

TELEVISION VIEWING HABITS AND ITS RELATIONSHIP WITH OBESITY, MENTAL HEALTH & ACADEMIC PERFORMANCE IN SCHOOL CHILDREN IN TAMILNADU

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Abstract

Background: There are many studies which analyze the relationship between television viewing habits and the risk of obesity, mental health and academic performance separately. Very few studies are there which assessed these things simultaneously. The aim of our study is to find the relationship between TV viewing with the risk obesity, mental health and academic performance. **Materials and Methods:** We have studied 1019 students from 2 urban schools of Tiruppur city aged 8-12 years, studying in the standards 4th- 8th, approximately 200 students from each standard between 2022-2023. A special proforma containing demographic details, TV viewing habits of children, BMI, and mental health was given to the students and they were asked to complete it in their home under parental supervision. Height and weight were taken. Special rating scales to assess the mental health were included in the proforma. Data collected were entered in MS excel and analyzed using SPSS 23. p value <0.05 is considered statistically significant. **Results:** Majority of the stud participants belongs to lower middle class. Most of them were Hindus, 66% of the children viewed TV for more than one hour per day and the most preferred channels are music/comedy, cartoons and movies. Entertainment was the most common reason for viewing. More than half of the study participants likely to eat during TV viewing. nearly half them were occasionally physically active, most of the study participants were underweight. In mental health, 40% showed mild violent behavior. Antisocial behaviors like stealing/lying (3%) and school absenteeism (2%). 46% of the study participants were in the average category. Significant association between duration of TV viewing and risk of obesity. Frequent eating or snacking during TV viewing was significantly associated with obesity. Physical activity had weak and inverse association with obesity which is significant. Severity of violence, anxiety, stealing/lying and school absenteeism were significantly and strongly associated with duration of TV viewing and the type of program. Longer the duration more is the severity of these issues. Movies & cartoons are more likely associated with these problems. Similarly, longer the duration of TV viewing poorer is the academic performance. **Conclusion:** In our study we found a significant association between television viewing habits and the risk of obesity, mental health & academic performance. This may help to create awareness among parents and teachers.

INTRODUCTION

21st century has seen rapid technological advancement in mass media. Among all mass media, television is an important and an unavoidable thing. It is a “window to the world”. Total number of TV homes in India would be more than 100 million. The urban- rural ratio of TV homes is increasing. The ratio is highest in Tamil Nadu (>10 million) followed by former Andhra Pradesh and Maharashtra.^[1] Children should watch only two hours of quality programming per day. Children aged 8-18 years spend more time (6.5 hrs daily) in front of TV, computer & video games than any other activities in their lives. More than half of television viewers in India today are children below 15 years.

There is increasing concern about the rising prevalence of childhood obesity & its future health implications. This problem is prevalent all over the world irrespective of whether it is a developed or developing or underdeveloped country. While potential contributors to the problem of childhood obesity are many and complex, increasing television viewing in children has been implicated.^[2] According to Albert Bandura’s theory, children & adolescents learn by observing & imitating the behavior what they see. Many researchers observed that school going children who view TV frequently & for longer duration develop behavioral problems. Exposure to violence on TV may provoke children & may lead to violent behavior in children.

The studies associating TV viewing to academic performance are predominantly based on developed countries. There are few studies which found that television viewing can be good for children. Others studies found different influences in different settings or on different abilities. In India, there are very few studies which study the relationship between TV viewing & academic performance.

To address these three areas of concern, namely childhood obesity, mental health & academic performance, this study has been conducted in this region, which is more reflective of a real India or a developing state. The aim of the study is to find the relationship between Television viewing habits & the risk of obesity, Mental health issues and Academic performance.

MATERIALS AND METHODS

Study design

This is a descriptive, cross- sectional study.

Sample

The study was conducted in 2 urban schools.

Subjects

The students, who study between the standards 4th & 8th (i.e., between the age groups 8yrs- 12yrs) was taken up for the study.

Sample size

Based on inclusion and exclusion criteria 200 students were recruited from each standard between 4th - 8th. The final sample size obtained was 1019

Duration

One year—2022-2023.

Inclusion Criteria

Both male & female children were included.

Children belonging to all religions & socio-economic status were included.

Those who study between the standards 4th & 8th were included.

