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# The relationship between infectious disease history and child development at the Sei Mencirim Community Health Center, Sunggal District Deli Serdang Regency 2022

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**ABSTRACT**

Human development in Indonesia continues to progress, as stated by the Central Statistics Agency (BPS). An increase of 0.53 points to grow by 0.74 percent compared to 2018, where Indonesia's Human Development Index (HDI) reached 71.92. The ability to suppress the incidence of infectious diseases such as Upper Respiratory Tract Infections (URTIs), Pneumonia, Pulmonary Tuberculosis, Hepatitis, Diarrhea and Malaria is one of the indicators of increasing HDI in Indonesia and is a success. Analyzing the Relationship between Infectious Disease History and Child Development in the Sei Mencirim Health Center Work Area, Sunggal District, Deli Serdang Regency in 2022. Observational/survey research, namely data collected from respondents using questionnaires or questionnaires without intervening in the research subjects. The type of research is descriptive analytical with cross-sectional. The research sample was part of mothers and toddlers at the Sei Mencirim Health Center, Sunggal District, Deli Serdang Regency in 2022 as many as 126 people. Using univariate and bivariate analysis. From the results of the statistical test, the majority of children with a history of diarrheal infectious diseases were 186 respondents (52.6%) and the minority of children with a history of ARI infectious diseases were 168 respondents (47.4%). The majority of children with appropriate development were 168 respondents (47.4%) and the minority of children with developmental deviations were 57 respondents (31%). And there is a relationship between a history of infectious diseases and child development at the Sei Mencirim Health Center, Sunggal District, Deli Serdang Regency in 2022 where the p-value is 0.017 (p <0.05).



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# INTRODUCTION

According to data from the World Health Organization (WHO, 2014), gross and fine motor disorders in infants and toddlers occur in around 200 million people.(Tama & Handayani, 2021),(Muhammad et al., 2020). In Indonesia, based on a report from the Republic of Indonesia Department of Health (Depkes RI), 2013, 0.4 million (16%) experienced developmental disorders in infants and toddlers, both gross and fine motor skills.(Defera et al., 2021),(Primasari & Keliat, 2020), hearing loss, decreased intelligence and speech delays or language disorders(Kusumaningsih & Magfiroh, 2020),(Norlita & Rizky, 2022).

National data according to the Indonesian Ministry of Health shows that in 2016, 11.5% of toddlers in Indonesia experienced growth and development disorders.(Mariana & Sopiatun, 2020),(Asthiningsih & Muflihatin, 2018),(Olo et al., 2021). Disruption of child development will contribute to morbidity that occurs throughout the child's life cycle, the transmission of poverty between generations.(Lulianthy et al., 2023),(Dahliansyah, 2022), and in the long term can hold back the rate of development of a country(Dewi & Muin, 2023),(Sitti Patimah, 2023).

Children usually master the basics of language development from the age of 4 years, but children experience language delays or disorders during the preschool period of around 5% to 8%, as well as learning disorders.(Ardiyansyah, 2020), socioemotional or behavioral problems that can occur until the child becomes an adult(Ardiyansyah, 2020),(Aryani & Fauziah, 2020). Disorders of fine and gross motor development, hearing disorders and low intelligence occur in toddlers in Indonesia around 16%. The highest developmental disorders occur in language disorders (13.8%), then disorders of fine motor development (12.2%)(Tarigan, 2022),(Norlita & Rizky, 2022),(Triananinsi et al., 2023).

Based on a preliminary survey conducted in the Sei Mencirim Health Center Work Area, Sunggal District, Deli Serdang Regency in 2022 on 10 mothers who had babies(Zega, n.d.).(Lubis, 2023), there are 8 mothers who have children with a history of diarrhea infection with gross motor development disorders, 18 months old and have not been able to walk, so based on this problem, the researcher is interested in conducting a study entitled "The Relationship between History of Diarrhea Infection and Child Development at the Sei Mencirim Health Center, Sunggal District, Deli Serdang Regency in 2022"(Ayu & Sumartini, 2020),(Safitri, 2020).

# RESEARCH METHOD

This research method is observational/survey, namely data collected from respondents using questionnaires or surveys without intervening on research subjects. The type of research is descriptive analytical with cross-sectional, namely studying the correlation between risk factors with effects in the form of certain diseases or health statuses.(Putri et al., 2022),(Adrin1 & Arsanti, nd).

**Time and place of research**

This study was conducted at the Sei Mencirim Health Center, Sunggal District, Deli Serdang Regency from May to June 2022.

**Operational Definition**

Infection History: History of disease caused by the entry and proliferation of microorganisms, a broad group of microscopic organisms consisting of one or many cells such as bacteria. Development: Development is the process of increasing maturity and psychological function of humans. The quality of a child can be assessed from the process of growth and development.

**Population and Sample**

The population of this study were mothers and toddlers at the Sei Mencirim Health Center, Sunggal District, Deli Serdang Regency in 2022, totaling 3,065 people. The sample in this study was

determined by Purposive sampling and the Slovin formula with a Margin of error set at 5% or 0.05, totaling 354 people, sampling was carried out by Purposive sampling with a total of 126 respondents.

**Measurement Method**

It is a type of analysis conducted to determine the relationship between 2 variables. Data collection uses the Chisquare Test to test whether there is a relationship between 2 variables.

**Data analysis**

Univariate data analysis is In this analysis, the research variables are arranged descriptively through a frequency table.(Aritonang et al., 2018). Frequency table of respondent characteristics distribution. Bivariate data analysis to see the relationship between independent and dependent variables, namely the Relationship between History of Infectious Diseases and Toddler Development at the Hamparan Perak Health Center, Hamparan Perak District, Deli Serdang Regency in 2022 using Chi Square.

