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A STUDY ON EARLY CHILDHOOD INTERVENTION PROGRAMMES IN IMPROVING LEARNING CAPACITIES FOR CHILDREN WITH DEVELOPMENTAL DELAYS

Paediatrics

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ABSTRACT

The purpose of the study to examine a)To identify the prevalence of developmental delays involving physical development (specifically gross and fine motor skills); communication skills; and social and personal skills; b)Educate parents about the connection between brain growth and the normal stages of development, and the importance of the first three years of life to the overall development of the brain. c) Provide a means for early detection of children slipping behind in their milestone development d) Provide individualised developmental strategies based on the results of the extensive milestone checking in attempt to facilitate development in areas where the child may be slipping behind. Children (boys and girls) who referred by doctors for early intervention assessment and skill development, referred at Shrivastava clinic, chhindwara Madhya Pradesh were included in the study (N=41 boys 20 and 21 girls). An Analysis of variance showed early childhood intervention programmes in improving learning capacities for children with developmental delays are positive significant. Conclusion and recommend -a) High and quality of early intervention program for vulnerable infants and toddlers can reduce the incidence of future problems in their learning, behavior and health status. b) There is an urgent and substantial need to identify as early as possible those infants and toddlers in need of services to ensure that intervention is provided when the developing brain is most capable of change. c) Early Intervention is likely to be more effective and less costly when it is provided earlier in life rather than later. d) Early intervention program parental involvement was significant component .Of particular importance is measures of social competence, motivation, family functioning, and problem-solving skills.

KEYWORDS

Denver Developmental Screening test (DDST –II), Madras Developmental programming system, parents counselling and guidance

INTRODUCTION

Despite being more vulnerable to developmental risks, young children with disabilities are often overlooked in mainstream programmers and services designed to ensure child development. They also do not receive the specific supports required to meet their rights and needs. Children with disabilities and their families are confronted by barriers including inadequate legislation and policies, negative attitudes, inadequate services, and lack of accessible environments. If children with developmental delays or disabilities and their families are not provided with timely and appropriate early intervention, support and protection, their difficulties can become more severe—often leading to lifetime consequences, increased poverty and profound exclusion. Typical development is sometimes a struggle. Every one likes to think that all babies will be okay, that parents will have nothing to worry about. But the reality is that not all babies will keep up, and some will continue to fall further and further behind. Science demonstrates that intellectual and cognitive potential is determined by how the brain develops during the first few years of life. The brain controls the biological effects of all the other organ systems and influences cognition, intelligence, learning, coping and adaptive skills, and behaviour. Because the brain controls these different aspects of human life, impaired brain function leads to impaired physical, mental, and emotional health and decreased functioning in society. Therefore, investments in early childhood to support healthy brain development help to reduce societal costs in remediation, health care, mental health services, and increased rates of incarceration.

Basics about Development and Delays

Kids don't develop skills on a strict timetable. For example, some babies start walking as young as 9 months, while others don't take their first steps until 15 months. Both of those babies are within the range of typical development. And minor differences in when kids perform a skill usually aren't cause for concern.

But a developmental delay is more than just being "slower to develop" or "a little behind." It means your child is continually behind in skills other kids his age have.

For example, a baby who isn't rolling over by 4 months may be just a little behind in that one skill. But if he also isn't able to hold his head up and push up when lying on his tummy, he's behind in more than one motor skill. That's a sign of a developmental delay. (If you're noticing this in your child, there are many ways to help.)

The Difference Between a Developmental Delay and a Developmental Disability Many practitioners use the terms "developmental delay" and "developmental disability" to mean the same thing. They're actually not the same thing, but it is sometimes difficult to determine whether a young child has a delay or a disability, or why.

Developmental disabilities are issues that kids don't outgrow or catch up from, though they can make progress. They aren't the same as learning disorder, but they can make learning more difficult. Some conditions that can cause developmental disabilities include Down syndrome, Angelman syndrome, autism, and brain injuries.

Developmental delays may be caused by short-lived issues, such as a speech delay being caused by hearing loss from ear infections or a physical delay being caused by a long hospitalization. Delays may also be early signs of learning and attention issues. While it's not always clear what is causing the delay, early intervention can often help kids catch up. Some kids still have delays in skills when they reach school age. In that case, they may be eligible to receive special education services.]

Why Intervene early?

