

 <p>INNOVATIVE JOURNAL ЮНКІВТ</p>	<p>Contents lists available at www.innovativejournal.in</p> <p>INTERNATIONAL JOURNAL OF NURSING DIDACTICS</p> <p>Homepage: http://innovativejournal.in/index.php/ijnd</p>	 <p>IJND ISSN: 2231-5454</p>
--	---	---

Exposure to Electronic Media: Children Diagnosed With Speech Delay

¹Eman Ali Moselhi Mater,²Somaya Ahmed Bayoumy

¹Lecturer in Pediatric Nursing Department, Faculty of Nursing, Cairo University, Egypt

²Lecturer in Nursing Administration Department, Faculty of Nursing, Cairo University, Egypt

DOI: <https://doi.org/10.15520/ijnd.v9i02.2457>

Correspondence: Eman Ali Moselhi Mater, Lecturer in Pediatric Nursing Department, Faculty of Nursing, Cairo University, Egypt, Email: moselhibasmala11@yahoo.com

Abstract: Today's daily life is overwhelmed with electronic media and excessive technology exposure among young children became an expert users. Early exposure to technology such as television, smartphone, tablet and computer affected the language development among children. The American Academy of Pediatrics recommended that children under two years old should have minimal screen media exposure.

Aim: To investigate the exposure to electronic media among children diagnosed with speech delay.

Methods: Retrospective descriptive design was done on a convenient sample of 100 children with their parents who were attended psychiatric clinic in the Center of Social and Preventive Medicine, Cairo University who diagnosed with speech delay. Structured interview questionnaire developed by the researchers, includes four parts: personal characteristics of children and their parents; family electronic devices usage at home; types of electronic media exposure from 0-6 years old and child history of the duration of electronic media exposure from 0-6 years old.

Result: An average duration of electronic media per day exposure was 3.74 hours for children less than 2 years old, 3.81 hours for children from 2 to less than 4 years and 3.41 hours for children from 4 to 6 years who suffered from speech delay, slightly less than two third of children less than 2 years old watched television, slightly more than one quarter of them (28%) used smart phone and increased to 42% of children from 2 to 4 years old, only 3 to 12 % of young children from 0-6 years old viewed tablet and one fifth of young children (2-6 years) viewed computer.

Conclusion: Average duration of electronic media exposure per day for children less than 2 years who suffered from speech delay was 3.74 hours, slightly less than two third of them watched television and slightly more than one quarter of them used smart phone.

Recommendation: Further longitudinal study of early electronic media viewing and language development that follows children from birth to beyond age five.

Keywords: Electronic media viewing, speech delay

INTRODUCTION

Today, children are spending a large amount of time exposure to media [1]. Electronic media viewing is increasingly recognized as a public health concern [2]. The American Academy of Pediatrics (AAP) recommend with evidence that young children should have minimal screen media exposure because of the negative impact of screen media on early brain development [3]. A study which investigated the impact of exposure to virtual technologies (television, computer, tablet and smart phone) on speech and communication skills during early childhood revealed the presence of a correlation between speech delay and watching virtual technology [4].

Speech is a valid conventional communication method and the verbal production of language speech delay described as, when the child is unable to demonstrate phases of language development when compared with his peers according to his developmental stage, such as the baby does not babble till the first 12 months after birth, does not understand simple directions till 18 months of his life, does not speak up to 2 years after birth, does not construct sentences till 3 years of age and feels very hard to narrate simple stories at 4-5 years of age. Language delay implies that the child is developing language in the correct sequence but at a slower rate than expected [5,6].

Early childhood development is a sensitive period which is critical for language acquisition [7]. Language is an important human skill influenced by both genetic and environmental factors and socioeconomic status [8]. Electronic devices disturb parent's children face to face interactions that affected language and emotional development [9].

Television is one of the most agreeable forms of media in the daily lives [10, 11]. Television viewing is known to affect children's verbal abilities that it is reported in psychological studies [12]. Average age of first viewing of television was nine months and other media activities start later, such as using a computer [13]. According to an American survey, the percentage of young children using a mobile device increased from 38% in 2011 to 72% in 2013 [14]. In addition, parents often give mobile devices to their child to keep them calm during the first and the second year of life [15].

