

Play Behaviours and Activities of Siblings of Children with Developmental Disabilities

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This study uses a cross sectional exploratory research design to elicit information from 42 well siblings of equal number clinical subjects with various types of developmental disabilities on or about play behaviors and activities for analysis in relation to variables like age, age, gender, education, type of disability, and number of siblings. A socio-demographic data sheet and another standardized 90-item 'Play Activity Checklist for Children with Mental Retardation' was used to measure the key variables: 'play behavior' and 'play activity'. Results indicate discernable patterns of play preferences in affected children and their unaffected sibling for the studied variables. For example, greater number and variety of play is reported for girls than boys, for children in age group of 7-11 years, for those attending special schools, or in children categorized as 'others' than those identified as 'mental retardation' or 'hearing impairment'. The implications of these findings for amelioration of children with developmental disabilities through well sibling betterment programs are discussed at the end of the study.

Keywords: Play behaviors, Play Activities, Siblings, Developmental Disabilities

Play is an important medium for overall development in children. It fosters sensory, motor, cognitive, language and social development (Chanco, 1979). Children with special needs seek and indulge in play like their normal age peers, although they maybe qualitatively and quantitatively different in nature, scope, type or extent of their activities (Venkatesan, 2004a; 2003). In a related study, no child with mental retardation was reported as 'never plays' even though such an item existed in their interview schedule (Venkatesan, 2000). A previous study noted that play behavior constitute only 4.1 % of total time in the 24-hour activity cycle of a child with mental retardation (Khoshali and Venkatesan, 2007; Venkatesan, 2004b). The study also found that these children spent more time in a day on 'no activity at all' than the time they spent on play. Further, their range of play behaviors was found to be limited and restricted to being passive observers of others at play without understanding rules and regulations. There

are many types of play in children depending on their age and developmental level (Venkatesan, 2004a).

It is useful to distinguish play behaviors and play activities. *Play behavior* refer to observable or measurable play actions as seen or reported by significant others in any studied sample of children. *Play activities*-a broader term, encompass not only the existing play behaviors; but also, the gaming or play that could be possibly indulge on their own or can be fostered for betterment of the children (Hiedemann and Hewitt. 1992; Garvey, 1974). Among the few checklists and assessment scales available in our country for planning activity based training programs for children with special needs are: 'Activity Checklist for Preschool Children with Developmental Disabilities' (ACPC-DD)(Venkatesan, 2010; 2004b), 'Madras Developmental Programming System' (MDPS) (Jeyachandran and Vimala, 1983), 'Behavior Assessment Scales for Indian Children with

Mental Retardation' (BASIC-MR) (Peshawaria and Venkatesan, 1992a; 1992b), and others.

These scales comprise behaviorally worded age graded items across several domains like sensory, motor, communication, self help activities, cognitive, academic, social, and play. The rationale of these assessment devices is to discover whether a given child 'can perform' or 'cannot perform' a given activity. The activities which a child cannot perform then becomes the 'target' for training in that given child or group of children. It is seen that most of these scales do not extensively cover 'play' domain. A few play related items are interspersed along with items in other domains (Venkatesan, 1994). However, it does not suffice their use of play as medium for behavior remediation in children with special needs. Therefore, an exclusive play related behavior assessment checklist for appropriate program planning and intervention in these children was developed for Indian conditions (Khoshali and Venkatesan, 2010).

Living with a sibling having disability can be rewarding, bewildering, instructive, and stressful experience. Well siblings of children with disability express a range of emotions and responses similar to siblings with no disability (Powell and Callagher, 1993; Bank and Kahn, 1982). The reactions may be love, empathy, pride, guilt, anger and support with its impact on felt stress and coping of the sibling with disability. The positive or negative relationships between siblings and family members are shaped by factors like family resources, their lifestyle, child-rearing practices, nature and severity of disability, number of children, age differences between children, other stress-producing conditions, kinds of coping mechanisms and interaction patterns in the family and quality of support services available in the community (Meyer, Vadasy and Fewell, 1985; O' Connor and Stachowiak, 1971). In a related study, the attitudes of well sibling towards their sib with disability were reported as not dysfunctional