1. Neural circuits – which create the foundation for learning, behavior and health, are most flexible or plastic during the first three years of life. Over time, the become increasingly difficult to change.
2. Stable relationship with caring and responsive adults, safe and supportive environments, and appropriate nutrition are key elements of healthy brain development.
3. Early social/ emotional development and development and physical health provide the foundation upon which cognitive and language skills develop.

In addition to frequently cited risk factors for developmental dysfunction (e.g., premature birth, low birth weight, sequelae of childhood infections, and lead poisoning), exposure to an economically impoverished environment is recognized as a social risk factor. Brooks-Gunn J, Duncan GJ, Britto PR 1999, Wadsworth M 1999. The socioeconomic gradient in early life is mirrored in cognitive and behavioral development. Auerbach JA, Krimgold BK,2001.

What are the benefits?

High quality early intervention services can change a child's developmental trajectory and improve outcomes for children, family, and communities. Services to young children who have or are at risk for developmental delays have been shown to positively impact outcomes across developmental domains, including health- American speech language hearing association (2008)., language and communication - Branson,D ,& Demchak, M. (2009), cognitive development and social-emotional development- Joint committee on Infants hearing. (2007), Hebbeler ,K,Spikar, D,Balley,D., Scarborough,A, Malik, S., Simeonsson,R., & Singer M. (2007) .

Family benefit by being able to better meet their children's special needs from an early age and throughout their lives - Balley, D.B., Hebbeler, K., Splker, D., Scarborough, A, Mallik, S., & Nelson,L (2005). Benefits to social include reducing economic burden through academic success- Center on the developing child at Harvard University (2010).and a decreased need for special education- Hebbeler, K. (2009).

Five Areas of Skill Development and Possible Delay

Kids develop skills in five main areas of development:

1. Cognitive (or thinking) skills: This is the ability to think, learn and solve problems. In babies, this looks like curiosity. It's how your child explores the world around him with his eyes, ears and hands. In toddlers, it also includes things like learning to count, naming colors and learning new words.

2. Social and emotional skills: This is the ability to relate to other people. That includes being able to express and control emotions. In babies, it means smiling at others and making sounds to communicate. In toddlers and preschoolers, it means being able to ask for help, show and express feelings and get along with others.

3. Speech and language skills: This is the ability to use and understand language. For babies, this includes cooing and babbling. In older children, it includes understanding what's said and using words correctly and in ways that others can understand.

4. Fine and gross motor skills: This is the ability to use small muscles (fine motor), particularly in the hands, and large muscles (gross motor) in the body. Babies use fine motor skills to grasp objects. Toddlers and preschoolers use them to do things like hold utensils, work with objects and draw. Babies use gross motor skills to sit up, roll over and begin to walk. Older children use them to do things like jump, run and climb stairs.

5. Activities of daily living: This is the ability to handle everyday tasks. For children, that includes eating, dressing and bathing themselves.

Aim and objectives

Development Education and Intervention Programs

- To identify the prevalence of developmental delays involving physical development (specifically gross and fine motor skills); communication skills; and social and personal skills;
- Educate parents about the connection between brain growth and the normal stages of development, and the importance of the first three years of life to the overall development of the brain.
- Provide a means for early detection of children slipping behind in their milestone development
- Provide individualised developmental strategies based on the results of the extensive milestone checking in attempt to facilitate development in areas where the child may be slipping behind

MATERIAL & METHODS:

1. Place of Study: This study was conducted at **Shrivastava clinic, chhindwara Madhya Pradesh**
2. Period of Study: January 2016 to June 2017 (18months)
3. Inclusion Category

Children (boys and girls) (Age group 3 to 6 years)

- Children (boys and girls) who referred by doctors for early intervention assessment and skill development.

4. Exclusion

- Children (boys and girls), from different place from **chhindwara (Madhya Pradesh)**.

Sample size: Children (boys and girls) who referred by doctors for early intervention assessment and skill development, referred at **Shrivastava Clinic, chhindwara Madhya Pradesh** were included in the study (N=41)

5. Study Design: Cross sectional study (Questionnaire based)

Tools

Denver Developmental Screening test (DDST –II), Madras Developmental programming system- Madras Developmental programming system ; Prof-P Jeyachandran, Prof- V-Vimala) The 18 items on this measure are rated as yes and no response .

PROCEDURE OF DATA COLLECTION

For collection of data from **Shrivastava clinic, chhindwara Madhya Pradesh** was chosen. By keeping age and gender requirements in mind the subjects were selected more than the required then the test of DDST-II and Madras Developmental programming system who referred by doctors for early intervention assessment and skill development ,n= **41** subjects have been selected randomly from different places in chhindwara (Madhya Pradesh).

