AUDIOLOGICAL HAZARDS OF PROLONGED TELEVISION WATCHING AT YOUNGER AGES

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ABSTRACT

Introduction: Frequent complaints of poor attention, delayed language development, abnormal behaviors and even diminished hearing were encountered lately among parents of young children presented to Audiology and Phonology units. Careful history taking revealed long periods of TV watching as yong as , in some cases, 3 months old. What exactly did this do to their brains and if it is reversible is what we are seeking for.

Methods: 50 children with age range from 2 to 3 years presented to the audiology unit complaining of hearing problems or referred from phonology unit for hearing assessment as a an investigation necessary for DLD complaining of language problems and/ or abnormal communication behavior.

All parents were subjected to

- Full history taking.
- Questionnaire.

All children were subjected to:

- Full audiological assessment (Tympanometry, ABR).
- MMN.
- Remediation for three months.

Counseling of the parents was performed then retesting was done after 3 months using the same questionnaire and children were subjected to MMN and ABR.

Results: Both study and control groups were age matched. IQ assessment revealed average intelligence in both study and control groups. A statistically significant difference was found between study and control groups as regards scale of auditory behaviors questionnaire. A statistically significant difference was found also between tham as regards Modified checklist for Autism in toddlers.

Study group showed also, statistically significant prolonged latency and significantly lower amplitude.

Conclusion: Learning through electronic media is not suitable for children before preschool age. In fact it has many adverse effects on socialization, cognitive function, attention and memory butting the child in different categories of auditory processing disorders and even autism and has adverse effects on language skills. So learning through real life situation is more important at earlier ages.

Key words: television- CAPD-Autism.

INTRODUCTION

Until recently, research on media effects did not focus on infants and toddlers. Early studies reported that children younger than two paid little attention to television, perhaps because little television was produced for them. The early 1990s, however, saw a virtual explosion in the production of television programs and videos designed for infants and toddlers, and some research now suggests that infants and toddlers pay close attention to these videos. The increase in infant-directed media products has led to debate over whether infants and toddlers should be exposed to electronic media [(1)].

As normal development of children is an issue of concern for all specialists dealing with children. There is no doubt that, Television viewing has become a common activity for many preschool-aged children [(2)]. As a result, there is increasing interest on the potential short- and long-term health implications associated with this early television exposure. Emerging research suggests that early television viewing may have adverse long-term effects on attention.

Although research clearly demonstrates that well-designed, age-appropriate, educational television can be beneficial to children of preschool age, studies on infants and toddlers suggest that these young children may better understand and learn from real-life experiences than they do from video. Moreover, some research suggests that exposure to television during the first few years of life may be associated with poorer cognitive development. This is especially true for unique effect of television on children under age two [(3)].

With respect to children over two, the early exposure to age-appropriate programs designed around an educational curriculum is associated with cognitive and academic enhancement, whereas exposure to pure entertainment and violent content in particular, is associated with poorer cognitive development and lower academic achievement [(2)].

Where, little is known about the short-term effects. A paper published in Pediatrics, by Dr. Lillard and Ms. Peterson from the University of Virginia, provides some insight into this relationship. The main purpose of the study was to examine the influence of fast-paced television shows on short-term executive function. According to the authors, executive function is a

group of skills that is important for positive social and cognitive functioning such as attention, working memory, problem solving, self-regulation, and delay of gratification. It is thought that during fast-paced television, executive resources are depleted because of the effort needed by children to encode the information that is rapidly being presented to them [(2)].

Starting from here we should know what the central auditory abilities are. These include, *Sound localization and lateralization* where Lateralization is a psychoacoustic phenomena related to localization [(3)]. The major difference between localization and lateralization is that the former means determination of the direction of the source of auditory stimuli in a sound field, while the latter means identification of the place of perception of auditory stimuli in the head [(4)].

