Abstract

**Background and Purpose:** The dynamic changes in children’s development during the toddler years have important implications for child health supervision. Familiarity with toddler development will enable the clinicians and researchers to monitor children’s development effectively and to address common, age related behaviors with families during anticipatory guidance. Since many years, effort has been made to map the relationship between the home environment and selected aspects of the child’s development. For most children, interior of the home and its immediate surroundings are the first environments they experience throughout their early years. Family is the first environment for child growth and development. Good care from the family will enable children to have good physical, intellectual and psychosocial development. At the same time, other enabling and enforcing factors such as education of their fathers and mothers, economic condition of the family, family relationship, family crisis, family type, and household conditions are also important. Household environments which covered the physical condition of the house and provision of toys associated with development of children aged one to under three years, because children at this age stay at home most of the time. Thus, household environment is an important factor enabling their development. Many family factors influence the development of children aged between one and three years old such as parenting styles, parental education, family structure, parental occupation socio-economic status of parents, living area (urban and rural), number of siblings, living standard, type of family (joint or nuclear family) single parent family etc., In the present study, an attempt was made to analyze the various family factors and to identify the imperative factors among them that influence the development of children aged between one and three years old (i.e., Toddlers). The physiotherapist is concerned primarily with motor behaviour of children. There are several ways in which the significance of
delays and deviations can be assessed. One of the important approaches is the administration of standardized tests of development to check how much the child’s current functioning is consistent with expectations. The major motor milestones are attained by the children in the toddlerhood. Only a few tools are focusing primarily on Motor development of children aged between one and three years old and also many of them are not suitable for toddlers being reared in Indian cultural context. Hence, as a part of this study a new developmental tool for assessing the Gross and Fine motor skills of toddlers is developed after considering the developmental theories, principles of contemporary test construction and other already available tools.

**Primary objectives:** To analyze the various family factors and to identify the imperative factors among them that influence the psychosocial development (gross motor, vision and fine motor, hearing, language, and concept development, and personal-social development) of children aged between one and three years old. To develop a new tool for assessing the gross and fine motor skills of children aged between one and three years old.

**Design:** Descriptive cross-sectional study design.

**Materials and Method:** Through multi-stage cluster random sampling fifty urban families with children aged one to three years old (25 families with both the parents literates and 25 families with both the parents illiterates) and fifty rural families with children aged one to three years old (25 families with both the parents literates and 25 families with both the parents illiterates) were recruited from Bangalore urban and Bangalore rural districts respectively. The parental literacy status was assessed by using the operational definition of literacy stated by UNESCO (United Nations Educational, Scientific and Cultural Organization). The Parenting styles and practices were assessed by using Parenting Style Questionnaire (PSQ) and Parent Practices Scale (PPS) respectively. The Home environment was measured by using Infant/Toddler HOME (The Home
Observation for Measurement of the Environment) Inventory. The development of the toddlers was assessed by using Psychosocial Development Screening Test (PDST), Denver II and Motor Skills Assessment Tool for Toddlers (MSATT).

**Data Analysis and Results:** For data analysis, statistical software SPSS (Version 16) for Windows and SAS (Version 9.2) for Windows were used. Descriptive statistics were calculated for all the variables. Kruskal-Wallis test was used to determine the differences in parenting styles, practices and home environment among the four groups. An overall significance was found between the groups in all these three variables at $P < 0.05$ and thus post–hoc unique pair comparison was done by using Mann Whitney U test. The Mann Whitney U test revealed a statistically significant difference in all the parenting style scores ($P < 0.0001$) between rural literate and rural illiterate groups, between urban literate and rural illiterate groups, between urban illiterate and rural illiterate groups at $P < 0.0125$. The Mann Whitney U test revealed a statistically significant difference in total score in Parent Practices Scale between urban literate and urban illiterate groups ($P=0.004$), between urban illiterate and rural literate groups ($P<0.0001$), between rural literate and rural illiterate groups ($P<0.0001$), between urban literate and rural illiterate groups ($P<0.0001$), and between urban illiterate and rural illiterate groups ($P<0.0001$), at $P < 0.0125$. The Mann Whitney U test revealed a statistically significant difference in total score in Infant/Toddler HOME inventory between all the unique pairs ($P<0.0001$), except between urban literate and rural literate, and urban illiterate and rural illiterate groups at $P < 0.0125$. Chi-square test was done to analyze the difference in the psychosocial development of toddlers assessed by PDST among the four groups and it was found that except for self-help skills, a statistically significant difference was found in all the other domains at $P < 0.05$ among the four groups. Chi-square test was used to analyze all the domains
of Denver II except the language domain, for which Fisher’s exact test was used. The results showed that there was a statistically significant difference in all the domains at $P < 0.05$ among the four groups. A multiple logistic regression analysis was done to identify the factors influencing the various domains of psychosocial development of toddlers. The toddlers brought up in a non-stimulating home environment had 8.25 times delayed gross motor development, 22.11 times delayed vision and fine motor development, 6.11 times delayed hearing, language and concept development and 2.73 times delayed self-help skills development than those brought up in a stimulating home environment. The toddlers brought up by authoritative parents had 0.04 times normal gross motor development and 0.25 times normal hearing, language and concept development compared to those brought up by authoritarian and permissive parents. The toddlers brought up by parents with high family income had 5.02 times delayed development of social skills than those by parents with less family income. Spearman rho correlation was performed for evaluating test-retest reliability of MSATT and the results showed that test-retest reliability for gross motor skills and fine motor skills measured by MSATT was 0.98 and 0.94 respectively. The inter-observer reliability for both gross motor skills ($ICC_{2,3} = 0.98$) and fine motor skills ($ICC_{2,3} = 0.96$) measured by MSATT showed a perfect agreement between the two raters. Fisher’s exact test (for gross motor skills) and Chi-Square test (for fine motor skills) were used to analyze the association of scores obtained in MSATT with that of Denver II and it was found that both gross motor skills and fine motor skills were statistically significant ($P < 0.0001$) at $P < 0.05$.

**Conclusions:** A stimulating home environment and authoritative parenting style are major correlates of gross motor development, and hearing, language, and concept development, whereas vision, and fine motor development and self-help skills are considerably influenced by
a stimulating home environment alone and low family income contributes for the better development of social skills compared to that of high family income. The MSATT has excellent test–retest and inter-observer reliability and also has excellent criterion validity for both gross and fine motor skills domains.