

A COMPARATIVE STUDY ON THE IMPACT OF MEDIA VIEWING ON EARLY CHILDHOOD OF TYPICALLY DEVELOPING CHILDREN AND CHILDREN WITH AUTISM

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Abstract

With few literature reviews available in India over the effects of media exposure on children, a study was required to appraise the effects of media and timing of its exposure. A standard & validated questionnaire (adapted from the study of Rideout V.J. et al, 2003) was used in the survey to collect information from the parents (fluent in English) of 30 typically developing children and 25 autistic children between 3-6 years of age. In the first phase of data collection adaptation of the questionnaire to our cultural context and life-style was done. Second phase included collection of primary data through non probability sampling. A detailed history of the child with language assessment (REELS, Bzoch & League, 1971) was taken. Additional CARS (Schopler et al, 1966) was administered on children with autism. On SPSS (V-12.0), a significant difference ($p \leq 0.05$) was found between the autistics and typically developing children in terms of receptive ($t=9.033$) and expressive ($t=10.230$) language age. Results revealed on an average child with autism were exposed to electronic media for 15.7 hours and typically developing children for 17.4 hours per week. Longer duration with unhealthy quality of viewing was seen in children (30.9%) belonging to low socioeconomic status and less educated parents. 64% parents of autistic and 56% parents of typically developing children stated that exposure to educational television shows mostly helps the children in intellectual development. According to parents either a positive or a negative behavioral modification was observed in children of both groups after being exposed to the electronic media. In conclusion, this paper highlights the need to assess the unfathomable intrusion of technology and its prospective effect in the life of children these days. The effects are detrimental and exposure to electronic media should be taken into consideration when assessing children with delayed or deviant language or any other behavioral problems. Better understanding of the amount and type of exposure will have scientific implications in terms of how the early environment of a child should be structured.

Key words: *Language delay, Media exposure, Learning, Behavior, Autism*

Introduction

While discovering the pleasures of life we have entered an age where we seem to have find solace in technology to do all our chores. For children the youngest recipients, technology seems to be the most amusing thing on planet! Incidentally technology has turned out to be both a boon and a bane. Media viewing especially television viewing began in late 1990's which has now become an increasingly common occurrence and in the current scenario television has turned out to play a central role in most of the families (Mittal, 2011; Christakis, 2009). With the explosion in the media channels and the ideology which says that there should be something for everyone to watch all the time, the young brigade seems to be the most fascinated one. Consequence of which is that on an average an Indian kid is spending nearly 18-20 hours per week, viewing television (Mittal, 2009). But how this great deal of viewing affects its youngest audience which includes both, the typically developing children and the children

with autism, is the question which compels us to find an answer. There are illustrious studies and certain perceptual notions of people which profoundly celebrate the downbeat effects of media viewing like obesity & inadequate dietary intake (Robinson, 1999) in typically developing children. It is observed these days that television has changed a typically developing child- an irresistible force to an immovable object. But sad enough media viewing in children with autism is not a celebrated domain. Besides the constitutional effects, the others areas which are said to have been affected by media viewing are language, cognition, attention, vocabulary and reading & writing skills. Literature avers that viewing violent images can cause restlessness in children (Hemamalini, Aram & Rajan, 2010); television viewing for more than 2hrs/day by children aged 12 months or less leads to language delay (Chonchaiya & Pruksananonda, 2008; Tanimura, Okuma & Kyoshima, 2007; Zimmerman, Christakis & Meltzoff, 2007). Early media exposure is also found to have influenced

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long term cognitive processes (Zimmerman & Christakis, 2005, Christakis, 2009). The timing of media exposure is also found to be a critical mediator in behavioral problems (Christakis, 2004; Christakis 2009;) and early academic skills (Wright, Huston, Murphy, Peters & Kotler, 2001). Children with autism literature advocates their predilection for electronic screen media and resulting verbal and physical imitation (Shane & Albert, 2008). When compared to typically developing children, children with autism showed tendency of earlier onset and higher frequency of media viewing (Chonchaiya, Nuntnarumit & Pruksananonda, 2011) but the resulting impact of media viewing, whether it is positive or negative in that group is not much documented.

Need for the study

With an alarming increase in the number of cases with delayed language and behavioral problems and few literature reviews available in India over the effects of media exposure on children, a study in India was the need of an hour to appraise the effects of media and timing of its exposure, which has become an integral part of today's children's life. This paper is bringing forth the results of a survey which is a part of an ongoing project, which will give us a clear picture of the effect of nature and the type of media exposure among typically developing and children with autism in India.

