rani et al., 2016; Ansari, Izham, Ibrahim, & Shankar, 2011). The research conducted by Khasanah and Sari (2016).

Diarrhea is a disease that can be prevented and managed. However, the mothers' less knowledge and their inadequate management can result in toddlers experiencing severe dehydration and the worst lead to death. However, this situation can be reduced through the prevention and treatment of dehydration with ORT and other fluids that available at home. Moreover, continuing breastfeeding and feeding also the administration of zinc for 10 -14 days would also help the infants with diarrhea (Bham, Shah, & Saeed, 2015).

Good management is inseparable from the mothers' knowledge in caring for toddlers with diarrhea. It is necessary to provide the health education to increase the mothers' knowledge, especially regarding the early management of diarrhea in toddlers. Increasing the knowledge does not always lead to changes in attitudes and behaviour but has a positive relationship. By increasing knowledge, there is a change in attitude such as the incidence of diarrhea that should be handled properly (Rahmah, Firmawati, Dwi, & Lestari, 2016)

The relationship of mother's knowledge of diarrhea and the administration of ART showed that there was a relationship of the mothers' knowledge about diarrhea and administration of ORT to children under-five (p -value = 0.019). This study is inherent with the research conducted by Rani et al., (2016) regarding the mothers' knowledge of

diarrhea has a significant influence on the practice of using ORT in diarrhea. The result showed that the majority of mothers found that ORT was the early treatment when toddlers had diarrhea. The mothers knew ORT could replace the fluids and electrolytes lost due to diarrhea and knew that ORT could be replaced with a solution contains salt and sugar. The use of ORT is depend on mothers' knowledge which help mothers taking appropriate steps to reduce the intensity of diarrhea in children under-five and prevented the dehydration (Padhy, Sethi, & Behera, 2017).

The inaccuracy of the mothers' approach to managing diarrhea causes toddlers to experience severe dehydration. The toddler age group is very susceptible to dehydration due to high fluid requirements and muscle mass for storing the fluids. The loss of 10% of body fluids in toddlers can lead to death after 2 - 3 days of illness (Grafika, Sabilu, & Munandar, 2017). Most mothers knew and were able to prepare sugar - salt solutions. Therapy with ORT is the right management to prevent dehydration and effective in preventing deaths from diarrhea in children under-five. ORT is given to replace fluids and electrolytes in the body that come out through the faeces. Most mothers are familiar with ORT as the early management of diarrhea. Therefore, most mothers have the ability to manage the diarrhea by replacing the ORT with sugar and salt solution when the ORT is not available at home.

In terms of relationship of mothers' knowledge of diarrhea and the zinc supplementation provision, this study revealed that there was no relationship of mothers' knowledge about diarrhea and zinc administration in children under-five (p -value = 0.089). This can be caused by a number of factors such as the less information about the importance of zinc supplementation. Although several mothers knew that zinc was given to replace the lost of zinc (88.4%), this knowledge did not encourage the mothers to administer the ORT.

ORT are given to replace the lost of fluids and prevent the dehydration, while zinc is given to replace zinc lost due to diarrhea and prevent recurrent of diarrhea (Olopha & Egbewale, 2017). Zinc deficiency causes impaired immunity, which can increase the risk of infections, especially diarrhea. Therefore, it can increase the incidence and duration of acute diarrhea in children, especially in children under-five (Agarwal et al., 2018).

Some mothers have less understanding on providing zinc for the treatment of diarrhea and does not have zinc stock as well as supplies of ORT at home. Generally mothers have better knowledge

about ORT compared to the knowledge about zinc (Walker et al., 2015). Another study found that 82 mothers (39%) did not realize the importance of zinc. 126 mothers (60%) did not use zinc tablets even though the tablets were provided in health facilities (Tobin, Isah, & Asogun, 2015). The knowledge of mothers about providing zinc is still lacking, where many mothers do not know about zinc tablet and its relation to diarrhea (Humrah, Safiyanthy, Wong, & Mukarramah, 2018).