A cross section studies reported the prevalence of language delay among preschool aged children in Egypt was 9.4% in 2012 [16], 1.4% of them due to environmental factors [17] and 7% of them need learning language in 2016 then increased to 11% in 2017 [18]. In Saudi Arabia, the prevalence of language delay was 24.5% and may be related

to unsocial community style, excessive use of electronic devices and indoor activity [19]. Also, it was 46% in the United Arab Emirates in children aged 2-3 years who needed further assessment and early treatment [20]. Research on the effects of electronic media viewing on child speech development has recently become a topic of exploration but has proven to be complex. In Egypt, few data are available on electronic media viewing in young children. There are scarce researches conducted to investigate the association between early childhood electronic media viewing and speech development. Hopefully the findings of current study would provide evidence based data that can develop pediatric nursing educations and researches so the purpose of this study is to investigate the exposure to electronic media among children diagnosed with speech delay.

Research problems:

- 1- What is the type of electronic media exposure among speech delay children from birth to 6 years old?
- 2- What is the duration of electronic media exposure among speech delay children from birth to 6 years old?

METHODS

Research design:

Retrospective descriptive design was utilized to accomplish the aim of the study.

Sample:

Convenient sample of 100 children with their parents was selected according to the following inclusion criteria: children who were attend psychiatric clinics, are diagnosed with speech delay and referred to speech outpatient clinics. Children's age ranged between 3-6 years old for both gender. Exclusion criteria: children diagnosed with speech delay due to mental retardation, autism, neurological disorder, hearing loss and preterm infants. To determine a sample size, a power analysis was conducted using 0.05 as the level of significance, 0.95 as the power and effect size of 0.25. The minimum required sample size obtained was 100 children.

Ethical consideration:

An official permission was obtained by researchers to conduct the study from the director of Center of Social and Preventive Medicine affiliated to Cairo University, Faculty of Nursing, Cairo University and another permission from the head of the out patient's pediatric psychiatric clinic. The parents were informed about the purpose and the nature of the study. The researchers emphasized that the participation of the study is voluntary; they have the right to withdraw from the study at any time and will maintain confidentiality.

Setting:

The study was conducted at the out patient's pediatric psychiatric clinic, Center of Social and Preventive Medicine, Cairo University.

Instruments:

Structured Interview questionnaire about early childhood electronic media exposure developed by researchers in Arabic language after reviewing the related literature. It includes four parts:-

Part I: - Personal characteristics about the children and their parents that involved 15 questions such as child's age, gender, number of sibling, child rank, mode of delivery, born problems and the family history of speech delay, parent's age, level of education of mother and father, mother work, parent's consanguinity, mother psychological status, mother marital status, type of family and time of mothers and fathers spent with their children.

Part II: - Family of electronic devices usage at home that involved 6 questions such as child activity at home, electronic programs that children watch, number of television in the house, there is television in the bed room, television exposure time of fathers and mothers.

Part III: - Type of electronic media that children exposed to from 0-6 years old such as television, smart phone, tablet and computer.

Part IV: - Child history of the duration of electronic media viewing from 0-6 years old that involved daily exposures to television, smartphone, tablet and computer.

Pilot study:

A pilot study was carried out on 10% of sample size (10 children) to ensure the clarity, applicability of the tools, test feasibility of the study and estimate sample size and the time needed for data collection. The result of pilot study confirmed that the study was feasible. The sample of the pilot study was excluded from the total sampling.

Validity and reliability:

The tool was revised by a panel of five experts in the field of pediatric and psychiatric nursing to examine content validity (covering, clarity, wording, length, format and overall appearance), the rate of agreements between members of the panel was more than 90%. Minor modification was performed. Reliability of tool is done by testing Cronbach's α was 0.82.