Exclusion Criteria

Those, who refused to participate & physically very ill were excluded.

Tools

Once the ethical committee clearance was obtained from the Institutional Ethics Committee (H), Informed written consent or assents will be obtained from the Parents /Guardians willing to participate in the study.

- **A Special Proforma (Questionnaire)** to assess the TV viewing habits, mental health & obesity risk was given to the parents of children and children & both of them were asked to fill it up in their home simultaneously. If they were younger students, parents had completed the questionnaire. If they were older students, children completed the questionnaire under parental supervision. If their parents were illiterate, other relative /neighbor completed the questionnaire).
- **BMI formula** (height & weight was measured) was used to assess the level of obesity. Height and weight were taken during free class hours.
- **Marks/Grading system** from teachers (progress report) was taken up for the assessment of academic performance. Consolidated marks were considered.
- **Modified Kuppusamy’s scale** is used for socio-economic status.
- **Overt aggression scale** was used to assess the degree of violence.
- **Hamilton anxiety rating scale** was used to assess the degree of anxiety.

Statistical Analysis

The obtained data was entered in the MS Excel Windows 10. Statistical analysis was done with the help of SPSS 23. Continuous data was expressed in terms of Mean and Standard deviation. Categorical data was expressed in terms of Numbers and percentages. Test of association for Categorical data was Chi square test and for Continuous data was t test and Anova test. p value <0.05 is considered to be statistically significant.

RESULTS

This study was conducted on 1019 students, who belong to two corporation schools of Tirupur city from July 2022-2023. Female students outnumber male students (524 > 495).

Among the study participants students majority were in >10 years of age 617 (60.5%). Hindus (86%) form the majority, followed by Muslims (12%) and Christians (2%). Over 99% belong to lower middle and upper lower classes. [Table 1] In our study 72% were underweight, 18% in the normal category, 8% overweight and 3% were obese. Majority of the study participants not doing physical activity.

Only few doing regularly. [Table 3]

In our study, those who exhibited no violence were 49%, mild violence 40%, moderate violence 8%, and severe violence 3%. In our study, 38% exhibited no anxiety, 38% mild anxiety, 21% moderate anxiety and only 3% exhibited severe anxiety. [Table 4]

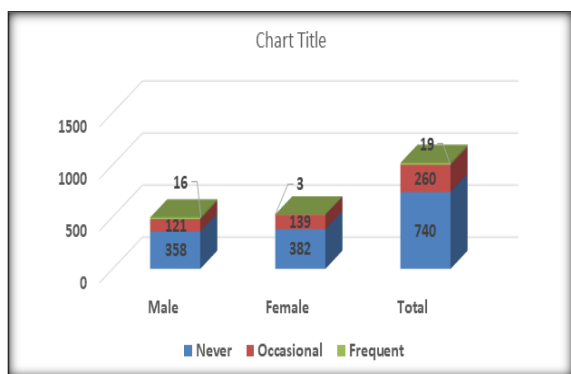


Figure 1: Absenteeism among the study participants

This study shows clear association between body mass index (BMI) and duration of TV viewing as

'p' value is significant (<0.001). Those who watch less than 1 hour per day are less likely to be overweight or obese (1%). There exists an association between BMI and snacking & eating during TV viewing ('p' value is significant = <0.001). Those children who frequently snack or eat during TV viewing are more likely to be overweight or obese (14% & 8% respectively). This study showed that there is a significant association between physical activity and BMI ('p' value <0.05), but it is a weak association. There is also an inverse association, i.e. those who were physically active were found to be obese. [Table 5]

There is an association between violent behavior and duration of TV viewing. As the viewing time increases, percentage of children with violent behavior increases dramatically. There is an association between anxiety and duration of TV viewing. As the viewing time increases, percentage of children with anxiety increases dramatically ('p' value <0.001). There is a clear and significant association between the duration of TV viewing and the academic performance ('p' value <0.001). As the duration increases, academic performance decreases. [Table 6]

Those who watch movies, sports and cartoon networks are more likely exhibit severe violent behavior ('p' value <0.05). In our study, there is a significant association between the type of program viewed and academic performance ('p' value <0.001). Those who watched science related channels were brilliant performers (19%). [Table 7]