Second is auditory discrimination and auditory pattern recognition. Then, auditory Temporal Processing which is the processing of rapid or brief acoustic stimuli presented in succession [(5)]. At birth and during infancy the efficacy of temporal processing is poorer than that of adults [(6)].

Auditory performance with competing acoustic signals is another ability which is the ability of the auditory system to separate desired from undesired acoustic signals is very important in improving the intelligibility of acoustic signals and in proper comprehension of auditory messages [(7)].

Then, auditory performance with degraded acoustic signals (auditory closure or decoding): Auditory closure refers to the ability of the normal listener to utilize intrinsic and extrinsic redundancy to fill in missing or distorted portions of the auditory signals and recognize the whole message.

Auditory attention is a neuro-cognitive process in which one focuses selectively on the stimulus of interest and ignoring irrelevant stimuli, thereby limited amount of information processed. The auditory attention processes include selective auditory attention and sustained auditory attention [(8)]. The selective and the sustained attention abilities are essential for learning as they enable sensory and perceptual processing of information [(9)].

Lastly, auditory memory which is defined as the capacity to encode, process and retrieve information. Information may extend to include events, knowledge, feelings and decisions of the past [(10)]. Auditory memory plays an essential role for spoken language processing and learning-related skills of listening, speaking, reading and writing [(11)].

Thus, auditory processing disorder (APD), also known as central auditory processing disorder (CAPD) is an umbrella term for a variety of disorders that affect the way the brain processes auditory information [(12)]. Children with APD show the following examples of behaviors; inconsistent response to speech, frequent requests for repetition (What? Huh?), difficulty in understanding in back ground noise, often misunderstanding what is said, poor memory, difficulty with auditory localization [(13)].

Another form of behavioral abnormality frequently encountered in children is Autism spectrum disorders (ASD) which are developmental disorders which have primary indicator impairment in social communication and language development, including expressive control of prosody in speech. Variations in prosody distinguish statements from questions, provide inference to the speaker's emotional tone of voice, and indicate the beginning and end of words and phrases [(14)].

Being depriving g the child from normal inputs to the neural system, neural debates are expected to happen. This study is designed to figure out what can television viewing do a young child's brain.

Methodology:

50 children with age range from 2 to 3 years presented to the Audiology Unit, ENT department, Zagazig University. Complaints were either inconsistent response to sounds, delayed language development, or abnormal behavior. 20 apparently normal children were chosen from relatives of the workers in the unit with no history of TV watching for periods exceeding that in the study group.

Parents were subjected to:

1. Full history taking:
    a. Perinatal history.
    b. Neonatal history.
    c. Postnatal history.
    d. Present history, including history of fevers, diseases any medications.
    e. Socioeconomic status.
    f. Mothers' literacy.
    g. Television viewing if any, how long and since age of what.
2. Questionnaire fulfilled to assess central auditory processing abilities (scale of auditory behavior questionnaire). It was developed by **Simpson (1981) [(15)]** and modified by **Conlin (2003) [(16)]; Schow et al. (2006) [(17)]; and Summers (2003) [(18)].** It was translated into

Arabic language and used by **Tawfik et al. (2009)** [19]. In this study slight modification was done in order to suit young age of the study group). ***Appendix (A).***

3. Questionnaire to assess behavioral characteristics of the child (Modified checklist for Autism in Toddlers (M-CHAT) [20]. ***Appendix (B).***

Children were subjected to:

1. IQ assessment using Stanford Binet test version (5).
2. Otoscopic examination.
3. Tympanometry using Tympanometer, Amplaid 724 (Amplifon, Italy).
4. Auditory brain stem response using 2 channel Smart_EP auditory brainstem audiometer (Intelligent hearing system, USA).
5. MMN using Smart _EP with MMN software.
6. Remediation through
   a. Replace TV by normal life events.
   b. Parent Modification Strategies

- Keep directions or commands short and simple
- Use praise often and be positive
- Use visuals or gestures at home to compensate for listening difficulties.

Statistical analysis was done using SPSS for windows version 16. t- test, paired t- test were used.