Procedure:

An official permission was obtained to conduct the study from the director of Social and Preventive Medicine Center, Cairo University and permission from the head of the out patient's psychiatric clinic. Data were collected during the period from November, 2017 to May 2018 (7 months). Researchers introduced themselves to doctors, nurses and parents of children, the aim and nature of the study was explained, oral consent was obtained from parents before the participation in the study and make offer to them to withdrawal at any time.

The data were collected from the parents of the children who met the criteria of inclusion through interviewing questionnaires about the children and their parent's personal characteristics, family history of electronic devices usage at home; types of electronic media exposure and child history of the duration of electronic media exposure that the child's use in the past and included the use of television, smartphones, tablet and computers. Researchers asked parents to estimate the number of hours per day. Average daily electronic media exposure time of children classified into three groups; less than 2 hours, from 2 to less than four hours, from 4 to 6 hours and more than 6 hours. Researchers asked 100 parents to remember the nearly number of hours per day of their children exposure to electronic media in the past (during first two years and from

2 to less than 4 years) and 50 from 100 parents with their children from 4-6 years. Some of parents can't able to remember and estimate exact number of hours for all electronic media exposure so researchers recorded only remembered hours (95 from 100 answers during first 2 years and 75 from 100 answers from 2 to less than 4 years and 39 from 50 answers from 4-6 years). At the end of the day of interview, the researchers thanked the parents and their children.

Data analysis:

Upon completion of data collection, the data were scored, tabulated and analyzed through data entry and analysis with computer by using Statistical Package for the Social Science (SPSS) version 20. Data were presented using descriptive statistics in the form of frequency, percentage, mean and SD and inferential statistical tests of significance such as Person's correlation, T. test and ANOVA were used to identify relations among variables. The level of significance was set at $P < 0.05$ or less.

RESULTS

Table 1 shows the personal characteristics of children, the mean age of children was (4.48 ± 0.52) ranged from 3-6 years, three quarter of them was male (75%), around two third of them was the first child in the family and they had family history about speech delay (92%).

Table 2 illustrates the personal data of parents, the mean age of parents was (28.57 ± 3.49) ranged from 23 to more than 37 years old, high percentage of mothers were employed (73%), educated at level of university (49%), slightly less than two third of them (64%) was depressed and the mean time of mothers and fathers spent with their children was 1.58 ± 0.89 & 1.19 ± 0.39 respectively.

Table 3 presents the family history of electronic devices usage at home, half of children played with electronic media devices and slightly more than one third of them (37%) watched television, two third of them (67%) watched

cartoon, slightly more than three quarter of them (81%) had television at bed time and television exposure time of fathers and mothers was 3.07 ± 3.92 & 2.75 ± 0.80 respectively.

Figure 1 shows types of electronic media exposure, slightly less than two third of children (65%) less than two years watched television, slightly more than one quarter (28%) of them used smart phone and increased to 42% of children from 2 to 4 years old, only 3 to 12 % of young children from 0-6 years old viewed tablet and one fifth of young children (2-6 years) viewed computer. Also, only 5% of children from two to less than four years exposed to more than two electronic media and increased to 22% among children from 4-6 years old.

Table 4 presents the duration of electronic media exposure of children from birth to 6 years old, the total hours per day of electronic media exposure were 3.74 hours for children less than 2 years, 3.81 hours for children from 2 to less than 4 years and 3.41 hours for children from 4 to 6 years, the mean of television exposure was 2.72 hours for children less than 2 years old and 0.23 hours for children from 2 to 6 years, the mean of smart phone exposure was 0.92 hours for children less than 2 years old and increased to 2.88 of 2 to less than 4 years and 2.75 of 4-6 years old, the mean of tablet exposure was 0.04 hour for young children less than two years, 0.18 hour of 2 to less than 4 years and 0.13 of 4-6 years and the mean of computer view was 0.06 hour for children less than two years then increased to 0.52 hour of 2 to less than 4 years and 0.30 hour of 4-6 years.

Table 5 shows the relationship between total mean hours of electronic media exposure among young children and personnel characteristics of the children and their parents, it is clear from this table that there was a strong correlation between total mean hours of electronic media exposure with child age, type of family, level of education of parents, time of parents spent with their children, television exposure of parents and mother psychological status.