Table 1: Baseline characteristics of the study participants

Variables	Male (N=495)	Female (N=524)	Total (N=1019)
Age category			
<10 years	196	206	402
>10 years	299	318	617
Religion			
Hindu	432	441	873
Muslim	49	73	122
Christian	14	10	24
Socioeconomic status			
Upper class	0	0	0
Upper middle class	0	1	1
Lower middle class	315	342	657
Upper lower	180	180	360
Lower	0	1	1

Table 2: TV related components among the study participants

Variables	Male (N=495)	Female (N=524)	Total (N=1019)
Duration of TV viewing			
<1hour	161	188	349
1-2 hour	151	145	296
2-3 hour	99	103	202
>3 hour	83	89	172
Type of program			
Movies	106	103	209
Music or comedy	145	183	328
Sports	66	31	97
Cartoon	125	143	268

Science	51	66	117
TV Viewing Distance			
<1M	114	75	189
1-2M	145	221	366
2-3 M	72	76	148
>3 M	164	152	316
Eating or Snacking			
Never	121	121	242
Occasional	267	293	560
Frequent	107	110	267

Table 3: Physical activity and Body mass index of the study participants

Variables	Male (N=495)	Female (N=524)	Total (N=1019)
Physical activity			
Never	204	200	404
Occasional	210	241	451
Frequent	81	83	164
Body mass index			
Underweight	359	378	737
Normal	95	96	191
Overweight	26	32	58
Obese	15	18	33

Table 4: Mental health of the study participants

Variables	Male (N=495)	Female (N=524)	Total (N=1019)
Violent Behaviour			
Never	291	259	500
Mild	189	214	403
Moderate	47	39	86
Severe	19	11	30
Anxiety			
Never	194	194	388
Mild	180	205	385
Moderate	107	106	213
Severe	14	19	33
Stealing or Lying			
Never	363	403	766
Occasional	110	112	222
Frequent	22	9	31

Table 5: Association of BMI with Duration of watching TV, Snacking and Physical activity

BMI	UNDERWEIGHT	NORMAL	OVERWEIGHT	OBESE	TOTAL
Duration					
<1 hr	272	70	5	2	349
1-2 hr	214	63	12	7	296
2-3 hr	134	38	19	11	202
>3 hrs	117	20	22	13	172
Snacking					
Never	152	75	11	4	242
Occasional	461	72	16	11	560
Frequent	124	44	31	18	217
Physical activity					
Never					404
Occasional	290	77	23	14	451
Frequent	346	71	22	12	560
	101	43	13	7	154

Table 6: Association Violent Behavior with Duration of TV Viewing

DURATION OF TV VIEWING	<1HR	1-2 HR	2-3 HRS	>3 HRS
VIOLENT BEHAVIOUR				
NEVER	260	176	59	5
MILD	87	105	104	107
MODERATE	1	13	30	42
SEVERE	1	2	9	18
ANXIETY BEHAVIOUR				
NEVER	208	129	31	20

MILD	123	113	92	57
MODERATE	16	47	69	81
SEVERE	2	7	10	14
STEALING AND LYING				
NEVER	305	240	131	90
OCCASIONAL	43	50	62	67
FREQUENT	1	6	9	15
ABSENTEEISM				
NEVER	295	236	122	87
OCCASIONAL	54	59	73	74
FREQUENT	0	1	7	11
ACADEMIC PERFORMANCE				
BELOW AVERAGE				
AVERAGE	7	13	24	51
ABOVE AVERAGE	101	128	135	102
BRILLIANT	203	135	35	17
	38	20	8	2

Table 7: Association of violent Behavior with Type of Program

VARIABLES	MOVIES	MUSIC / COMEDY	SPORTS	CARTOON	SCIENCE
VIOLENT BEHAVIOUR					
NEVER	99	185	34	125	57
MILD	80	112	50	109	52
MODERATE	22	25	10	23	6
SEVERE	8	6	3	11	2
ANXIETY					
NEVER	52	149	41	85	61
MILD	85	109	39	107	45
MODERATE	59	63	15	65	11
SEVERE	13	7	2	11	0
STEALING/LYING					
NEVER	135	269	75	186	101
OCCASIONAL	65	52	19	72	14
FREQUENT	9	7	3	10	2
ABSENTEEISM					
NEVER	132	262	66	182	98
OCCASIONAL	71	63	29	79	18
FREQUENT	6	3	2	7	1
ACADEMIC PERFORMANCE					
BELOW AVERAGE					
AVERAGE	19	27	16	23	10
ABOVE AVERAGE	129	121	29	163	24
BRILLIANT	53	159	45	72	61
	8	21	7	10	22

