Journal of Neonatal Surgery
ISSN(Online): 2226-0439
Vol. 14, Issue 7s (2025)
https://www.jneonatalsurg.com

OPEN ACCESS

Toddler Growth and Development of Pregnant Women Covid-19

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Cite this paper as: Juhriah Jumadil, Budu, Mardiana Ahmad, Ema Alasiry, Jumrah Sudirman, Hasta Handayani Idrus, (2025) Toddler Growth and Development of Pregnant Women Covid-19. *Journal of Neonatal Surgery*, 14 (7s), 243-257.

ABSTRACT

Background: SARS-CoV-2 or also known as Coronavirus Disease 2019 (COVID-19) is a disease caused by a virus. This virus can affect the elderly, adults, children, infants and pregnant women, including breastfeeding mothers. Pregnant women as one of the vulnerable groups are at risk of viral infection because during pregnancy, the body physiologically and has the potential to affect organogenesis and fetal development. Direct exposure from the fetus to the mother's immune response from the mother due to infection during pregnancy may have the potential to impaired the growth and development of toddlers.

Objective: This study aims to analyze the differences in the growth and development of toddlers from pregnant women infected with COVID-19 and those who are not infected with COVID-19. **Methods:** This study used *a case control* design , which was by comparing the case group and the control group with a sample of 148 consisting of 74 toddlers from pregnant women infected with COVID-19 and 74 toddlers from pregnant women who were not infected with COVID-19. The growth of toddlers was obtained by measuring weight and height in the growth and development graph using a developmental pre-screening questionnaire instrument (KPSP). Data analysis uses *the Chi-Square* and *Mann Whitney tests*.

Results: In the growth of toddlers from the results analyzed from the two groups based on the weight of toddlers using the minimum weight gain value (KBM) with a p-value of 0.010 ($p<0.05$) means that there is a significant difference between the two groups, while the growth of toddlers based on height with a p-value of 0.337 ($p>0.05$) means that there is no significant difference between the two groups. In the development of toddlers from the results of statistical tests, the p-value of 0.282 ($p>0.05$) means that there is no significant difference between the two groups

Conclusion: Toddlers born to pregnant women infected with COVID-19 can affect the weight of toddlers but have no effect on the height and development of toddlers

Keywords: *Toddlers, COVID-19, Pregnant Women, Development, and Growth*

1. INTRODUCTION

SARS-CoV-2 or also known as *Coronavirus Disease* 2019 (COVID-19) is a disease caused by a virus that looks like a crown or in Latin Corona of 2019 [1], which can cause respiratory tract infections in humans ranging from coughing up a cold and can even cause death if left untreated [2]. This virus can affect anyone, including the elderly, adults, children, infants and pregnant women, including breastfeeding mothers [2]. The COVID-19 virus was first identified in the city of Wuhan, located in Hubei Province, China, at the end of December 2019 [3]. The highest cases occurred in China with 82,930 cases [4].

The spread of COVID-19 in Indonesia was detected on March 2, 2020 with a total of 4.26 million confirmed cases and 145 thousand deaths due to this virus variant [3]. On August 12, 2021 in Indonesia, there were 204,644,849 cases of COVID-19, including 4,323,139 deaths caused by COVID-19 and recorded in Indonesia on August 13, 2021 as many as 3,804,943

confirmed positive and 115,096 cases of death due to SAR-CoV-2. Meanwhile, cases of pregnant women who are positive for COVID-19 reached 536 people within 1 year from April 2020 to April 2021 [5]. Based on the 2021 ISR PP POGI, it shows that around 51.9% of pregnant women infected with COVID-19 do not show any symptoms.

Pregnant women are one of the vulnerable groups at risk of viral infection because during pregnancy, the body physiologically makes adjustments such as an increase in cardiovascular function and the respiratory system, a decrease in lung capacity, and changes in cellular immunity. In the first trimester and third trimester of pregnancy, there is a slight anti-inflammatory (immune clock), this allows in the trimester the body's response to infection and viruses will be higher which causes pregnant women to be easily infected with the virus [6].

The impact of COVID-19 on pregnant women can cause fever (47%), cough (47%), caesarean delivery (59%), premature birth (41%), intensive care of pregnant women (29%), maternal mortality (29%), neonatal mortality (23%), neonatal death (23%), neonatal positive neonates (23%), spontaneous abortion (17%), stillbirth (17%), intrauterine death (17%), BBLR (17%), neonatal asphyxia (17%), and fetal emergency (12%) [7]. Pregnant women who experience SARS-CoV-2 infection during pregnancy have higher rates of maternal morbidity and mortality including premature birth, preeclampsia, neonatal morbidity, and perinatal morbidity and mortality including stillbirth [8].