or pathological but different (Venkatesan and Ravindran, 2011). In actuality, each child's reaction to the sibling with disability varies depending on their age and developmental level. Their responses and feelings are unlikely to be static. They change over time as they learn to cope with day-to-day realities. Against this complex background of their mixed feelings, thoughts or actions for or against their siblings with disabilities, it would be worthwhile, as is the aim of this study, to delve deep and specifically into their play behaviors and activities between affected and unaffected siblings in relation to variables like age, age, gender, education, type of disability, and number of siblings.

Method

A cross sectional exploratory research design was adopted for the present investigation by drawing data from a clinical sample of 42 well siblings of subjects diagnosed with various types of developmental disabilities like mental retardation (N: 14), hearing loss (N: 8) and 'others' (N: 20). The 'others' category included clinical conditions like expressive speech delays, fluency disorders, autism, multiple disabilities, children with emotional and/or conduct disturbances not associated with the foregoing primary diagnosis. The sample was drawn from 'Therapy Clinics' at All India Institute of Speech and Hearing, under Ministry of Health and Family Welfare, Government of India, Mysore. Following an informed consent, and after ensuing the practices as enshrined by the 'Ethics Committee' in the institute (Venkatesan, 2010), each participant of this study underwent individual assessment through case history and diagnostic assessment which combined opinions from specialists including ENT, neurology, clinical psychology, physiotherapy, occupational therapy, audiology and speech language pathology.

The primary respondent was any one well sibling of the participating subjects with developmental disabilities. The operational

definition for 'disability' as used in this study follows the official classification under 'Persons with Disabilities (Equal Opportunities, Protection of Rights & Full Participation Act' (1995) and/or 'The National Trust for Welfare of Persons with Autism, Cerebral Palsy, Mental Retardation and Multiple Disabilities Act' (1999). Well siblings of individuals with disability, as defined in this study, included only off springs sharing the same biological origins and resident members of their natural home settings and those who have continually lived together under the same roof as one family along with their parents or extended family members as the case could be. The mean chronological age of well siblings was 11.6 years (SD: 4.1) and those of children with identified disability was 9.6 years (SD: 4.6). This implies that the well sibs were on an average elder to their disability affected brothers and sisters. The sample of well siblings included 17 males (Mean Age: 11.5; SD: 4.2) and 25 females (Mean Age: 11.6; SD: 4.0); and the affected sample had 23 males (Mean Age: 10.8; SD: 4.3) and 19 females (Mean Age: 8.1; SD: 4.5). In case of multiple unaffected sib-ship (wherein disability affected child has two or more well siblings), the individual pairings were taken as one unit sample in this study. Siblings separated at a young age, those staying with relatives or in hostels as well as those merely on weekend home visits were excluded.

Tools

A socio-demographic sheet exclusively prepared for purpose of this study was used to gather information on age, gender, residence, education, and other parent, sibling or family details, along with another section on the affected child with disability including their age, gender, schooling, diagnosis, associated problems (if any), etc. The 90-item 'Play Activity Checklist for Children with Mental Retardation' (PACK-MR)(Khoshali and Venkatesan, 2010)

comprising of two parts was used to measure the key variables: (a) 'play behavior' (30 items); and, (b) 'play activity' (60 items) as reported by any one of the well siblings. *Play behaviors* refer to observable or measurable play actions as seen or reported by significant others in a studied sample of children. *Play activities*-a broader term, encompasses not only the existing play behaviors; but also, the possible gaming or play that could be possibly fostered for betterment of the children with special needs (Hiedemann and Hewitt. 1992; Garvey, 1974). Examples of play behaviors are: passively observing other children at play with or without following rules, showing adequate eye contact with peers, imitating others at play, following instructions given during play, maintaining secrets during a game, etc. Illustration of play activities are: folding, cutting, and pasting, stacking, balancing, touching, detecting, freezing, spotting, building, running, skipping, questioning, narrating, quizzing, etc. Thus, the checklist enables a comprehensive record of various types of play behaviors as well as play activities, games and play preferences, use of toys/materials arranged in a standardized developmental sequence and as used by a given child aged between 3-12 years. Observation, open ended questions and non-directive interview techniques was used to collect information on commonly indulged game/play activities of children as reported by their well-siblings. Wherever possible, several examples of reported games or play were collected to substantiate the declarative statements of respondents.