RESULTS

Retrospective study was conducted on 50 children with history of television viewing for more than 4 hours per day with age range 2-3years (2.5± 0.42) ***(table, 1).*** All children were chosen from Audiology Unit Ear Nose and Throat department. 2o other children with no history of television viewing or exposure for less than 4 hours and in intermittent mode were chosen from relatives of the workers in the Unit.

Table (1): Age and gender distribution.

	Age				Gender			
					Male		Female	
	Mean	SD	t.	P.	No.	%	No.	%
Study group	2.5	0.42	1.555	0.1294	23	46%	27	64%
Control group	2.3	0.51			25	50%	25	50%

Non significant.

Table (2): Mean and Standard Deviation of psychometric test results in both that study and control groups.

	Mean (SD)	**t.**	**P.**
Control group	**93.6 (7.1)**	**1.677**	**0.09**
Study group	**90.5 (6.7)**		

This table showed that all children in this group had average intellectual abilities. There was no statistically significant difference between both groups in intellectual abilities.

Tympanometry results revealed Type (A) tympanometry with preserves acoustic reflexes reflecting bilateral normal middle ears function in both study and control groups.

Table (3): Mean, Standard Deviation of wave V latency between study and control groups.

Control group	**Mean (SD)**	**t**	**P.**
	5.025 (0.61)		
Study group	**5.201 (0.14)**	**-1.277**	**0.214**

Auditory brain stem response was done and revealed normal wave V detection threshold and latency ranges with non significant latency differences between control and study groups.

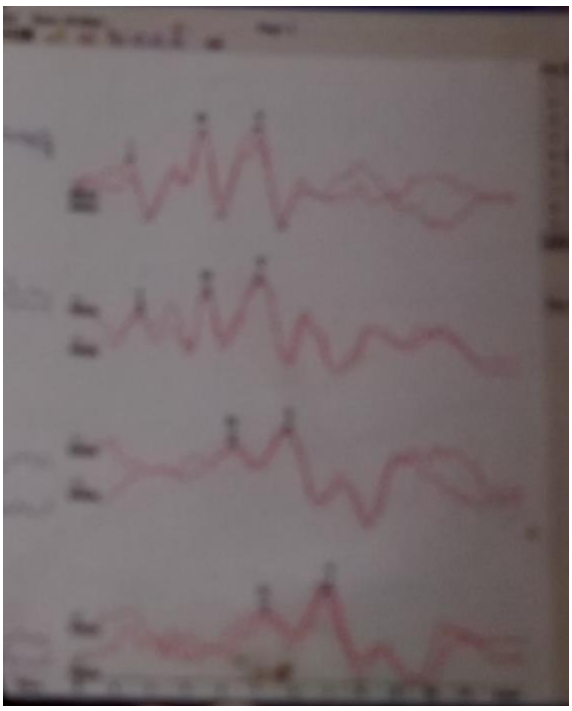

Figure (1): showing Rt. ear auditory brain stem response. Wave I, III and V were detected at 90 dB nHL. Wave V was traced dowm to 30 DB nHL. This a case in the study group.

Table (4): Mean, Standard Deviation and Range of auditory behaviors questionnaire in normal children

	Mean (SD)	Range	t	P.
Control group	**49.5 (4.9)**	**36-58**		
Study group	**30.1 (5.2)**	**21-36**	**14.702**	**<0.001**

The table showed that there was highly significant difference between both groups in the questionnaire.

Table (5): Modified Checklist for Autism in Toddlers (M-CHAT) was done and revealed.

	M-CHAT score			
	Mean (SD)	95% CL		Range
		lower	upper	
Control group	**1.25 (0.43)**	**0.379**	**2.121**	**1-2**
Study group	**3.8 (1.077)**			**2-6**

As an objective measure MMN was done in all children once presented to the unit and revealed.

Table (6): latency of MMN in the study and control groups.

