# A Study to Compare the Growth and Development of Exclusive and Non Exclusive Breast Fed Infants at Selected Community Areas of District Patiala, Punjab

Akvinder Kaur<sup>1</sup>, Sukhvir Kaur<sup>2</sup>, Mukesh Chandra Sharma<sup>3</sup>

<sup>1</sup>M.Sc - Child Health Nursing <sup>2</sup>Assistant Professor, Child Health Nursing <sup>3</sup>Assosiate Professor, Child Health Nursing

Abstract: <u>Introduction</u>: According to WHO guidelines breastfeeding is mandatory up to 6 months of life of an infant without any supplementation. It protects infants from various infections and helps in proper growth and development. <u>Aim</u>: The aim of the study is to compare the growth and development of exclusive and non exclusive breastfed infants at selected community areas of district Patiala, Punjab. <u>Method</u>: A comparative descriptive study was conducted on 150 sample (infants). Sample was selected by using quota sampling technique. The data was collected by using socio demographic profile, growth chart given by centers for disease control and prevention (CDC) and self structured observation checklist. <u>Result</u>: Regarding growth – Shows that mean <u>height</u> of aged 2,4 & 6 months exclusively and non exclusively breastfed infants were  $(.04 \pm 3.14 \text{ vs } 52.16 \pm 15.90)$ ,  $(60.76\pm 4.16 \text{ vs } 59.72\pm 3.61)$  and  $(64.48\pm 4.45 \text{ vs } 61.48\pm 2.22)$  respectively, mean <u>weight</u> of 2,4 & 6 months of infants were  $(4.23\pm 74 \text{ vs } 3.64\pm .68)$ ,  $(5.57\pm 1.11 \text{ vs } 7.49 \pm 10.55)$  and  $(8.41\pm 9.78 \text{ vs } 6.02\pm 67)$ respectively. Mean <u>head circumference</u> were  $(39.52\pm 2.45 \text{ vs } 38.44\pm 2.08)$ ,  $(40.80\pm 1.66 \text{ vs } 40.60\pm 1.91)$  and  $(41.96\pm 2.05 \text{ vs } 40.72 \text{ vs } 1.24)$  respectively. Finally, the findings revealed that growth of exclusive breastfed infants was better as compared to non exclusive breastfed infants. Simultaneously, The results regarding developmental milestones shows that exclusive breastfed infants had better developmental milestones as compared to non exclusive breastfed infants.

Keywords: Exclusive breast feeding, non exclusive breastfeeding, growth and development.

### 1. Introduction

Mother and child bonding is a beautiful creation by God. It is the first step for relationship and fosters a sense of security for child. Nursing is a wonderful experience for both mother and baby. It provides ideal nourishment and special bonding experience.<sup>1</sup>Breastfeeding is the most effective way to provide a baby with a caring environment and complete food. It meets the nutritional as well as emotional and psychological needs of the infant. It is the safest, cheapest and the best protective food for infants. It is the perfect food for infants and provides total nutrient requirements for the first six months of life. It prevents malnutrition and allows the child to develop fully.<sup>2</sup>

# 2. Background of the study

Evidence from several studies suggests that breastfeeding exclusively for the first six months of life supports optimal growth with the lowest risks of infection and ill health. The acquisition of the many anti-infective agents in colostrums and breast milk provides protection for the young infant against infective agents. Exclusive breast-feeding for the first six months of life however conflicts with local knowledge in our environment and mothers frequently start complementary feeding before the age of six months.<sup>3</sup>

Mo-suwan et al (1998)found that exclusive breastfed infants were healthy and developed normally, so exclusive breastfeeding is necessary up to 6 month of age.<sup>4</sup> Jonsdottir (2004) concluded that exclusive breastfeeding prevents obesity in early childhood .He found out that formula fed infants gain more weight at 3 month of age as compared to exclusive breastfed infants, but later in adulthood it leads to obesity.<sup>5</sup>Kramer et al (2006) found that faster weight and length gains with early weaning and slower gains with prolonged and exclusive breastfeeding.<sup>6</sup>

Exclusive breast feeding is more effective as it causes proper growth and development in infants and boosts immunity that prevents infants from various health problems but now a day's most of the mothers are working, and conscious about their body image. There is lack of knowledge regarding feeding practices that causes lactation failure which promote early introduction of complementary foods. According to WHO guidelines, exclusive breastfeeding is very necessary up to 6 months of age but now a day's, non exclusive breast feeding is more common. There are very few infants who rely on exclusive breastfeeding.

