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HONEY THERAPY TO REDUCE THE FREQUENCY OF DIARRHEA IN CHILDREN

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ABSTRACT
Diarrhea has an impact on children's health, one of which is dehydration. Laboratory studies and clinical trials, pure honey has bactericidal activity that causes diarrhea. Giving honey is useful in reducing the frequency of diarrhea in children. Honey has antibacterial, anti-inflammatory and antiviral properties that can treat diarrhea. This study aims to determine the effectiveness of honey to reduce the frequency of diarrhea in children. The design of this study was a quasi-experimental pretest and posttest nonequivalent without a control group. The research sample was 20 children who experienced diarrhea. Honey is given 3 times a day as much as 5 ml. Results: The results showed that the frequency of diarrhea decreased after being given honey, which means that there was an effect of giving honey on a decrease in the frequency of diarrhea in children ($p<0.001$). Conclusions: Honey can be used as an alternative therapy to reduce the frequency of diarrhea in children.

Keywords: children; diarrhea; honey therapy

INTRODUCTION
One of the causes of death in children under five years of age (toddlers) is diarrhea, which is the second leading cause of under-five deaths in the world. Viruses, bacteria, and protozoa are the causes of diarrhea (Carvajal et al., 2016). The incidence of diarrhea is 1.7 billion per year and 760,000 children under five die from diarrhea (Sharif et.al., 2017). Diarrhea is an endemic disease and can cause death. Diarrhea can be detrimental to the health of toddlers. The effects of diarrhea are dehydration, acid and base imbalance, hypoglycemia, hypokalemia, nutritional status problems, and circulation problems. The process of homeostasis will occur as a result of dehydration resulting in an imbalance of fluids and electrolytes in the body. Some of the management of diarrhea are preventing dehydration from occurring, giving Oral Rehidration Salt, giving zinc, giving food intake during diarrhea, and other treatments.

According to Andayani (2020) handling diarrhea apart from using pharmacotherapy techniques there is also a complementary therapy that can be used, namely by giving honey. Honey has been known as a traditional medicine since ancient times, but honey has not been widely used in modern medicine because of the emergence of many antibiotic discoveries (Oskouei & Najafi, 2013). Honey has high benefits for the medical world, especially for dealing with various infections caused by bacteria or microbes. In rehydration fluids, honey can increase potassium and water uptake without increasing sodium uptake. It helps repair damaged intestinal mucosa, stimulates new tissue growth and works as an anti-inflammatory agent (Lusiana et.al., 2021).

Honey is able to inhibit 60 species of bacteria, fungi and viruses that cause diarrhea (Saha, 2015). From laboratory studies and clinical trials, pure honey has bactericidal activity that can fight several enteropathogenic organisms, including species of Salmonella, Shigella and E. Coli

(Samarghandian et. Al., 2018).Honey can be used to treat diarrhea because of its antibacterial effect and easily digestible nutritional content. Another benefit of honey is that it helps in replacing body fluids lost due to diarrhea. The main treatment for diarrhea is to replace lost fluids to prevent dehydration by giving rehydration fluids. Replacing sugar with honey in oral rehydration is far more beneficial because honey contains fructose which increases water absorption and decreases sodium salt absorption thereby preventing excess sodium in the body. In addition, fructose can increase the absorption of potassium salts, while sugar can reduce absorption (Ayu, 2022). Several previous studies explained that 65% of children under five decreased the frequency of diarrhea by being given honey (Nurjanah, 2022). The difference between this study and previous research is in the method of giving honey, namely 5 ml of honey three times a day and given to children aged 3-5 years. The purpose of this study was to determine the effectiveness of honey on the frequency of diarrhea in children.

METHOD

This study used a quasi-experimental approach with pre-test and post-test nonequivalent without control group. The research conducted an initial assessment before the intervention was carried out. The assessment is the presence of signs of dehydration in children, assessing the child's degree of dehydration and assessing the frequency of diarrhea. The independent variable is the provision of honey with a measuring syringe. While the dependent variable is a decrease in the frequency of diarrhea with an observation sheet measuring instrument to see the development of the frequency of diarrhea in 24 hours, length of stay, and honey given by putting a checklist in the column provided. The sample in this study were children aged 3-5 years who were treated with diarrhea, namely 20 children. The intervention was carried out by giving 5 ml of honey 3 times a day and giving it to the child. This intervention is carried out from the time the child has diarrhea until the child is declared cured. Data analysis was performed using a paired t-test.