Table (1): Percentage Distribution of Personal Characteristics of Children (n=100)

Children's personal characteristics	No (%)	Mean±SD
Age in year		
3->4	50	4.48± 0.52
4-6	50	
Gender		
Male	75	
Female	25	
Number of sibling		
Zero	2	1.30± 0.55
1-2	73	
3-4	25	
Children rank		
First	67	
Middle	20	
Last	13	
Mode of delivery.		
Vaginal delivery	76.8	
Caesarean	23.2	
Have born problems?		
Yes	77	
No	23	
Family history about speech delay.		
Yes	92	
No	8	

Table (2): Percentage Distribution of Parents' Personal characteristics (n=100)

Parents' personal characteristics	No (%)	Mean±SD
<u>Age of mothers in year</u>		
23-27	17	28.57±3.49
28-32	17	
33-37	11	
More than 37	55	
<u>Level of education of mothers</u>		
University education	49	
Secondary school	26	
Just read and write	12	
Illiterate	13	
<u>Level of education of fathers</u>		
University education	65	
Secondary school	18	
Just read and write	10	
Illiterate	7	
<u>Mother work</u>		
Unemployed	27	
Employed	73	
<u>Parent's consanguinity</u>		
Yes	60	
No	40	
<u>Mother psychological status</u>		
Depressed	64	
Not depressed	36	
<u>Mother marital status</u>		
Married	74	
Divorced	11	
Widowed	6	
Separated	9	
<u>Type of family</u>		
Single family	80	
Extended family	20	
<u>Time of mothers spent their children.</u>	65	1.58±0.98
Less than 2 hours		
2-4 hours	23	
More than 4 hours	12	
<u>Time of fathers spent with their children.</u>		1.19±0.39
Less than 2 hours	81	
2-4 hours	17	
More than 4 hours	2	

Table (3): Percentage Distribution of the Family History of Electronic Devices Usage at Home (n=100)

Items	No(%).	Mean±SD
<u>Child activity at home</u>		
Watching Television	37	
Playing with electronic devices	50	
Playing alone	13	
<u>Electronic programs that children watch.</u>		
Cartoon	67	
Games	29	
Others	4	
<u>Number of television in the house.</u>		
Less than 2	84	
More than 2	16	
<u>There is television in the bed room.</u>		
Yes	81	
No	19	
<u>Television exposure time of fathers.</u>		3.07±3.92
Less than 2 hours	27	
More than 2 hours	73	
<u>Television exposure time of mothers.</u>		2.75±0.80
Less than 2	25	
More than 2	75	

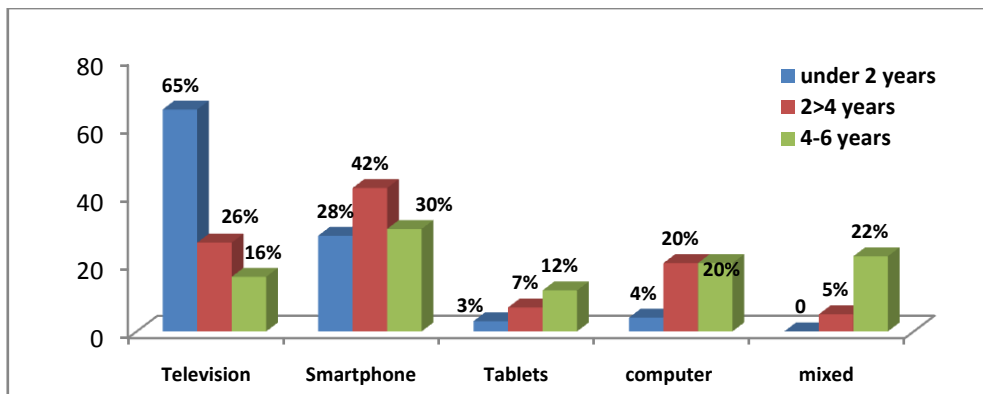


Figure 1 Types of electronic media exposure among children from zero to 6 years old

Table (4): Percentage Distribution of the duration of Electronic Media Exposure of children from birth to 6 years old (n=100).