Aim of the study

To compare the differences and similarities between the two groups of children with autism and those that are typically developing in terms of:

1. The type of electronic media options they are exposed to
2. The duration of electronic media exposure per week
3. The preference of electronic media option by them
4. Parental preference for choice of electronic media options
5. The preferred television shows by children
6. Any variation in quantity and quality of media exposure in terms of educational status of parents
7. Any variation in quantity and quality of media exposure in terms of socioeconomic status of the family
8. Parental perspective about the impact of electronic media on children
9. Any change in behavior due to an impact of electronic media (as reported by parents).

A standard & validated questionnaire (adapted from the study of Rideout, Vandewater & Wartella, 2003) was used in the survey to collect information from the parents of 30 typically developing children and 25 children with autism between 3-6 years (mean age of typically developing children- 4.6yrs & children with autism- 4.5yrs, Standard Deviation (SD) - 1.16 & 1.15 respectively) from an Non Governmental Organization (NGO) and a preschool in New Delhi. Data was collected in two phases. First phase included adaptation of the questionnaire to our cultural context and life-style. Item analysis was done by a group of 10 speech and language pathologists with a minimum of 5 years of experience. Subsequently, the questionnaire was fabricated by deleting and modifying the questions as per scores.

Second phase included collection of primary data through non probability sampling. Parents were made to fill questionnaire in informal structured environment. A detailed history of all the children along with language assessment with REELS (Receptive and Expressive Speech Emergent Language Scale, Bzoch & League, 1971) was done. Childhood Autism Rating Scale (CARS), Schopler, (1966) was administered on children with autism. As the parents included in the study were fluent in English, responses were collected in the English version of the questionnaire. Inter- rater and intra- rater reliability of the items was also checked.

Results and discussion

Descriptive statistics and t-test values were obtained at 0.05 significance level (SPSS version 12.0).

The mean age for children with autism included in the study was 4.6yrs and that for typically developing children was 4.5yrs. The mean scores were lower in children with autism compared with typically developing children in terms of receptive language age at 48.6 and 80.1 respectively and expressive language age at 45.1 and 80.2 respectively. Children with autism were exposed to electronic media at a mean of 15.7hours per week whereas typically developing children were exposed for 17.4 hours per week. However differences on impact of media on children of both groups did not vary much based upon the socio-economic status between the two groups.

The mean receptive language age as shown in children with autism and typically developing children was 48.6 and 80.1 respectively. The mean expressive language age in children with

autism was 45.1 and whereas in typically developing children it was 80.2 (table 1).

A significant difference ($p \leq 0.05$) was found between the children with autism and typically developing children in terms of the receptive ($t=9.0$) and expressive ($t=10.2$) language age, current educational placement ($t=6.1$), preferred electronic media by parents ($t=-2.9$) and the preferred television shows by the child ($t=5.4$) (table 2).

Table 1: Mean scores of children with autism and typically developing children among different categories.

GRP- group, N- Number of subjects,

	GRP	N	MEAN	SD	SEM
AGE	1	30	4.5	1.16	.21
	2	25	4.6	1.15	.23
SEX	1	30	1.4	.498	.09
	2	25	1.7	.436	.08
RLA	1	30	80.1	12.0	2.1
	2	25	48.6	13.8	2.7
ELA	1	30	80.2	12.0	2.1
	2	25	45.1	13.4	2.6
Current educational placement	1	30	2.4	0.56	.10
	2	25	1.4	0.58	.11
Duration	1	30	17.4	8.2	1.5
	2	25	15.7	7.3	1.4
Socio-economic status	1	30	2.3	0.7	0.13
	2	25	2.2	0.6	0.12
Parental education	1	30	2.20	0.80	0.14
	2	25	2.24	0.83	0.16
Preferred electronic media by parents	1	30	1.2	0.5	0.10
	2	25	1.7	0.6	0.13
Preferred electronic media by child	1	30	1.6	0.9	0.17
	2	25	1.2	0.5	0.10
Preferred TV. shows	1	30	1.8	1.1	0.2
	2	25	3.9	1.7	0.3
Parental perspective	1	30	1.8	0.96	0.17
	2	25	1.6	0.94	0.18
Change in behavior	1	30	1.23	0.43	0.07
	2	25	1.20	0.40	0.08

SD- standard deviation,
SEM- standard error of measurement
RLA- receptive language age
ELA- expressive language age,
TV- television

Both children with autism and the typically developing children were more exposed to television as compared to any other electronic media. While there was a difference in duration of exposure to electronic media, the typically developing children were exposed for more duration (number of hours per week) i.e.17.4

hours than children with autism (15.7 hours) (figure 1).