The ignorance of the utilisation of zinc tablet is not surprising since it has not spread widely among the health workers. As the health care provider to their children at home, the mothers need the health information about the management of diarrhea especially at home (Padhy et al., 2017).

The existing of relationship of mothers' knowledge about diarrhea and the provision of nutrition to children under-five implies that the better the mothers' knowledge, the better their actions in providing nutrition to toddlers with diarrhea. Based on the results of the study 40 respondents who have good knowledge, there are 67.5% who have conducted good management for nutrition. While from 46 respondents who had insufficient knowledge, there were 78.3% were in the poor category for providing the nutrition.

The mothers consider that even though toddlers experience diarrhea, their nutrition must be fulfilled to prevent weakness and lose weight. Diarrhea generally decreases the appetite and makes the body weak, which causes children not to eat. The situation will be worse when the children is fasting which worsens the condition of dehydration and could lead to death (Amare et al., 2014). In this study, the majority of mothers (91.9%) persuaded the diarrhea toddlers to keep eating. There were 60.5% of mothers did not reduce the food intake and continued their food during diarrhea. There were 82.6% mothers provide additional food after the toddlers experienced diarrhea. Moreover, there were 90.7% of mothers provide intermittent food to supplement the nutrition to their toddlers.

This study inherent with Gut et al., (2017), where most mothers provide soft or liquid food to toddlers when diarrhea. The provision of food continues during the diarrhea such as breastfeeding, bottle feeding or solid food (Padhy et al., (2017). The age of the mother also effects them in caring for toddlers. The majority of respondents were in the range of 21 - 40 years (91.9%) where most mothers tend to be active in seeking information, especially regarding their toddlers' health, including nutrition that must have met when toddlers experiencing the

diarrhea. Continuing feeding the toddlers during and after the diarrhea aims to fulfill the nutrition needed by the toddlers during the recovery process. Nutrition is needed in toddlers suffered from the diarrhea since many nutrients are lost due to diarrhea including the nutrients. There are no food restrictions that must be consumed by children under-five during the diarrhea recovering process.

5 CONCLUSIONS

The study revealed that there was a relationship of mothers' knowledge about diarrhea and the early management of diarrhea in infants, especially for the administration of ORT and nutrition. However, there was no correlation of mothers' knowledge about diarrhea and the administration of zinc supplementation.

This study also shows that mothers have practiced good early management in children under five with the acute diarrhea. Mothers had given ORT and continue to provide the children with adequate nutrition during diarrhea to prevent dehydration, weight loss and speed up the recovery process of diarrhea. This could not be achieved without good knowledge. Therefore, mothers' knowledge about diarrhea is very crucial in increasing the early management of acute diarrhea in children under five. The mothers who had good knowledge will provide good early acute diarrhea management. However, the mothers' knowledge regarding zinc supplementation is expected to be improved through the health promotion in the form of counselling and demonstration. Therefore, the mother knows the importance of zinc to manage the diarrhea as well as the importance of ORT in managing the diarrhea to children under five. Mothers who have good knowledge will provide good early acute diarrhea management. However the mother's knowledge regarding zinc supplementation is expected to be improved through health promotion in the form of counselling and demonstration so that the mother knows the importance of zinc to cure diarrhea as well as the importance of ORS.

ETHICS APPROVAL

This study obtained the ethics approval from the Ethic Committee of Nursing Faculty, Syiah Kuala University in Banda Aceh Indonesia.