Each item of PACK-MR is also expanded, explained elaborated with a glossary. The glossary carries suitable expansions, explanations, and examples for each item described therein. It also gives the list of play materials, toys or other equipments to be used for each play activity in the checklist (Venkatesan, 2010). The face validity of the checklist was initially established by asking three psychologists, not below the rank of a

doctorate, to rate their opinion on each item in the checklist as well on the overall structure, format, administration, scoring and content of the checklist. Scoring for PACK-MR involves an enquiry on whether the given child indulged or did not indulge in the particular play. Wherein a child was reported to 'indulge independently or fully' in the given item or play, s/he was given a score of one and wherein the child was reported 'not to indulge' in the play at all, s/he was given a score of zero. Thus, the minimum possible score on PACK-MR is zero (in case child fails in all the items) and the maximum possible score is 90. A two week test retest reliability exercise between pretest score (N: 70; Mean: 65.4; SD: 25.9) as against the re-test score (N: 70; Mean: 65.5; SD: 25.8) has been demonstrated to be statistically significant ($p > 0.05$). There is also a very high correlation coefficient between the repeat measures is 0.9985. The concurrent validity of PACK-MR against 'Activity Checklist for Preschool Children with Developmental Disabilities' (ACPC-DD)(Venkatesan, 2004a) by way of the measure of the contingency coefficient for validity against the overall checklist and its sub scale or domain analysis revealed consistently high values, especially, for fine motor ($r: 0.72$), play ($r: 0.79$) and cognitive ($r: 0.80$) domains respectively ($p < 0.001$). In sum, the PACK-MR has been demonstrated through reliability and validity of the tool as useful device for planning and programming play based interventional therapies for children with mental retardation.

Procedure

Data collection involved identification of unaffected well sibling/s from clinical cases of persons diagnosed with one or the other developmental disabilities, explaining the objectives of the study, obtaining their informed consent, and providing the assured anonymity or confidentiality wherever insisted before administration of the tools on an individual basis in a testing situation of

complete privacy. Respondents were clarified on each item of the used checklists despite the availability of a glossary of expansions already available with the play related checklists. After collection of the socio-demographic details, the test instructions for the core tools on 'play behavior' and 'play activity' checklists involved clarifying the difference between the two terms as well as eliciting their observations on what or how they rated their affected sib on them based on their past experiences during play/game situations. Wherein affected sample of persons with developmental disabilities had multiple siblings, only reports from them who volunteered to participate in the study was taken.

Results and Discussion

The results of the study about play behaviors and activities are summarized with discussion under two sections in relation to characteristics of the affected child (Table 1) and their well sibling (Table 2).

(a) Affected Child: On the whole, the results reveal that children with developmental disabilities (N: 42) manifest varieties of play behaviors and activities. Some play behaviors like 'maintains eye to eye contact with peers' (N: 37/ 42; 88.1%), 'shares own belongings/play materials with peers' (N: 35/42; 83.3%), 'waits for turn in play or game' (N: 34/42; 80.9%), 'observes safety precautions for self-others in play' (N: 33/42; 78.6%), 'recognizes others or own belongings in play' (N: 32/42; 76.2%) are overwhelming. Others are meagerly reported, such as, 'cheats occasionally in games/situations' (N: 7/42; 16.6%), 'protests foul/breach of rules by mates in games' (N: 14/ 42; 33.3%), 'maintains secrets in play/game situations' (N: 17/42; 40.4%), 'offers suggestions for new games/play to peers' or 'guides young play peers' (N: 18/42; 42.9%).