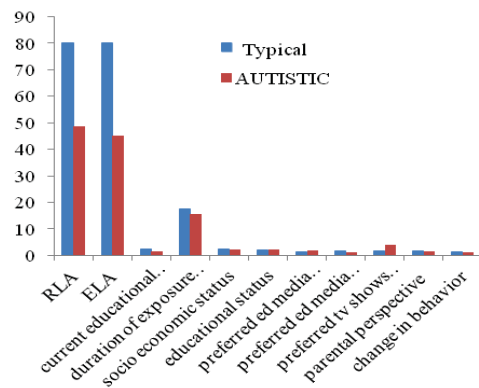
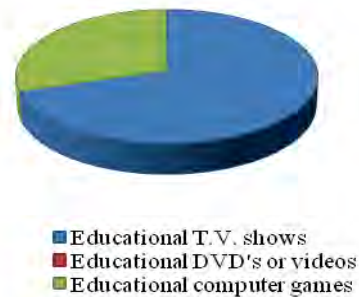


Figure 1: Comparison of mean scores of both groups.

Typically developing children



Children with autism

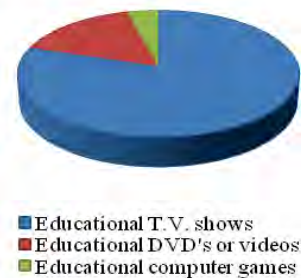


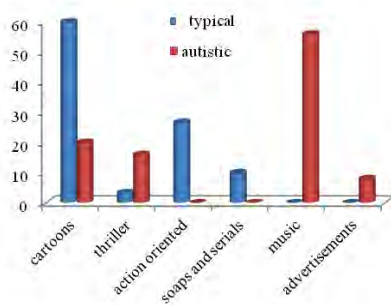
Figure 2: Percentage distributions of electronic media preferred by both the groups

80% of the children with autism and 70% typically developing children prefer to watch television shows as compared to any other electronic media. 56% of children with autism loved to watch music shows (figure 2) while 60% of the typically developing children preferred cartoons. 5.4% girls prefer watching soaps and serials while 23.6% boys love action oriented shows (figure 3).

Table 2: Comparative score of different categories in both groups

		INDEPENDENT SAMPLES TEST					
		Levene's Test for Equality of Variances		T-test for Equality of Means	T-test for Equality of Means		
		F	Sig.	t	difference	Sig. (2-tailed)	Mean Difference
Age	Equal variances assumed	.003	0.9	.212	53	.833	-.067
	Equal variances not assumed			.212	51.4	.833	-.067
Sex	Equal variances assumed	6.3	0.015	2.82	53	.007	-.360
	Equal variances not assumed			2.85	52.8	.006	-.360
RLA	Equal variances assumed	2.8	0.09	9.0	53	.000	31.4
	Equal variances not assumed			8.9	48.0	.000	31.4
ELA	Equal variances assumed	2.1	0.1	10.2	53	.000	35.1
	Equal variances not assumed			10.1	48.7	.000	35.1
Current educational placement	Equal variances assumed	0.1	0.7	6.19	53	.000	0.96
	Equal variances not assumed			6.17	50.5	.000	0.96
Duration	Equal variances assumed	0.4	0.5	0.80	53	0.426	1.7
	Equal variances not assumed			0.81	52.7	0.421	1.7
Socio-economic status	Equal variances assumed	2.2	0.1	0.107	53	0.915	.020
	Equal variances not assumed			0.109	52.9	0.914	.020
Parental educational status	Equal variances assumed	0.12	0.726	-.181	53	.857	-.040
	Equal variances not assumed			-.180	50.6	.858	-.040
Preferred electronic media by parents	Equal variances assumed	1.4	0.241	-2.934	53	.005	-.493
	Equal variances not assumed			-2.900	48.2	.006	-.493
Preferred educational media by child	Equal variances assumed	21.7	.000	1.7	53	.092	.360
	Equal variances not assumed			1.8	46.9	.078	.360
Favorite/preferred type of TV Shows	Equal variances assumed	7.2	.010	5.4	53	.000	-2.093
	Equal variances not assumed			5.2	40.2	.000	-2.093
Parental perspective	Equal variances assumed	0.2	0.6	0.464	53	0.644	.120
	Equal variances not assumed			0.465	51.5	0.644	.120
Change in behavior	Equal variances assumed	0.3	0.558	.293	53	.771	.033
	Equal variances not assumed			.294	52.0	.770	.033