Direct exposure from the fetus to the mother's immune response from the mother due to infection during pregnancy may have the potential to impaired the growth and development of toddlers. Cytokine-induced storms during COVID-19 in Pregnancy can cause severe inflammatory damage to the fetus, and if left uncontrolled can lead to disorders such as autism spectrum and brain development abnormalities in neonates [9]. The growth and development of children under five begins in the womb [10] The period of growth and development at this age is a period that lasts quickly and will never be repeated, because it is often called the golden age or golden age [11].

According to Carla Nobles, (2022) [8] stated that there is evidence that women who experience SARS-CoV-2 infection during pregnancy have higher rates of maternal morbidity and mortality including premature birth, preeclampsia, neonatal morbidity; and perinatal morbidity and mortality including stillbirth. In addition, babies born prematurely with IUGR have a weak physical condition and usually experience growth disorders [12]. Meanwhile, in the study of Seri Pasolangi (2023) which said there was no association of anthropometric index with pregnant women in the prenatal period with a p-value of 0.812 > 0.05, which means there is no significance. This study is also in line with research conducted by Ni Nengah Susantin (2024) on the development of toddlers in pregnant women who have a history of COVID-19, explaining that the results of statistical tests show that the p-value for cognitive, motor, social, and language development is 0.745 which means there is no significant difference in motor and cognitive development between newborns from COVID-19 mothers and babies from mothers without COVID-19.

United Nations International Childrens's Emergency Fund (UNICEF) on In 2020, data was obtained that the incidence of growth and development disorders in children under five years old, especially motor development disorders, was obtained (27.5%) or 3 million children experienced disorders. National data according to the Indonesian Ministry of Health: 13% - 8% of children under five in Indonesia experience growth and development deviations [13]. Growth and development deviations are often subtle and difficult to detect, usually detected when a problem has occurred. The initial screening process makes it possible to find children at risk of developmental problems [14]. Several factors have an influence on growth and development, including genetics, ethnicity, gender, age and exernal, namely the prenatal, natal, postpartum period, physical and chemical environment as well as psychological. The provision of stimulation is an external factor [15].

The South Sulawesi Provincial Health Office reported 312 pregnant women infected with COVID-19 in 2021, 143 in 2022 and 55 in 2023. The stunting prevalence data in South Sulawesi Province based on SSGI in 2019 was 30.6%, SSGI data in 2021 was 27.4% and SSGI data in 2022 was 27.2% (South Sulawesi Provincial Health Office 2024) in 2023 according to SKI as much as 27.4% with the highest description in Tana Toraja regency at 36.9%, the lowest in North Luwu at 15.5% and Makassar City at 25.6%. Makassar City Health Office The number of COVID-19 pregnant women in 2021 was 294 people and in 2022 was 43 people (Makassar City Health Office 2024). The number of COVID-19 pregnant women at the Dadi Makassar Regional Special Hospital in 2020 was 244 people, in 2021 there were 215 people, in 2022 there were 41 people and in 2023 there were 10 people (Dadi Makassar Regional Special Hospital 2024).

Studies that discuss in more detail the growth and development of toddlers with mothers who have a history of COVID-19, it is necessary to monitor babies born to mothers infected with COVID-19 so that if a health problem occurs, it can be treated immediately. Based on the description above, researchers are interested in researching "Does Toddlers Born to Mothers Infected with COVID-19 Affect the Growth and Development of Toddlers".

2. RESEARCH METHODS

The research design used is *a case control* study design , which compares the case group and the control group. Data on toddlers born to mothers with COVID-19 from October 2021 to October 2023 were obtained retrospectively through the delivery room register and Medical Record data at the Dadi Regional Hospital, Makassar City

The sampling technique is by *purposive sampling*, with inclusion criteria, namely toddlers born to pregnant women infected with COVID-19 and not infected with COVID-19, maternal education at least junior high school and a cellphone number that can be contacted through medical record data of the Dadi Makassar Regional Special Hospital in 2021. The research sample used the Slovin sample formula, 148 samples consisting $n = \frac{233}{1+233\ (0,05x0,05)}$ of 74 toddlers from pregnant women infected with COVID-19 and 74 toddlers from pregnant women who were not infected with COVID-19.

The research instrument is On growth using growth chart sheets and anthropometric recording of weight and height. In Development, using KPSP instruments. This research was carried out after obtaining ethical approval that had been issued by the Research Ethics Commission of the Faculty of Public Health, Hasanuddin University with Number: 3224/UN4.14.1/TP.01.02/2024. This research was carried out at the Kaluku Bodoa Health Center, Maccini Sawa Health Center, Antara Health Center, Tamalanrea Jaya Health Center

Data analysis in this study uses the Chi-Square *and* Mann Whitney *Tests*

By using the spss application version 25.