Overall, these children manifest nearly 1002 play activities (N: 42; Mean; 16.7; SD: 8.5). The most frequently indulged play

activity were 'ball games' (N: 40/42; 95.2%), followed by 'search games' (N: 35/42; 83.3%), 'outdoor/garden equipment games' (N: 33/42; 78.6%), or activities involving 'jumping', 'matching/sorting', and 'toy play' (N: 31/42; 73.8%). Among less preferred play activities were complex games like making 'anagrams' (N: 4/42; 9.5%), solving 'crossword puzzles' or indulging in 'rule based competitive games' (N: 5/42; 11.9%). The least favored games included 'party games', 'complex board games', 'thinking or mental games', 'dexterity games', 'performance of magic tricks', or 'show of strength', 'detective games', 'leadership', 'complex finger games', and 'simple card games', etc.

There is observed age graded developmental hierarchy of greater frequency for certain play behaviors (F: 9.43; $p < 0.001$) and play activities (F: 3.518; $p < 0.05$) in younger than older children with developmental disabilities. Few younger children (below 7 years) (N: 11; Mean: 6.4; SD: 2.5) are reported with play behaviors involving 'detection of breach of rules' or 'following rules for any one indoor game' (N: 3/11; 27.3%), 'following basics for outdoor games' (N: 2/11; 18.1%), 'protesting foul/breach of rules', 'cheating occasionally in game situations' (N: 1/11; 9.1%). Greater number of play behaviors is reported for children between 7-11 years (N: 19; Mean: 11.0; SD: 3.8) followed by children above 12 years (N: 12; Mean: 7.4; SD: 2.3). A similar trend of more play activities in children with disabilities between 7-11 years (N: 19; Mean: 7.4; SD: 4.1) than those above 12 years (N: 12; Mean: 5.2; SD: 2.3) and least in children at or below 6 years (N: 11; Mean: 4.3; SD: 2.7). The play activities reported in older children are 'search games', 'ball games', 'matching and sorting', 'drawing', while complex games, such as, involving solving 'anagrams', 'concept play', 'party games', 'origami' are meager if not almost non-existent. The very young children below 6 years indulge in 'ball play', 'crawling, creeping

and tunneling', 'toy play', 'search games', 'sand play', (N: 9-11/11; 81.8-100%).

In relation to education variable, children attending special schools (N: 23; Mean: 14.9; SD: 4.7) as well as regular schools (N: 16; Mean: 9.2; SD: 2.6) appear to have advantage and range of play behaviors compared to children with no school exposure (N: 3; Mean: 1.1; SD: 0.7) (F: 22.79; $p < 0.001$). For example, 'imaginary forms of play' is reported almost twice in children attending special schools (N: 18/23; 78.3%) than those in regular schools (N: 5/16; 31.2%). There is greater report of 'play by imitation' (N: 17/23; 73.9%) or 'guiding younger play peers' (N: 13/23; 56.5%) in children attending special schools as against lower 'imitation play' (N: 9/16; 56.3%) or lesser report of 'peer guidance' (N: 4/16; 25.0%) in children with disabilities from regular schools. Probably, the special school experience qualitatively favors the child with special needs compared to their exclusion by play peers likely in the regular school settings. School exposure, either regular or special, significantly influence choice of play activities in children with developmental disabilities (F: 7.66; $p < 0.05$). Children attending special schools appear to benefit most in terms of range or number of play activities reported about them (N: 23; Mean: 10.0; SD: 5.6) as compared to children in regular schools (N: 16; Mean: 6.2; SD: 2.9). The children with disabilities having no school exposure emerge as the most disadvantaged as reflected by their almost absent range of several play activities.