RLA- receptive language age, ELA- expressive language age, TV- television

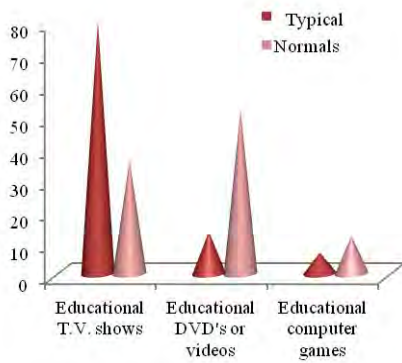


N.B. Typical → Typical children;
 Autistic → Children with Autism

Figure 3: Comparison of percentage scores of favorite T.V. shows among both groups

80% parents of typically developing children preferred educational television shows for their children while 52% of those having children with autism favored educational DVD's of rhymes and stories as those children respond better to music (figure 4).

Children of low socio economic status and less educated parents were exposed to television for long durations with unhealthy quality of shows (30.9%) whereas those of highly educated parents with better socio-economic status were exposed to all kinds of electronic media and learned through Hi- Tech gadgets (table 3).



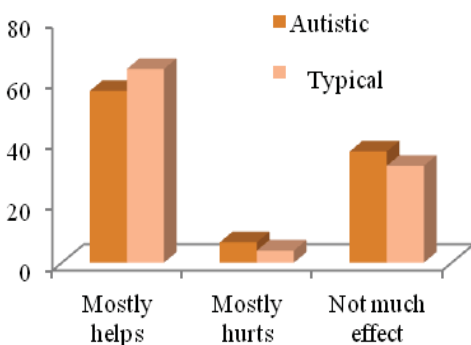
N.B.: Typical → Typical children;
Autistic → Children with Autism

Figure 4: Comparison of preferred electronic media by parents of both groups.

About 64% parents of children with autism and 56% of typically developing children state that exposure to educational television programs mostly helps children in their intellectual development (figure 5).

Table 3: Frequency distribution of subjects in educational status versus economic status category

		Educational Status			Total
		High school	UG	PG	
Economic status	<10,000	6	1	0	7
	10,000-50,000	6	12	7	25
	>50,000	1	4	18	23
Total		13	17	25	55

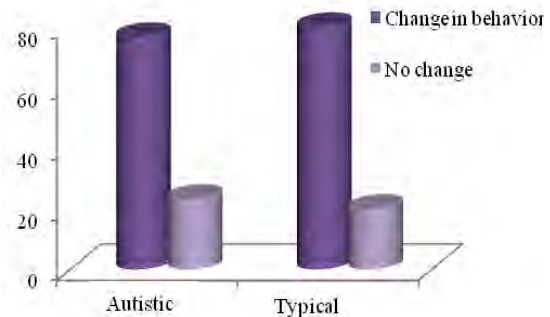


N.B. Typical → Typical children; Autistic → Children with Autism

Figure 5: Comparison of percentage scores of parental perspective about effect of television viewing among both groups.

A change in behavior (positive or negative) of children after being exposed to the electronic

media was reported by the parents in both the groups. Typically developing children were reported to emulate aggressive behavior while the ones with autism were accounted for benefit from media exposure (figure 6).



N.B. Typical → Typical children;
Autistic → Children with Autism

Figure 6: Comparison of parental views regarding any change in behavior due to media exposure among both groups.

Among children with autism, majority (56%) of the subjects belonged to middle income group, most children go to either special school or NGO (60%) suggesting that the need of special intervention and care and a dreamy scenario of inclusive education for these kids. Television (80%) was the most preferred choice of electronic media by the children among which music channels were favored most. Parents preferred educational DVD's of musical rhymes and stories, revealing that these children enjoy music a lot and melodic intonation therapy is beneficial and worth for this group. 64% of the parents had a perspective that educational television shows can have beneficial impact on their child's intellectual development as they respond to the television shows mostly in a positive manner and it enhances their memory and cognition skills. 80% of the parents reported a change in behavior of their child due to electronic media.

In typically developing children, majority of subjects were pre-scholars (63.3%) and belonged to high income group (46.7%), television was the most preferred electronic media among 80% of the parents and 70% of the children. Even the perspective of this group was that television shows mostly help their children (56.7%) and 76.6% noticed a change in behavior of their child. Aggression, throwing tantrums, destructiveness, restlessness and distraction were some the negative behavior's which were informally reported whereas some of the parents reported that their children learn social and self management skills, better ways of communication and adapted loving, caring and respectful nature.

