



## A Cross-Sectional Study On The Factors Affecting Breastfeeding Timeline And Its Impact On Child Development

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### ABSTRACT

**BACKGROUND:** Breastfeeding is a mammalian technique where an infant receives the mother's breast milk, providing them with calories and nutrients. It is considered the "gold standard" nutritional source for humans during the first few months of postnatal life. The American Academy of Pediatrics and World Health Organization recommend against formula feeding after six months of exclusive breastfeeding and to continue breastfeeding for at least two years, or longer if both parties consent.

**METHOD:** A Cross-sectional study was conducted for 6 months in a tertiary care hospital, involving 150 women. Data was collected through a data collection form and stress was analyzed by using Chi-square test.

**RESULTS:** The major factors that are affecting breast feeding were insufficient milk production, working status of women and lack of awareness on breast feeding. Women who breastfed children for at least a year had better memory and less diseased, while non-breastfeeding children were more susceptible.

**CONCLUSION:** Our study revealed that a higher number of participants were pregnant in the 15-20 age group, and disrupting breastfeeding can be due to factors such as excessive workload, inadequate milk production, lack of nursing knowledge, lactose sensitivity, and health concerns. The study also highlights the correlation between a child's development, nursing experience, frequency of breastfeeding, and immunity. Extended periods of not breastfeeding were linked to increased risk of infectious infections, growth issues, developmental abnormalities, and cognitive difficulties.

**KEY WORDS :** Breast feeding , Pregnancy , Lactation , Immunity



## INTRODUCTION:

Every mammalian species goes through the lactation process. The outcome of evolutionary processes has shaped an ideal nutrient delivery system, which is responsible for providing moms with the right amounts of all necessary nutrients for their kids. In the initial months of postnatal life, nursing is undoubtedly the "gold standard" dietary source for humans.<sup>[1][2]</sup> Nursing, often known as breastfeeding, is giving a baby's mother's breast milk, either straight from the breast or by pumping it out and giving it to the child in a bottle. Calories and nutrients, such as macro-nutrients (fat, protein, and carbs) and micro-nutrients (vitamins and minerals), are given to a newborn through breastfeeding and breast milk.<sup>[3]</sup>

Both the World Health Organization (WHO) and the American Academy of Paediatrics advise against formula feeding after six months of exclusive breastfeeding, and to continue nursing for at least two years after that, or longer if both parties agree. A child's long-term well-being is linked to breastfeeding. This includes a reduced chance of developing diseases in childhood, both infectious and non-infectious.<sup>[4]</sup>

A primary worry for mothers is insufficient breast milk. Low weight gain, the baby's dry mucous membranes, a faint scream, sporadic firm feces, and decreased urine output are warning signs. Breast milk supply can be impacted by a variety of reasons, including the mother's urinary tract infection, retained fetal products in pregnancy, anomalies in the breast tissue, and improper feeding practices.<sup>[5][6]</sup>

Youngsters under five have a high morbidity and mortality rate, making them a vulnerable demographic. Their nutritional state is directly reflected in their growth.<sup>[7]</sup> The development of children between the ages of three and six months, particularly in the areas of problem-solving, gross motor skills, and communication. Promoting breastfeeding during this time when many moms quit using it should therefore be a top policy objective.<sup>[8]</sup>

Strong and significant relationships between breastfeeding practices, exclusive and nonexclusive and the cognitive and physical development of young children. Increased breastfeeding rates are required to promote the healthy development of youngsters. Results indicate that adhering to WHO breastfeeding standards is crucial for healthy physical growth and cognitive development, especially in environments where complementary foods are easily accessible.<sup>[9]</sup>

The current investigation aimed to identify the factors affecting the breastfeeding timeline and their impact on child growth and development.

## MATERIALS & METHODS:

**Patients:** Between September 2023 and February 2024, all consecutive patients mothers presenting to the pediatric department of a tertiary care center in South India with a diagnosis of diseases were screened for inclusion in the study. A total of 150 patients with acute pancreatitis were screened.

**Study method:** It is a clinical-based Cross-Sectional study on The Factors Affecting Breastfeeding Timeline and Its Impact On Child Development. Subject data was analyzed by using a data collecting form. An informed consent form was taken from the patient's caretakers. We compared the data obtained and reported the outcomes. The relationship between breastfeeding and child growth and development was analyzed by statistical tests. Child development was analyzed by a questionnaire for evaluation of development and behavior.



