

Early Cognitive Development of Babies of Rural and Urban Hisar

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ABSTRACT During 12 months of age babies expect a person to reach for an object that the person is looking at with positive affect rather than for another object to which the person is not attending. The present study was undertaken with the objectives to assess the level of cognitive development of urban and rural babies during the age of one to two years. Cognitive development index of 200 babies (100 males and 100 females) over the age groups of 12 to 24 months was assessed to find out differences for age groups and gender. Analysis of variance for mental development index (MDI) due to age was significant indicating differences in the level of mental development in the babies under investigation. Non significant mean squares for gender revealed that the mental development level of male and female babies was almost equal. In addition, non significant interaction of age x gender further suggested that development of cognitive process with increase of age was similar in both male and female babies. Considerable differences in mental level were observed for all the age groups studied for both boys and girls in both areas. With regard to gender, boys were at par with girls for all the age groups. Interaction of age and gender revealed that there was no differential increase in boys and girls over the age groups studied.

INTRODUCTION

Early cognitive development emerges hand in hand with growing capacities to explore the environment, make sense of the world, and discover a sense of self in the world. Infants quickly develop the ability to keep a picture of a parent in their minds for longer periods of absence, which leads to an awareness of the differences between familiar and unfamiliar people and places. This is frequently demonstrated in the infant behaviors of separation anxiety and stranger anxiety that emerge at around nine months of age (Anonymous, 2004). Cognitive development is intimately linked to the development of emotions, language, and physical development. The sensory qualities of the environment and infant interactions with it enrich a child's ability to intellectually connect previous experiences with new information and newly acquired skills (Smith, 2003).

Cognitive and emotional functioning are strongly affected by what happens in the first few years of life. Future functioning in life, including whether an individual becomes the responsibility of society due to developmental disability, incarceration, mental illness, or substance abuse are affected by what happens in the first 2 years of life (Strathearn et al., 2000). Cognition is demonstrated when infants imitate of adult facial expressions, smile in response to baby games, repeats chance behaviors that lead to pleasurable and interesting results, coo and

babble in response to parents and recognize familiar people, places and objects. The development of cognition is essential to the development of attachment. The habituation-dishabituation sequence reveals that even newborns are attracted to novelty, and will decrease attention to repetitive stimulation, and their recognition of memory improves steadily with age. By the end of the first year, infants deliberately look to others for emotional cues and evaluate uncertain events, such as, the approach of a stranger. Since, infants cannot describe their feelings, researchers face challenging tasks determining exactly which emotions they are experiencing. Although vocalizations and body movements provide some information, yet facial expressions seem to offer the most reliable cue during the age of 18-24 months (Mc Donald, 1997).

Cross-cultural evidence indicates that when infants are looking photographs of different facial gestures, people around the world associate them with emotions in the same way. In the 1970s and 1980s, the pragmatic movements in the field of speech-language pathology influenced by social-cognitive learning theory re-established the idea that language is embedded in a social matrix. This movement taught us that children do not talk about objects of interest in isolation. They communicate in the context of social interactions often for socially and emotionally driven reasons (Klein and Mosses, 1994). This orientation underscored the importance of care-giver-child interactions for language development and

broadened our awareness of the range of issues that need to be considered in language intervention. Social and environmental factors have become so intricately related to health and diseases that often care must go beyond medical intervention. Child developmentalists have partially succeeded in designing and implementing early childhood intervention programmes to ameliorate social aspects of childhood morbidity.

METHOD

Sample: The sample of present study consisted of 100 boys and 100 girls (N=200) selected from urban and rural areas of Hisar district. The babies were divided in four age groups, namely, 12-15, 15-18, 18-21 and 21-24 months. There were 25 boys and 25 girls in each age group from both urban and rural areas. Thus making total sample equal to 200. Data on rural babies from Rawalwas and Siswala villages which are situated about 20 kms away from Hisar city.

Procedures: Bayley's scale of infant development (Bayley, 1969) was used to assess the mental development of babies. Data were further subjected to statistical analysis namely, calculation of mean pooled mean, Z and tests, and analyses of variances.