RESULTS AND DISCUSSION

Table 1.
Average Characteristics of Respondents Based on the Frequency of Diarrhea Before and After Being Given Honey

Characteristics	Measurement	Mean ± SD
Diarrhea frequency	Before	8,15 ± 1,461
	After	3,55 ± 1,191

Table 1 shows that the frequency of diarrhea in the group that received 5 ml of honey 3 times a day was 3.55 times.

Table 2.
Differences in the frequency of diarrhea before and after being given honey

Variable	Given Honey		95%CI	P Value
Diarrhea frequency	Mean	SD		
Before	8,15	1,461	3,914;5,286	0,001
After	3,55	1,191		

Table 2 explains that there is a significant difference in the frequency of diarrhea before and after being given honey ($p<0.05$).

Table 1 shows that the frequency of diarrhea in the group that received 5 ml of honey 3 times a day decreased to 3.55 times compared to before being given honey, which was 8.15 times. Honey has many ingredients in it, including carbohydrates, protein, minerals, B complex vitamins and vitamin C. Some of the benefits of vitamin C in honey are anti-inflammatory, anti-bacterial, anti-viral and anti-oxidant which are useful for dealing with bacteria and viruses that cause diarrhea (Indriani, 2022). The composition of honey is fructose and glucose which are prebiotic agents, which consist of amino acids, vitamins, minerals and enzymes (Rokhaidah, 2019). According to research from the German Institute for Quality and Efficiency in Health Care, in cases of mild diarrhea it is advisable to eat probiotic foods that have special microorganisms such as bacteria or yeast in them. This helps the body fight the germs that cause diarrhea (Meisuri et.al, 2020).

Honey has a high sugar content which can increase osmotic pressure so that it can inhibit the growth and development of bacteria (Andayani, 2021). Unsaturated sugar solution in honey which consists of 84% fructose and glucose mixture, has a strong interaction between the two sugar molecules with water molecules and is able to increase water absorption in the intestine and can increase the consistency of the stool. Based on table 2, it shows that there is a significant difference in the frequency of diarrhea before and after being given honey ($p < 0.05$), which means that the intervention of giving honey therapy is effective in reducing the frequency of diarrhea in children. Giving honey to children with diarrhea can reduce the frequency of diarrhea in children (Sharif et al., 2017). Honey can act as an anti-bacterial and prebiotic which can treat diarrhea (Mansouri et. al., 2018). In addition, honey is also able to treat constipation and diarrhea in children, minimize pathogens and reduce the duration of diarrhea (Botutihe, 2021). Diarrhea causes the intestinal mucosa to be damaged resulting in disruption of the process of absorption of food. Giving honey can help form granulation tissue and improve the surface of the intestinal crypts, improve the intestinal mucosal tract, and inhibit bacteria and viruses. Improved intestinal mucosa can increase food absorption, bowel sounds, reduce the frequency of diarrhea (Ratih, 2022). The results of the study showed that honey added to Oral Rehidration Salt solution shortened the period of acute diarrhea in children (Andayani, 2021).

The pH of honey has an acidity level of 3.2 to 4.5 which can inhibit pathogens caused by diarrhea. Research conducted by Findawati (2022) stated that honey has a low PH, this is proven when the acidity can inhibit pathogenic bacteria in the intestines and stomach. Evidenced by a period of 24 hours, there was a decrease in the frequency of diarrhea and the consistency of diarrhea became denser. When evaluating the child's condition, the longer the condition is generally getting better. The antibiotic content of honey is also able to overcome bacterial diarrhea and has bactericidal activity that is able to fight several enterophagetic organisms, including species from Salmonella, Shigella and E. Colli. (Samarghandian et. Al., 2018). Honey has two bioactive molecules including flavonoids and polyphenols which function as antioxidants. Honey can minimize the frequency of diarrhea, increase body weight, and shorten hospital stays (Cholid et. al., 2016). Bacterial resistance to honey has not been reported, making honey a very promising antibacterial agent against bacteria. Honey can inhibit the growth of E.coli, positive coagulase Staphylococcus, Salmonella typhosa, even Pseudomonas aeruginosa which is often resistant to antibiotics. Honey therapy can reduce the duration of the disease and increase the likelihood of early clinical recovery (Maftuchah, 2021).