**1. INCLUSION CRITERIA:**

1. Children from age 2 to 12 years.
2. Mother and child pair with an ongoing or a history of breastfeeding.

**2. EXCLUSION CRITERIA:**

1. Children who are under artificial feedings.
2. Children with birth defects.
3. Prematurely born children.
4. Children with genetically predisposed fatal disorders.

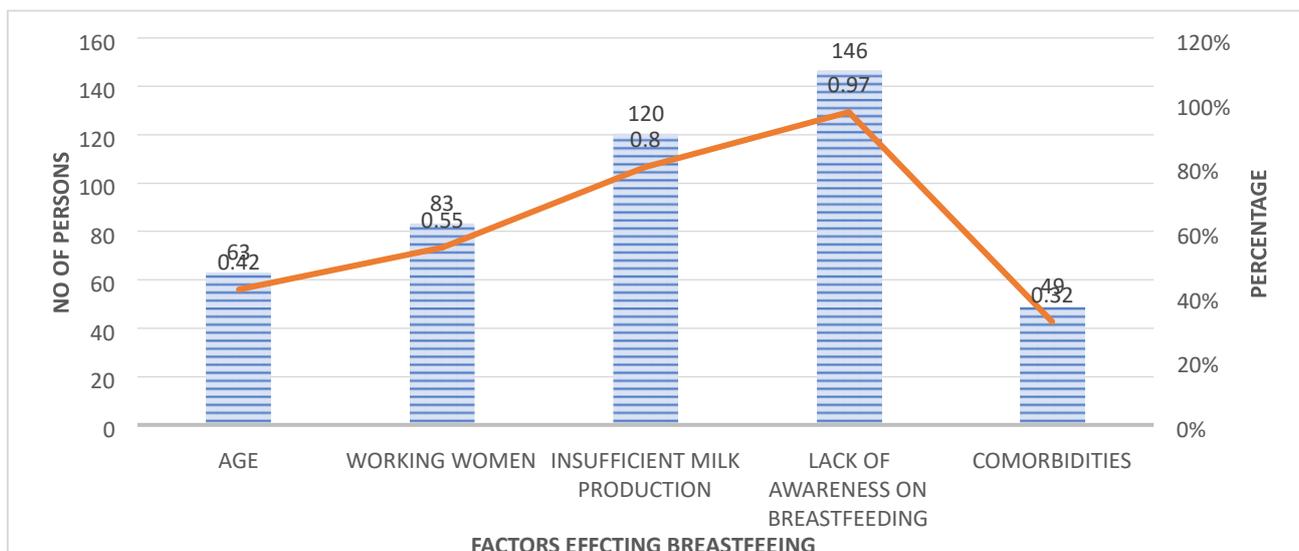
This study screened patients based on inclusion and exclusion criteria focusing on child's breast feeding timeline. Data was collected using a valid Questionnaire and analyzed using statistical tests.

**RESULTS:**

A total of 150 subjects met the inclusion criteria during the 6 months and were included in the study. Data was expressed as percentages.

**TABLE 1: FACTORS EFFECTING BREASTFEEDING TIMELINE :**

CHARACTERISTICS	VALUE	PERCENTAGE
AGE	63	42%
WORKING WOMEN	83	55%
INSUFFICIENT MILK PRODUCTION	120	80%
LACK OF AWARENESS ON BREASTFEEDING	146	97%
COMORBIDITIES	49	32%