In this study, the Information was gathered regarding growth and development of exclusive and non exclusive breast fed infants that will be helpful for health workers to educate the mother regarding the importance of exclusive breastfeeding for healthy growth and development of the infants.

# 3. Material & Methods

This was a comparative descriptive study to compare the growth and development of exclusive and non exclusive breastfed infants at selected community areas of district Patiala, Punjab. The study was carried out among 150 infants which includes 75 each exclusive and non exclusive breastfed infants. Sample was selected by quota sampling technique. The data collection tool was based on the socio demographic profile and data was collected by growth chart given by CDC. It included parameters such as height, weight and head circumference. Weight was checked by weighing machine and height and head circumference was measured by measuring tape. The milestones development was observed by self structured observation checklist. It included physical, cognitive, psychosocial and language milestones. Further, the Data was analyzed by descriptive and inferential statistics.

# 4. Results

#### Section - A Description of sample characteristics

Table 1: Frequency, percentage distribution of sample	le
characteristics, N=150 (N <sub>1</sub> =75, N <sub>2</sub> =75)	

Demographic Characteristics	Breast feeding pattern				
Demographic Characteristics		clusive		n exclusive	
	breastfed breastfe				
	F	%	f	%	
	1	70	1	70	
Age of mother	10	17	10	10	
Up to 20 Years	13	17	12	16	
21-25 Years	47	63	38	51	
26-30 Years	12	10	23	31	
Above 30 Years	03	10	02	02	
Education					
Illiterate	19	21	15	20	
Matriculation	35	47	28	37	
Senior Secondary	12	10	25	33	
Graduation	08	21	07	01	
Post Graduation	01`	01	00	10	
Employment					
Government Employed	10	20	17	23	
Private Employed	13	17	24	32	
Self Employed	06	02	08	10	
Home Maker	46	61	26	35	
Characteristics of Infants					
Baby Gender					
Male	44	59	32	43	
Female	31	41	43	57	
Age of infant					
2 months	12	10	13	12	
3months	17	13	28	31	
4months	43	10	32	51	
6 months	03	67	02	06	
Mode of Delivery					
Normal vaginal delivery	49	61	24	32	
NVD with instrumentation	11	22	27	46	
Cesarean section	13	17	19	22	
Weight at birth					
2.5-3 kg	55	74	45	40	
3.5-4 kg	20	27	30	60	
Breast feeding pattern of infants					
Breastfeeding pattern					
Exclusive breastfed	75	100	00	11	
Non exclusive breastfed	00	00	75	89	

Table 1 describes the distribution of sample characteristics according to the sociodemographic profile. Majority of subject's mothers in exclusive breast fed group (63%) and non exclusive group (51%) belonged to the age group of 21-

25 years. Majority of mothers in exclusive (47%) and in non exclusive group (37%) were metric passed. Majority of the subject's mother in exclusive breastfed group (61%) and non exclusive breastfed group (35%) were home maker. There was maximum number of males in exclusive breastfed group (59%) and females in non exclusively breastfed group (57%). Majority of the infants belonged to the age group of 6 months(67%) in exclusively and age group of 4 months (51%) in non exclusively breastfed infants. If we look at the monde of delivery majority of infants (61%) were normally delivered in exclusive breastfed group whereas in non exclusive group majority of infants (46%) were delivered through cesarean section. Majority of infants (74%) were weighted between 2.5-3 kg in exclusive group where as in non exclusive group majority of (60%) infant's birth weight lying between 3.5-4 kg. In breastfeeding pattern majority of (100%) infants were exclusively breast fed whereas (89%) were non exclusively breast fed.