REFERENCES

- Aftab, W., Shipton, L., Rabbani, F., Sangrasi, K., Perveen, S., Zahidie, A., Qazi, S. 2018. Exploring health care seeking knowledge, perceptions and practices for childhood diarrhea and pneumonia and their context in a rural Pakistani community. *BMC Health Services Research*. 18 (1), 1–10.
- Agarwal, A., Gupta, N. K., Upadhyay, A., Soni, R. K., Shah, D., & Jaiswal, V. 2018. Serum Zinc Levels as a Predictor of Severity of Acute Diarrhea. *Indian Journal of Pediatrics*. 85 (3), 179–183.
- Ali, F., Singh, O. P., Dutta, A., Haq, Z. U., Ghatak, A., & Ashtankar, T. 2017. Ali F, Singh OP, Dutta A, Haq ZU, Ghatak A, Ashtankar T. Assessing critical gaps in implementation of WHO and UNICEF'S 7 - point diarrhea control and prevention strategy in Uttar Pradesh, India. *Ann Tropical Medical Public Health*: 10 (3): 571 - 579.
- Amare, D., Dereje, B., Kassie, B., Tessema, M., Mullu, G., Alene, B., & Ayele, A. 2014. Maternal Knowledge and Practice Towards Diarrhoea Management in Under Five Children in Fenote Selam Town, West Gojjam Zone , Amhara Regional State , Northwest Ethiopia. *Journal of Infectious Diseases & Therapy*. 2 (6): 1 - 10
- Ansari, M., Izham, M., Ibrahim, M., & Shankar, P. R. 2011. A survey of mothers' knowledge about childhood diarrhea and its management among a marginalised community of Morang, Nepal. *The Australasian Medical Journal*. 4 (9): 474–479.
- Bham, S. Q., Shah, M. A., & Saeed, F. 2015. Knowledge, attitude and practice (KAP) of Mothers on the use of Oral Rehydration Salt (ORS) in Children with Diarrhoea: A Cross-Sectional Survey Conducted at Dar-ul-Sehat Hospital, Karachi. *Annals of Abbasi Shaheed Hospital & Karachi Medical & Dental College*. 20 (2): 126 – 131.
- BPS Kabupaten Aceh Besar. 2017. *Kabupaten Aceh Besar dalam Angka 2017*. BPS Kabupaten Aceh Besar.
- Dinas Kesehatan Kabupaten Aceh Besar. (2018). *Profil Kesehatan Kabupaten Aceh Besar Tahun 2017*. Dinas Kesehatan Aceh Besar.
- Grafika, D., Sabilu, Y., & Munandar, S. 2017. Faktor Risiko Kurangnya Perilaku Hidup Bersih dan Sehat (PHBS) Tatanan Rumah Tangga Terhadap Kejadian Diare Pada Balita di Wilayah Kerja Puskesmas Benua-Benua Kota Kendari Tahun 2017. *Jurnal Ilmiah Mahasiswa Kesehatan Masyarakat*. 2 (27). 1–10.
- Gul, R., Hussain, S. S., Hussain, F., Ali, W., Imdadullah, Khan, B., & Saeed, A. 2017. Knowledge, attitude and perceptions of mothers about diarrhoea having at least. *Journal of Medical Sciences*. 25 (1): 2–5.
- Hospital Care for Children. 2016. Diare dengan dehidrasi sedang/ringan. Retrieved from <http://www.ichrc.org/522-diare-dengan-dehidrasi-sedangringan>
- Humrah, Safiyanthy, I., Wong, A., & Mukarramah, S. 2018. Gambaran Pengetahuan Ibu Balita dalam Penanganan Awal Balita Diare Di Desa Bone Kec. Bajeng Kab. Gowa Tahun 2017, 5 (1): 1–7. Retrieved from <https://media.neliti.com/media/publications/234023>
- Hutasoiti, M., Soenarto, S. S., & Widiyandana. 2017. Pengaruh media edukasi booklet tentang pencegahan diare dan pneumonia secara terpadu terhadap pengetahuan ibu. *Jurnal Media Ilmu Kesehatan*. 6 (2), 101–111.