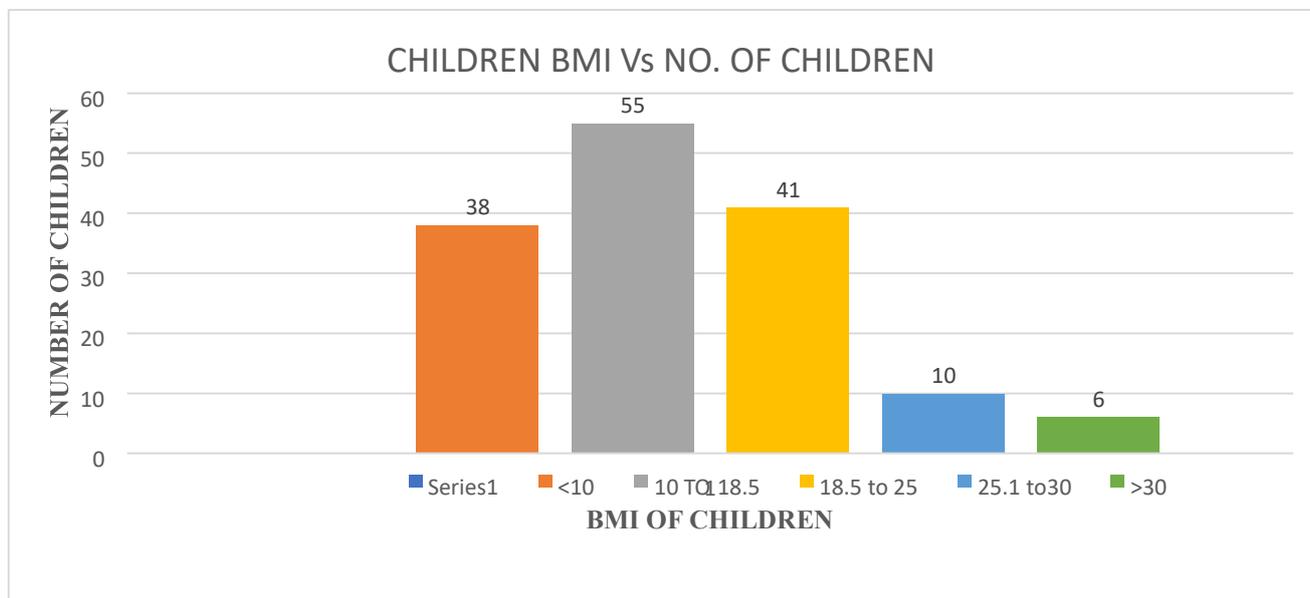
**FIGURE 1: GRAPHICAL REPRESENTATION BASED ON THE FACTORS EFFECTING BREASTFEEDING TIME LINE**

The above table 1 and figure 1 shows that the study population was divided into five groups based on the factors effecting breastfeeding timeline i.e, Age, Working women, Insufficient milk production, Lack of awareness and Comorbidity of mother and child. In those Age 63 (42%), Working women 83(55%), Insufficient milk production 120(80%), Lack of awareness 146 (97%) and Comorbidity 49 (32%) which is graphically represented in figure 1.

**GROWTH AND DEVELOPMENT :**

**TABLE 2: DISTRIBUTION OF CASES BASED ON BMI OF CHILD**

BMI (kg/m <sup>2</sup> )	NO.OF PARTICIPANTS	PERCENTAGE
Severe underweight (<10)	38	25
Underweight (10-18.4)	55	37
Normal (18.5-25)	41	27
Overweight (25.1-30)	10	7
Obese class 1(>30)	6	4



**FIGURE 2: GRAPHICAL REPRESENTATION BASED ON BMI OF CHILDREN**

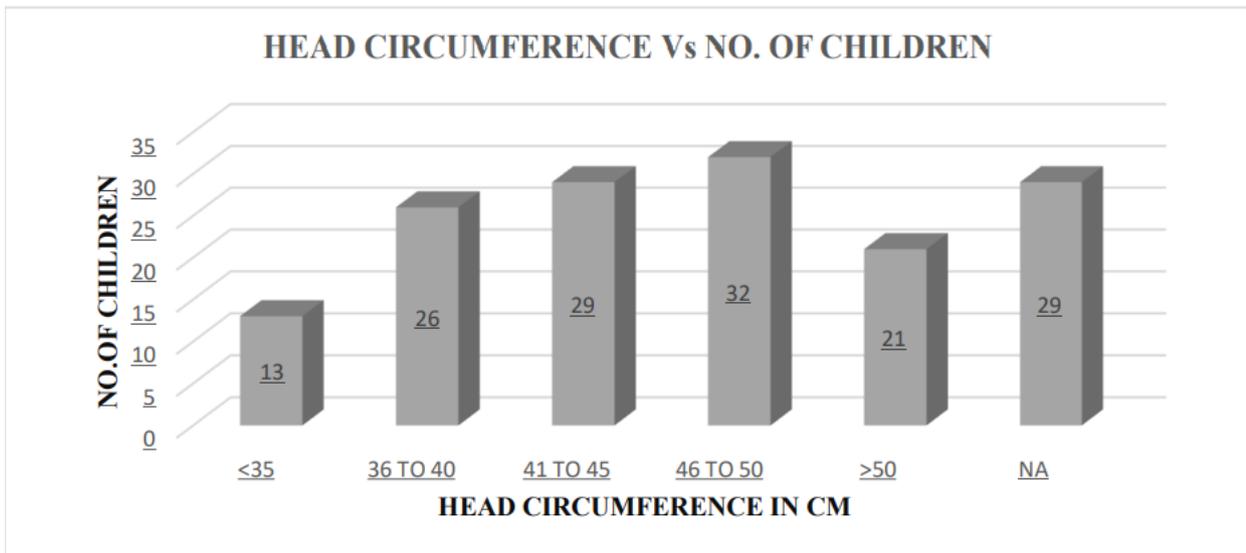
The above table 2 and Figure 2 shows that the study population was divided into five groups based on children’s BMI i.e; severe underweight (<10), underweight (10 to 18.4), normal (18.5to 24.9), overweight (25 to 30), and Obese (>30). Here, in most of the cases, 55(37%) were observed in the underweight (10 to 18.4) category followed by 41 (27%) in the normal weight (18.5 to 25) group, 38