# Section – B Description and comparison of growth parameters of exclusive and non exclusive breastfed infants.

Table 2: Mean Standard deviation and Comparison of
growth parameters of exclusive and non exclusive breast fed

	infants		
Physical parameters	Exclusive	Non	
		Exclusive	
	$Mean \pm SD$	$Mean \pm SD$	Mean
			difference
2 months			
Height	$56.04{\pm}3.14$	$52.16 \pm 15.90$	3.88
Weight	$4.23 \pm .74$	$3.64 \pm .68$	0.59
Head circumference	$39.52{\pm}2.45$	$38.44{\pm}2.08$	1.08
4 months			
Height	$60.76 \pm \!\!4.16$	$59.72 \pm 3.61$	1.04
Weight	$5.57 \pm 1.11$	$7.49{\pm}\ 10.55$	1.92
Head circumference	$40.80 \pm 1.66$	$40.60{\pm}\ 1.91$	0.2
6 months			
Height	$64.48 \pm 4.45$	61.48±2.22	3.0
Weight	$8.41 \pm 9.78$	$6.02 \pm .67$	2.39
Head circumference	$41.96{\pm}\ 2.05$	$40.72{\pm}\ 1.24$	1.24

Table 2 depicts that in exclusive and non exclusive breastfed infants the mean height of aged 2,4 & 6 months were  $(.04 \pm 3.14 \text{ vs} 52.16 \pm 15.90)$ , (  $60.76\pm 4.16 \text{ vs} 59.72\pm 3.61$ ) and ( $64.48\pm 4.45 \text{ vs} 61.48\pm 2.22$ ) respectively and the mean weight were ( $4.23\pm.74 \text{ vs} 3.64\pm.68$ ), (  $5.57\pm 1.11 \text{ vs} 7.49\pm 10.55$ ) and ( $8.41\pm 9.78 \text{ vs} 6.02\pm.67$ ) respectively. The Mean <u>Head circumference</u> in exclusive and non exclusive breastfed infants aged 2,4 and 6 months were ( $39.52\pm 2.45$ vs  $38.44\pm 2.08$ ), (  $40.80\pm 1.66 \text{ vs} 40.60\pm 1.91$  ) and( $41.96\pm 2.05 \text{ vs} 40.72 \text{ vs} 1.24$ )respectively. Finally, the findings revealed that growth of exclusive breastfed infants was better as compared to non exclusive breastfed infants.

Section –C Description and comparison of developmental milestones of exclusively & non exclusively breastfed infant

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 Table 3: Frequency, percentage & comparison of

 developmental milestones of 2 months exclusively & non

 exclusively breastfed infants.

	exclusively of	• • • • •						
			Breastfeeding pattern					
			Exclusive		Non exclusive			
	2 months	breastfed		astfed	breastfed			
			F	%	F	%		
	Physical development							
	Arms flexed and legs	No	00	00	00	00		
	extended	Yes	25	100	25	100		
	No head droop	No	00	00	00	00		
	_	Yes	25	100	25	100		
	Hold head erect in mid	No	00	00	01	04		
	position	Yes	25	100	24	96		
	Hold head up and begins to	No	00	00	04	16		
	push up when lying on	Yes	25	100	21	84		
	tummy							
	Smoother movements with	No	00	00	05	25		
	arms and legs	Yes	25	100	20	80		
	Hands may be open	No	00	00	08	32		
	5 1	Yes	25	100	17	68		
	Holds a rattle when placed	No	00	00	12	48		
	in the hand	Yes	25	100	13	52		
	Cognitive development							
	Pays attention to faces.	No	00	00	13	52		
	2	Yes	25	100	12	48		
	Begins to follow things with	No	00	00	12	52		
	eyes and recognize people at	Yes	25	100	13	48		
	a distance	100	20	100	10	10		
	Psychosocial development							
	Sense of trust	No	00	00	12	52		
		Yes	25	100	13	48		
Dis	tinguish mother or primary	No	00	00	08	32		
	e giver	Yes	25	100	17	68		
Mai	intain eye to eye contact	No	00	00	02	08		
		Yes	25	100	23	92		
	iles back in response to	No	00	00	02	08		
	ther's smile	Yes	25	100	23	92		
	iguage development							
Res	ponse to caregiver voice:	No	00	00	04	16		
		Yes No	25	100	21	84		
	Soothed by caregiver		00	00	08	32		
	or mother voice		25	100	17	68		
Cry	pattern develop	No	00	00	11	44		
		Yes	25	100	14	56		
Coc	os, makes gurgling sounds	No	00	00	11	44		
		Yes	25	100	14	56		

**Table 3** shows that maximum (100%) of exclusively breastfed infants achieved their physical, cognitive, psychosocial, language developmental milestones normally whereas in non exclusive group all infants achieved the physical milestones arms flexed & legs extended and no head drop. Only 96% holds head erect in mid position, 84% push up tummy, and 80 % achieved smoother movements, and only 68% hands open, 52% holds rattle. Regarding the cognitive development, only 48 % infants achieved all milestones. About the psychosocial development, majority of the infants achieved eye to eye contact and smiles back whereas only 68% distinguished between primary care giver & mother, 48% developed sense of trust. Regarding the language development, 56% developed cry pattern & makes sounds like coos & gurgling, majority of the infants 84%

achieved response to caregiver voice, only 68% achieved soothing by caregiver's voice.