3. RESULTS

Table 1 Characteristics of Toddler Mothers from both groups

Characteristics of Toddler Mothers	Infected with COVID-19		Not Infected with COVID-19		Total	*p-value*
	n	%	n	%		
Age (Years)						
20-35	70	47,3 %	60	40,5 %	130	0,012
>35	4	2,7%	14	9,5	18	
Sum	74	50 %	74	50 %	148	
Education						
JUNIOR	12	8,1 %	13	8,8 %	25	
SMA	53	35,8 %	50	33,8 %	103	0,945
DIPLOMA	2	1,4 %	2	1,4 %	4	
BACHELOR	7	4,7 %	9	6,1 %	16	
Sum	74	50 %	74	50 %	148	
Work						
IRT	65	43,9 %	62	41,9 %	1127	
Private	7	4,7 %	7	4,7 %	14	
Honorary	1	0,7 %	1	0,7 %	2	0,644
Peg.Contract	0	0 %	1	0,7 %	1	
Civil servants	1	0,7 %	3	2 %	4	
Sum	74	50 %	74	50 %1	148	

Primary data,2024, Chis-Square test

Based on table 1, it shows that the age characteristics of the most respondent mothers are 20-35 years old, in pregnant women infected with COVID-19 which is 70 (53.8%) and pregnant women who are not infected with COVID-19 which is 60 (46.2%) with the Chis-Square test a p-value of 0.012 ($p<0.05$) means that there is a significant difference between the two groups. Educational characteristics of most of the respondents' mothers were high school educated, in pregnant women infected with COVID-19 which was 53 (35.8%) and pregnant women not infected with COVID-19 which was 50 (33.8%) with the Chis-

Square test obtained a p-value of 0.945 (p>0.05) meaning that there was no significant between the two groups. The most respondents were IRT, in pregnant women infected with COVID-19 which was 65 (43.9%) and pregnant women not infected with COVID-19 which was 62 (41.9%) with the Chis-Square test obtained a p-value of 0.644 (p>0.05) meaning that there was no significant between the two groups

Table 2. Characteristics of Toddlers from both groups by Age and Gender

Characteristics of Toddlers	Infected with COVID-19 n =(74)		Not Infected with COVID-19 n =(74)		Total	*p-value*
	n	%	n	%		
Age (Months)						
26-30	14	9,5 %	15	10,1 %	29	
31-40	45	30,4 %	39	26,4 %	84	0,555
>40	15	10,1%	20	13,5 %	35	
Sum	74	50 %	74	50 %	148	
Gender						
Man	38	25,7 %	36	24,3 %	74	
Woman	36	24,3 %	38	25,7 %	74	0,869
Sum	74	100 %	74	100 %	148	

Primary data,2024, chis-Square test

Based on table 2, it shows that the average age characteristics of toddlers, namely those aged 31-40 months who are infected with COVID-19 as many as 45 (30.4%) and those who are not infected with COVID-19 as many as 39 (26.4%) with the Chis-Square test obtained a p-value of 0.555 (p>0.05) meaning that there is no significant difference between the two groups of Gender Characteristics of toddlers from mothers infected with COVID-19 are males at 38 (51.4%) and toddlers from mothers not infected with COVID-19 are 38 (51.4%) women with the Chis-Square test obtained a p-value of 0.869 (p>0.05) meaning that there was no significant difference between the two groups

Table 3. Enteral Nutrition Received by Toddlers from Both Groups Relative to Toddler Height

Toddlers Born during the Pandemic	**Breast milk against TB**						Total (n)
	Breast milk		**Breast Milk + Sufor**		**Sufor**		
	n	%	n	%	n	%	
Infected with COVID-19							
-Climb	30	40,5	13	17,6	10	13,5	53
-Remain	11	14,9	5	6,8	5	6,8	21
Sum	**41**	**55,4**	**18**	**24,3**	**15**	**20,3**	74
Not infected with COVID-19							
-Climb	30	40,5	9	12,2	9	12,2	48
-Remain	9	12,2	16	21,6	1	1,4	26
Sum	**39**	**52,7**	**25**	**33,8**	**10**	**13,5**	**74**

Primary data, 2024, frequency distribution

Based on table 3, it shows that those who get the most breast milk are in growths with a height increase of 30 (40.5%), those who get the most breast milk and suppository are in growths with an increase in height in toddlers infected with COVID-19 13 (17.6%) and growth with a fixed height of 16 (21.6%). Meanwhile, those who received the most Sufor were in growth with a height increase of 10 (13.5%) in toddlers infected with COVID-19 and a height increase of 9 (12.2%) from toddlers not infected with COVID-19.