(25%) in the severe underweight (<10), 10 (7%) in the overweight, and 6 (4%) in obese (>30) which is graphically represented in the figure 3. The central tendency of our data showed a mean of 15.874 with a standard deviation of +/- 3.790 and p-value = <0.00083.

**TABLE 3: DISTRIBUTION OF CASES BASED ON HEAD CIRCUMFERENCE**

HEAD CIRCUMFERENCE (CM)	NO OF PARTICIPANTS (n = 150)	PERCENTAGE (%)
<35	13	9
36 TO 40	26	17
41 TO 45	29	19
46 TO 50	32	21
>50	21	14
NA	29	19



**FIGURE 3: GRAPHICAL REPRESENTATION BASED ON HEAD CIRCUMFERENCE OF THE CHILD**

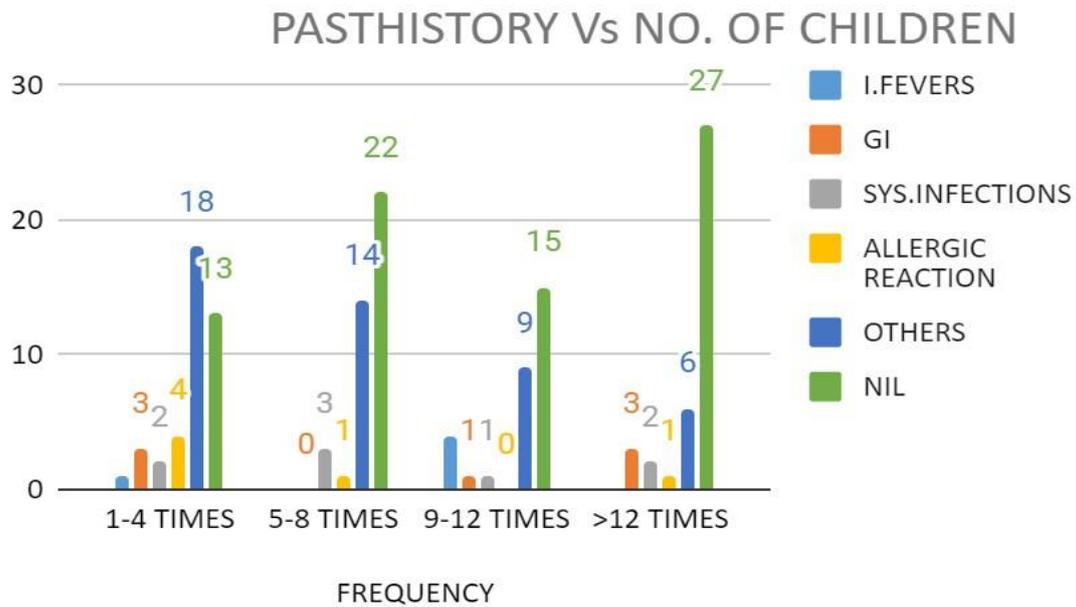
The above table 3 and figure 3 shows that the study population was divided into six groups based on children's head circumference i.e; <35cm, 36 to 40cm, 41 to 45 cm, 46 to 50 cm, >50cm, and not available. Here, most of the cases 32(21%) were observed in the 46 TO 50cm category followed by 29(19%) in the 41 to 45cm group and not available group, 26 (17%) in the 36 to 40 cm, 21(14) in the >50cm group, and 13 (9%) in <35cm group which is graphically represented in figure 3. The central tendency of our data showed a mean of 42.574 with a standard deviation of +/- 5.790 and p value = <0.04750.