CONCLUSION

Honey therapy intervention is effective in reducing the frequency of diarrhea in children

REFERENCES

Andayani, R. (2020). Madu sebagai Terapi Komplementer Mengatasi Diare pada Anak Balita. Jurnal Kesehatan Perintis, 7(1), 64-68. https://doi.org/10.33653/jkp.v7i1.393

Andayani RP. (2021). Madu Dengan Oral Rehydration Salts dan Larutan Madu Efektif Terhadap Penurunan Frekuensi Diare dan Lama Rawat Pada Anak. JIK (Jurnal Ilmu Kesehatan), Volume 4 No. 1 h. 57-64, doi: 10.33757/jik.v4i1.268.g117

Ayu Suntara, D. (2022). Pemberian Therapy Pemberian Madu Untuk Mengatasi Diare Di Wilayah Kerja Puskesmas Tanjung Uncang Kota Batam. Zahra: Journal Of Health And Medical Research, 2(1), 15–23. Retrieved from https://adisampublisher.org/index.php/aisha/article/view/68

Botutihe F. (2021). Terapi Komplementer Madu Pada Anak Untuk Menurunkan Frekuensi Diare. Vol 5 No 1: Jurnal Delima Kesehatan Pelamonia

Carvajal, L., Amouzou, A., Perin, J., Maïga, A., Tarekegn, H., Akinyemi, A., Newby, H. (2016). Diarrhea management in children under five in sub-Saharan Africa : does the source of care matter? A Countdown analysis. BMC Public Health, 1–14. https://doi.org/10.1186/s12889-016-3475-1.

Cholid, S., Santosa, B., & Suhartono, S. (2016). Pengaruh Pemberian Madu pada Diare Akut. Sari Pediatri, 12(5), 289. https://doi.org/10.14238/sp12.5.2011.289-95

Findawati, Resmana R, Nurchasanah Y. (2022). Evidence Based Case Report (EBCR) : Pemberian Madu Dapat Menurunkan Frekuensi Diare Pada Balita Di Puskesmas Padasuka. Vol. 3 No. 1: Jurnal Kesehatan Siliwangi

Indriani, Y. N., Hanum NA, F., & Linda Yanti. (2022). Formula Madu Untuk Mengatasi Diare Pada Balita Di Puskesmas Wanadadi 1 Banjarnegara: Studi Kasus. Indonesian Health Science Journal, 2(2). https://doi.org/10.52298/ihsj.v2i2.26

Lusiana E, Immawati, Nurhayati S. (2021). Penerapan Pemberian Madu Untuk Mengatasi Diare Pada Anak Usia Prasekolah (3 – 5 Tahun). Jurnal Cendikia Muda Volume 1, Nomor 1

Maftuchah, Kusyati E, Laksana TWN. (2021). Upaya Mempercepat Penyembuhan Diare pada Balita dengan Pemberian Makanan Tambahan Puding Madu. Jurnal Smart Kebidanan, Vol 8, No 2

Mansouri T, H., Khorasgani, M. R., & Roayaei, M. (2018). Effects of Probiotics with or without Honey on Radiation- induced Diarrhea Effects of Probiotics with or without Honey on Radiation-induced Diarrhea. International Journal of Radiation Research, 14(3), 205–213. https://doi.org/10.18869/acadpub.ijrr.14.3.205.

Meisuri NP, Rukmi R, Perdani W, Mutiara H, Sukohar A. (2020). Potential Effects Of Honey Suplementation On Decreasing Frequency Of Children Acute Diarrhea In Dr. H Abdoel Moeloek Hospital Bandar Lampung, Vol. 9 No. 2: MAJORITY

Nurjanah S, Susaldi, Danismaya I. (2022). Madu dapat Menurunkan Frekuensi Diare pada Anak. Vol. 2 No. 1: Journal of Nursing Education & Practice

Oskouei, T., & Najafi, M. (2013). Traditional and Modern Uses of Natural Honey in Human Diseases : A Review. Irian Journal of Basic Medical Sciences, 16(6), 731–742.

Ratih D, Astuti Y, Hudaya I. (2022). Literatur Review : Efektifitas Pemberian Terapi Komplementer Madu Terhadap Kejadian Diare Pada Balita. Journal Of Midwifery And Nursing Studies , Vol. 4 No. 2 Edisi November

Rokhaidah, R. (2019). Madu sebagai Terapi Komplementer untuk Anak dengan Diare Akut. Jurnal Kesehatan Holistic, 3(1), 1-10. https://doi.org/10.33377/jkh.v3i1.42

Saha, S. (2015). Honey-The natural sweetener become a promising alternative therapeutic: a review. South Indian Journal of Biological Sciences, 1(2), 103–114.

Samarghandian, S., Farkhondeh, T., & Samini, F. (2018). Honey and Health : A Review of Recent Clinical Research. Pharmacognosy Research, 9(2), 121–127. https://doi.org/10.4103/0974-8490.204647.

Sharif, A., Noorian, A., Sharif, M. R., & Taghavi, A. (2017). A randomized clinical trial on the effect of honey in the acute gastroenteritis. Journal of Research in Medical and Dental Science, 5(6), 144–148. https://doi.org/10.24896/jrmds.20175625.