Leisure time physical activity, playing digital games and health problems in youngsters

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ABSTRACT: Background: Youngsters have great accessibility to computers. This affects the preferences of youngsters in terms of spending their free times. Playing digital games is one of the most popular activities for them, and this can affect the level of leisure time physical activity and also can compromise their health. The purpose of this study was to investigate the relationship between leisure time physical activity and playing digital games of youngsters. Materials and methods: The subjects were 272 youngsters studying in high schools of Tehran from form 1 to form 3. Results: Result of this study indicated that leisure time physical activity is negatively correlated to playing digital games (r=-0.035, <0.05). Digital games are positively related to health problems (r=0.424, <0.01). Leisure time physical activity is negatively correlated to health problems (r=-0.058, <0.05). Conclusion: According to the results, as the level of playing digital games increases, health problems also may be increased in youngsters by reducing the level of participation in leisure time physical activity.

Key words: Digital games, leisure time physical education, Health

INTRODUCTION

As the popularity of computer increases and the rise of home based video game among youngsters, playing digital game becomes the one of the most leisure activities of the youth (Crawford, 2005). In recent years, the promotion of leisure time physical activities and the continuous increase in the youth health problem and diseases like obesity make parents aware the importance of physically active of their children (Vandewater, Shim, & Caplovitz, 2004). It is no wonder that playing digital game will displace other leisure activities such as physically active, reading books and drawing pictures (Mannell, Kaczynski, & Aronson, 2005). Although we know that digital game will influence on youngsters other leisure activities, we still do not know whether there is a close relationship between the frequency of playing digital game and the leisure time physical activity level. Therefore, we will look into the motives why youngsters spend their time playing digital game and see whether there is a relationship between the level of leisure time physical activity and the level of playing digital game.

Some of studies research revealed that the increase in the leisure-based screen time such as playing digital game and surfing on the internet will cause physical inactivity (Meier et al., 2007). Leisure-based screen time referred to any kind of sedentary activity that involved a screen-based activity such as watching television, playing digital games and computer screen activities (Meier et al., 2007).

Many youngsters could benefit by increasing physical activity by reducing time in screen-based activity such as watching television and playing digital games. (Berkey et al., 2003). Motl et al (2006) indicated that playing digital game was correlated to the change of leisure time physical activity level and the decrease in video game playing was negatively related with the increase in levels of physical activity. Larwin and Larwin (2008) indicated that an increase in physical activity levels did correspond with a decrease in media-usage time like playing digital game and internet. Furthermore, if the focus of attention was shifted from decreasing leisure screen time to encouraging and providing opportunities for physical activity, individual will become more active (Meier et al., 2007). However, not all the studies agreed with that playing digital games will affect leisure time physical activity...
levels. Kerner (2005) revealed that the changes in time spend on digital game and internet did not necessarily at sacrifice of leisure time physical activity. But parents and the society always had the wrong perception that that playing digital game and internet will affect youngsters being physically active (Kerner, 2005). Also, physical activity was not negatively related with playing digital game but positively related with productive sedentary behavior such as working on computers, reading and doing homework (Feldmann et al, 2003). Wang et al., (2008) indicated that digital game had negative health effects on the game player. For instance, fixation on a monitor for long hours and lack of physical activity will have negative impacts on eyes, muscles and joints. Some researchers claimed that youngsters’ obesity was related to their leisure activity of playing digital game habits. According to the Vandewater et al (2004), youngsters with higher weight played more digital game and spent more time in sedentary activities than those youngsters with lower weight. Even physical activities were negatively related with obesity and digital game use was a major factor for obesity (Tremblay & Willms, 2003). And sedentary behavior like surfing on the internet and playing digital game were positively related to obesity in youngsters (Lioret et al, 2007). But Wake (2003) showed that there was no relationship between digital game and youngsters BMI but a small proportion of youngsters BMI and television. Also, increasing in physical activity together with reducing screen time did have effects on overweight youngsters’ BMI. Some evidence suggests that doing a lot of computer games can reduce physical activity and also reduce the people’s physical and mental health (Barge et al, 2004). The rapid development of computer games have been occupied much of the time of different age groups, especially children and adolescents. This would have a direct impact on quality of life, including psychological, physical, and social relations (Islami, 2011). Regarding above statements, the aim of the present study is to answer these questions: 1. Are there any relationships between playing digital games and leisure time physical activity for youngsters? 2. Are there any relationships between health problems and time spent in playing digital games? 3. Are there any relationships between health problems and time spent in leisure time physical activity?

Methodology

Subjects of this study were high school students from form 1 to 3 in Tehran. The questionnaire used in this study was a modified questionnaire of Caritas Hong Kong Youth and Community Service (2004) that examined the usage of internet and that associated with daily life changes. The questionnaire was divided into two parts. The first part contained the subject information (including form, gender, and the amount of time in leisure time physical activity in weekday and weekend hours per week, the amount of time in digital game in weekday and weekend hours per week). The second part contained the subjects’ perception of their health status. In this part, a 5-point Likert scale, range from 1 (never) to 5 (always), was used for each health problem. Validity and reliability were obtained and confirmed by distributing questionnaire among 20 students ($\alpha=0.78$).

Descriptive statistics of the respondents were presented. The sample was acquired by using Random Sampling. The students in forms of (1, 2, 3) participated in the study and they were interviewed by questionnaire. Data was collected at the regular physical education lessons or class meeting lessons in the school. Students in each class generally used about seven minutes to finish each questionnaire.