RESULTS AND DISCUSSION

Analysis of variance for mental development index (MDI) due to age was significant ($F=11.09$),

but for gender and interaction of age $\times$ gender it was non significant (Table 1). Nonsignificant interaction of age with gender indicated that there was no differential score of MDI in boys and girls in different age groups. Mean values for MDI at different age groups ranged from 123.38 ± 4.52 to 144.55 ± 4.85 and MDI of male babies was at par with that of female babies (Table 2). It is clear that infants are born with or acquire a number of abilities and dispositions that will help them to learn about people. They find human faces, voices and movements particularly interesting stimuli to attend and respond to. In case of faces, infant develop considerable skill in discriminating different facial expressions over the first 2 years of life (Nelson, 1995).

It appeared that there were clear differences in the mental development indices of children over the different age groups studied. Leslie and Roth (1993) and Leslie (1994) believe that the acquisition of maturation is a fast succession of domain specific and modular mechanisms for dealing with agents and non agent objects. As in case of physical development, males and females had same level of MDI's. This may be attributed to similarly in child care practices of male and female babies. In order to establish gender differences, factorial analysis was performed and found that there was no sex difference for the traits under study. Morisset et al. (1995) observed sex differences favouring girls with regard to better cognitive abilities during the age of one to two and half years. They further showed that joint visual attention and understanding of painting

Table 1: Analysis of variance for mental development index (MDI) of children during the age of one to two years

Source of variation	Df.	SS	MS	F
Age	3	13052.25	4350.75	11.09**
Gender	1	11.05	11.05	0.03
Age X Gender	3	622.04	207.35	0.53
Error	192	75317.76	392.8	
Total	199	89103.10		

*, **: Significant at 5% and 1% level of significance, respectively.

Table 2: Means and standard deviations for mental development index (MDI) of the children during the age one to two years

Gender	Age in months				Pooled Mean
	12-15	15-18	18-21	21-24	
Boys	125.50 (6.28)	135.55 (6.23)	140.50 (5.35)	142.25 (5.95)	135.95 (6.17)
Girls	121.25 (5.71)	132.35 (6.52)	141.45 (6.73)	146.05 (4.68)	135.28 (5.92)
Pooled Mean	123.38 (4.52)	133.95 (6.21)	140.98 (5.81)	144.55 (4.85)	135.61 (6.13)

which are main components of Bayley's scales of infant development were developed in infants during the age of 15 months to 18 months. In addition, memory in infants started to develop during the age of 8 to 12 months. Thus, working memory appear at an early stage, but these are expressed in a better way when motor activities are developed (Nelson, 1995). Recent studies suggested that from 12 months to 20 months infants were capable of understanding that the adult's behaviour is about the object (Baldwin and Moses, 1994). By the end of infancy if not earlier, babies have some understanding that people see things. The babies also start using vision related words like 'see' as correctly as 1.5 to 2 years of age (Flavell and Miller, 1998). During this period they understand that person will see the object if and only if their eyes are open and aimed at object (Flavell, 1992).

There is evidence that infants respond different to people than to the objects at an early age and up to one year they have at least some limited ability to understand about people's desires (Repacholi and Gopnik, 1997). Infants do a variety of things that reflect awareness of aboutness. Meltzoff (1995) observed that 18 months olds can infer that what action other person is trying to perform. During the age of 19-20 months infants also learn the names of things by noting what object the adult appears to be attending to when the adult says the label of toy etc. (Woodward and Markman, 1998). Thus, infants during one to two years of age seem to recognize that it is the adult intentional focus rather than their own that gives clues as to the adult's referential intent (Flavell, 1999).

CONCLUSIONS AND IMPLICATIONS

There were significant differences in MDI of both boys and girls at each interval under study. Mean MDI score of male babies was at par with female babies. This may be due to impartial involvement of parents with babies with regard to gender. Absence of interaction between age x gender indicated similar trend of gain in MDI over the age in both male and female babies. However this study conducted in the age group of the babies from one to two years, but keeping in view of other factors as constant these finding may be generalised over a wider range of age groups.

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