DISCUSSION

In our study Female children preponderance observed (Females 51%, Males 49%). 86% of the study participants were Hindus (86%) followed by Muslims 12%. Two third of the study participants belonged to lower middle class. This was also expected as children belonging to lower socio economic strata were more likely put up in government schools, because of skyrocketing of fees in private schools. This was consistent with results of Chris Thomas et al,^[1] study which revealed that majority (48%) of them had monthly income less than Rs. 5000.

Nearly one third of children (34%) watched TV less than one hour per day. Around one sixth of children (17%) watched TV more than three hours per day. The mean television viewing time was approximately 1.5 hours per day. Irene Braithwaite et al,^[4] showed similar results. Whereas Dr. Dhyan Singh et al,^[3] in his study stated in his study children watched TV for more three hours per day which is more than our study. The difference could be due to

the small sample size of Dr. Singh (only 60 children that too from 9th & 10th class).

Around one third watched music and comedy channels, each). Boys preferred sports channels and girls liked science channels. Whereas Dr. Dhyan Singh' et al,^[3] in his study showed one third of students watched film channels and movies. This may be due to older age of children in his study.

53% of the children said that they watch television for entertainment purpose. This is in accordance with Dr. Dhyan Singh's,^[3] study, which showed that more than half of the children (61%) watched TV for entertainment purposes.

In our study, more than half of the children (53%) were underweight. Only 37% came in the normal weight category. Those with overweight and obese were 8% and 3% respectively. A large multi centric study conducted by Irene Braithwaite & co,^[4] revealed the proportion of children who were overweight and obese ranged from 0.3% and 0.2% respectively in India to 15% and 10% in Mexico. Again the reason is that our study sample was a middle aged sample i.e. 8 to 12 years old. This

clearly shows that as the age advances BMI and obesity increases proportionately. Jo Salmon reported,^[5] in his study that among 10-12 year olds, 32% were overweight and obese.

There is a positive correlation between television viewing habits and the risk of obesity, we found that duration of TV viewing was positively correlated with the risk of obesity ('p' value <0.001). This was consistent with findings Irene Braithwaite et al,^[4] study. In our study a positive correlation observed between snacking and eating during TV viewing and BMI, ('p' value < 0.001). This was in concordance with Jo Salmon et al,^[5] study.

With regard to the association between physical activity and body mass index, both were negatively correlated in our study, although 'p' value was slightly significant (< 0.05).

Regarding violent behavior, our study shows 40% exhibited mild violence. Boys were a likely to exhibit moderate and severe violent behavior than girls in our study. According to Chris Thomas,^[1] Rajasthan, India reported that prevalence of severe violence among children was 2% and moderate violence was 10%. This is in accordance with our study.

Our study showed that there was a significant association between the television viewing habits and violent behavior in school children. These findings were consistent with the study done by Chris Thomas,^[1] Nazari MR,^[6] and others. A study done in Madurai, Tamil Nadu by Rachel J,^[7] reported that there was a positive correlation between TV viewing and violence among school going children. Mark I Singer,^[8] on American children concluded that those children who report greater amount of time watching TV and exposure to more violent content tend to exhibit more violence.

When TV viewing habits were associated with anxiety, the duration of TV viewing was significantly associated with severity of anxiety ('p' value <0.001), i.e. longer the duration of TV exposure, greater the severity of anxiety. With regard to type of program and association with anxiety, those who watched movies regularly expressed moderate and severe levels of anxiety more often 28% & 6% respectively

In our study, 73% of the children said that they never skipped classes. 26% of them said that they were occasionally absent and only 2% were frequent absentees. Frequent absenteeism was much more common among boys than girls (3% Vs 0%). Those who watch more than 2 hours & 3 hours per study were more likely to be absent than those who watch less than 2 hours per day ('p' value < 0.001). Regarding the type program, those who were viewers of movies, cartoon and sports channels exhibited more absenteeism ('p' value <0.001). These findings were consistent with Andrew Hansen & co.^[9] Who concluded that more than 2 hours per day of TV exposure was significantly associated with school absenteeism.