**TABLE 4: DISTRIBUTION OF CASES BASED ON PAST HISTORY**

PAST HISTORY	NO OF PARTICIPANTS (n=150)	PERCENTAGE (%)
INFECTIOUS FEVERS	5	3.33%



GIT	7	4.66%
SYSTEMIC INFECTIONS	8	5.33%
ALLERGIC REACTIONS	6	4%
OTHERS	47	31.33%
NIL	77	51.33%



**FIGURE 4: GRAPHICAL REPRESENTATION BASED ON PAST HISTORY**

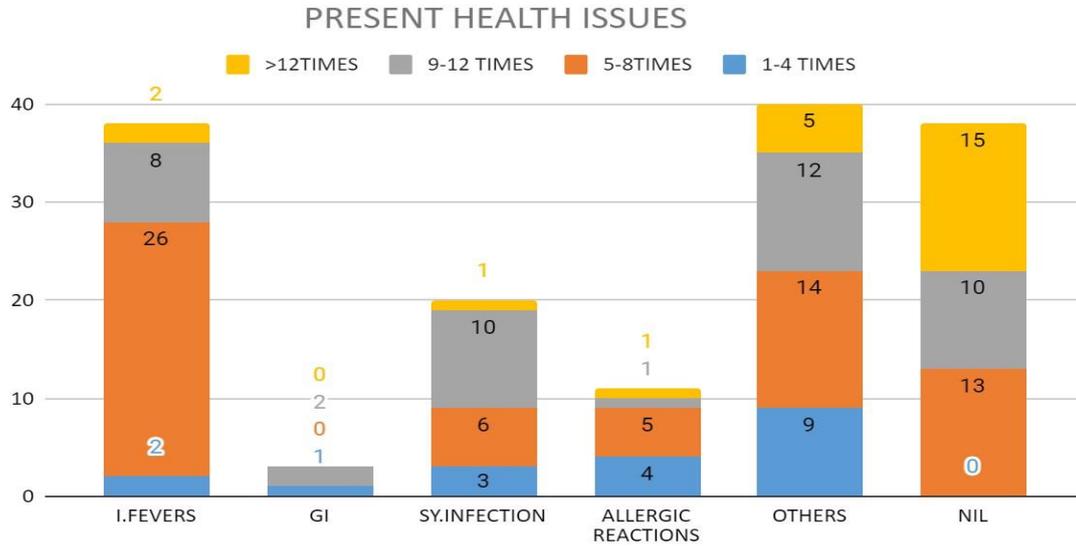
In this study, subjects are divided into 6 groups i.e., infective fevers, GIT, systemic infections, allergic reactions, some others and nil also considered. Here most of the cases 77(51.33%) comes under the nil category followed by others 47 (31.33%) and 8 (5.33%) systemic infections, 7 (4.66%) cases of GIT, 6 (4%) allergic reactions and 5 (3.33%) comes under the infectious fevers group, which is graphically Represented in figure 4.

**TABLE 5: DISTRIBUTION OF CASES BASED ON PRESENT HEALTH ISSUES**

PRESENT HEALTH ISSUES	NO OF PARTICIPANTS (n=150)	PERCENTAGE (%)
INFECTIOUS FEVERS	38	25.3%
GIT	3	2%
SYSTEMIC INFECTIONS	20	13.3%
ALLERGIC REACTIONS	11	7.3%
OTHERS	40	26.6%



