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Watching television by kids: How much and why?

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Abstract

Introduction:

Television (TV) viewing by children may be linked to a range of adverse health and behavioral outcomes. This study was aimed at examining the relationship between socioeconomic factors of families and TV watching behavior among 3–5 years old children in Ardakan, Yazd, Iran.

Materials and Methods:

In the cross-sectional study, mothers of 188 children (93 boys and 95 girls) between 3 and 5 years old completed a researcher-designed questionnaire. Data were analyzed by using SPSS, using bivariate correlations and *t*-test for independent samples.

Results:

The mean of TV viewing was 2.68 ± 1.6 h daily, ranging from 0 to 9 h. There were no statistically significant gender differences on the basis of daily TV watching. There were positive associations between the children's daily TV watching and age as well aschildren's daily TV watching and their mothers' time spent on watching TV. Children who lived in houses with the yard and could use it as a playground watched less TV than did the children who lived in houses without the yard.

Conclusion:

The results suggest that health care professionals should be aware of the association between different socioeconomic status aspects of families, such as the children's and mothers' time spent on watching TV and having a yard in the house in an attempt to develop effective strategies and interventions to prevent excess TV watching.

Keywords: Children, preschool, social class, sociodemographic characteristics, television, television viewing time

INTRODUCTION

Today's young children are exposed to an abundance of sedentary activities.[1] The most studied sedentary behavior is television (TV) viewing including TV and movie watching, followed by using the computer, and playing video games.[1] Since the introduction of TV in the 1950s, it has remained as an important part of family life, especially in families with children, even though video games and computers have grown in popularity and availability over the past decades.[2]

Excessive TV viewing has been linked to a range of adverse health and behavioral outcomes[3] such as

obesity and overweightness,[4] which in turn may cause increased risk of chronic diseases such as cardiovascular disease, diabetes and other metabolic diseases, some cancers, depression[4,5,6,7,8] and various sleeping difficulties and decreased sleep length.[9] Short-term follow-up studies of students for 2–4 years suggest negative associations between TV viewing time and measures of school achievement.[3] Furthermore, children who are high TV viewers tend to remain high TV viewers, relative to others, over time, and high level of TV viewing in childhood is associated with health risk factors (e.g., overweightness, poor cardio-respiratory fitness) in adulthood, independent of adult's levels of TV viewing.[10]

Many children and adolescents do not meet physical activity guidelines and exceed TV viewing recommendations.[11] Researchers frequently use the length of daily TV watching as an index of physical inactivity in epidemiologic studies.[12,13]

Although, it is recommended that children should not watch TV for more than 2 h/day,[14] available data suggest that in many countries, children spend more time watching TV than it is recommended. For example, average times that British children, aged 4–15 years, watch TV is 17 h/week (2.43 h daily).[15] One-quarter of all US children watch TV for 4 h each day;[16] specifically, 3–7-year-old children watch an average of 2–3 h of TV/day, with media-related activities such as video games and movies adding an additional half-an-hour/day, and computer games adding another half-an-hour/day.[1] Vereecken *et al.*, studied 26 countries and found that (1) Central and Eastern European countries had the highest TV watching rates; (2) the majority of 11–15-year-old reported watching more than 2 h each day; and (3) boys were more likely to watch TV regularly than did girls.[13] Some studies have reported that, on average, elementary school children spend a little more time viewing TV than do high school students.[17] According to Wright *et al.*, 3–5-year-old children watch TV for an average of 13.8 h on a weekly basis. Vandewater *et al.*, in a 2005 study reported that 1–6 years old children spend 6.3–9.1 h of their weekly times watching TV. Secondary TV viewing (viewing that accompanied another activity) has also been found to be prevalent among young children, peaking in the age of 3–5 years, and averaging 1.5 h/week.[9] Jari *et al.*, in their nationwide cross-sectional study on 6–18 years old Iranian's students, reported that 33.4% and 53% of students watched TV/video more than 2 h/day in their leisure time during school days and holidays, respectively.[18]

In general, it is recommended that preschoolers accumulate at least 60 min of structured physical activity and 60 min of unstructured physical activity per day[19] and that their TV viewing be limited to 1 h/day.[20] The development of effective strategies and interventions to prevent excessive TV viewing among young people, requires a detailed understanding of the determinants of the behavior.[10]