<b>Table 4:</b> Frequency, percentage & comparison of
developmental milestones of 4 months exclusively &
nonexclusively breastfed infants

nonexclusively breastfed infants					
4 MONTHS		Breast feeding pattern			
				Non- exclusive	
		breast fed		bre	east fed
		F	%	F	%
Physical Development					
Holds head steady, unsupported	No	00	00	00	0
	Yes	25	100	25	100
Pushes down on legs when feet	No	00	00	2	8
are on a hard surface	Yes	25	100	23	92
Able to roll over from tummy to	No	00	00	3	4
back	Yes	25	100	22	88
When lying on stomach, pushes	No	00	00	6	24
up to elbows	Yes	25	100	19	76
Activates arms at the side of	No	00	00	6	24
preferred toy	Yes	25	100	19	76
Brings hands together at	No	00	00	4	16
midline	Yes	25	100	21	84
Grasp object in hand	No	00	00	7	28
	Yes	25	100	18	72
Brings hands to mouth	No	00	00	6	24
	Yes	25	100	19	76
Cognitive development					
Responds to affection	No	00	00	5	20
-	Yes	25	100	20	80
Reaches for toy with one hand.	No	00	00	4	16
	Yes	25	25	21	84
Uses hands and eyes together,	No	00	00	4	16
such as seeing a toy and	Yes	25	100	21	84
reaching for it.					
Recognizes familiar people and	No	00	00	7	28
things at a distance	Yes	25	100	18	72
Psychosocial development					
Sence of trust	No	00	00	6	24
	Yes		100	19	76
Smile in response to smiles of	No	00	00	3	12
others	Yes	25	100	22	88
Likes to play with people and	No	00	00	3	12
might cry when playing stops. Copies some movements and	Yes No	25 00	100	22 3	<u>88</u> 12
facial expressions, like smiling	Yes		100	22	12 88
Language development	1 65	25	100	22	00
Begins to babble.	No	00	00	3	12
Degins to babble.	Yes		100	22	88
Babbles with expression and	No	00	00	4	16
copies sounds he hears	Yes	25	100	21	84
	0				÷.

Table 4 depicts the frequency, percentage & comparison of 4 months exclusively & non exclusively breastfed infants. It shows that the exclusively breastfed infants achieved physical, cognitive, psychosocial & language development milestones normally whereas in non exclusively breastfed infants all the infants achieved head supporting, (92%) achieved pushing feet down, only (88%) achieved rolling movements, (84%) achieved bringing hand together in midline under the physical development. Regarding cognitive development, majority of the infants achieved the milestones reaching to the toy & using hands & eyes together whereas only (80%) achieved the response to affection. If we look at psychosocial development maximum

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of the infants (88%) achieved all milestones; only 76% achieved sense of trust where as in language development majority of the infants (88%) achieved begins to babble while only (84%) babbling with expression & coping sounds started at the age of 4 months.