Table 4. Enteral Nutrition Received by Toddlers from Both Groups to Toddler's Weight

Toddlers Born during the Pandemic	Breast milk to BB						Total (n)
	Breast milk		Breast Milk + Sufor		Sufor		
	n	%	n	%	n	%	
Infected with COVID-19							
-Climb	20	27,1	10	13,5	10	13,5	40
-Remain	9	12,2	6	8,1	3	4,1	18
-Go down	12	16,2	2	2,7	2	2,7	16
Sum	41	55,4	18	24,3	15	20,3	74
Not infected with COVID-19							
-Climb	17	23,0	16	21,6	5	6,8	38
-Remain	19	52,7	7	9,5	5	6,8	31
-Go down	3	4,1	2	2,7	0	0	5
Sum	39	52,7	25	33,8	10	13,5	74

Primary data, 2024, Frequency distribution

Based on table 4, it shows that those who get the most breast milk are in growths with an increase in body weight by 20 (27.1%), those who get the most breast milk and Sufor are in growths with increased weight in toddlers not infected with COVID-19 16 (21.6%), while those who get the most Sufor are in growths with weight gain in toddlers infected with COVID-19 10 (13.5%).

Table 5 Enteral Nutrition Received by Toddlers from Both Groups on Toddler Development

Toddlers Born during the Pandemic	Breastfeeding on Development						Total (n)
	Breast milk		Breast Milk + Sufor		Sufor		
	n	%	n	%	n	%	
Infected with COVID-19							
-Appropriate	36	48,6	13	17,6	15	20,3	64
-Doubt	4	5,4	5	6,8	0	0	9
-Deviation	1	1,4	0	0	0	0	1
Sum	41	55,4	18	24,3	15	20,3	74
Not infected with COVID-19							

-Appropriate	37	50,0	23	31,1	8	10,8	68
-Doubt	2	2,7	2	2,7	2	2,7	6
-Deviation	0	0	0	0	0	0	0
Sum	39	52,7	25	33,8	10	13,5	74

Primary data, 2024, Frequency Distribution

Based on table 5, it shows that those who get the most breast milk are in the development of 37 (50%) toddlers from pregnant women infected with COVID-19. Those who received the most breast milk and breast milk were in Developmental Accordance 23 (31.1%) of toddlers from pregnant women were not infected with COVID-19. Meanwhile, those who received the most support in the development of 15 (20.3%) toddlers from pregnant women were infected with COVID-19.

Table 6. Parity Distribution to Toddler Height

Toddlers Born during the Pandemic	**Parity against TB**				**Total (n)**
	Primi		**Multi**		
	n	%	n	%	
Infected with COVID-19					
-Climb	31	41,9	22	29,7	53
-Remain	9	12,2	12	16,2	21
Sum	**40**	**54,1**	**34**	**45,9**	**74**
Not infected with COVID-19					
-Climb	23	31,1	25	33,8	48
-Remain	11	14,9	15	20,3	26
Sum	**34**	**45,9**	**40**	**54,1**	**74**

Primary data, 2024, Frequency Distribution

Based on table 6, it shows that in primipara parity, the most in toddlers from pregnant women infected with COVID-19 with an increase in height is 31 (41.9%). Meanwhile, in Multipara parity, the most children under five from pregnant women were not infected with COVID-19 with a height increase of 25 (33.8%)

Table 7. Parity Distribution of the Two Groups to Toddler's Weight

Toddlers Born during the Pandemic	Parity to BB				Total
	Primipara		Multipara		
	n	%	n	%	
Infected with COVID-19					
-Climb	23	31,1	17	23,0	40
-Remain	10	13,5	8	10,8	18
-Go down	7	9,5	9	12,2	16
Sum	40	54,1	34	45,9	74

Not infected with COVID-19					
-Climb	15	20,3	23	31,1	38
-Remain	17	23,0	14	18,9	31
-Go down	2	42,7	3	4,1	5
Sum	34	45,9	40	54,1	74

Primary data, 2024, Frequency Distribution

Based on table 7, it shows that in the primipara the most in toddlers from pregnant women infected with COVID-19 with weight gain, which is 23 (31.1%). Meanwhile, in Multipara, the most children under five from pregnant women were not infected with COVID-19 with a height increase of 23 (31.1%)