A diverse range of factors have been found to be associated with young people's TV viewing. For example, the home and family environment plays a prominent role. Parents and children sharing activities and engaging in activities together, parents setting examples and standards through role modeling as well as providing home environments that either facilitate or prevent behaviors such as active play or TV viewing are particularly important. Children's health behaviors, including TV viewing are influenced by parents' beliefs, attitudes, and behaviors.[10,11] Therefore, understanding whether and/or how parents influence children's TV viewing and physical activity could be important for identifying effective strategies for adjusting these behaviors among children.[11]

Previous research indicates that parents' socioeconomic status (SES) is related to the amount of TV children watch.[2] Among familial characteristics that influence children's physical activity are parents' education level and income.[20] In general, children from families of higher SES spend less time in front of TV.[2] There have been recent calls to focus on sedentary activities.[10,11] Unfortunately, as far as we know, there is no documented evidence about the amount of TV watching in Iran, especially in a 3–5 age-group, and we did not find any study focusing on the extent of the relationship between SES and this behavior among the Iranian children. The majority of few studies conducted in Iran examined the impact of TV watching on violent behavior and academic achievement among children and adolescents.[21,22,23]

Because socioeconomic factors can effects on children's TV watching and its health consequences, it is particularly important to examine the association of these factors with the amount of TV viewing by children as a health-risk behavior. Hence, the primary purpose of our cross-sectional study was to examine

the relationship between the amount of TV viewing among 3–5 years and SES. The study took place in Ardakan, Yazd, Iran.

MATERIALS AND METHODS

A nonprobability sample of 188 children (93 boys and 95 girls) was recruited to participate in the study. They ranged in age from 3 to 5 years and were visiting the four clinics in Ardakan district, Yazd province, Iran for routine health care checkups. Each child's height (cm) and weight (kg) were measured with a portable stadiometer and a scale, respectively, by health care providers. After obtaining informed consent, a researcher-made questionnaire was administrated to the children's mothers. Content validity of the questionnaire was established by a panel of experts. The questionnaire was designed to collect data on the name of the child, gender, age, number of siblings, daily hours of the child's physical activities, daily hours that the child and his/her parents watched TV, video, satellite programs and/or films on the computer, daily hours that parents spent with the child, and SES of the family, which included parents' education level and occupation, the size of the house (m^2), whether the house had a yard, and if so, could it be used as a playground by the child.

The participating children were categorized to five age groups (3, 3.5, 4, 4.5, and 5 years old). The body mass index (BMI) (kg/m^2) was calculated and plotted on growth charts according to age and sex and compared with a reference population and categorized into four groups: (1) Underweight (BMI for age $<5^{th}$ percentile), (2) healthy weight (BMI for age 5^{th} percentile to $<85^{th}$ percentile), (3) overweight (BMI for age 85^{th} to $<95^{th}$ percentile), and (4) obese (BMI for age $\geq 95^{th}$ percentile).[24] Education level of the parents was categorized into five groups: (1) Illiterate, (2) elementary school, (3) secondary school, (4) high school diploma, and (5) higher education levels. Job status of the mothers was categorized into four groups: (1) Employed, (2) housewife, (3) student, and (4)household jobs. Job status of the fathers was categorized into seven groups: (1) Unemployed, (2) worker, (3) simple employee, (4) senior staff, (5) businessman, (6) retired, and (7) others. the other variables such as daily hours of the child's physical activities, daily hours that the child and his/her parents watched TV, video, satellite programs and/or films on the computer, daily time that the child and his/her parents spent in front of the TV, daily time that the parents spent with their children, and the size of the house were treated as continuous variables in all analyses.

The data were analyzed to determine if there were any correlation between daily time that the children spent in front of the TV and other variables. The Statistical Package for the Social Sciences (Chicago, SPSS Inc.) was used for the purpose of data entry, manipulation, and analysis. The statistical techniques included bivariate correlations (Spearman rank order correlation coefficient and Pearson's product-moment correlation coefficient for ordinal and continuous variables, respectively) and *t*-test for independent samples. The level of significance was set a *priori* at 0.05.

RESULTS

On average, the children had watched TV, which also included video, satellite programs, and/or films on computer) for 2.68 ± 1.6 h daily, ranging from 0 to 9 h. Other descriptive characteristics of the participants are summarized in Table 1.