 Table 5: Frequency, percentage & comparison of

 developmental milestones of 6 months exclusively & non

 exclusively breastfed infants

	exclusively bre	eastfee	1 inta	ants			
	6 MONTHS		Breast feeding pattern				
F         %         f         %           Physical Development			Excl	usive	Non-	exclusive	
Physical Development         No         0			breas	st fed	br		
Roll over in both directions from front to back and back to front.         No         0         0         0         0           Begins to sit without support         No         0         0         0         0           Begins to sit without support         No         0         0         0         0           Back is straight when sitting on high chair         No         0         0         0         0           Springs up and down when sitting on legs and might bounce         Yes         25         100         24         96           When standing, supports weight on legs and might bounce         Yes         25         100         24         96           Retains transient hold on two objects, one in each hand         Yes         25         100         23         92           Cognitive development         Ves         25         100         24         96           Drops one object when another is offered         No         0         0         1         4           Yes         25         100         24         96           Looks around at things nearby         No         0         0         1         4           Yes         25         100         24         96         5         10			F	%	f	%	
Roll over in both directions from front to back and back to front.         No         0         0         0         0           Begins to sit without support         No         0         0         0         0           Begins to sit without support         No         0         0         0         0           Back is straight when sitting on high chair         No         0         0         0         0           Springs up and down when sitting on legs and might bounce         Yes         25         100         24         96           When standing, supports weight on legs and might bounce         Yes         25         100         24         96           Retains transient hold on two objects, one in each hand         Yes         25         100         23         92           Cognitive development         Ves         25         100         24         96           Drops one object when another is offered         No         0         0         1         4           Yes         25         100         24         96           Looks around at things nearby         No         0         0         1         4           Yes         25         100         24         96         5         10	Physical Development						
front to back and back to front.       Yes       25       100       25       100         Begins to sit without support       No       0       0       0       0       0         Back is straight when sitting on high chair       No       0       0       0       0       0       0         Springs up and down when sitting No       0       0       0       1       4         Wen standing, supports weight on legs and might bounce       Yes       25       100       24       96         Use fingers to feed self       No       0       0       1       4       4       96         Retains transient hold on two objects, one in each hand       Yes       25       100       24       96         Drops one object when another is No       0       0       2       8       92         Begins to bang objects that are       No       0       0       2       8         offered       Yes       25       100       24       96         Looks around at things nearby       No       0       0       1       4         Yes       25       100       24       96       96       96         Shows curiosity about things and No       0	Roll over in both directions from	No	0	0	0	0	
Begins to sit without support         No         0         0         0         0           Back is straight when sitting on high chair         No         0					-	-	
Yes         25         100         25         100           Back is straight when sitting on high chair         No         0         0         0         0         0         0           Springs up and down when sitting on legs and might bounce         Yes         25         100         24         96           When standing, supports weight on legs and might bounce         No         0         0         1         4           Yes         25         100         24         96           Use fingers to feed self         No         0         0         1         4           Yes         25         100         24         96           Retains transient hold on two objects, one in each hand         Yes         25         100         23         92           Cognitive development         No         0         0         1         4           Pes         25         100         23         92           Gognitive development         No         0         0         1         4           Yes         25         100         24         96           Looks around at things nearby         No         0         0         1         4           <			-		-		
Back is straight when sitting on high chair         No         0         0         0         0         0           Springs up and down when sitting No         0         0         1         4           Yes         25         100         24         96           When standing, supports weight on legs and might bounce         No         0         0         1         4           Yes         25         100         24         96         96           Use fingers to feed self         No         0         0         1         4           Yes         25         100         24         96           Retains transient hold on two objects, one in each hand         Yes         25         100         23         92           Cognitive development         -         -         -         -         -           Drops one object when another is No         0         0         1         4         -           held         Yes         25         100         24         96         -           Looks around at things nearby         No         0         0         1         4         -           Yes         25         100         24         96	Begins to sit without support			•			
high chair         Yes         25         100         25         100           Springs up and down when sitting         No         0         0         1         4           Yes         25         100         24         96           When standing, supports weight on legs and might bounce         Yes         25         100         24         96           Use fingers to feed self         No         0         0         1         4           Yes         25         100         24         96           Retains transient hold on two objects, one in each hand         Yes         25         100         23         92           Cognitive development               96           Drops one object when another is offered         No         0         0         1         4           held         Yes         25         100         24         96           Looks around at things nearby         No         0         0         1         4           Yes         25         100         24         96           Shows curiosity about things and tries to get things that are out of reach         Yes         25         10		Yes	25	100	25	100	