Table 8. Parity Distribution of Both Groups to the Development of Toddlers

Toddlers Born during the Pandemic	Parity to Development				Total
	Primi		Multi		
	n	%	N	%	
Infected with COVID-19					
-Appropriate	36	48,6	28	45,9	64
-Doubt	4	5,4	5	6,8	9
-Deviation	0	0	1	1,4	1
Sum	40	54,1	34	45,9	74
Not infected with COVID-19					
-Appropriate	31	41,9	37	50,0	68
-Doubt	3	4,1	3	4,1	6
-Deviation	0	0	0	0	0
Sum	34	45,9	40	54,1	74

Primary data, 2024, Frequency Distribution

Based on table 8, it shows that in primipara, the most children under five from pregnant women are infected with COVID-19 with a development according to the development, which is 36 (48.6%). Meanwhile, in Multipara, the most toddlers from pregnant women were not infected with COVID-19 with the development of 37 (50%)

Table 9. Analysis of Toddler Associations of Pregnant Women Infected with COVID-19 and Not Infected with COVID-19 based on Toddler Weight using KBM Score

Toddlers Born during the Pandemic	BB Measurement						Total (n)	P-Value
	N (Up)		T (Fixed)		T1 (Down)			
	N	%	N	%	n	%		

Square	Infected with COVID-19	40	54,1 %	18	24,3 %	16	21,6 %	74	0,010	*Chi-Test*
	Not infected with COVID-19	38	51,4 %	31	41,9 %	5	6,8 %	74		
	Sum	78	52,7 %	49	33,1 %	21	14,2 %	148		

Based on table 9, it can be seen based on the measurement of BB which is assessed with the Growth graph using the KBM value, namely the most weight gain in toddlers from pregnant women infected with COVID-19, which is 40 (54.1%), the most fixed weight in toddlers from pregnant women not infected with COVID-19, which is 31 (41.9%), and the most weight loss in toddlers from pregnant women infected with COVID-19, which is 16 (21.6%). With a p-value of 0.010 ($p<0.05$), it means that there is a significant difference between the two groups so that it can be concluded that there is an association between toddlers born to pregnant women infected with COVID-19 and those who are not infected with the growth of toddlers based on Toddler Weight.

Table 10. Association Analysis of Pregnant Women Infected with COVID-19 and Not Infected with COVID-19 based on Height of Toddlers using Growth Graph Lines

Toddlers Born during the Pandemic	TB Measurement				Total (n)	P-Value
	N (Up)		T (Fixed)			
	N	%	n	%		0,337
Infected with COVID-19	53	71,6 %	21	28,4 %	74	
Not infected with COVID-19	48	64,9 %	26	35,1 %	74	
Sum	101	68,2 %	47	31,8 %	148	

Chi-Square Test

Based on table 10, it can be seen based on TB measurements using the Growth graph, namely the growth of toddlers from pregnant women infected with COVID-19, namely Height Increased by 53 (71.6%), Fixed Height by 21 (28.4%) while toddlers from pregnant women who were not infected with COVID-19 increased by 48 (64.9%), Fixed Height by 26 (35.1%). With a p-value of 0.337 ($p>0.05$) means that there is no significant difference between the two groups so it can be concluded that there is no association between toddlers born to pregnant women infected with COVID-19 and those who are not infected with the growth of toddlers based on the height of toddlers.

Table 11. Analysis of the Association of Pregnant Women Infected with COVID-19 with the Development of Toddlers

Toddlers Born during the Pandemic	Development						Total (n)	P-Value
	Appropriate		Doubt		Deviation			
	N	%	n	%	n	%		
Infected with COVID-19	64	43,2 %	9	6,1 %	1	0,7 %	74	
Not infected with COVID-19	68	45,9%	6	4,1 %	0	0,0 %	74	0,377
Sum	132	89,2%	15	10,1 %	1	0,7 %	148	

Mann Whitney

Based on table 11, it shows that the development of toddlers according to 64 (48.5%) is doubtful amounting to 9 (60.0%), deviation of 1 (100%) from pregnant women infected with COVID-19 while in toddlers who are not infected with COVID-19 there is a development of 68 (51.5%) doubtful as much as 6 (40.0%) and age-appropriate development amounting to 64 (48.5%) from pregnant women infected with COVID-19. The results of the statistical test showed a p-value of 0.377 (p>0.05) meaning that there was no significant difference between the two groups so that it could be concluded that the association between toddlers born to pregnant women infected with COVID-19 and those who were not infected with the development of toddlers

