



Meta-analysis study: The relationship of exclusive breastfeeding, nutritional status and environmental factors with the event of diarrhea in toddlers

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Abstract

Diarrhea is is defecation in little children more than 3 times a day went with by changes within the consistency of the stool to fluid with or without bodily fluid and blood that endures less than one week. The morbidity and mortality rates from diarrheal disease are still high, causing diarrheal disease to become a health problem. All inclusive, there are about 1,7 billion cases of diarrheal infection in children each year and it causes the death of around 525.000 children under five in the world. The purpose of this paper is to determine the tendency of a greater relationship between exclusive breastfeeding, nutritional status and environmental factors with the incidence of diarrhea in children under five. There are 30 inquire about articles related to elite breastfeeding, dietary status and natural variables with the rate of the runs in little children gotten from the comes about of collection through Google Researcher, Garuda Entry, and Investigate Door. The sort of inquire about utilized is Meta Investigation. Based on the results of a review of research articles, it can be concluded that exclusive breastfeeding, nutritional status and environmental factors with the incidence of diarrhea in toddlers obtained the OR value of exclusive breastfeeding of 4.052, nutritional status of 4.052 and environmental factors of 1.389. There is a significant relationship between exclusive breastfeeding, nutritional status and environmental factors with the incidence of diarrhea in children under five in selected journals with a combined effect size value on exclusive breastfeeding of 3.417; [95% CI : 3.417-8.853, Z=2.530, $p=0.011$] ; nutritional status of 4.052; [95% CI : 1.090-15.067, Z=2.089, $p=0.037$] ; and environmental factors with the incidence of diarrhea in toddlers of 1.389; [95% CI : 1.089-1.919, Z=2.071, $p=0.038$].

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I. INTRODUCTION

BACKGROUND Agreeing to information from the Joined together Countries Children's (UNICEF) and the World Wellbeing Organization (WHO) in 2013, the runs is the moment driving cause of passing for children beneath 5 a long time ancient in the world with a percentage of 16% of deaths due to diarrhea in children under five. A total of 1,7 billion cases of diarrhea occur annually and cause around 760.000 children to die every year.¹ The Coordinates Worldwide Activity Arrange for the Avoidance and Control of Pneumonia and Loose bowels (GAPPD) by WHO and UNICEF targets to diminish the mortality rate from loose bowels to less than 1 per 1000 live births [1].

In Indonesia, the runs is the moment driving cause of passing in children beneath 5 a long time of age. Information from the In-

donesian Service of Health² (2016) expressed that the number of loose bowels cases taken care of by wellbeing organizations in Indonesia in 2016 was 46,4% of the entire number of the runs sufferers in Indonesia which was recorded at 6.897.463 people [2].

In [3] revealed that diarrhea in children is influenced by 4 factors, namely causative factors, child factors, maternal factors and socio-economic factors, while according to [4] said that the incidence of diarrhea is influenced by individual factors, preventive behavior factors and environmental factors. From several journals of diarrhea events, it was found that about 60% of research journals appeared with exclusive breastfeeding variables and about 55% of research journals that appeared discussed environmental factors. It can be concluded that these

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two variables are the most dominant or most widely published in research journals.

Several studies regarding exclusive breastfeeding, nutritional status and environmental factors with the incidence of diarrhea, according to [5] research found that exclusive breastfeeding was associated with the incidence of acute diarrhea ($p = 0.003$; OR = 0,5), according to research by [6] said that exclusive breastfeeding was significantly associated with the incidence of diarrhea ($p=0.000$; OR=0,4), Then according to research by [7], it was found that there was a relationship between nutritional status and the incidence of diarrhea in toddlers aged 3-5 years ($p = 0.008$; OR = 20), according to [8] stated that there was a relationship between nutritional status and the incidence of diarrhea ($p = 0.000$; OR = 9,8). Furthermore, according to [9] said that there was a significant relationship between the condition of the home environment and the incidence of diarrhea in toddlers ($p=0.001$; OR=5,37) further research [10], said that

significantly environmental factors (source of drinking water, sort of squander transfer location, and squander transfer were related with the rate of loose bowels in children beneath five with a esteem of ($p=0.028$; OR=5,5).

Based on the portrayal over, a meta-analysis can be carried out to analyze the inclination of the relationship between select breastfeeding, wholesome status and natural components with the frequency of loose bowels in children beneath five.

II. METHOD

The research design used is Meta Analysis. There are 30 research articles related to exclusive breastfeeding, nutritional status and environmental factors with the incidence of diarrhea in toddlers obtained from the results of collection through Google Scholar, Garuda Portal, and Research Gate.