	Control group	Study group	t.	P.
MMN latency	219.3±15.9	356.9±16.3	-32.474	00
MMN amplitude	1.22±0.5	0.9±0.3	2.676	0.0144

There was significantly prolonged latency and small amplitude in the study groups.

Table (7): Mean, Standard Deviation and Range of auditory behaviors questionnaire in study group before and after remediation.

	Mean (SD)	Range	t	P.
Before	**30.1 (5.2)**	**36-58**	**4.611**	**0.0036**
After	**39.245 (6.3)**	**21-36**		

Paired t test was applied and revealed statistically significant difference.

Table (8): Modified Checklist for Autism in Toddlers (M-CHAT) Follow-Up Interview was done and revealed

	M-CHAT score		
	Mean (SD)	**t.**	**P.**
Before	**3.8 (1.077)**	**-6.246**	**0.0007**
After	**2.4 (0.65)**		

There was a statistically significant difference between study group before and after counseling of the parents.

Table (9): latency of MMN in the study groups before and after changing life style.

	Before	After	t.	P.
MMN latency	356.9±16.3	279.3± 23.9	-4.228	**0.005
MMN amplitude	0.9±0.3	1.01±0.2	2.437	**0.044

Significant

DISCUSSION

Until the 1980s, social science researchers had only an implicit theory of how viewers watched television. Analysts regarded television viewing, particularly by young children, as being cognitively passive and under the control of salient attention-eliciting features of the medium such as fast movement and sound effects. Jerome Singer formalized this theory, proposing that the "busyness" of television leads to a sensory bombardment that produces a series of orienting responses that interferes with cognition and reflection. As a result, children cannot process television content and therefore cannot learn from it [(21)]. Others proposed similar views, arguing that programs such as Sesame Street provided nothing that could be truly educational [(22)].

In this study, 50 children with age range 2 to 3 years were exposed to examination from various points of view. Children were subjected to television viewing for long periods 4 hours and more per day since younger ages starting from 3 months as stated by the mother. All mothers stated that children were calmer in front of TV and they could not feed their children unless when watching so they allowed them more till they could not wean them from it.

Control group of age matched children with no history of television viewing for less than 4 hours was included in the study ***(Table, 1).*** IQ assessment was done all children were of average intelligent quotient with no statistically significant difference between two group ***(Table, 2)*** children with lower IQ were excluded from the study.

Hearing assessment included tympanometry that revealed normal middle function in all cases. ABR showed wave V could be traced down to 30 dB nHL. There was no statistically significant difference between 2 groups regarding latency ***(Table, 3)***. Cases with middle ear effusion or peripheral hearing losses were excluded to exclude hearing loss as a cause of findings in those children. Hearing assessment was done to investigate the more common complaint of hearing loss encountered by the mothers of these children. This goes with ***(Keith 1995)*** [(13)] who stated that auditory processing disorder is presented by inconsistent response to speech.

First of all parents were subjected for scale of auditory behaviors questionnaire, which a screening test for central auditory processing disorder. There was statistically significant difference between study and control group

regarding scores obtained ***(Table, 4).*** This result indicates that those children according to the scale of auditory behaviors questionnaire are suspected to be prone to CAPD. This is supported by **Tawfik et al. (2008)** [23], who reported reduction in the scores in children with CAPD in comparison to the control group.

As a common complaint among mothers of the children in the study group they mentioned their children as unsocial, abnormally shy, withdrawn and aggressive in some cases. So, another questionnaire named Modified Checklist for Autism in Toddlers (M-CHAT) was applied. In such checklist, not all children who fail will meet criteria for diagnosis on the autism spectrum. However, children who fail should be evaluated in more depth [24].

There was statistically significant difference between two groups revealing that those children need more follow up and observation for fear of autism.