# RESULTS AND DISCUSSIONS

**Research result**

Based on the results of the study entitled "The Relationship between History of Infectious Diseases and Child Development at the Sei Mencirim Health Center, Sunggal District, Deli Serdang Regency, the following results were obtained:

**Table 1.**Frequency Distribution Based on Child Age

| No | Child Age | Amount | % |
|---|---|---|---|
| 1 | 1-12 months | 168 | 47.4 |
| 2 | 13-24 months | 186 | 52.6 |
| | Total | 354 | 100 |

Based on table 4.1 above, it shows that the majority of children aged 13-24 months were 186 respondents (52.6%) and the minority aged 1-12 months were 168 respondents (47.4%).

**Table 2.**Frequency Distribution Based on Child Order

| No | What order do you come in your family | Amount | % |
|---|---|---|---|
| 1 | 1st child | 144 | 40.7 |
| 2 | 2nd child | 148 | 41.8 |
| 3 | 3rd child | 33 | 9.3 |
| 4 | 5th child | 29 | 8.2 |
| | Total | 354 | 100 |

Based on table 4.2 above, it shows that the majority of the 2nd child is 148 respondents (41.8%) and the minority of the 5th is 29 respondents (8.2%).

**Table 3.**Frequency Distribution by Type of Infection

| | Mean | SD | Z | Sig.(2-tailed) |
|---|---|---|---|---|
| Differences in Listening to Classical Music in English | 6.40 | 1,817 | | |
| | | | -2,108 | 0.036 |
| Differences in Murotal Therapy 11.00 | | 3.240 | | |

Based on table 4.3 above, it shows that the majority of children with a history of diarrhea infection were 186 respondents (52.6%) and the minority of children with a history of ARI infection were 168 respondents (47.4%).

**Table 4.**Frequency Distribution Based on Child Development

| No | Development | Amount | % |
|---|---|---|---|
| 1 | In accordance | 168 | 47.4 |
| 2 | Doubtful | 129 | 36.4 |
| 2 | Deviation | 57 | 31.0 |
| | Total | 354 | 100 |

Based on table 4.4 above, it shows that the majority of children with appropriate development are 168 respondents (47.4%) and the minority of children with developmental deviations are 57 respondents (31%).

**Table 5.**Frequency Distribution Based on Child Development

| No | History of Infectious Diseases | Progress Check | | | | | | Amount | | p-value |
|---|---|---|---|---|---|---|---|---|---|---|
| | | In accordance | | Doubtful | | Deviation | | | | |
| | | f | % | f | % | f | % | f | % | |
| 1 | Diarrhea | 126 | 35.6 | 32 | 9.0 | 28 | 7.9 | 186 | 52.5 | 0.017 |
| 2 | ISPA | 42 | 11.9 | 97 | 27.4 | 29 | 8.2 | 168 | 47.5 | |
| | | 168 | 47.5 | 129 | 36.4 | 57 | 16.1 | 354 | 100 | |

Based on table 4.5 above, it shows that there is a relationship between a history of infectious diseases and child development at the Sei Mencirim Health Center, Sunggal District, Deli Serdang Regency in 2022, where the p-value is 0.017 ($p < 0.05$).

# CONCLUSION

Based on the results of the study, it shows that the majority of children with a history of infectious diarrhea were 186 respondents (52.6%) and a minority of children with a history of infectious ARI were 168 respondents (47.4%). The majority of children with appropriate development were 168 respondents (47.4%) and a minority of children with developmental deviations were 57 respondents (31%). And there is a relationship between a history of infectious diseases and child development at the Sei Mencirim Health Center, Sunggal District, Deli Serdang Regency in 2022 where the p-value is 0.017 ($p < 0.05$).

Parental knowledge about nutritious food is very important in preventing infections in toddlers, because poor nutritional status can increase the risk of infection. One type of infectious disease in children that often occurs is diarrhea, the cause of which is 60-70% rotavirus. Inflammation of the digestive tract caused by rotavirus can cause symptoms such as diarrhea, vomiting, and loss of body fluids so that they are susceptible to dehydration. Diarrheal disease is one of the most common causes of death in children under 5 years of age worldwide. (Sumampow, 2017).

Diarrhea is one of the leading causes of morbidity and mortality in children in developing countries, with a very high number of cases, around 3-5 billion per year worldwide. Every year, around 5-18 million people die from diarrheal diseases, which are one of the leading causes of death in the world. Dehydration caused by fluid and electrolyte loss through unbalanced stools is a major risk factor for death in people with diarrhea. Diarrhea is a condition in which there is an increase in the amount and/or change in the consistency of stool that is excreted. Germs that cause diarrhea can spread through the fecal-oral route, such as through consumption of contaminated food or drink, or through direct contact with infected stool. Behaviors have the potential to cause the spread of enteric germs and increase the risk of diarrhea.

Humans experience a development process that includes increasing maturity and psychological function throughout their lives. The quality of a child's development can be influenced by the growth and development process that is influenced by the interaction between hereditary factors and the surrounding environment. An environment that supports child development must consider four important aspects, namely the biological, physical, psychological, and social environments. Optimal neural maturity is very important for child development, because it affects the child's development patterns and ability to learn and adapt. Child

development is greatly influenced by the physical environment which includes abiotic factors such as water, air, soil, weather, and others. Poor physical environmental conditions can trigger various diseases in society, for example, lack of clean water which can cause diarrhea and various other health problems. (Suamntri, 2017).

According to the researcher's assumption, children who have a history of infectious diseases such as diarrhea or ARI will affect the child's development, both social/language development, fine motor skills, gross motor skills and independence due to disturbances in nerve maturity caused by infections that occur in children.

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