Springs up and down when sitting         No         0         0         1         4           Yes         25         100         24         96           When standing, supports weight on legs and might bounce         No         0         0         1         4           Ose in legs and might bounce         Yes         25         100         24         96           Use fingers to feed self         No         0         0         1         4           Yes         25         100         24         96           Retains transient hold on two objects, one in each hand         Yes         25         100         23         92           Cognitive development         Ves         25         100         24         96           Looks around at things nearby         No         0         0         1         4           held         Yes         25         100         24         96           Looks around at things nearby         No         0         0         1         4           Yes         25         100         24         96           Shows curiosity about things and reach         No         0         0         1         4	Back is straight when sitting on	No	0	0	0	0	
Yes         25         100         24         96           When standing, supports weight on legs and might bounce         No         0         0         1         4           Or legs and might bounce         Yes         25         100         24         96           Use fingers to feed self         No         0         0         1         4           Yes         25         100         24         96           Retains transient hold on two objects, one in each hand         Yes         25         100         23         92           Cognitive development              96           Brings to bang objects that are         No         0         0         1         4           Yes         25         100         23         92           Begins to bang objects that are         No         0         0         1         4           Yes         25         100         24         96           Looks around at things nearby         No         0         0         1         4           Yes         25         100         24         96           Shows curiosity about things and No         0 <td>high chair</td> <td>Yes</td> <td>25</td> <td>100</td> <td>25</td> <td>100</td>	high chair	Yes	25	100	25	100	
Yes         25         100         24         96           When standing, supports weight on legs and might bounce         No         0         0         1         4           Or legs and might bounce         Yes         25         100         24         96           Use fingers to feed self         No         0         0         1         4           Yes         25         100         24         96           Retains transient hold on two objects, one in each hand         Yes         25         100         23         92           Cognitive development              96           Brings to bang objects that are         No         0         0         1         4           Yes         25         100         23         92           Begins to bang objects that are         No         0         0         1         4           Yes         25         100         24         96           Looks around at things nearby         No         0         0         1         4           Yes         25         100         24         96           Shows curiosity about things and No         0 <td>Springs up and down when sitting</td> <td>No</td> <td>0</td> <td>0</td> <td>1</td> <td>4</td>	Springs up and down when sitting	No	0	0	1	4	
When standing, supports weight on legs and might bounce         No         0         0         1         4           ves         25         100         24         96           Use fingers to feed self         No         0         0         1         4           Ves         25         100         24         96           Retains transient hold on two objects, one in each hand         Yes         25         100         23         92           Cognitive development         -         -         -         -         -         -           Drops one object when another is offered         No         0         0         1         4           held         Yes         25         100         23         92           Begins to bang objects that are held         No         0         0         1         4           Yes         25         100         24         96           Shows curiosity about things and tries to get things that are out of reach         No         0         0         1         4           Yes         25         100         24         96         -         -           Begins to pass things from one hand to the other         No         0			25	100	24	96	
on legs and might bounce         Yes         25         100         24         96           Use fingers to feed self         No         0         0         1         4           Yes         25         100         24         96           Retains transient hold on two objects, one in each hand         Yes         25         100         23         92           Cognitive development         Image: Cogniti	When standing supports weight				1		
Use fingers to feed self         No         0         0         1         4           Yes         25         100         24         96           Retains transient hold on two objects, one in each hand         No         0         0         2         8           Orgenitive development         -         -         -         -         -         -           Drops one object when another is offered         No         0         0         2         8         -           Begins to bang objects that are held         Yes         25         100         23         92           Berings things to mouth         No         0         0         1         4           Yes         25         100         24         96           Looks around at things nearby         No         0         0         1         4           Yes         25         100         24         96         -           Shows curiosity about things and tries to get things that are out of reach         No         0         0         0         0           Psychoscial development         -         -         -         -         -         -           Sense of trust         No         0 <td></td> <td>-</td> <td>-</td> <td>-</td> <td></td> <td>· ·</td>		-	-	-		· ·	
Yes         25         100         24         96           Retains transient hold on two objects, one in each hand         No         0         0         2         8           objects, one in each hand         Yes         25         100         23         92           Cognitive development                Drops one object when another is No         0         0         2         8           offered         Yes         25         100         23         92           Begins to bang objects that are         No         0         0         1         4           held         Yes         25         100         24         96           Looks around at things nearby         No         0         0         1         4           Yes         25         100         24         96           Brings things to mouth         No         0         0         1         4           Yes         25         100         24         96           reach         Yes         25         100         25         100           Brings things tom one         No         0         0 <td< td=""><td></td><td></td><td></td><td>-</td><td></td><td></td></td<>				-			
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Table 5 shows the frequency, percentage & comparison of the developmental milestones of 6 month exclusively & non exclusively breastfed infants. It depicts that in exclusive group all the 100% infants achieved physical, cognitive, psycho social & language development milestones normally whereas in non exclusive group maximum 100% infants achieved only physical development milestones whereas 96 % of infants achieved other milestones under physical parameters. If we look at the cognitive development parameters begin to pass things was achieved by all infants, 96% achieved other milestones. About the psychosocial development maximum infants achieved all milestones whereas 96% achieved sense of trust & recognizing strangers. In the language development maximum 100% infants achieved strings vowels together & responds to sounds, 96% achieved other milestones.

