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Original Research Article

Effects of television viewing on preschoolers-a cross sectional Indian population-based study

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ABSTRACT

Background: Television (TV) viewing creates tremendous influence on daily life; hence concerns have been raised on viewers, especially in preschool age group children. An existing literature has documented significant correlation between TV viewing and various behavior related problems among the other age groups. This study attempted to assess TV viewing habits in preschool children.
Methods: A cross-sectional study was carried out over a period of 2 years at the tertiary health care center and a total of 500 children between 2 to 5 years of age, visiting the center, were included. Pre-validated 32 item questionnaire was used to collect data regarding television viewing habits from parents/guardians. TV viewing ≥2 hours was considered as excessive as per American academy of pediatrics (AAP) recommendation. Data analysis was done in SPSS version 20 (SPSS Inc., Chicago, IL, USA) and statistical differences were computed by 'chi-square test' and 'paired t test'.
Results: There was statistically significant association between TV viewing and subject's behavior. 'Becoming angry on switching off TV' was the most protuberant behaviour; followed by 'imitating TV characters' among the subjects. In addition to these effects on food habits, sleep pattern and play activity were also noted with excessive TV viewing group.
Conclusions: The current study reported a negative influence of TV viewing on behavior, sleep patterns, food habits and play activities of preschool age children. Parents should implement multipronged strategy like scheduling TV watching duration, limiting child's total screen time, supervising and guiding child's TV viewing activities to make better use of television for their children.

Keywords: Behavior, Habits, Preschool age children, Excessive television viewing

INTRODUCTION

Television (TV) has turned out to be as one of the most noteworthy mass media tools particularly in recent years. It creates substantial impact on the lives of people and has been the subject of research and debate since its inception.[1] Television viewing bears potential impact in the lives of most children. Due to its significant influence on day-to-day life, major concerns have been raised on viewers especially in preschool age group.[2]

Excessive TV watching has deleterious consequences on human beings in the form of brain dysfunction, reduced socialization, family conflicts and sleep disturbances etc. The research has explored significant association between TV watching habits and various health and behavioral problems including obesity, poor eating, impaired school performance among children.[3-5] The positive correlation between child's exposure to fierce images on TV and consequent aggressive behavior also has been evidenced recurrently in the literature.[3] High prevalence of TV viewing is documented among Indian children. The existing literature indicates that an average weekly TV viewing time among them is around 9.92 hours.[3]

Numerous studies have been implemented to assess TV viewing patterns among Indian pediatric population. However, the majority of studies are mainly performed on children of age group of five years onwards. The present study was primarily intended to evaluate an impact of TV viewing on food habits, sleep patterns and other behavioral aspects of children between 2 to 5 years of age.

METHODS

Study design, settings and sampling procedures

A cross sectional study was conducted at one of the tertiary health care institutions in emerging metro city. A total number of 500 of pediatric patients between 2 to 5 years of age, who visited OPD and IPD departments between 1st September 2013 to 31st August 2015 were enrolled as study subjects. The representative sample was ensured through 'systematic random sampling method. The subjects with critical illness, developmental delay and audiovisual impairment were excluded from the study.

Ethics procedures

The study was approved by the institutional ethics committee of the institute. An informed consent was taken from parents/guardian after explaining the purpose of the study.

A structured, pretested 32 items questionnaire was developed and used to collect information from study subjects. It comprised of two major portions namely Demographic data (Name, age, sex, family type, parental level of education and job profile etc.) and subject's TV viewing habits in preceding one month. A questionnaire contained 25 closed (CE) and 7 open ended (OE) questions. The OE items retrieved in depth information while CE items generated structured responses which enabled the ease of tabulation and analysis. The answers to questionnaire had been written by interviewing the parents/guardians by single interviewer. Approximate time required to answer questionnaire from each subject was 20 minutes. An average daily viewing time was recorded by way of self-reporting from parents or guardians. A questionnaire was internally validated by experts. TV viewing ≥2 hours was considered as excessive as per American academy of pediatrics (AAP) recommendation.

Statistical analysis

Entire data was processed and analysed in SPSS ver. 20 (SPSS Inc., Chicago, IL, USA). The mean and confidence interval of average time spent on TV viewing were calculated. P value of 0.05 was considered to be statistically significant. Various factors associated with TV viewing and its correlation with TV viewing duration were analysed using 'chi-square test' and 'paired t test' to compare frequencies and means respectively.

RESULTS

Demographic characteristics

The current study included 292 (58.4 %) of males and 208 (41.6%) of females. The majority (73.1%) of subjects belonged to nuclear family and the percentage of urban-rural residence was 26.4 vs 73.6 respectively. Around 93% of subjects had single television set whereas the remaining had more than one TV set.

Television viewing habits of subjects

Only 3% of subjects were found to have not started TV viewing. Table 1 depicts the mean TV viewing duration among study group of 2-5 years age. It was noted that almost 73% of subjects had initiated TV viewing in infancy. The daily mean TV viewing duration of family members was 5.24±2.92 hours/day.

Table 1: Daily television viewing duration of study subjects (n=500).

Age (year)	Television viewing duration (hours)				
	Min.	Max.	Average	SD	Median
2-5	0.17	07	1.88	1.26	1.50

SD-Standard deviation

Table 2: Association between food habits with TV viewing duration (2 to 5 years) (n=500).