Duration of Electronic Media Exposure/ per day	Under 2 years		2>4 years old		4-6 years old	
	No	%	No	%	No	%
Television						
Less than 2 hours	20	33.3	1	16.66	4	50
2 > 4 hours	21	35.1	1	16.66	1	12.5
4-6 hours	19	31.6	1	16.66	2	25
More than 6 hours	--	--	3	50	1	12.5
Mean±SD	2.72±3.04		0.23±1.23		0.23±0.99	
Smart Phone						
Less than 2 hours	11	39.3	10	23.8	1	6.7
2 > 4 hours	7	25	10	23.8	5	33.3
4-6 hours	7	25	12	28.6	6	40
More than 6 hours	3	10.7	10	23.8	3	20
Mean±SD	0.92±1.86		2.88±2.71		2.75±1.93	
Tablet						
Less than 2 hours	2	66.7	2	33.3	3	50
2 > 4 hours	1	33.3	4	66.7	3	50
4-6 hours	--	--	--	--	--	--
More than 6 hours	--	--	--	--	--	--
Mean±SD	0.04±0.24		0.18±0.79		0.13±0.59	
Computer						
Less than 2 hours	3	75	9	42.8	4	40
2 > 4 hours	1	25	10	47.6	5	50
4-6 hours	--	--	2	9.6	1	10
More than 6 hours	--	--	--	--	--	--
Total	95	95	75	75	39	78
Mean±SD	0.06±0.34		0.52±1.18		0.30±1.12	
Total hours of electronic media exposure	3.74		3.81		3.41	

Table (5): Relationship between Total mean Hours of Electronic Media exposure among Young Children and Personnel Characteristics of the Children and their Parents (n= 100)

Items	Total mean hours of electronic media exposure			
	r	T	F	P value
Personnel characteristics of children				
1 Age	-0.310			**0.00
2 Gender		-14.89		**0.00
3 Type of family		-15.55		**0.00
4 Number of sibling	0.029			0.56
Personnel characteristics of parents				
1 Mother educational level			14.33	**0.00
2 Father educational level			14.73	**0.00
3 Age of parents	-0.206			*0.04
4 Mother marital status			3.84	**0.00
5 Mother psychological status		-13.03		*0.00
6 Time of mother spent with her child	-0.021			* 0.03
7 Time of father spent with his child	-0.024			*0.01
8 The duration of television exposure of mother	0.197			*0.04
9 The duration of television exposure of father	-0.218			*0.02

*Correlation is significant at the 0.05 & **0.00 level

DISCUSSION

This study provided further evidence that the possible harmful impact of early childhood electronic media exposure and language development among a sample of Egyptian children who suffered from speech delay, their age ranged from 3-6 years, three quarter of them were male, around half of them played with electronic media and two third of them watched cartoon. The results of current study revealed that total hours per day of electronic media exposure were 3.74 hours for children less than 2 years, 3.81 hours for children from 2 to less than 4 years and 3.41 hours for children from 4 to 6 years. This result was consistent with Hayes [21] who reviewed literature that examined the impact of screen media use on language development of young children stated that screen media use in infants and toddlers is negatively associated with language development and this association depends on the amount of the children's exposure to electronic media. Another study by Duch et al. [22] studied association of screen time use and language development in Hispanic toddler found that young children spent an average of 3.29 hours engaged with screen media were associated with low language scores. Yasin et al. [23] studied a retrospective chart review of speech and language delay in childhood added that average duration of television, tablet and smart phone exposure was 5.3 hours per day which linked with language delay and 38.2% of children hadn't engaged in activities with their peer. Jessica, [24] concluded that half hour of screen time was associated with a 49 percent increase in expressive speech delays. The researchers thought that excessive media exposures limits play opportunity and the interaction of children with their peers and parents that are a crucial factor in language development.