# 5. Discussion

# Findings regarding growth parameters of 2, 4 and 6 months of infants

In exclusive and non exclusive breastfed infants the mean height of aged 2,4 & 6 months were  $(.04 \pm 3.14 \text{ vs} 52.16 \pm 15.90)$ , ( $60.76\pm 4.16 \text{ vs} 59.72\pm 3.61$ ) and ( $64.48\pm 4.45 \text{ vs} 61.48\pm 2.22$ ) respectively and the mean <u>weight</u> of 2,4 & 6 months of infants were  $(4.23\pm.74 \text{ vs} 3.64\pm.68)$ , ( $5.57\pm 1.11 \text{ vs} 7.49 \pm 10.55$ ) and ( $8.41\pm 9.78 \text{ vs} 6.02\pm.67$ ) respectively. The Mean <u>Head circumference</u> in exclusive and non exclusive breastfed infants aged 2,4 and 6 months were  $(39.52\pm 2.45 \text{ vs} 38.44\pm 2.08)$ , ( $40.80\pm 1.66 \text{ vs} 40.60\pm 1.91$ ) and( $41.96\pm 2.05 \text{ vs} 40.72 \text{ vs} 1.24$ ) respectively. Finally, the findings revealed that growth of exclusive breastfed infants was better as compared to non exclusive breastfed infants.

These findings were supported by the study conducted by **Nkanqinieme** et al (2004) regarding growth pattern of exclusively breastfed infants in the first 6 months of life and compares them. Results shows that exclusively breastfed infants doubled their birth weights at 3 months. The mean weight and length gains were maximal at 2 months respectively So conclusion of the study is that the growth in weight, length of exclusively breastfed infants appears adequate for the first 6 months of life.<sup>7</sup>

# Findings regarding developmental milestones of 2, 4 and 6 months of infants.

# Regarding the 2 months of infants

Maximum (100%) of exclusively breastfed infants achieved their physical, cognitive, psycho-social, language developmental milestones normally whereas in non exclusive group all infants achieved the physical milestones arms flexed & legs extended and no head drop. Only 96% holds head erect in mid position, 84% push up tummy, and 80 % achieved smoother movements, and only 68% hands open, 52% holds rattle. Regarding the cognitive development, only 48 % infants achieved all milestones. About the psychosocial development, majority of the infants achieved eye to eye contact and smiles back whereas only 68% distinguished between primary care giver & mother, 48% developed sense of trust. Regarding the language

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development, 56% developed cry pattern & makes sounds like coos & gurgling, majority of the infants 84% achieved response to caregiver voice, only 68% achieved soothing by caregiver's voice.

#### Regarding the **4 months** of infants

Result shows that the exclusively breastfed infants achieved physical, cognitive, psychosocial & language development milestones normally whereas in non exclusively breastfed infants all the infants achieved head supporting, (92%) achieved pushing feet down, only (88%) achieved rolling movements, (84%) achieved bringing hand together in midline under the physical development. Regarding cognitive development, majority of the infants achieved the milestones reaching to the toy & using hands & eyes together whereas only (80%) achieved the response to affection. If we look at psychosocial development maximum of the infants (88%) achieved all milestones; only 76% achieved sense of trust where as in language development majority of the infants (88%) achieved begins to babble while only (84 %) babbling with expression & coping sounds started at the age of 4 months.

#### Regarding the 6 months of infants

Result shows that in exclusive group all the 100% infants achieved physical, cognitive, psycho social & language development milestones normally whereas in non exclusive group maximum 100% infants achieved only physical development milestones whereas 96 % of infants achieved other milestones under physical parameters. If we look at the cognitive development begin to pass things was achieved by all infants,96% achieved other milestones. About the psychosocial development maximum infants achieved all milestones whereas 96% achieved sense of trust & recognizing strangers. In the language development maximum 100% infants achieved strings vowels together & responds to sounds, 96% achieved other milestones.

# 6. Conclusion

The conclusion was based on findings of the study. The results of the study conclude that the exclusive breastfed infants had better growth and development as compare to the non exclusive breastfed infants.

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