Boys and girls constituted 49.5% and 50.5% of the participants, respectively. The *t*-test for independent samples showed that the boys' daily physical activity (mean = 2.51 ± 2, ranging from 0.3 to 8 h) was significantly ($P < 0.05$) more than the girls' (mean = 1.81 ± 1.51, ranging from 0 to 8 h). The difference between the boys and the girls on the basis of the time spent on watching TV was not statistically significant (t = 0.46, $P = 0.65$). The number of children who had no siblings was 78 (41.49%) and 110 children (58.51%) had siblings, ranging from 1 to 8 (mean = 1.43 ± 0.88); the correlation between the number of siblings and daily TV watching was not statistically significant.

Spearman rank order correlation coefficient, ρ, showed a statistically significant positive association between daily TV watching and age group ($\rho = 0.21$, $P < 0.05$). Table 2 shows the correlation coefficients between TV watching and other ordinal variables.

Surprisingly, 42 girls (51.2%) and 40 boys (48.8%) were underweight. The TV watching had no statistically significant correlation with BMI.

The Pearson's product-moment correlation coefficient showed that the daily hours that mothers watched TV had a positive correlation with daily time that children spent in front of TV (r =0.15, $P < 0.05$). Other simple correlations are shown in Table 3.

The mean area of the houses was 181.9 ± 85.4 m^2, ranging from 50 to 550 m^2. There were 166 (88.80%) families who had yard in their houses and 134 (80.70%) of the families reported that their children could play in the yard. The group differences on the basis of the number of hours of TV watching were statistically significant, favoring those who did have yards (t = 2.48, $P < 0.05$). Results are summarized in Table 4.

DISCUSSION

The aims of the study were finding the amount of TV viewing in 3–5 year old children and examining its relation to SES. Our findings indicated that on average, the study participants had watched TV (including video, satellite programs, and/or films on computer) for 2.68 ± 1.6 h daily, ranging from 0 to 9 h, which was more than the recommended time of <2 h/day.[13,14] Although this is true in some other countries, for example, in New England (USA), the average TV viewing time among 4–10-year-old children was about 16.3 h/week, and among 3–10-year-old children in Canada it was 14 h/week.[9]

Contrary to the finding of Dubois *et al.*, that showed boys watch more TV than girls and other studies, which reported similar gender differences in TV viewing.[13,14,25] We did not find any statistically significant gender differences on the basis of daily TV watching.

Surprisingly, only 4.6% of children in the study were overweight or obese, and TV watching time showed no statistically significant correlation with BMI, which may be because of sampling method (nonprobability convenience sampling) and a common idea among mothers who believe only underweight children may be in ill health status and need more attention and health care than overweighs.

We found a positive association between daily TV watching and age group (5 years old children watched more TV than did other age groups), which is consistent with some other studies. For example, Mendoza *et al.*, in a cross-sectional study in the USA, found that computer use generally increased as age increase among 2–5 years old children.[26] Sisson *et al.*, reported differences among age groups on the basis of the amount of time spent in TV/video, computer and total screen time (2–5 years: 35.3 ± 1.5%; 6–11 years: 49.1 ± 1.7%; 12–15 years: 56.0 ± 1.7%).[25] Gebremariam *et al.*, have reported the use of TV/DVD and computer/electronic games increased with age in 11–13 years old Norwegian children.[27] While above mentioned studies have mostly compared 2–5 years age group with other age groups, results of this study revealed that when comparing 2–5 year old children, the amount of TV viewing increased as age increased too.

There are other studies that show the family environment is a key for developing healthy lifestyles and behaviors and that children with more educated parents watch fewer hours of TV than do children with less educated parents.[14] It is also reported that children in the lowest social class groups watch more TV than do children in higher social classes.[14,15] Stenhammar *et al.*, in a study in Sweden found that reported TV watching hours for weekdays and weekends were more for the less educated parental group.[28] However, in our study, we found no relationship between SEScomponents (such as parents' education level and job) and amount of TV viewing by children so, it seems that interventions planned for children TV viewing time modification, should cover people in all socioeconomic classes.

There was a positive relationship between daily hours that child and his/her mother watch TV. This concurs with the study conducted by Jago *et al.*, which reported that higher parental TV viewing was associated with an increased risk that both boys and girls spent more than 4 h/day watching TV.[11] In another study, Jago *et al.*, found that children who live in a TV watching promoting household (TV is on when the child comes home from school and meals are eaten in front of the TV)are more likely to watch TV for more than 2 h daily and spend more than 1 h/day on playing computer games.[29] Salmon reported that mothers' and

fathers' TV viewing was positively associated with their children's TV viewing.[19] Interestingly, we did not find any statistically significant correlation between daily hours that children spent in front of TV and daily time that their fathers spent watching TV and daily time that parents spent with their children. It may be because parents would prefer their children to spend their time in front of TV and allow them to do their tasks or study, etc., instead of annoying them.