We found that the duration of television viewing has a significant relationship with academic performance ('p' value <0.001), i.e. more the duration of TV viewing poorer the academic performance. Those who watched TV more than 3 hours per day were more likely to perform poorer in academics than those who watched less than one hour per day (30% Vs 2%). This was supported by Zimmerman, Christakis,^[10] (2005),

In our study there was also a relationship between the type of Program viewed and the academic performance ('p' value <0.001). We found that those who viewed scientific channels and sports did better than those who watched cartoon and movies (19% and 7% Vs 4% and 4% respectively).

Limitations

Our study is a cross sectional study so we are unable to establish cause-effect relationship. The special proforma given to students to fill by themselves in their home had some pitfalls. Illiterate parents would not have had control over their children's response to the questions asked. Moreover the replies were based on the honesty of the respondents. The study sample was not representative of the entire socio economic spectrum of population. It studied only urban children so rural population was not represented. Other factors influencing obesity, violence, anxiety and academic performance were not controlled in this study, i.e. genetic, hormonal, disease related factors.

Strengths

The study sample size was large and it covers the entire spectrum of television's effects on the children, i.e. on the physical, psychological and educational domains. Psychological health was assessed in more than one domains i.e. violence, anxiety, stealing/lying and school absenteeism.

CONCLUSION

This study has proved that there is a significant relationship between television viewing habits of school going children and obesity, mental health & academic performance. It also helps to create awareness among parents about the ill effects of television viewing in children. It helps to promote healthy life style in children in order to prevent life style disorders like Diabetes Mellitus, Hypertension, Cardio-vascular diseases and Obesity during their adult phase. Our study promotes psychological wellbeing among children and to prevent future disorders like substance use disorders, anxiety, depression, personality problems, and domestic violence.

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Competing Interest

There is no competing interest

Authors Contribution

All authors in our study contributed to the data collection of the patients

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REFERENCES

1. Chris Thomas, Bhasura Chandrachood; Television viewing habit and violent behavior among school going children; International Journal OF allied Medical Sciences and Clinical Research(IJAMSCR); IJAMSCR; Volume 2; Issue 1; Jan- Mar-2014;
2. Irene Braithwaite, Alistair W. Stewart, Robert J. Hancox, Richard Beasley, Rinki Murphy, Edwin A. Mitchell, the ISAAC Phase three study group: The worldwide association between television viewing and obesity in children and adolescents: cross sectional study; September 2013; Volume 8; Issue 9; e74263
3. Dr. Dhyan Singh; Television viewing and moral formation of children in rural India; IOSR Journal of Humanities and Social Science (IOSR-JHSS); Volume 19, Issue 3, Ver. V(Mar. 2014), PP 12-16; e-ISSN: 2279-0837
4. Braithwaite I, Stewart AW, Hancox RJ, Beasley R, Murphy R, Mitchell EA: ISAAC Phase Three study group. The world wide association between television viewing and obesity in children and adolescents: cross sectional study. PLoS One. 2013;25:8(9):e74263
5. Jo Salmon, Karen J Campbell and David A Crawford; Television viewing habits associated with obesity risk factors; A survey of Melbourne school children; MJA; Volume 184 Number 2; 16 January 2006
6. Nazari MR, Hassan MSBH, Osman MN, Parhizkar S, Yasin MAIB. Children television viewing and antisocial behaviour. Does the duration of exposure matter. Journal of Sociological research. 2013;4(1)
7. Rachel J. Television viewing habit and violent behaviour among school boys in a selected school in Madurai. Paper presented at International Conference on mixed research Chennai, TamilNadu. 2011
8. Mark I Singer, Daniel J Flannery, Shenyang Guo, David Miller, Sylvia Leibbrandt. Exposure to violence ,parental monitoring and television viewing as contributors to childrens psychological trauma. Journal of Community Psychology. 2004,32(5):489-504
9. Andrew R. Hansen, Tony Pritchard, Irina Melnic & Jian Zhang; 2015; pages 651-659; Physical activity, screen time and school absenteeism: self report from NHANES 2005-2008.
10. Zimmerman FJ, Christakis DA. Children's Television viewing and Cognitive Outcomes: A Longitudinal analysis of National Data. Arch Pediatr Adolesc Med. 2005;159(7):619-625.