The diagnostic category also emerges as significant variable to influence the nature or number of play behaviors (F: 11.95; $p < 0.001$) and play activities (F: 6.475; $p < 0.05$) in this sample of children with developmental disabilities. There are more play behaviors reported in children belonging to 'others' category (N: 20; Mean: 11.2; SD: 2.7) followed by children identified as 'mentally retarded' (N: 14; Mean: 7.8; SD: 3.3) and least in children with 'hearing impairments' (N: 8;

Mean: 6.2; SD: 2.0). Compared to children grouped as 'others', the children with 'hearing impairments' emerge as having 'pliable or complaint' play behaviors (N: 1/8; 12.5%), being unable to 'offer suggestions for new games/ play to peers' (N: 2/8; 25.0%), while being high on 'maintaining eye-to-eye contact during play', 'recognizing own/others belongings in play', 'following rules or taking turns in game situations', 'waiting for turn in play', 'observing safety precautions for self/others in play', 'indulging in role play', 'recognizing body gestures in game situations' (N: 8/8; 100.0%), etc. The children identified as 'mentally retarded' are reported with an unique constellation of deficits in play behaviors including inability to 'detect breach of rules in game to protest' (N: 2/14; 14.3%), 'cheat occasionally in game situations' (N: 2/8; 14.3%), 'maintain secrets during play or game situations' (N: 3/14; 21.42%), 'undertake brief postponement of wishes in game situation' (N: 4/14; 28.57%), etc. These findings on the relative paucity of play behaviors in children with mental retardation (Downs' Syndrome) are confirmed by ethnographic interviews with family members and participant observation (Beth, Monimalika & Faustina, 1998).

As with play behaviors, the results on impoverished play activities in children with 'mental retardation' (N:14; Mean:4.0; SD:3.0) and 'hearing impairment' (N: 8; Mean: 4.7; SD: 2.4) are confirmed by their lack of choice for 'finger games', 'shadow play', 'dice games', 'competitive outdoor games', 'endurance games', and/or 'creative play' as seen in children with disabilities in 'others' category (N: 20; Mean: 8.0; SD: 4.0)(F:6.475; p: <0.05). In related studies, based on direct observations of mutual interactions, it was inferred that most play activities of children with autism (Nabil, El-Ghoroury, & Romanczyk, 1999) and mental retardation in contrast to children with learning disabilities was sibling directed initiation and imitation (Knott, Lewis & Williams, 1995). Specific

patterns of play preferences with well siblings have been also reported in literature for diagnostic categories of affected children with speech impairment (Jacqueline, McLeod & Daniel, 2008), and cerebral palsy (Dallas, Stevenson, & Mc Gurk, 1993).

Gender of affected child is the only variable that does not surface as significantly influencing the nature or number of play behaviors in this sample of children with developmental disabilities (t: 1.67; df: 40; p: > 0.05) although it has a role in determining their play activities (t: 2.403; df: 38; p: <0.05). The preferred games for females are 'ball games', 'search games', 'sand play', 'matching and sorting games', or 'jumping', 'folding, cutting and pasting', 'drawing', and 'outdoor/garden equipment games (N: 13-15/15; 86.67-100%) as against 'outdoor games', 'search games', and/or 'ball activities' (N: 20-21/27;74.07-77.77%) for male children with developmental disabilities

(b) Well Sibling: The analysis on results in relation to well sibling characteristics shows clear differences between preferences for play activities of male (N:17; Mean:6.7; SD: 3.7) and female (N:25; Mean:10.4; SD: 5.1) well siblings (t: 2.6181; df: 41; p: < 0.01)(Table 2). Female well siblings as against male counterparts prefer play activities involving 'sound recognition and mimicry', 'folding, cutting and pasting', 'music', 'balance', 'clay play', and/or 'dice' for their affected siblings. On the other hand, male well siblings prefer 'pet play', 'outdoor/garden equipment play', 'jumping' activities with their affected siblings. Similar gender differences are also noticed for play behaviors in terms of sibling characteristics (t: 3.08; df: 41; p: < 0.05). The affected child with disability demonstrates more play behaviors in the company of female well siblings (N: 25; Mean: 13.5; SD: 4.3) than with males (N: 17; Mean: 10.8; SD: 5.7). The specific forms of play behaviors occurring almost twice as frequently in the presence of female well siblings include 'imaginary play' (N: 16/25; 64%), 'imitative