First of all, checklist of trails was administered on the subjects to get their original viewpoint. The subjects were randomly selected sample in **Shrivastava clinic ,chhindwara Madhya Pradesh**, children (boys 20 and 21 girls) and done DDST-II and Madras Developmental programming system , each subjects took about 40 min to respond on the entire above tools. A period of eighteen months was devoted for the data collection.

STATISTICALANALYSIS

The obtained data was statistically analyzed by applying descriptive (Mean, Standard Deviation and paired t- test, of significance of mean differences in term of various variables. We have entered all data and further Statistical Analysis was done with the help of IBM- SPSS-25 software.

RESULT

Infants in this age interval were those within the age range of 3 years to 6 years . Their development was assessed by DDST-II and the findings showed that delay in gross motor scale boys mean 7.71 and girls mean 5.24 and t-value 7.932 are significant at 0.05 level. Language development boys mean 9.59 and girls mean 7.20 and t value 7.102 are significant at 0.05 level, Fine motor adaptive boys mean 6.29 and girls mean 5.80 and t value 1.021 are no significant at 0.05 level, and personal –social boys mean 8.27 and girls mean 6.59, and t value 5.244 are significant at 0.05 level. Delay in two or more areas of development often referred to as global developmental delay was observed in 30 of the infants. Delays in communication skills and personal social skills were less prevalent in this age interval as it is presented in the table. See table no. 1.

TABLE NO.1- DELAYED DEVELOPMENT IN THE OVERALL

Areas of Development		Mean Score	SD	95% Confidence Interval of the Difference		t	Sig (2-tailed)
				Lower	Upper		
Gross Motor	Boys	7.71	2.040	1.836	3.091	7.932	.000
	Girls	5.24	1.319				
Language Development	Boys	9.59	2.324	1.710	3.070	7.102	.000
	Girls	7.20	2.015				
Fine Motor Adaptive	Boys	6.29	2.228	-.478	1.453	1.021	.313
	Girls	5.80	1.820				
Personal - Social	Boys	8.27	.975	1.034	2.331	5.244	.000
	Girls	6.59	1.549				

In the above tables the prevalence of developmental delays in four developmental domains was presented for different age intervals that were involved in this research. In order to get the overall impression about in which domains of development more delays were exhibited the researcher made an attempt to pool the number of children with delayed development from respect to the developmental domains. The results are presented by bar graph here under.

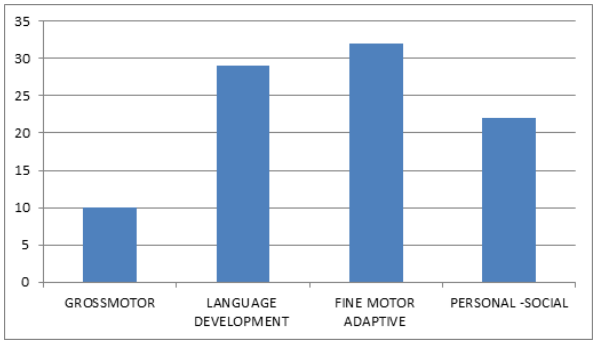

Figure No.1- Delayed Development In The Overall

Fig no.1. Developmental delays in five domains among infants and young children (N=41).10 children manifested delayed development in gross motor skills domain and 29 children showed delayed development in Language development . To make the data more vivid the proportion for developmental delays for the developmental domains is presented in the figure no.1. In the chart the biggest share was taken by Language development (71%), fine motor domain (78%), followed by personal social domain (54%), and gross motor (24%).

TABLE NO. 2- MOTHER, CHILD, AND HOME RELATED RISK FACTORS OF INFANTS.