Concerning the television exposure per day among speech delayed children, the current study highlighted that slightly less than two third of children who are less than two years old watched television and the mean of television exposure was 2.72 hours and 0.23 hours for children who are from 2 to 6 years. This result were in agreement with Byeon and Hong [4] who studied the relationship between television exposure and language delay mentioned that young children with over 2 hours and less than 3 hours of television watching time had 2.7 times more risk of language delay than those with less than an hour of television watching time and those with more than 3 hours of television watching time had approximately 3 times more risk. In addition, the risk of language delay increased proportionately with the incensement of television watching time. More recent correlation-based studies have supported the early negative findings regarding television and language development [2,4,19,25]. The researchers thought that television is still as popular as ever, but outdoor play and reading may be beginning to trend downward and children prefer to use the electronic devices even when they are out door.

In relation to the smartphone viewing per day among speech delayed children, the study found that slightly more than one quarter of children less than two years used smart phone and increased to forty two percentages of children from 2 to 4 years old and the mean of smart phone exposure was 0.92

hours and 2.88 hours respectively. This result was consistent with Jessica, [24] who found that twenty percent of young children were spending nearly half an hour per day on touch screen and those children started talking later and were at or below the 10th percentile for speech at 18 months. In Italy, a recent survey described that one fifth of children used a smartphone for the first time during his first year of life. Moreover, four fifth of children from 3 to 5 years old is able to use their parent's smartphone [15]. Also, Park [26] reported that in a new study of young children who spent more time using smartphone were more likely to have delays in expressive speech and every 30 minutes of screen time associated with 49% increase risk of expressive speech delay. The researchers thought that smartphone is easily to handle rather than other electronic media devices anywhere.

As regard tablet viewing per day among speech delayed children, the current study found that only three to twelve percent of children from 0-6 years old viewed tablet beside television, smart phone and computer and the mean of tablet exposure was 0.04 hour for children less than two years, 0.18 hour of 2 to less than 4 years and 0.13 of 4-6 years. In contrast, Asplund et al. [27] stated that a new report says almost half of young children now have their own tablet. Also, a common sense media program [13] reported that all children now have access to other newer mobile devices at home and eighty percent of them used tablet device. In a typical day, 11% of all zero to eight-year-old children use a cell phone or similar device for media consumption, and those who do spend an average of 0:43 and average age of first exposure was 3 years. The researcher thought that the majority of children admitted to outpatient clinics in the Center of Social and Preventive Medicine that affiliated to Cairo University were low socioeconomic level so they can't have personnel tablet so it is not popular among them.

Concerning computer exposure per day among speech delayed children, the current study highlighted that one fifth of children (2-6 years) viewed computer and the mean of computer view was 0.06 hour for children less than two years, 0.52 hour of 2 to less than 4 years and 0.30 hour of 4-6 years. This result was consistent with a common sense media program [13] reported that computer use is pervasive among very young children, 22% of 5 to 8 year olds used a computer at least once a day and 12% among 2 to 4 years old, average age of the first exposure was 3.5 years. The researchers thought that recently, smartphone has all options of computer and easily to use and can get it from their parents and older sibling. Also, some parent use smartphone as a method to calm them.

Concerning the relationship between total mean hours of electronic media exposure among young children and personnel characteristics of children and their parents, there was a correlation between total mean hours of electronic media exposure with time of parents spent with their children, television exposure of parents and mother psychological status. This result was in agreement with Carson and Janssen [28] who mentioned that parental screen time were positive predictors of child screen time exposure and recommended that enhancing appropriate

screen time habits in children may be most effective if their parents changed their behaviors. The duration of parent's time spent with their children directed speech and conversation with their children may enhance the quality of the linguistic interactions and may be more influential factor on children's language outcomes [29-31]. Al Fadhli and Al Bunaian, [19] added that there were a significant relations between language delay and the time of less than two hours of mothers spent with their children and recommended that the time spends with the child should be involved interaction playing and telling stories, not only physical care and we needed future research about quality of parents and their children interactions and its effect on the language development.

Limitation:

Interpretation of the results should acknowledge some limitations; this data was only collected for one day that doesn't represent the infants overall media use rather than per week. Another limitation in the design of this study is the use of retrospective descriptive design so future studies that use cross sectional and longitudinal analysis will provide a clear picture of the effects over time.