Table 1. Distribution of Scores on PACK-MR, Part A & B in relation to Affected Child Characteristics

Particulars	Variable	N	Mean	SD	Probability
Play Behaviors	Overall	42	25.1	6.9	T: 5.00; df: 82; p: <0.001
Play Activities	Overall	42	16.7	8.5	
Play Behaviors	Gender				
	Male	23	13.5	3.7	T: 1.668; df: 40; p: >0.05
	Female	19	11.6	3.6	
Play Activities	Gender				
	Male	23	10.1	4.5	T: 2.403; df: 38; p: <0.05
	Female	19	6.5	4.3	
Play Behaviors	Age				
	0-6 years	11	6.4	2.5	
	7-11 years	19	11	3.8	
	12+ years	12	7.4	2.3	F: 9.43; p: <0.001
Play Activities	Age				
	0-6 years	11	4.3	2.7	
	7-11 years	19	7.4	4.1	
	12+ years	12	5.2	2.3	F: 3.52; p: <0.05
Play Behaviors	Education				
	Regular School	16	9.2	2.6	
	Special School	23	14.9	4.7	
	No Schooling	3	1.1	0.7	F: 22.79; p: <0.001
Play Activities	Education				
	Regular School	16	6.2	2.9	
	Special School	23	10	5.6	
	No Schooling	3	0.3	0.7	F: 7.658; p: <0.01
Play Behaviors	Diagnosis				
	Mental Retardation	14	7.8	3.3	
	Hearing Impairment	8	6.2	2	
	Others	20	11.2	2.7	F: 11.95; p: <0.001
Play Activities	Diagnosis				
	Mental Retardation	14	4	3	
	Hearing Impairment	8	4.7	2.4	
	Others	20	8	4	F: 6.475; p: <0.01

play' (N: 18/25; 72%), and 'substitution play' (N: 13/25; 52%) respectively.

The age of well sibling also appears as significant variable in influencing the nature or number of play behaviors (F: 31.17; p: < 0.001) and play activities (F: 8.593; p: < 0.001) in children with developmental disabilities. There are more play behaviors and play activities shown by affected children in the company of younger well siblings below 12 years (N: 28; Mean: 16.1; SD: 5.1 and Mean: 10.4; SD: 6.0) than older ones between 12-18 years (N: 10; Mean: 6.5; SD: 1.7 and Mean: 5.20; SD: 2.1) and above 18 years (N: 4; Mean: 2.4; SD: 1.1 and Mean: 0.8; SD: 1.0). This inverse relationship between

increasing age of well sibling and decrement in play behavior/activities of affected children has been noted along with their feeling confused, afraid, anxious, and angry about their affected sib's condition (Lobato et al, 1987; Crnic and Leconte, 1986; Lamb and Sutton-Smith, 1982; Gath, 1972; Gallicker, Fishier and Koch, 1962).

The sibling size is a critical variable in influencing the nature or number of play behaviors (t: 9.842; df: 41; p: < 0.001) as well as play activities (t: 58357; df: 41; p: < 0.001). There are nearly four times as many play behaviors and play activities shown by affected children having a single well sibling (N: 32; Mean: 20.5; SD: 4.9 and Mean: 14.9;

SD: 6.5) than those with multiple siblings (N: 10; Mean: 5.3; SD: 2.5 and Mean: 3.1; SD: 2.5). The message is that the single well sib probably has no option than play with the affected child; whereas when there are multiple siblings, they might be by themselves at the cost of ignoring the affected child. In the context of healthy multiple sibship play situations, the affected child further shows deficits in play behaviors like inability to 'offer suggestions for new game/play', 'detecting breach of rules in games', 'maintaining secrets in game/play situations', etc. They cannot indulge in play activities like 'complex finger games', 'origami', 'crossword puzzles', etc. Probably, it is this predicament that gets them excluded from play situations by their other well siblings at home settings.