Characteristics	Categories	Frequency	Percentage
Child's Birth weight	Less than 2 KG.	16	39%
	More than 2 KG and above	25	61%
Mother Education	SSC (Secondary School)	10	24%
	HSC(Higher Secondary School)	13	32%
	College diploma, degree	18	44%
Mother Age	20-25 Years	12	29%
	26-30 Years	22	54%
	31-35 Years	7	17%
Sex of Infants	Male	20	49%
	Female	21	51%
Illness of Children	Experience Illness	8	20%
	Did not experience Illness	33	80%
Availability of playing materials	Adequately available	18	44%
	Partly available	23	56%
History of Congenital	Parents not experienced the problem	35	85%
	Parents who experience it	6	15%
Family Size	3 or 4 members in family	26	63%
	4-5 members in family	15	37%

In the above table it is also shown that the majority (39% of children of this interval weighed 2 Kg or less at the time of birth and 61% of children of this interval weighed 2.5 kg more at the time of birth . From the above table, it is possible to see that a large number of mothers children were at SSC (Secondary School) level 24%, HSC (Higher Secondary School) level 32%, and college diploma or degree was 44% .Concerning maternal age the above table clearly shows that the largest number of mothers of infants in this interval was in the age range between 22 to 25 years (29%) , 26 to 30 years (54%) and older 31-35 years (17%). Concerning the availability of playing materials the above table shows that for the large number of infants playing materials were not as such available whereas for some infants the Playing materials were either partly (56%) available or adequately available (44%).

Present study indicates early intervention programmes and training were more positive when the child was receiving and improving learning capacities. However, there was significant improvement found in the performance of children Like- in gross motor activities, fine motor, meals time activity, dressing, grooming , toileting , receptive language, expressive language, social interaction, domestic activities, community orientation , recreation, leisure time activities ,and vocational.

TABLE NO. 3. EARLY INTERVENTION PROGRAMMES AND TRAINING PRE AND POST TEST

s.no	Areas	Pre test	Post test	p- value
1	Gross Motor	22%	10%	0.00
2	Fine Motor	38%	15%	0.00
3	Meals time activities	15%	8%	0.00
4	Dressing	12%	10%	0.00
5	Grooming	14%	8%	0.00
6	Toileting	37%	20%	0.00
7	Receptive Language	19%	10%	0.00
8	Expressive Language	25%	15%	0.00
9	Social Interaction	16%	9%	0.00
10	Reading	15%	9%	0.00
11	Writing	10%	2%	0.00
12	Numbers	19%	8%	0.00
13	Time	9%	2%	0.00
14	Money	18%	7%	0.00
15	Domestic Activities	10%	6%	0.00
16	Community Orientation	19%	14%	0.00
17	Recreation ,Leisure time activities	26%	10%	0.00
18	vocational	13%	10%	0.00

The development of healthy brain and healthy developmental program for developmental delayed children depends on responsive, positive relationships with parents, caregivers, psychologist, and trainers. Shonkoff 2010 –say nine key characteristics of effective relationships that optimize brain development have been identified in the literature: atonement/engagement, responsiveness, clear communication, managing communication breakdowns, emotional openness, understanding one's own feelings, empowerment and strength building, moderate stress and challenges to minimize toxic stress and building coherent narratives (Moore 2007). Bronfenbrenner (1975) has suggested, all elements of a child's environment need to work in concert if maximum benefit from intervention is to occur. An exceptionally fine preschool program can probably offset the effects of a nonstimulating after-school environment only partially. There is a need to coordinate home and school expectations, which demands designing an intervention program that includes as many facets of the child's life as possible.

CONCLUSION

Early intervention programs for children with general developmental delays are prominent features of contemporary service systems for children. Perhaps the most important implication these findings may have for health professionals, educators, parents, child development specialists, psychologist and other practitioners, is the perspective they provide on early intervention issues.

Parental involvement was a significant component in almost all 18 arears of development programs, and many were primarily home based. For infant and toddler programs, in particular, parents were either trained to be the primary service provider (e.g., Hanson & Schwarz, 1978; Rynders & Horrobin, 1980), or to provide additional programs at home, often reinforcing, supplementing, and generalizing lesson activities (e.g., Clunies-Ross, 1979; Kysela et al. , 1981; Piper & Pless, 1980). Overall, the instructional burden for younger children was placed clearly on parents, with considerably less emphasis on counseling and support (but see center-based comprehensive programs, e.g., Hayden & Haring, 1977; Ludlow & Allen, L 979).

It appears to be especially important to consider dimensions such as social support networks (Friedrich & Friedrich, 198 1; O'Connor, 1983). Present study; recommend -a)High and quality of early intervention program for vulnerable infants and toddlers can reduce the incidence of future problems in their learning, behavior and health status. b)There is an urgent and substantial need to identify as early as

possible those infants and toddlers in need of services to ensure that intervention is provided when the developing brain is most capable of change. c) Early Intervention is likely to be more effective and less costly when it is provided earlier in life rather than later. d) Early intervention program parental involvement was significant component .Of particular importance is measures of social competence, motivation, family functioning, and problem-solving skills.