CONCLUSION

The results of the study concluded that average duration of electronic media exposure per day was 3.74 hours for children less than 2 years, 3.81 hours for children from 2 to less than 4 years and 3.41 hours for children from 4 to 6 years among preschool children who suffered from speech delay without mental and psychological problems, half of them played with electronic media devices and around slightly less than two third of children less than two years watched television, slightly more than one quarter of children less of them used smart phone and increased to 42% of children from 2 to 4 years old, only 3 to 12 % of young children from 0-6 years old viewed tablet and one fifth of young children (2-6 years) viewed computer.

RECOMMENDATION

Based on the study results, the following recommendations are proposed:

- 1- Further longitudinal study of early electronic media exposure and language development that follows children from birth to beyond age five.
- 2- Further studies that examine the impact of parent interaction with their children during electronic media exposure on language development.
- 3- Ministry of health has to prepare educational programs about effects of the wrong use of early electronic media devices on the children language development.
- 4- Further researches needed to increase awareness of parents about children safety electronic media exposure.
- 5- Develop educational programs to increase the parent's awareness regarding safety media exposure among young children.

Implications in Nursing Science and Application:

The study findings are useful to nursing educations, application and research.

Notes

The author confirms that there is no conflict of interest and the study was not supported by any grant.

REFERENCES

- [1]. Sigman A. Time for a View on Screen Time. Archives of Disease in Childhood. 2012 97:935-942. <http://dx.doi.org/10.1136/archdischild-2012-302196>.
- [2]. Mendelsohn AM, Dreyer B, Brockmeyer C, Berkule B, Huberman H, Tomopoulos S. Randomized Controlled Trial of Primary Care Pediatric Parenting Programs Effect on Reduced Media Exposure in Infants, Mediated Through Enhanced Parent-Child Interaction. Arch Pediatric Adolescence Medicine. 2011, 165(1). WWW.ARCHPEDIATRICS.COM 42 ©2011 American Medical Association.
- [3]. American Academy of Pediatrics. Where we stand: Television viewing time. 2014. Retrieved from: <http://www.healthychildren.org/English/familylife/Media/pages/Where-We-Stand-TVViewingTime.aspx?nfstatus>.
- [4]. Byeon H, Hong S. Relationship between Television Viewing and Language Delay in Toddlers: Evidence from a Korea National Cross-Sectional Survey. Plos One. 2015, 10(3):e0120663. <https://dx.doi.org/10.1371/journal.pone.0120663>
- [5]. Wallace I, Berkman N, Watson L, Beasley T, Wood C, Cullen K, Lohr K. Screening for Speech and Language Delay in Children 5 years old and younger: a Systematic Review. Pediatrics, 2015, 136(2): e448-e462.
- [6]. Nelsen, Amy. Delayed Speech or Language Development. Retrieved 12 April 2012.
- [7]. Berk L. Child Development (9thEd). NJ: Pearson Education Inc, 2012.
- [8]. Smithson L, Paradis J, Nicoladis E. Bilingualism and receptive vocabulary achievement: could sociocultural context make a difference? Biling Lang Cogn. 2014;17(04):810–821.
- [9]. Glascoe FP, Leew S. Parenting Behaviors, Perceptions, and Psychosocial Risk: Impacts on Young Children's Development. Pediatrics. 2010;125:313–319.
- [10]. Korea Information Society Development Institute. Broadcast Media Survey 2013.
- [11]. World Telecommunication/ICT Indicators Database online. 2013. Available from: URL: <http://www.itu.int/pub/D-IND-WTID.OL-2013>
- [12]. Takeuchi H, Taki Y, Hashizume H, Asano K, Asano M, Sassa Y, Yokata S, Kotozaki Y, Nouchi R, Kawashima, R. The Impact of Television Viewing on Brain Structures: Cross-Sectional and Longitudinal Analyses. 2015. 25(1):1188-1197.
- [13]. A common Sense Media Program. Zero to Eight Children's Media Use in America. Knowledge network research study, USA, 2011, p: 1-48. www.common sense.org/research.
- [14]. A common Sense Media Program. Zero to Eight Children's Media Use in America. Knowledge network research study. 2013, San Francisco.