NIL	38	25.3%
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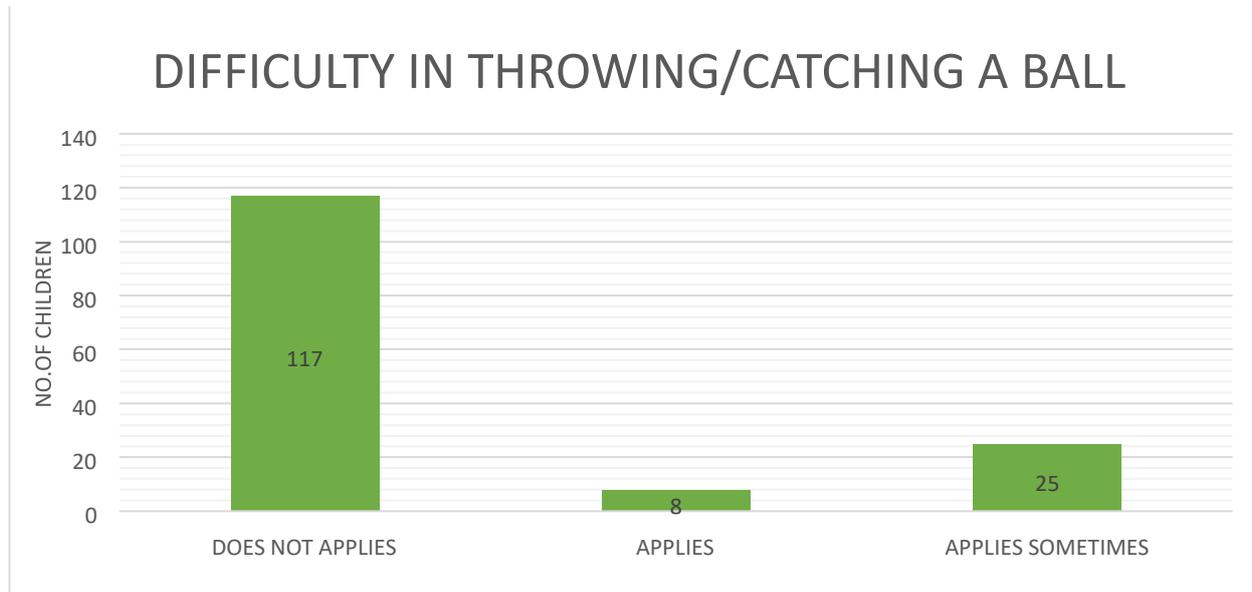


**FIGURE 5: GRAPHICAL REPRESENTATION BASED ON PRESENT HEALTH ISSUES**

In this study subjects were divided into 6 groups depending upon the present health issues of the child i.e, all the 6 groups and their percentage was calculated among the 150 patients,40(26.6%) were others and followed by 38(25.3%) nil and infectious fevers,20(13.3%)is systemic infections,11 (7.33%) is the allergic reaction,3(2%)comes under the GIT group , which is graphically represented in figure 5.

**TABLE 6: DISTRIBUTION BASED ON THE DIFFICULTY IN THROWING/CATCHING THE BALL**

DIFFICULTY IN THROWING/ CATCHING THE BALL	NO OF PARTICIPANTS (n=150)	PERCENTAGE (%)
APPLIES	8	5.33%
DOES NOT APPLIES	117	78%
APPLIES SOMETIMES	25	16.66%