Descriptive statistics of the respondents were presented. In Analytical statistics, considering that data was not normal (Kolmogrove_Smirnove), spearman Correlation was used to analyze the relationship between amount of time in digital game and leisure time physical activity among youngsters. And, also correlation was used for relationship between amount of time and health problems of youngsters, and relationship between leisure time physical activity and amount of health problems.

RESULTS

| Table 1. Gender frequency distribution of the study sample. |
|------------------|-----------|-----|
| Sex              | Frequency | Percent |
| Male             | 114       | 41.8 |
| Female           | 158       | 57.9 |
| Total            | 272       | 99.6 |
| Not answered     | 1         | 0.4  |

| Table 2. Form frequency distribution of the study sample |
|------------------|-----------|-----|
| Form             | Frequency | Percent |
| 1                | 86        | 31.5 |
| 2                | 106       | 38.8 |
| 3                | 80        | 29.3 |
| Total            | 272       | 99.6 |
| Not answered     |           | 0.4  |
In this study, as it has been shown in table 1, 114 boys and 158 girls participate in this study and they answers to questionnaire. Table 2 shows that 86 subjects were in the first form of high school that it is equivalent to 31.5% out of all subjects. And also, 106 subjects were in the second form of high school that it is equivalent to 38.8% out of all subjects. Finally, 80 subjects were in the third form of high school that it is equivalent to 29.3% out of all subjects.

Table 3. Correlation between subjects' health problems and time amount in digital games (Spearman correlation coefficient).

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Spearman correlation coefficient</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health problems and time amount in digital games</td>
<td>262</td>
<td>0.424</td>
<td>0.001</td>
</tr>
</tbody>
</table>

Correlation is significant at the 0.01 level (2-tailed).

Table 3 shows that there is a positive correlation between health problems and time amount in digital games ($r=0.424$, $p<0.01$). It means as time amount in digital games increases, health problems of youngsters also increase.

Table 4. Correlation between subjects' health problems and leisure time physical activity (Spearman correlation coefficient).

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Spearman correlation coefficient</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health problems and leisure time physical activity</td>
<td>262</td>
<td>-0.058</td>
<td>0.012</td>
</tr>
</tbody>
</table>

Correlation is significant at the 0.05 level (2-tailed).

According to the table 4, there is a negative relationship between health problems and leisure time physical activity. So it can be concluded that if youngsters spend most of their leisure time in physical activity, they can decline their health problems.

Table 5. Correlation between subjects' amount time in digital games and leisure time physical activity (Spearman correlation coefficient).

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Spearman correlation coefficient</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time amount in physical activity and leisure time physical activity</td>
<td>246</td>
<td>-0.035</td>
<td>0.002</td>
</tr>
</tbody>
</table>

Correlation is significant at the 0.01 level (2-tailed).

According to table 5, there is a negative relationship between Time amount in physical activity and leisure time physical activity. With an increase in the time amount of digital game, leisure time physical activity also decreases.

**DISCUSSION AND CONCLUSION**

The increased prevalence of electronic game play (computer and video games) has been paralleled by an increase in body weight and has prompted researchers to examine the impact of this medium on various aspects of health (Wack E, 2009). Playing digital game becomes one of the major leisure activities among youngsters (Crawford, 2005). Many parents blamed that children spend more time in digital game but less time in physical activity will lead to health problem and diseases (Vandewater et al., 2004). An inverse relationship between time spent using video games and daily physical activity has been reported (Jan KF, 1997s). Given that gaming media are rapidly becoming the leisure-time activity of choice for most children and teenagers, a better understanding of the influence these sedentary activities have on health is desirable.

In this study, the result showed that there is negative relationship between leisure time physical activity and digital game in whole week. It was not consistent with the result of Kernor (2005) and Feldmann et al (2003), which changes in time amount spend in digital games, do not necessarily at sacrifice of leisure time physical activity, but it is similar to the result of Janz KF (1997) which showed an inverse relationship between times spent using video games and daily physical activity has been reported (Jan KF, 1997s). This result is also support Motl et al (2006). Motl et al (2006) indicated that playing digital game was correlated to the change of leisure time physical activity level and the decrease in video game playing was negatively related with the increase in levels of physical activity. Regarding to results of relationship of health problems and leisure time physical activity, it correspond to the result of Tremblay & Willms (2003) who showed that physical activities were negatively related with obesity and digital game use was a major factor for obesity. This study showed that there is negative relationship between playing digital game and different kinds of health problems. This result is consistent with result of Wang et al (2008) who showed that playing digital game for long time will have negative impact on health and leads to different health problem such as muscle soreness, headache and dizziness and cannot sleep well.
According to the results of this study, as the level of playing digital games increases, health problems also may be increased in youngsters by reducing the level of participation in leisure time physical activity. We have created a society that promotes a sedentary lifestyle through video and computer games. An increased sedentary lifestyle of watching television (Tremblay & Willms, 2003) and playing computer/video games (Tremblay & Willms, 2003) and a decrease in physical activity levels (Tremblay & Willms, 2003) have been related to the rise in childhood overweight and obesity. Also according to the result of this study and other studies (Kevin G. Stanley, 2010) Time spent engaged in physical activity is decreasing, while time spent playing computer and video games is on the rise. These factors can increase health problems among youngsters. So should be considered to create an active life style for youngsters by various methods. One method is parents’ life behaviors. Parents have enormous influence over the lifestyles of their children. An accelerometer-based study revealed that children of physically-active mothers are twice as likely to be active, children of physically-active fathers are 3.5 times as likely to be active, and children are 5.8 times as likely to be active if both parents are physically active (Moore, 1991). So parents can exercise together with their children. Also as parents can engage their children by offering a fun activity that doubles as a mechanism for exercise, they can promote healthy habits among the entire family.

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REFERENCES