Limitations of the study

The first and the foremost limitation of this paper is the small group of 30 typically developing children and 25 children with autism. Secondly, this is not a longitudinal study which would compare the effects of media viewing in children and would explore the concrete effects of media viewing in children in terms of language development, behavioral outcomes and cognition in Indian context.

Areas of future research

With the manifold advancement in technology, the exposure to media in young children is inevitable and so, is the broad area of research in the effects of media viewing in young children in India. With the rising number of children turning up with delayed or deviant language in hospitals and clinics these days, media exposure is definitely one field which needs to be explored and primary prevention approaches to excessive or inappropriate viewing should be formulated rather than media reduction strategies. Better understanding of the amount and type of exposure will have scientific implications in terms of how the early environment of a child should be structured.

Conclusion

This paper highlights the need to assess the unfathomable intrusion of technology and its prospective effect in the life of children these days. As evident considerable work in the area of young children and media is needed as media's presence in lives of young children is large and growing. As stated above, the effects are detrimental and thus, the exposure to electronic media should be taken into consideration when assessing children with delayed or deviant language, or other behavioral problems. Hence, parents should be counseled regarding fruitful media viewing or its usage approaches for where there is a will, wisdom finds its way.

References

- Chonchoiya, W., & Pruksananonda, C. (2008). Television viewing associates with delayed language development. *Acta Paediatrica*, 97(7), 977-982. doi: 10.1111 / j.1651-2227. 2008. 00831.x
- Chonchaiya, W., Nuntnarumit, P., & Pruksananonda, C. (2011). Comparison of television viewing between children with autism spectrum disorders and controls. *Acta Paediatrica*, 100 (7), 1033-1037. doi: 10.1111/j.1651-2227.2011.02166.x
- Christakis, D., Zimmerman, F., Digiuseppe, D., & McCarty, C. (2004). Early television exposure and subsequent attentional problems in children. *The Journal of Pediatrics*, 118(4), 708-713.
- Christakis, D. (2009). The effect of media usage: what do we know and what should we learn?. *Acta Paediatrica*, 98(1), 8-16.
- Hemamalini, S., Aram, A., & Rajan, P. (2010). Impact of violent images in chutti television. *Journal of Media and Communication Studies*, 2(6), 138-143.
- Mittal, M. (2009). Correlation between television viewing time and effects of television advertisements on children. *Journal of Management and Labour Studies*, 34(3), 425-433. doi: 10.1177/0258042x0903400307.
- Mittal, M. (2011). Television viewing and perception of parental concern among urban Indian children. *Journal of Management and Labour Studies*, 36(1), 45-59. doi: 10.1177/10258042x110360103
- Robinson, T. (1999). Reducing children's television viewing to prevent obesity: a randomized control trial. *Journal of American Medical Association*, 282 (16), 1561-1567.
- Rideout V ., Vandewater E., & Wartella E. (2003). Zero to six: electronic media in the lives of infants, toddlers and preschoolers. California (CA): Henry J. Kaiser Family Foundation, Menlo park. Retrieved from the ERIC database. (ED482302)
- Shane, H., & Albert, P. (2008). Electronic screen media for persons with autism spectrum disorders: results of a survey. *Journal of Autism and Developmental Disorders*, 38, 1499-1508. doi: 10.1007/s10803-007-0527-5
- Tanimura, M., Okuma, K., & Kyoshima, K. (2007). Television viewing, reduced parental utterance, and delayed speech development in infants and young children. *Archives of Pediatrics and Adolescent Medicine*, 161(6), 618-619. doi: 10.1001/archpedi.161.6.618-b
- Wright, J., Huston, A., Murphy, K., Peters, M., Pinon, M., Scantlin, R., & Kotler, J. (2001). The relations of early television viewing to school readiness and vocabulary of children from low- income families: the early window project. *Journal of Child Development*, 72(5), 1347-1366.
- Zimmerman, F., & Christakis, D., (2005). Children's television viewing and cognitive outcomes-a longitudinal analysis of national data. *Archives of Pediatrics and Adolescent Medicine*, 159, 619-625.
- Zimmerman, F., Christakis, D., & Meltzoff, A. (2007). Association between media viewing and language development in children under age 2years. *The Journal of Pediatrics*, 151(4), 364-368.