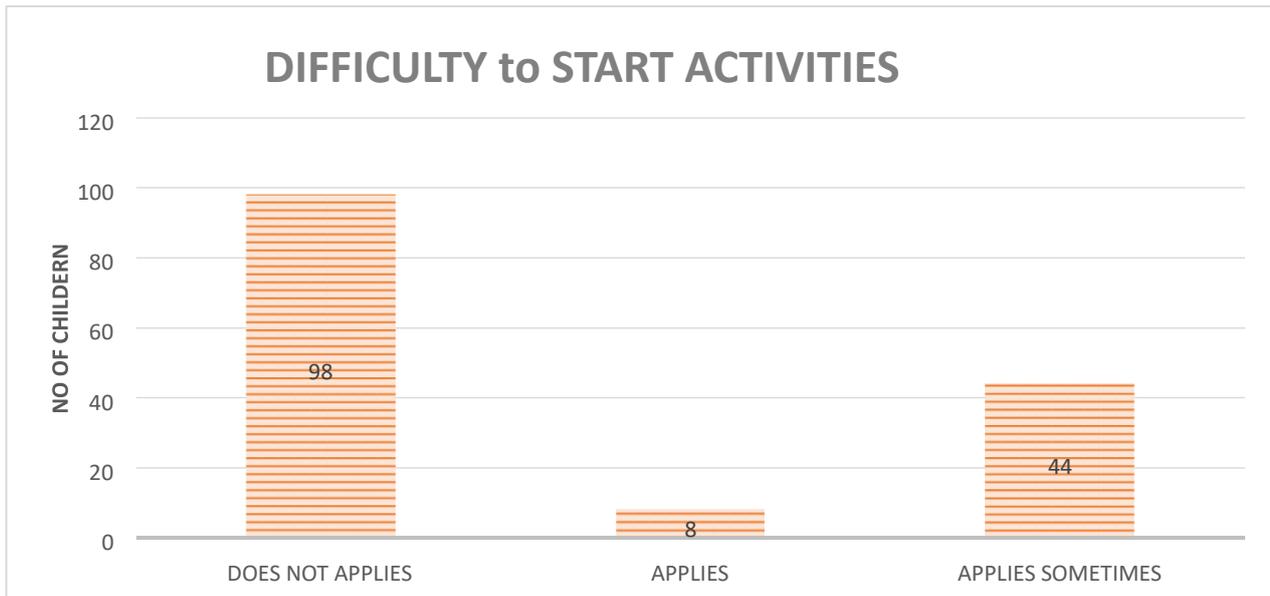


**FIGURE 6: GRAPHICAL REPRESENTATION OF DIFFICULTY IN THROWING/CATCHING THE BALL**

The above graph shows that most of the subjects 117(78%) come under the group does not apply which means the subjects in this group can able to throw/catch a ball, followed by applies sometimes group with 25(16.66%) subjects, applies group with 08(5.33%) subjects. This was statistically proved by using chi-square test at <0.05 level of significance. The p-value is 0.04677.

**TABLE 7: DISTRIBUTION BASED ON -DIFFICULTY TO START ACTIVITIES**

DIFFICULTY TO START ACTIVITY	NO OF PARTICIPANTS (n=150)	PERCENTAGE (%)
APPLIES	8	5.33%
DOES NOT APPLIES	98	65.3%
APPLIES SOME TIMES	44	29.3%



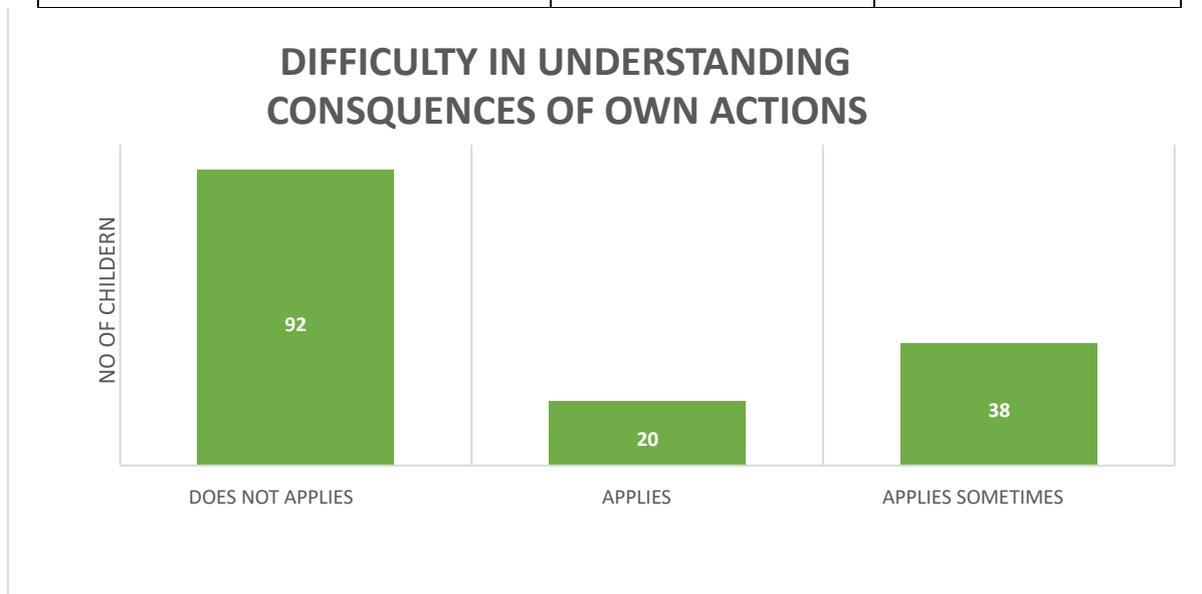
**FIGURE 7: GRAPHICAL REPRESENTATION OF DIFFICULTY TO START ACTIVITIES**

The above graph shows that most of the subjects 98(65.3%) come under the group do not apply which means the subjects in this group can able to pour water into a glass without spilling, followed by applies sometimes group with 44(29.3%) subjects, applies group with 08(5.3%) subjects. This was statistically proved by using the chi-square test at <0.05 level of significance. The p-value is 0.000760.