4. DISCUSSION

Coronavirus disease (COVID-19) is a disease caused by infection with the SARS-Cov-2 virus [16]. Changes in the immune system in pregnancy make pregnant women more susceptible to infections [17]. This is due to the process of distributing oxygen and nutrients through the placenta in fetal growth which is disrupted due to the decline in the mother's condition. [18]. Direct exposure from the fetus to the mother's immune response from the mother due to infection during pregnancy may have the potential to impaired the growth and development of toddlers. Cytokine-induced storms during COVID-19 in Pregnancy can cause severe inflammatory damage to the fetus, and if left uncontrolled can lead to disorders such as autism spectrum and brain development abnormalities in neonates [9]. The growth and development of children under five begins in the womb [10] The period of growth and development at this age is a period that lasts quickly and will never be repeated, because it is often called the golden age or golden age [11].

Growth is the increase in the size and number of cells and intercellular tissues, namely the increase in physical size and partial or total body composition, so that it can be calculated using units of length and weight [19]. Growth can be said to be normal if the growth graph is in line with or above the standard growth line deviation of 0 on the WHO growth curve [20]. Development is an important period in a child's life, especially after going through a period of rapid development at the age of three [21], Development is influenced by genetic factors and environmental factors [22].

The results of the study showed the characteristics of mothers under five in both groups, namely pregnant women infected with COVID-19 and those who were not infected with COVID-19 in the reproductive age, namely 20-35 years old and classified as pregnant women who are not at risk and are best for pregnancy where it is expected that at this age healthy reproductive organs are ready to receive conception and understand problems in pregnancy [23]. However, a person's age can also describe a person's maturity in determining everything in their life. The older they get, the more mature they are in making choices[24].

The educational characteristics of mothers under five from both groups are mostly high school educated where maternal education is one of the important factors in children's growth and development. Mothers with good education can receive any information from outside, especially related to how to maintain children's health, how to eat a good diet for children and children's education. A mother with low education does not easily understand and understand the needs of children in supporting their child's development according to their age stages [25]. Mothers who have a higher level of education (school length > 7-9 years) will find it easier to understand information about child growth and development, including how to educate and raise children well, as well as mothers who have higher education will find it easier to apply actions in providing good nutrition and food to children, So that children will experience a better growth and development process. Meanwhile, mothers who have higher education will provide the best stimulation, stimulation, education and nutrition so that they will have a lower risk of experiencing pain and death at a young age [24].

In research Casando et al., (2022)[26] which states that there is no relationship between maternal education and child growth with a p value = 0.054. A person's education level, especially a mother, determines the quality of her care for children. There was no significant relationship between the level of maternal education and the growth of toddlers at the Manggar Posyandu in Bulus Wetan Hamlet, Bantul Regency using the Kendall-taudi test obtained a value of p = 0.542 and a correlation coefficient of -0.087.

The characteristics of the work of mothers under five from both groups are that both are more non-working (IRT). Housewives will have more time to maintain their toddler's food intake. Mothers who do not work have more time with their children so that they have a greater opportunity to pay attention to their children's needs compared to working mothers [27]. Working mothers (Private employees, honorary. Contract employees and civil servants) are not optimal in monitoring the growth and development of their children because of inefficient time to meet their children because parents who are busy working or having a career result in less attention to the family including children, not a few even end up not paying attention to the condition of the child and the development of the child with the busyness of parents outside the home because a job that requires a full day will be different with children who are directly cared for by a mother who have a higher level of presence at home [28].

Table 2 of the characteristics of the respondents consisted of age and gender. The characteristics of the repondent age in this study, both toddler respondents from pregnant women infected with COVID-19 and not infected with COVID-19 aged 25 -

46 months mean that all respondents are at the age of toddlers, Age plays an important role in the development of the child's brain, which reaches most of its development in toddlerhood, at this age the child's brain experiences very rapid growth known as the golden age [27].

The gender of the respondents toddlers from pregnant women infected with COVID-19 was mostly male while the respondents of toddlers from pregnant women not infected with COVID-19 were female. Sex can affect the growth and development of toddlers. The results of the analysis showed that there was no significant relationship between gender factors and the growth and development rate of children with p values of p=0.903 and p=1,000, respectively. This is because the number between male and female respondents is very different. It is said that the growth rate of men increases faster than that of women, while at this age the development of girls is more increased than that of boys[29].

Research results Chen et al., 2021 [30], indicating that there is no sex relationship with the development of toddlers. Previous research has also found that sex is not significantly associated with gross motor or social-emotional development. This is because gender is not an independent factor that affects the development of toddlers. The study said that the nutritional status of toddlers with male and female genders has a similar possibility of nutritional status. This is because during toddlerhood is a golden period where every toddler needs nutritional intake and nutrients according to the needs of the body.