This is supported by the study of Dr. Lillard and Ms. Peterson from the University of Virginia, provides some insight into this relationship. The main purpose of the study was to examine the influence of fast-paced television shows on short-term executive function. According to the authors, executive function is a group of skills that is important for *positive social* and *cognitive* functioning such as attention, working memory, problem solving, self-regulation, and delay of gratification. It is thought that during fast-paced television, executive resources are depleted because of the effort needed by children to encode the information that is rapidly being presented to them [2].

On the other hand, one area of cognitive development influencing children's ability to learn from television is the perception of video itself. Some research suggests that children do not begin to discriminate between television and real-life events until the early preschool years. For example, Leona Jaglom and Howard Gardner [25] reported qualitative observations of three children from age two to five. They noted that at age two, the children recognized that the television world was contained within the television set but not until they reached age three or four did they realize that the television world could not affect them—that, for example, television characters could not enter their bedrooms. The authors concluded that sometime between ages two and three, children develop an understanding of the representational nature of video.

Together this research suggests that children do not comprehend the symbolic nature of television until they reach the preschool years; evidence of comprehending and learning from television at younger ages than about two-and-a-half is meager. And it may take several more years before children are able to make more specific discriminations with respect to program content.

This explains why a TV addict child cannot coup with normal life situations while he cannot differentiate videotaped from real life. Thus things that do not have the same light and sound effects will not be able to compete with television programs. With the extreme levels if not detected and managed may end in complete isolation and constitutional autism.

Finally, as an objective measure MMN was done and revealed statistically significant prolonged latencies and lower amplitudes ***(Table, 6).***

Mismatch negativity (MMN) is used to assess individual's ability to discriminate minimal differences in stimuli. This objective test can be used to assess selected auditory sub-processes that are important for normal and efficient processing of auditory information (**Musiek 1999)** [25]**.** Combined brain-lesion studies and functional mapping have established the primary role of the auditory temporal cortex in MMN generation, supporting the independent storage and examination processes of auditory stimuli in the auditory cortical region [26].

A number of researchers have used the MMN to examine basic sensory discrimination abilities (i.e. speech perception) in children who exhibit APD-like characteristics and to monitor changes following behavioral training [27].

Novitski et al. (2004) [28] reported reduced MMNs among individuals with specific language impairment (SLI) in response to a violation of a sound pattern. Similarly, **Kujala et al. (2000)** [29] reported reduced MMNs in a dyslexic group in response to rare tone sequences, but normal in response to rare tone pairs. Furthermore, the pitch discrimination and MMN deficit was correlated with the degree of impairment in phonological skills, as reflected in reading errors of regular words and non words.

Follow-up after three months of remediation revealed improvement of scale of auditory behavior questionnaire significantly from the study group before remediation ***(Table, 7)*** denoting improvement of central auditory performance. Also, improvement of social behavior was notices by significant improvement in M-CHAT ***(Table, 8)*** and objectively, improvement of MMN amplitude and

normalization of latency ***(Table, 9).*** These findings are supported by the fact of brain plasticity in which after insult to the brain in childhood, there is still a chance for reversibility.

Brain plasticity underlies normal brain function such as our ability to learn and modify our behavior. It is strongest during childhood explaining the fast learning abilities of kids. Furthermore, studies determined that environmental changes could alter behavior and cognition by modifying connections between existing neurons and via neurogenesis in the hippocampus and other parts of the brain, including the cerebellum [(30)].

One of the major stimulation of brain plasticity is experiences early in life which have different effects on behavior than similar experiences later in life. It was expected that there would be quantitative differences in the effects of experience on synaptic organization, but to our surprise, it was also found *qualitative* differences. Thus lack of experience available for normally raised children in real life situations was responsible for central and behavioral findings found in this study. And by the same mechanism, starting experience and changing lifestyle would benefit from brain plasticity and reorganize so as to retain its function [(31)].

As a conclusion, TV addiction for young children is a major insult to their brain depriving them from learning from real life situation and affecting badly their normal social and behavioral development. Early management can ameliorate the destruction before affecting their learning abilities later on.