**TABLE 8: DISTRIBUTION BASED ON DIFFICULTY UNDERSTANDING  
 CONSEQUENCES OF OWN ACTIONS**

DIFFICULTY UNDERSTANDING CONSEQUENCES OF OWN ACTIONS	NO OF PARTICIPANTS (n=150)	PERCENTAGE (%)
APPLIES	20	13.33%
DOES NOT APPLIES	92	61.33%
APPLIES SOME TIMES	38	25.3%



**FIGURE 8: GRAPHICAL REPRESENTATION OF DIFFICULTY UNDERSTANDING  
 CONSEQUENCES OF OWN ACTIONS**

The above graph shows that most of the subjects 92(61.33%) come under the group does not apply which means the subjects in this group can able to pour water into a glass without spilling, followed by applies sometimes group with 38(25.3%) subjects, applies group with 20(13.33%) subjects. This was statistically proved by using the chi-square test at <0.05 level of significance. The p-value is 0.0016939.

## DISCUSSION

The findings of this study highlight the significant role that breastfeeding plays in child growth and development, as well as the various factors that influence breastfeeding duration. Consistent with prior research, our results indicate a positive association between extended breastfeeding duration and improved developmental outcomes in children. This section will discuss these findings in relation to existing literature and address some of the key factors identified.

Our study supports the robust body of literature indicating that breastfeeding duration has a critical impact on various developmental outcomes. For instance, a study conducted by Victora et al. (2016)



demonstrated that children breastfed for longer periods displayed higher intelligence scores and educational attainment, and similar trends were observed in our sample. This relationship underscores the role of breastfeeding as not only a nutritional foundation but also a critical factor in early cognitive and physical development.<sup>[10]</sup>

Several factors emerged from our analysis as influential in determining breastfeeding duration, including maternal education, socioeconomic status, and family support. These findings align with studies such as those by Bonet et al. (2013), who observed that higher maternal education and family support were associated with longer breastfeeding duration. Such support systems may empower mothers by providing necessary resources and encouragement to maintain breastfeeding, even in the face of challenges. Additionally, our data suggested that socioeconomic status influences breastfeeding practices, with higher-income families more likely to adhere to recommended breastfeeding timelines. This is consistent with the work of Smith et al. (2019), who linked socioeconomic stability with increased access to breastfeeding support and lactation consultants.<sup>[11][12]</sup>

Notably, the study found that maternal employment status also significantly impacts breastfeeding duration. Working mothers, especially those without flexible schedules or supportive workplace policies, were more likely to discontinue breastfeeding earlier than recommended. This outcome parallels findings by Rojjanasrirat and Sousa (2010), who noted that workplace support and maternity leave policies play a crucial role in allowing mothers to achieve breastfeeding goals. Consequently, these findings emphasize the importance of policies that support breastfeeding in the workplace, such as extended maternity leave, flexible hours, and accessible lactation spaces.<sup>[13]</sup>

Overall, our study reinforces the importance of breastfeeding as a vital element of child development and highlights the need for comprehensive social and structural support to enable mothers to breastfeed for recommended periods. Given the clear benefits associated with prolonged breastfeeding, future policies and public health initiatives should focus on providing support to mothers, particularly those in lower socioeconomic groups or those balancing work with care giving responsibilities. Further research is needed to explore additional sociocultural and psychological factors that may affect breastfeeding timelines and to develop targeted interventions for mothers facing barriers to sustained breastfeeding.

## **CONCLUSION:**

Our study finds that, based on the data collected, that across all age groups, a higher number of participants were identified as pregnant in the 15–20 age group. A mother's excessive workload, her poor milk supply, her lack of knowledge about breastfeeding, her baby's lactose intolerance, and her health problems or those of her kid were among the factors that disrupted the breastfeeding schedule. According to the study's findings, a child's development and the amount of time they were breastfed, as well as the frequency of breastfeeding and the child's immunity, were found to be significantly and clinically important correlated. Long-term breastfeeding discontinuation was associated with an increased risk of infections, growth issues, motor, non-motor, and cognitive developmental impairments in children.

## **ACKNOWLEDGEMENT:**

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## **LIMITATIONS:**



This study contains a small sample size. So, this can be further extended with number of patients to derive a better conclusion.

### CONFLICT OF INTEREST:

The authors declare that there is no conflict of interest

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