Food habit	TV viewing duration (hours) (%)		P value
	<2 (n=250)	≥2 (n=250)	
Family TV viewing with meals	177 (70.8)	208 (80)	<0.05
Subject's TV viewing with meals	112 (44.8)	192 (73.85)	<0.0001
Excessive eating while TV viewing	63 (25.2)	101 (38.85)	<0.005
Neglecting food while TV viewing	30 (12)	97 (37.31)	<0.0001
Consumption of more time to finish meal	44 (17.6)	136 (52.31)	<0.0001
Fast food	22 (8.8)	182 (70)	<0.0001
Fruits and vegetables	140 (56)	150 (57.69)	>0.05

P<0.05 was considered as statistically significant

The study also revealed that, majority (62.4%) of parents/guardians spent more than 2 hours in watching TV when subjects were around. In the study group, only 104

(20.8%) subjects were observed to view educational content while remaining 160 (32%) subjects were engaged in watching non educational programmes on television, rest of them had mixed content of TV viewing.

It was noticed that 47.8% of subjects were found to have TV viewing without permission. Television watching duration in these subjects was significantly higher than their counterparts (p<0.0001). Nearly half of the subjects in this group had conflicts for content and specific TV channel.

The present study revealed various food habits of subjects linked with TV viewing (Table 2). Large numbers of subjects were found to consume their meals with TV viewing. Almost half of subjects were having nutritious food like fruits and vegetables whereas the percentage of subjects demanding for fast food was relatively high (Table 2). The difference was statistically significant (p<0.05) for all food habits except infrequent fruits and vegetables consumption (p>0.05) (Table 2).

TV viewing and behavioural problems

Table 3 delineates positive association between TV viewing and subject's behaviour (p<0.0001). 'Becoming angry on switching off TV' was the most prominent behaviour related concern observed in this study followed by 'imitating TV characters' noted among study subjects.

Table 3: Behavioural issues associated with TV viewing (2-5 years) (n=500).

Behavioural issue	TV viewing duration (hours) (%)		P value
	<2 (n=250)	≥2 (n=250)	
Demand things related to cartoon character	60 (23.08)	154 (61.6)	<0.0001
Do not obey parent's order while TV viewing	68 (26.15)	108 (43.2)	<0.0001
Angry on switching off TV	165 (63.46)	211 (84.4)	<0.0001
Temper tantrums	52 (20)	126 (50.4)	<0.0001
Imitation	127 (48.85)	169 (67.6)	<0.0001

P<0.05 was considered as statistically significant

The study could not report any statistically significant association between parent-child interaction and TV viewing duration of subjects. Around 68% of subjects had TV watching without parental constraints. 'Late night sleep' was noticed among 50.70% of subjects while 104 (20.8%) subjects reported reduced night sleep duration i.e., <8 hours/day. There was no statistically significant effect (p>0.05) of TV viewing on outdoor play activities. However, the subjects, who viewed TV for more than 2 hours, were found to have reduced indoor play (p<0.0001).

DISCUSSION

Most of the television watching practices, hypothesized in the current study, was reported to be associated with adverse health and behaviour related problems. In this cross-sectional study of 500 subjects, the predominantly affected sleep domains in subjects were decreased sleep duration, sleep onset delay and daytime sleepiness. Similar findings were observed in other studies.[6-8]

With extensive research evidences, it is indicated that 'media violence' can contribute to aggressive behavior, desensitization to violence, nightmares and fear of being harmed in this specific age group.[9] Several studies have documented the role of TV in fostering disruptive behaviors among children.[10,11] In present study, multiple behavioral problems were reported among study subjects (Table 3). Nearly 41% families reported sibling fights for TV viewing content. Bushman et al. also observed reduced empathy level among children towards family and siblings as a result of watching violent shows.[12] In this study, almost every second, 2 out of 3 subjects were reported to imitate TV characters and 35.6% of parents noted 'temper tantrums' in them. All mentioned behavioral issues showed statistically significant association with excessive TV viewing in subjects.

The present study showed statistically significant correlation between TV viewing duration and urban-rural region residence of subjects. Comparing to rural counterparts, urban population were highly engaged in television watching. These results were supported by study of Ravikiran et al in which children from urban area predominantly viewed targeted channels with more hours of television on holidays than rural children.[13] This could be attributed to high preference of children in urban region to stay inside the house and consequently they get more time available to watch TV.

American academy of pediatrics (AAP) recommends TV viewing duration in preschool age group should not be more than 1 to 2 hours/day.[14] However, in the current study, the mean daily TV viewing duration among subject group of 2 to 5 years was 1.88±1.26 hours which was already found to be at maximum limit as per (AAP) guidelines. Almost 73% of subjects started TV viewing during infancy which denotes much earlier exposure of Indian children to media. Comparable findings were revealed in studies of Gupta and Mukherjee et al where an average daily TV viewing time was 2.6 hours/day and >2 hours/day respectively.[3,15] In our study, the mean TV viewing spent time of family members was 4.90±2.79 which was higher than other studies. This might be because most of families comprised of single earning parent and majority of mothers were housewives leading to more TV viewing duration in them.

The present study had few limitations. The factors which have been proved to be significantly associated with children's TV viewing i.e., socioeconomic status of family, parental education and their work profile were not recorded in the study. Parents' rating of media use for their children might have increased the possibility of rating bias. Majority of families had single TV mainly in common living area; hence the impact of number of TV sets in home as well as its presence in bedroom could not be assessed. The generalizability of results of the study may be restricted due to limited sample size. Finally, as a cross sectional study, it could not identify cause-effect relationships.

CONCLUSION

The present study supported a negative influence of television viewing on development of preschool children particularly in preference to behavior, sleep duration, food habits and play activities. Majority of them were viewing unsupervised and non-educational TV programs. 'Scheduling television times', 'restricting child's total screen time' and 'assisting the child to select appropriate programs 'could be an effective strategy to be implemented by parents to make better utilization of television for their children.

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