In the study where it can be seen that most mothers breastfeed their children compared to formula milk. Breast milk (ASI) is a key shaping indicator of growth and development.50 Adequate amounts of breast milk are the best food and can meet the nutritional needs of babies during the first six months. After the age of six months, babies only need complementary foods because the baby's nutritional needs increase and not all of them can be met by breast milk. Formula milk given to babies before the age of 6 months will have an impact on the nutritional status of babies. If formula milk is too thin, it will result in less nutritional intake for the baby's body, and if formula milk is too thick and too much, it can result in more nutrition. Early feeding of formula milk that has a fairly high energy and protein content in early life babies can increase the risk of weight gain and obesity. Where it is known that in 100 ml of formula milk given to children has a 10-18% higher energy content compared to breast milk, and a protein content 55-80% higher than breast milk [31]. Overnutrition that occurs in babies will interfere with the growth and development of the baby's gross and fine motor movements, resulting in the baby not being able to perform movements that he should be able to do at that age. Protein intake given during early life affects early weight gain [32].

The results showed that of the 74 mothers infected with COVID-19, the most were in primipara parity compared to multipara, while mothers who were not infected with COVID-19 were most in multipara parity compared to primipara. Short birth spacing often causes growth and development disorders in children because the child is weaned too quickly from breast milk (Mother's Milk), no longer has time to prepare special food for his child and the mother's attention and affection will also be reduced because the mother concentrates on her pregnancy. However, in this study there is no parity relationship between primi and multipara, this is because the development of toddlers is not only related to parity with primipara and multipara, but there are other factors related to child development such as genetic factors (various normal innate factors, gender)[33]

In table 9 through the test *Chi-Square* With a p-value of 0.010 (p>0.05) which indicates a significant difference between toddlers born to pregnant women infected with COVID-19 and those who are not infected with toddler growth based on Toddler Weight. This is not in line with the research of Seri Pasolangi (2023) which said that there was no association of anthropometric indices with pregnant women in the prenatal period with a p-value of 0.812 > 0.05 which means there is no significance.

During pregnancy, there is a decrease in partial immunity, resulting in pregnant women being more susceptible to viral infections including the COVID-19 virus [34] . During pregnancy, the body physiologically makes adjustments such as an increase in cardiovascular function and the respiratory system, a decrease in lung capacity, and changes in cellular immunity [35] . Changes in the cardiorespiratory system can be at risk of causing respiratory disorders in pregnant women, such as tachycardia and even nutritional deficiencies [36]. In addition, decreased immunity of pregnant women can cause increased susceptibility to disease infections This can cause the process of distributing oxygen and nutrients through the placenta to the growth of the fetus is disrupted due to the decline in the mother's condition[37]. Hypoperfusion in the placenta leads to a reduced supply of oxygen to the fetus [38]. Cytokine-induced storms during COVID-19 in Pregnancy can cause severe inflammatory damage to the fetus, and if left uncontrolled can lead to disorders such as autism spectrum and brain development abnormalities in neonates [9]. The growth and development of children under five begins in the womb [39]. The period of growth and development at this age is a period that lasts quickly and will never be repeated, because it is often called the golden age or golden age [11]. In infancy-toddlerhood, body weight can be used to see the rate of physical growth and nutritional status [40].

Physiologically, weight is closely related to energy needs and nutrient intake at the same time, so if the energy supply is insufficient, it will take up stores that cause reduced body weight [41]. The results of the research Widiastuti and Winarso (2021) show that during the COVID-19 pandemic, the growth graph of toddlers experienced a decline in terms of weight per age and stagnation in height growth.

According to research conducted by Puspasari & Andriani (2017) [42]The nutritional status of toddlers based on weight is influenced by the mother's knowledge of nutrition and food intake of toddlers (energy, carbohydrates and protein). Nutritional status is a measure of success in fulfilling nutrition for children indicated by the child's weight and height [43]. Weight changes that occur in toddlers every month are an early indication of changes in the nutritional status of toddlers. During the first 6-month period, toddlers whose weight did not increase for two times had a risk of underweight 12.6 times compared to toddlers whose weight continued to increase every time they were weighed [44]

Where in the study the number of mothers who have higher education is less so that efforts are needed to improve the nutritional status of toddlers, by increasing maternal knowledge about nutrition through counseling for mothers under five about the selection and processing of diverse and nutritious foods that are balanced [44]. Energy deficiency in toddlers is an indication of another nutrient deficiency. If this condition is left for a long time, it will result in weight loss. Weight loss will further cause malnutrition which results in inhibition of the height growth process [45]. Protein deficiency leads to growth retardation and bone maturation as protein is an essential nutrient in growth [45].