In sum, while attempting to explore the play activities and behaviors between affected children with developmental disabilities and their unaffected well siblings, the present investigation highlights that theoretical distinction between 'play

behaviors' and 'play activities' is possible, wherein the former refers to observable or measurable play actions as seen or reported by significant others; and, the latter denotes a broad term, encompassing not only existing but also, the possible play behaviors that could be possibly fostered for betterment of the children with special needs; children with developmental disabilities exhibit variety of play behaviors like 'maintaining eye to eye contact', 'sharing own belongings/play materials with peers', 'waiting for turn in play/game', 'observing safety precautions for self-others', or 'recognizing others/own belongings' although they are also poor on some other play behaviors like being unable to 'cheat occasionally in game situations', 'protesting foul/breach of rules by mates', 'maintaining secrets in play/game situations', 'offering suggestions for new games/play' or 'guiding young/beginner peers'; children with developmental disabilities also exhibit a variety of play activities like 'ball games', 'search games', 'outdoor/garden equipment

Table 2. Distribution of Scores on PACK-MR, Part A & B in relation to Well-Sibling Characteristics

Particulars	Variable	N	Mean	SD	Probability
Play Behaviors	Overall	42	25.2	6.9	T: 5.00; DF: 82; p: < 0.001
Play Activities	Overall	42	16.7	8.5	
Play Behaviors	Gender				T: 3.08; df: 41; p: < 0.01
	Male	17	10.8	5.7	
	Female	25	15.5	4.3	
Play Activities	Gender				
Play Behaviors	Male	17	6.7	3.7	T: 2.62; df: 41; p: < 0.01
	Female	25	10.4	5.1	
	Age				
	< 12 years	28	16.1	5.1	
Play Activities	12-18 years	10	6.5	1.7	F; 31.17; p: < 0.001
	18+ years	4	2.4	1.2	
	Age				
	< 12 years	28	10.4	6.4	F; 8.59; p: < 0.001
Play Behaviors	12-18 years	10	5.2	2.1	
	18+ years	4	0.8	1	
	Number				
Play Activities	Single	32	20.5	4.9	T: 9.84; df: 41; p: < 0.01
	Multiple	10	5.3	2.5	
	Number				
	Single	32	14.9	6.5	
	Multiple	10	3.1	2.5	

games', or activities involving 'jumping', 'matching/ sorting' and 'toy play'. Among less indulged play activities by these children are complex games like making 'anagrams', solving 'crossword puzzles', 'rule based competitive games', 'party games', 'complex board games', 'thinking or mental games', 'dexterity games', 'games involving performance of magic tricks', or games involving 'show of strength', etc.

There is age graded developmental hierarchy as evidenced by the greater frequency as well as different patterns of play behaviors/activities in younger than older children with developmental disabilities. A greater number of play behaviors/activities are reported for children in the age group of 7-11 years followed by children at or above 12 and the least in children below 7 years; Apparently, children with developmental disabilities attending special schools have by far the greatest number as well as range of reported play behaviors and activities than those in regular schools or those with no school exposure at all; In terms of type of disability, children belonging to 'others' category outnumber almost by double the extensity and frequency of play behaviors and activities compared to children identified as 'mentally retarded' and 'hearing impairments' with difference in the specific choice patterns for one group against their conspicuous absence in the another; while gender of the affected child does not surface as significant variable to influence the nature, extent or number of play behaviors, wherein the well sibling is female, the situation almost doubles for the occurrence of certain play patterns like 'imaginary play', 'imitative play' and 'substitution play'. The preferred games for females with disabilities are different to the preferred games for male children with disabilities;

There is observed an inverse relationship between increasing age of the well sibling and the decrement in number or variety of play behaviors and activities

exhibited by affected children with developmental disabilities; there are nearly four times as many play behaviors and activities exhibited by affected children with disabilities having a single well sibling as compared to those with multiple siblings.

Going by the foregoing, these findings have tremendous use and implications in systematically planning well sibling betterment programs that seeks to focus on individualized activity or play based home training programs for ameliorating the lot of children with developmental disabilities.

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