III. RESULT AND DISCUSSION

TABLE 1

EFFECT SIZE OF THE COMBINED RESEARCH ON EXCLUSIVE BREASTFEEDING WITH THE INCIDENCE OF DIARRHEA

Effect size and 95% CI						
Model	Number of studies	Combined Effect	Upper limit	Lower limit	Z	p
Random	8	3.417	8.853	1.319	2.530	0.011

Within the timberland plot there's an impact measure of each ponder with a certain certainty interim from the 8 considers coming about in a p esteem = $0.011 < 0.05$ and the combined impact measure of the OR on select breastfeeding with the frequency of loose bowels in little children is 3.4 with a wide certainty interim (95%CI) the upper-lower restrain of 3.417-8,853 implies that there's a relationship between select breastfeeding and the frequency of loose bowels in little children with a propensity for little children who are not solely breastfed to have a 3.4-fold hazard of encountering the runs compared to newborn children who are only breastfed, seeing the size of the combined impact of the 8 diaries, distribution predisposition too must be seen from the comes about of the pipe plot. Out-

wardly, it can be seen that the dispersion of Pipe plots appears that there's a distribution inclination checked by the asymmetry of the plots on the proper and cleared out of the vertical line where the remove between the plots isn't the same. The SE (Standard Mistake) esteem on the cleared out is 0,2 and the SE esteem on the correct is 0,4 and 0,7. This is because the incidence of illness occurs due to the interaction of the agent, host, and supportive environment. Immunity itself belongs to the host factor [11]. Babies who are exclusively breastfed are still likely to have diarrhea at any age. Diarrhea often occurs in infants when they are introduced to foods and drinks other than breast milk which may contain contaminants [12].

TABLE 2

EFFECT SIZE OF COMBINED RESEARCH ON NUTRITIONAL STATUS WITH THE INCIDENCE OF DIARRHEA

Effect size and 95% CI					Significance Test	
Model	Number of studies	Combined Effect	Upper limit	Lower limit	I	p
Random	5	4.052	15.067	1.090	2.089	0.037

Within the woodland plot, there's an impact measure of each think about with a certain certainty interim from the 5 thinks about coming about in a p esteem = $0.037 < 0.05$ and the combined impact measure of the OR on dietary status with the rate

of the runs in little children is 4 with a wide certainty interim (95% CI) the upper-lower constrain of 1.090-15,067 implies that there's a relationship between wholesome status and the frequency of loose bowels in little children with a propensity for

little children with destitute wholesome status to have a 4-fold chance of encountering the runs compared to little children with great wholesome status, seeing the greatness of the combined impact of the 5 diaries, distribution inclination moreover has to be seen from the comes about of the pipe plot. Visually, it can be seen that the distribution of Funnel plots shows that there is a publication bias marked by the asymmetry of the plots on the right and cleared out of the vertical line where the remove between the plots isn't the same. The SE (Standard Blunder) esteem on the cleared out is 0,4 and the SE esteem on the correct is 0,6 and 1,1. This can be since the cause of ailing health isn't as it were caused by improper nourishment, but

moreover since of infection. Children who are well nourished but regularly have the runs or fever may endure from lack of healthy sustenance. Diarrhea is an increase in the frequency or a decrease in stool consistency. Persistent diarrhea is diarrhea that is acute at first but lasts more than 14 days, the incident can begin with watery diarrhea or dysentery resulting in significant weight loss, with large volumes of feces resulting in dehydration [13]. Likewise, children who eat not good enough then the immune system is getting weaker and susceptible to disease. The fact that together both food and disease are causes of malnutrition [14].

TABLE 3
COMBINED EFFECT SIZE RESEARCH ON ENVIRONMENTAL FACTORS WITH THE INCIDENCE OF DIARRHEA

Effect size and 95% CI					Significance Test	
Model	Number of studies	Combined Effect	Upper limit	Lower limit	Z	P
Random	8	1.389	1.919	1.089	2.071	0.038

Within the woodland plot of the relationship between natural variables and the rate of loose bowels, the timberland plot is the result of a synthesized meta-analysis that portrays the conclusions drawn from a few comparative studies which were combined in conjunction with the impact measure esteem of each ponder and the combined impact estimate esteem. Within the timberland plot, there's an impact measure of each think about with a certain certainty interim from the 8 thinks about coming about in a p esteem = $0.038 < 0.05$ and the combined impact estimate of the OR on natural variables with the frequency of loose bowels in little children is 1.4 with a wide certainty interim (95%CI). the upper-lower restrain of 1,089-1,919 implies that there's a relationship between natural variables and the frequency of loose bowels in little children with a propensity for little children with lacking natural components to have a hazard of 1,4 times that little children encounter loose bowels compared to little children with an satisfactory environment, seeing the size of the combined impact of 8 diary, distribution inclination too ought to be seen from the comes about of the pipe plot. Outwardly, it can be seen that the dissemination of Pipe plots appears that there's a distribution predisposition

stamped by the asymmetry of the plots on the correct and cleared out of the vertical line where the remove between the plots isn't the same. The SE (Standard Mistake) esteem on the cleared out is 0,4 and the SE esteem on the proper is 0,1 and 0,8. This can be due to a few variables related to the frequency of loose bowels, to be specific insufficient supply of clean water, water sullied with feces, need of cleanliness offices, unhygienic transfer of feces, destitute individual and natural cleanliness, and dishonorable planning and capacity of nourishment [15].

IV. CONCLUSION

The comes about of the meta-analysis appeared that there was an OR esteem with the most prominent drift in wholesome status with the frequency of loose bowels of 4,052, taken after by elite breastfeeding with the rate of loose bowels of 3,417, and natural components with the frequency of loose bowels of 1,389, and there was a noteworthy relationship between select breastfeeding with the frequency of the runs in little children. Recommendations based on the results of this study are that the health department can improve work programs for diarrhea programs and monitor activities that have been carried out so as to get the expected results.

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