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Appendix (A):

اسم الطفل:
تاريخ الميلاد: التاريـــخ:
إلى أى مدى تعتقد أن طفلك يعانى من هذه المشاكل

** تم ملأ بيانات هذا الاستبيان بمعرفة .....
** التقييم ..... (مجموع العناصر المختارة).

العناصر	دائماً	غالباً	أحياناً	نادرا	أبداً
1) صعوبة فى الاستماع أو الفهم فى خلفية من الضوضاء	1	2	3	4	5
2) صعوبة فى فهم الكلام خاصة السريع أو الخافت	1	2	3	4	5
3) صعوبة في إتباع الأوامر الشفهية	1	2	3	4	5
4) صعوبة فى تمييز و تحديد حروف الكلام	**1**	2	3	4	5
5) استجابات غيرثابته للمعلومات المسموعة	**1**	2	3	4	5
6) قدرات سمعية ضعيفة	**1**	2	3	4	5
8) سرعة التشتت	**1**	2	3	4	5
10) قصر فترة الانتباه	**1**	2	3	4	5
11) أحلام اليقظة وعدم الانتباه	**1**	2	3	4	5
12) غير منظم	**1**	2	3	4	5

Appendix (B):

Modified Checklist for Autism in Toddlers (M-CHAT)
قائمة استبيان التوحد(الذاتويه) لدي الاطفال

تعريب واعداد: د/محمود رشاد
استشاري علم النفس الاكلينكي – مجمع الامل للصحة النفسية – الدمام
استاذ م علم النفس الاكلينكي – جامعة جنوب الوادي – مصر

* الرجاء الاجابة علي كل الاسئلة التالية ب (نعم / لا) موضحا كيف يكون تصرف الطفل دائما. وإذا كان التصرف نادراً (مثال) : راته الام مرة أو مرتين (الرجاء الاجابة بلا كما لو كان الطفل لا يقوم به) .

م	البنود	نعم	لا
.1	هل يستمتع طفلك بالارجحة أو الهدهدة (الهزهزة) على ركبتيك ؟	نعم	لا
.2	هل لطفلك اهتمام بالاطفال الآخرين(يسعى للتعرف عليهم أو اللعب معهم) ؟	نعم	لا
.3	هل يحب طفلك التسلق (التشعبط ـ التشيلاء) علي الأشياء مثل صعود السلم (الدرج)؟	نعم	لا
.4	هل يستمتع طفلك بلعبة الاختباء و الاختفاء (الاستغماية / الغميمة / التياها)؟	نعم	لا
.5	هل يتظاهر طفلك بالحديث في التليفون (الهاتف) او الاعتناء بالالعاب (الدمي /العرانس) أو التظاهر بأشياء أخري؟	نعم	لا
.6	هل يستخدم طفلك أصبعه (السبابة) للإشارة أو السؤال عن شئ ؟	نعم	لا
.7	هل غالبا ما يستخدم طفلك اصابعه للاشارة الي الاشياء التي تثير انتباهه؟	نعم	لا
.8	هل يلعب طفلك كما ينبغى بالألعاب الصغيرة (مثل السيارات أو المكعبات..الخ) ولا يكتفي أن يضعها في فمه او يعبث بها أو يرميها ؟	نعم	لا
.9	هل يحاول طفلك ان يجلب اشياء لكي يريك شئ ما بها ؟	نعم	لا
.10	هل يمكن لطفلك ان ينظر (يحدق/ يخزر) في عينيك لاكثر من ثانية ؟	نعم	لا
.11	هل يبدو علي طفلك الحساسية الزائدة للضوضاء و الأصوات مثال(يغلق أو يسد اذنيه) ؟	نعم	لا
.12	هل يستجيب طفلك لابتسامتك أو نظرتك بالابتسامة ؟	نعم	لا
.13	هل يقوم طفلك بتقليد وجهك معبراً عن الفرح أو الحزن ؟	نعم	لا
.14	هل يلتفت(ينتبه) طفلك أو يستجيب عندما تناديه باسمه ؟	نعم	لا
.15	عندما تشير إلي لعبة في الغرفة ،هل ينظر (ينتبه) طفلك إليها ؟	نعم	لا
.16	هل يستطيع طفلك المشي ؟	نعم	لا
.17	هل ينظر (يخزر) طفلك الى الاشياء التى تنظر إليها ؟	نعم	لا
.18	هل يقوم طفلك بحركات غير اعتيادية(غير طبيعية) أمام وجهه ؟	نعم	لا
.19	هل يحاول طفلك جذب (لفت) انتباهك الي العمل الذي يقوم به ؟	نعم	لا
.20	هل تساءلت في وقت ما أذا ما كان طفلك (لا يسمع) أصم؟	نعم	لا
.21	هل يفهم طفلك مايقوله الآخرين(الناس) ؟	نعم	لا
.22	هل يحدق طفلك أحيانا في شيء غير معين(في الفضاء) أو يتجول بدون هدف ؟	نعم	لا
.23	هل ينظر (يخزر) طفلك الي وجهك ليري ردود أفعالك عندما يواجه شيئا غير مألوف (غير معتاد / غير عادي)؟	نعم	لا