- [15]. Dusi E. Bambini, già a un anno con il cellulare; Repubblica. 5 gennaio 2017. [Google Scholar](#)
- [16]. Farahat T, Mahrous O. Risk Factors of Language Delay among preschool Children in a Rural area of Menofia. *The Egyptian Journal of Community Medicine*. 2012, 30(1):59-69.
- [17]. Gharib B, El Banna M, Khalil M, Heikal M. Prevalence and Etiology of Communication Disorders in Children attending Alexandria University Children's Hospital, Egypt. *Alexandria Journal of Pediatrics*. 2017, 30(1): 17-25.
- [18]. Cairo University Statistics and Medical recording. Cairo University Hospital, Main Management Department. 2017.
- [19]. Al Fadhli K, Al Bunaian N. Prevalence and Social Influences of Delayed Language Development in Preschool Age Saudi Children. *International Journal of Science and Research*. 2016. www.ijsr.net
- [20]. Almekaini L, Zoubeidi T, Albustanji Y, Narchi H, AlJabri , Soud AK. Screen for Speech- language Development in Emirati Toddlers. *Journal of Psychology and Cognition*. 2017, 2(1): 26-31.
- [21]. Hayes J. What is the Impact of Screen Media Use on Language Development of Infants and Toddlers. *Critical Review*, M.Cl.Sc CandidateCandidate University of Western Ontario: School of Communication Sciences and Disorders. 2015.
- [22]. Duch H, Fisher E, Ensari I, Hamington A. Screen Time Use in Children under 3 years old: a Systematic Review of Correlates. *International Journal of Behavioral Nutrition and Physical Activity*. 2013, 10:102. <http://www.ijbnpa.org/content/10/1/102>.
- [23]. Yasin A, Aksu H, Ozgur E, Gurbuz B. Speech and Language Delay in Childhood: A Retrospective Chart Review. *ENT Updates*. 2017, 7(1): 22-27
- [24]. Jessica W. Limiting Screen Time. *Newsweek Global*. 2017, 168(22), P 53. ISSN: 2572-5343.
- [25]. Pempek TA, Kirkorian HL, Anderson DR. The Effects of Background Television on The Quantity and Quality of Child-Directed Speech by Parents. *J Child Media*. 2014;8,211–222.
- [26]. Park A. Kids Who Use Smartphones Start Talking Later. *Time.com*. 2017, p15.
- [27]. Asplund K, Kair L, Arain Y, Cervantes M, Oreskovic N, Zuckerman K. Early Childhood Screen Time and Parental Attitudes toward Child Television Viewing in a Low-Income Latino Population Attending the Special Supplemental Nutrition Program for Women, Infants, and Children. *Childhood Obesity Journal*. 2015, 11(5): 590-599.
- [28]. Carson V, Janssen L. Associations between factors within the home setting and screen time among children aged 0–5 years: a cross-sectional study. 2012, *BMC Public Health*, 12:539 <http://www.biomedcentral.com/1471-2458/12/539>.
- [29]. Weisleder A, Fernald A. Talking to Children Matters Early Language Experience Strengthens Processing and Builds Vocabulary. *Psychological Science*. (2013), 24(11), 2143–2152.
- [30]. Hudon T. M, Fennell C. T, Hoftyzer M. Quality not Quantity of Television Viewing is Associated with Bilingual Toddlers' Vocabulary Scores. *Infant Behavior and Development*. 2013, 36(2), 245–254. <https://doi.org/10.1016/j.infbeh.2013.01.010>.
- [31]. Rowe M. L. A Longitudinal Investigation of the Role of Quantity and Quality of Child-Directed Speech in Vocabulary Development: Child-Directed Speech and Vocabulary. *Child Development*. 2012, 83(5), 1762–1774. <https://doi.org/10.1111/j.1467-8624.2012.01805>.