- Joseph, T., & Naregal, P. 2014. A study to assess the effectiveness of health education on knowledge with reference to prevention and home management of diarrhoea among mothers of under five children in selected rural area at Karad Taluka. *International Journal of Health Science and Research*. 3(7): 1329 – 1333.
- Kemenkes RI. 2011a. *Panduan Sosialisasi Tata laksana Balita Diare : Untuk Petugas Kesehatan*. KEMENKES. Jakarta
- Kemenkes RI. 2011b. *Situasi Diare di Indonesia*. KEMENKES. Jakarta
- Kemenkes RI. 2016. *Profil Kesehatan Indonesia 2015*. KEMENKES. Jakarta
- Kemenkes RI. 2017. *Profil Kesehatan Indonesia. Profil Kesehatan Provinsi Bali*. KEMENKES. Jakarta
- Khasanah, U., & Sari, G.K. 2016. Hubungan Tingkat Pengetahuan Ibu Tentang Diare Dnean Perilaku Pencegahan Diare Pada Balita. *Jurnal Kesehatan Samodra Ilmu*. 7 (2).
- Kosasih, C., Sulastri, A., Suparto, T. A., & Sumartini, S. 2015. Gambaran pengetahuan ibu tentang diare pada anak usia balita di kelurahan Padasuka. *Jurnal Pendidikan Keperawatan Indonesia*. 1 (2).
- Naldi.Y & Purwaningrum. R. 2016. Hubungan Pengetahuan Ibu Tentang Penanganan Diare Pada Balita Dengan Kecenderungan Ibu Membawa Balita Ke Puskesmas Sitopeng Kota Cirebon. *Tunas Medika Jurnal Kedokteran dan Kesehatan*. 3 (3).
- Olopha, O. O., & Egbewale, B. 2017. Awareness and knowledge of diarrhoeal home management among mothers of under-five in Ibadan, Nigeria. *Universal Journal of Public Health*, 5 (1), 40 – 45.
- Padhy, S., Sethi, R. K., & Behera, N. 2017. Mother's knowledge, attitude and practice regarding prevention and management of diarrhoea in children in Southern Odisha. *International Journal of Contemporary Paediatrics*. 4 (3): 966 – 971.
- Potter, P. A., & Perry, A. G. 2009. *Fundamental of Nursing: Fundamental Keperawatan Buku 1* (7th ed). Jakarta: Salemba Medika.
- Rahmah, Firmawati, E., Dwi, N., & Lestari. 2016. Penatalaksanaan diare berbasis komunitas dengan pendekatan manajemen terpadu balita sakit di kecamatan Ngampilan. *Jurnal Berdikari*. 4 (2), 106 – 111.
- Rani, V. P., Vaz, L. S., & Gn, K. 2016. Knowledge and attitude of mothers about diarrhea, ORS and feeding practices in under-five children in a rural area of Ranga Reddy, Telangana. *Journal of Medical Science and Clinical Research*. 4 (10): 13201–13209.

- Riskesdas. (2013). *Riset Kesehatan Dasar*. Jakarta: Kemenkes RI.
- Tobin, E., Isah, E., & Asogun, D. 2015. Care giver's knowledge about childhood diarrheal management in a rural community in south-south Nigeria. *International Journal of Community Research*. 3 (4): 93 – 99.
- Vikaspedia. 2018. Feeding infants and young children during and after illness. Retrieved from <http://vikaspedia.in/health/child-health/nutrition/feeding-infants-and-young-children-during-and-after-illness>
- Walker, C. L. F., Taneja, S., Lefevre, A., Black, R. E., & Mazumder, S. 2015. Appropriate management of acute diarrhea in children among public and private providers in Gujarat, India : A Cross-Sectional Survey. *Global Health Science and Practice*. 3 (2): 230 – 241.
- WHO. 2017. Diarrhea Disease. Retrieved from <http://www.who.int/news-room/fact-sheets/detail/diarrhoeal-disease>