DELIMITATION OF THE RESEARCH

- Limited sample size
- Areas based research

Future research is required to further delineate and characterize the prevalence, frequency, and early childhood interventional and programmers with including parents.

Future prospect study should be developed in cooperating large sample size and mass study with appropriate methodology to capture the frequency and prevalence of early childhood interventional and programmers for developmental delayed children.

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Conflict of Interest

The authors declare that they have no conflict of interest.

REFERENCES

1. Auerbach JA, Krimgold BK, eds. (2001).Income, socioeconomic status and health. Washington, DC: National Policy Association.
2. American speech language hearing association.(2008). Role and responsibilities of speech language pathologists in early intervention: Technical report. Retrieved from http://www.asha.org/docs/html/TR2008-00290.html
3. Branson,D ,& Demchak, M. (2009). The use of augmentative and alterntive communication methods with infants and toddlers with disabilities: a research review. Augmentative & Alternative communication,25,274-286
4. Brooks-Gunn J, Duncan GJ, Britto PR.(1999). Are socioeconomic gradients for children similar to those for adults? Achievement and health of children in the United States. In: Keating DP, Hertzman C, eds. Developmental health and the wealth of nations: social, biological, and educational dynamics.New York: Guilford Press,;94–124.
5. Balley, D.B., Hebbeler, K., Splker, D., Scarborough, A, Mallik, S., & Nelson,L (2005). Thirty-Six months outcomes for families of children who have disabilities and participated in early intervention. Peadiatrics, 116,1346,1352.
6. Belsky J, de Haan M.(2011). Annual Research Review: Parenting and children's brain development: the end of the beginning. J Child Psychol Psychiatry. 2011 Apr;52(4):409-28.
7. Center on the developing child at Harvard University (2010). The foundations of lifelong health are built in early childhood. Retrieved from http:// developingchild. harvard.edu/library/report_and_working_papers/foundations-of-lifelong-health/
8. Eluvathingal TJ, Chugani HT, Behen ME, Juhasz C, Muzik O, Maqbool M, Chugani DC, Makki M. (2006). Abnormal brain connectivity in children after early severe socioemotional deprivation: a diffusion tensor imaging study. Pediatrics. 2006 Jun;117(6):2093-100.
9. Hebbeler ,K,Spikar, D,Balley,D., Scarborough,A, Malik, S., Simeonsson,R., & Singer M. (2007). Early intervention for infants & toddlers with disabilities and their familes: participants, services, and outcomes. Final report of the national early intervention longitudinal study (NEILS). Retrieved from http:// www.sri.com/ neils/pdfs/NEILS report_02 07 Final2.pdf
10. Hebbeler, K. (2009). First five years fund briefing presentation given at a congressional briefing on June, 2009, to discuss education that works;impact of early childhood intervention on reducing the need for special education services.
11. Joint committee on Infants hearing. (2007). Year 2007 position statement: principles and guidelines for early hearing detection and intervention programs. Pediatrics, 120 (4),898-921.
12. Landa, R.J., Holman, K.C., O'Neill, A.H., & Sturat , E.A. (2010). Intervention targeting development of socially synchronous engagement in toddlers with autism spectrum disorder:A Randomized controlled trail. Journal of child psychology and psychiatry, 52(1):13-21. Dol: 10.1111/j.1469-7610.2010.02288.
13. Moore TG. (2007).The nature and role of relationships in early childhood intervention services. 2nd International Conference of the International Society on Early Intervention; 2007; Zagreb, Croatia.
14. Mehta MA, Golembo NI, Nosarti C, Colvert E, Mota A, Williams SC, Rutter M, Sonuga Barke EJ.(2009). Amygdala, hippocampal and corpus callosum size following severe early institutional deprivation: the English and Romanian Adoptees study pilot. J Child Psychol Psychiatry. 2009 Aug;50(8):943-51.
15. Perry BD. (2002).Childhood experience and the expression of genetic potential: what childhood neglect tells us about nature and nurture. Brain and Mind. 2002 April;3(1):79-100.
16. Shonkoff JP, Levitt P.(2010). Neuroscience and the future of early childhood policy: moving from why to what and how. Neuron. 2010 Sep 9;67(5):689-91.
17. Wadsworth M. Early life. In: Marmot M, Wilkinson RG, eds.(1999). Social determinants of health. Oxford: Oxford University Press,;44–63.