الدرجة الحرجة : _____
الدرجة الكلية : _____

مخاطر مشاهده التليفزيون لمدد طويله فى المرحله المبكره من العمر

اعداد

د.ابتسام حامد ندا

مدرس السمعيات بقسم الانف و الاذن و الحنجرة بكلبه طب الزقازيق

مقدمه البحث:

تتعدد شكاوى الامهات من ضعف الانتباه و التأخر اللغوى عند الأطفال. و تتواتر شكاوى ايضا من اضكرابات السلوك و احيانا تصل الشكوى للشك فى سمع الطفل. و بالسماع المتأنى للتاريخ المرضى للأطفال لاحظنا تعرضهم للجلوس امام برامج التليفزبون لمدد طوبله و منذ سن مبكرة قد تصل فى بعض الاطفال الى سن الثلاثه شهور. بالطبع يؤدى ذلك الى مضاعفات نريد ان نعرف حدودها فى هذا البحث.

الطرق:

اجرينا البحث على 50 طفلا من الاطفال الذين ترددوا على وحده السمعيات بمستشفيات جامعه الزقازيق و 20 طفلا دون شكوى كمجموعه ضابطه و الاطفال اقرب العاملين فى الوحده. سن الاطفال تراوح ما بين الثانيه و الثالثه من العمر. و تم الفحص باستخدام استطلاعات للرأى تم الاجابه عليها بواسطه الاباء و باستخدام جهاز عدم المطابقه السلبيه ثم عرضنا الأطفال للتأهيل عن طريق توعيه الاهل و منع التليفزيون ثم كررنا الاختبارات.

النتائج:

كلتا المجموعتين كان لهما أعمار متطابقه احصائيا و نسب ذكاء متناسبه. تم رصد فروق فى استبيان السلوك السمعى و الاستبيان المعدل لفحص التوحد. كما تم رصد فروق ذات قيمه احصائيه بالنسبه لمعيير قيام عدم التطابق السلبى. هذه النتائج اتجهت للتحسن بعد التأهيل حيث اصبحت تفضل بقيم ذات دلالات احصائيه

الملخص:

ان التعلم عن طريق الوسائل الالكترونيه غير مناسب للاطفال قبل سن المدرسه ففى الواقع انه يؤثر سلبيا على التكيف الاجتماعى ووظائف المخ العليا و الادراك. كما يؤثر على الانتباه والذاكره معرضا الطفل للخلل فى وظائف السمع العليا و حتى للتوحد بدرجاته و على اكتسابه للغه ثم القدلره على التعلم فيما بعد. و من ثم فان التعلم من خلال الخبرات الحياتيه افضل بالذات فى المراحل الاولى من العمر.