Mothers play an active role in directly caring for their children, including in terms of fulfilling their children's nutrition. This causes the level of maternal education to have a positive impact on the growth of children, mothers who have an understanding of the importance of food intake in maintaining health such as fulfilling family nutrition, child nutrition and also good knowledge have the influence of a healthy lifestyle including the consumption of food given to toddlers. Poor nutritional parenting in children is caused because mothers often do not pay attention to the adequacy of children's nutritional intake and do not pay attention to child feeding [46].

On Table 10 Through the test *Chi-Square* showed that there was no significant difference between toddlers born to pregnant women infected with COVID-19 and those who were not infected with COVID-19 with a height p-value of 0.337. This is in line with the research of Seri Pasolangi, (2023) which said that there was no association of anthropometric index with pregnant women in the prenatal period with a p-value of 0.812 > 0.05 which means there is no significance. Meanwhile, the results of the research [41] shows that during the COVID-19 pandemic, the growth graph of toddlers experienced a decline in weight per age and stagnation in height growth. And the results of this research are also in line with the studies conducted [47] in Italy that there was no ausciologically impaired growth in weight, height and head circumference in the Z-score data according to the age of toddlers for all infants regardless of the severity of SARS-Cov-2 infection experienced by the mother.

In Table 11. showed that the Mann Whitney test showed that there was no significant difference between toddlers born to pregnant women infected with COVID-19 and those who were not infected with COVID-19 with a p-value of 0.282. It was concluded that most toddlers have more appropriate development than doubtful development, namely and deviant development. Children's development always follows an orderly and sequential pattern, these stages cannot be reversed, for example, the child is first able to stand before walking, development takes place from general stages to specific stages continuously. This is in line with the research of Seri Pasolangi (2023) through the Mann Whitney test, there is no association of toddlers born to COVID-19 mothers in the prenatal period with a p-value of 0.812 > 0.05 which means there is no significance. This study is also in line with research conducted by Ni Nengah Susantin (2024) on the development of toddlers in pregnant women who have a history of COVID-19, explaining that the results of statistical tests show that the p-value for cognitive, motor, social, and language development is 0.745 which means there is no significant difference in motor and cognitive development between newborns from COVID-19 mothers and babies from mothers without COVID-19. This means that exposure to COVID-19 in pregnant women does not have a negative impact on their motor and cognitive development. Likewise with research [48] SARS-Cov-2 during late pregnancy does not increase the risk of developmental delay 3 months after delivery.

In the research conducted [49] explained that toddlers had 43.73% more appropriate development than doubtful development, which was 27.11% and deviant 29.16%. In this study, language development after more age occurred due to stimulation factors where it can be known that stimulation factors affect growth and development in toddlers as many as 23 respondents (82.1%).

In this study, there was the growth of toddlers, there was 1 toddler who experienced deviant development from pregnant women infected with COVID-19. Where this development is categorized as development that has not been maximized. Growth and development is said to be late if a toddler does not reach the expected stage of growth and development at the proper age. The active role of parents in the development of their toddlers is very necessary, especially when they are still under the age of five (toddlers) need to be stimulated (stimulation). The purpose of providing stimulation is to help toddlers achieve an optimal level of development or in accordance with expectations, stimulation is adjusted to age and stimulation principles [50]. In the research conducted [51] explained that mothers who have a low level of knowledge are less likely to have children with abnormal cognitive development, which is 62.5%. It can be concluded that the higher the frequency of mothers who have less knowledge about nutritious feeding, the greater the chance of cognitive development disorders in toddlers

The researcher's assumption about the development of toddlers is inhibited, where in this study there is 1 toddler who

experiences deviant development, this is due to the influence of external factors. That is because Lack of parental attention, especially in terms of fulfilling their children's nutrition **,** Parents who do not give enough attention or stimulation to their children can cause developmental delays, whether in terms of speech, motor, or cognitive skills. In addition, Economic and Social Conditions are another factor of this condition because economic conditions often lack access to good nutrition, health services, and quality education so that these conditions can affect their brain development and social skills.

5. CONCLUSION

In this study, there was no significant difference in the growth of toddlers from pregnant women infected with COVID-19 and those who were not infected based on the height of the toddler, but showed a difference in the growth of toddlers from pregnant women infected with COVID-19 and those who were not infected based on the weight of the toddler. In addition, the development of toddlers from pregnant women infected with COVID-19 and those who were not infected showed no difference. There are many factors that can affect developmental growth that need to be studied in future research.

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