A positive statistically significant difference was observed on the basis of the amount of children's TV watching between families who had a yard in their house and those who did not, but there was no relationship between this behavior and the size of the house. This finding may suggest that providing the least possible space for children to play may affect their amount of TV viewing.

The study's limitations must be acknowledged. First, the study did not measure TV watching, video, satellite programs, and/or films on computer, separately. Second, the study is limited to specific age group and geographic area. Third, the majority of the participants either enjoyed healthy weight or were underweight children who had been referred to health care centers and we found no relationship between children's TV viewing time and their BMI, which contradicted several other studies.[4,6,7,14,28] This could have been due to sampling technique; thus, we recommend all weight/BMI categories (underweight, healthy weight, overweight, and obese) be included in future studies. Fourth, due nonexperimental nature of the study, no causal inferences were drawn.

In summary, we found that TV viewing was more than the recommended amount among our study's participants. The sedentary behavior may cause a range of adverse health and behavioral outcomes not only in our study's region but also in other societies. Thus, it is recommended to develop effective strategies and interventions to prevent this behavior, especially among young people. To do so, a detailed understanding of the determinants of the behavior such as SES of families and its different aspects must be achieved. It is concluded that daily TV watching is associated with age and mothers' TV viewing habits, and that children who have a yard in their houses and can use it as a playground watch less TV than do childrenwho live in houses without the yard.

Footnotes

Source of Support: Nil

Conflict of Interest: None declared

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Figures and Tables

Table 1

Variables	Labels	*N*	%	Mean	SD	Minimum	Maximum
Age (years)	3	35	18.9	4.13	0.74	3	5
	3.5	23	12.4				
	4	43	23.2				
	4.5	25	13.5				
	5	59	31.9				
Father's education level	Illiterate	2	1.1				
	Elementary	33	17.6				
	Secondary	43	22.9				
	Diploma	63	33.5				
	Higher education	47	25.0				
Mother's education level	Illiterate	3	1.6				
	Elementary	42	22.3				
	Secondary	29	15.4				
	Diploma	58	30.9				
	Higher education	56	29.8				
Father's job	Worker	68	36.2				
	Employee	49	26.1				
	Senior staff	8	4.3				
	Business	53	28.2				
	Retired	5	2.7				
	Unemployed	1	0.5				
	Others	4	2.1				
Mother's job	Employee	33	12.2				
	House wife	151	80.3				
	Student	4	2.1				
	Household job	10	5.3				
Parents with child*	Fathers			1.62	1.4	0	12
	Mothers			2.67	2.2	0	12
Watching TV**	Fathers			1.92	1.5	0	10
	Mothers			2.36	1.7	0	12
	Children			2.68	1.6	0	9
Children watching TV length (grouped)	<1 h	50	26.6				
	1-2 h	4	2.1				
	>2 h	134	71.3				
Children's daily physical activity	<1 h	30	16.22				
	1-2 h	92	49.73				
	>2 h	65	35.14				
BMI group	Underweight	82	47.1				
	Health weight	84	48.3				
	Over weight	4	2.3				
	Obese	4	2.3				
Having a yard	Yes	166	88.3				
	No	22	11.7				
Area of the house (m^2)				181.9	85.4	50	550

*Daily hours that parents spent with their child, **Daily hours that parents and children watched TV. SD=Standard deviation, BMI=Body mass index, TV=Television, SD=Standard deviation

Descriptive characteristics of participants

Table 2

Grouped variables	*P*	*ρ*
Age group	<0.05	0.21
BMI group	0.59	−0.04
Father education	0.27	0.08
Mother education	0.75	0.02

TV=Television, BMI=Body mass index

Relationships between children's daily TV watching and other ordinal variables

Table 3

Variables	*P*	*r*
Father with child	0.56	−0.04
Mother with child	0.32	0.07
Father watching TV	0.34	0.07
Mother watching TV	<0.05	0.15
Size of the house	0.17	−0.12

Relationships between daily TV watching and other continuous variables

Table 4

Having a yard	Mean	SD	*T*	*P*
Yes	2.58	1.56	2.48	<0.05
No	3.48	1.89		

SD=Standard deviation

Comparison of mean TV watching, based on having a yard in the house