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Effect of Use of Mobile Phone And Electronic Devices in The Childhood And Adolescence on Body Mass Index And Sleep Time As Well As Fast-Food Consumption And Physical Activity

Çocuk ve Gençlerde Elektronik Aygıtlar ile Cep Telefonu Kullanımının Vücut Kitle İndeksi ve Uyku Süresi Üzerine Olan Etkisinin Yanısıra Fast-Food Tüketimi ve Fiziksel Aktivite Süresi Üzerine Olan İlgisinin Araştırılması

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Abstract

Aim

In this study, we aimed to find out the effects of use of mobile phone (MP)'s and electronic device (ED)'s on body mass index(BMI), sleep-time, consumption of fast-food (FF) and exercise-period of children and adolescents.

Material and Methods

Questionnaires were applied related to time-periods of MPs/EDs, sleeping and exercise plus FF consumption. Weight, height, waist and hip circumferences were taken. Data of 50 cases using MPs and data of 50 cases who do not use MPs were compared. PASW-18 statistics program, chi-square, independent sample and Mann-Whitney U Test were used. p≤0,05 was accepted as statistically significance value.

Results

Boy/girl ratio was 1/1 in MP(-) group, and it was 0,92 in CT(+) group. Mean age was 121.32±21.22 in MP(-) group, and it was 147.34±24.63 in MP(+) group. Daily usage period of EDs was 234.10±114.49 in MP(-) group, and it was 286.70±116.32 in MP(+) group (p≤0,05). BMI of MP(-) group was 19.01±5.08; and it was 20.88±4.74 in the MP(+) group (p≥0.05). Daily sleep-time was 9.42±1.08 in the MP(-) group, and it was 8.74±1.06 in the MP(+) group (p≤0.05). Weekly frequency of consumption of FF and sweetened-foods in MP(-) group was 2.38±2.85; and it was 5.14±6.93 in the MP(+) group (p≤0,01). Daily active-period of MP(-) group was 147.74±254.04, and it was 95.60±64.77 in the MP(+) group (p≥0.05).

Conclusion

Our study emphasizes that decreasing the time spent with EDs, especially with MPs, can be beneficial for minimizing consumption of FF and sweetened foods, prevention of development of obesity, maximizing the time for physical activity and providing optimum sleep time period in children and adolescents.

Key words: Mobile phone, use of electronic devices, body mass index, waist/hip ratio, sleep time, fast-food, consuming sweetened food, physical activity period.

Özet

Amaç

Çalışmamızda, elektronik aygıt (EA)'lar ve cep telefonu (CT) kullanımının çocuk/gençlerin vücut kitle indeksleri (VKİ), uyku süreleri, fast-food (FF) tüketim alışkanlıkları ile fiziksel aktivite süreleri üzerine olan etkilerinin araştırılması planlanmıştır.

Materyal ve Metot

Anket formunda çocuk/gençlere ait CT ve EA'lar ile birlikte geçirdikleri süre, haftada kaç kez FF ile şekerli-gıda tükettikleri, günlük uyku süreleriyle hareketli yaşam süreleri sorgulandı. Ağırlık, boy, bel ve kalça çevreleri kaydedildi. CT kullanan 50 ve kullanmayan 50 olguya ait veriler gruplar arasında karşılaştırıldı. Verilerin aktarımında PASW 18 statistics for windows paket programı kullanıldı. Verilerin değerlendirilmesinde ki kare, indipendent sample t ve mann-whitney u testi kullanıldı. p≤0,05 değeri istatistiksel olarak anlamlı kabul edildi.

Bulgular

CT(-) grupta erkek/kız oranı: 1.00; CT(+) grupta ise 0.92 idi. Yaş ortalaması(ay) CT(-) grupta 121.32±21.22; CT(+) grupta ise 147.34±24.63 idi. Günlük EA kullanımı süresi dakika olarak CT(-) grupta 234.10±114.49; CT(+) grupta ise 286.70±116.32 idi (p≤0,05). CT(-) grupta VKI=19.01±5.08; CT(+) grupta ise 20.88±4.74 idi (p≥0.05). Günlük toplam uyku saati CT(-) grupta 9.42±1.08; CT(+) grupta ise 8.74±1.06 olarak saptandı (p≤0.05). CT(-) grupta haftalık FF tüketim sıklığı=2.38±2.85; CT(+) grupta ise 5.14±6.93 idi (p≤0,01). CT(-) grupta günlük toplam hareketli yaşam süresi=147.74±254.04; CT(+) grupta ise 95.60±64.77 idi (p≥0.05).

Sonuç

Araştırmamızda, çocuk/gençlerde FF ve şekerli-gıda tüketiminin azaltılması, fiziksel aktivite süresinin artırılması, obezitenin gelişmesinin engellenmesi ve optimal uyku süresinin sağlanması amacıyla, başta CT olmak üzere EA'ların kullanım sürelerinin azaltılmasının, yararlı olacağı vurgulanmaktadır.

Anahtar kelimeler: Cep telefonu, elektronik aygıt kullanımı, vücut kitle indeksi, bel/kalça oranı, uyku süresi, fast-food, şekerli-gıda tüketimi, fiziksel aktivite süresi

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Introduction

Significant changes occured in our lifestyle, after several electronic opportunities are easily reached. Developing electronic technology caused in an increase in the use of electronic devices (EDs), mainly mobile phones(MPs), especially among children and adolescents. Usage of EDs and MPs facilitates the life, but it also builds up a sedantery life. Our study aimed to find out the effect of usage of EDs and MPs on body mass indexes (BMI), sleep periods, fast-food (FF) consumption and physical activity period of children/adolescents.

Material and Method

06-18 years old children/adolescents who consulted to the outpatient clinic of Pediatrics, NKU Medical Faculty were randomly taken into study. After anamnesis and physical examination, their illnesses were treated, then, oral consent was taken from children/adolescents and informed consent was taken from their parents for filling up the questionnaire. In this questiannaire, we asked if children/adolescents use MP, if so, for how many years they use MP, how much time they spend with MPs and EDs, how much time they spend talking or playing with MPs, how much time they spend watching television, how much time they spend using computer and/or playing computer games, how many times in a week they consume FF and sweetened foods, when they go to the bed and when they get up, and their daily total sleep time period, their daily total active life time including how much time they spend walking, playing active games and making sport were asked. After the questionnaire, weight, height and circumferences of waist and hip of cases were taken and recorded. BMI: (weight (kg)/height^2 (m2) ratio was calculated. NKU Ethical committee of non-interventional research approved our study (27th March, 2014; No:2014/25/03/06).

We compared 50 cases using MP, and 50 cases who do not use MP. PASW 18 statistics for windows package program was used to transfer data. Chi-square, independent sample t and mann-whitney u test were used to evaluate data. p≤0,05 value was approved as statistically significance limit.

Findings

Boy/girl ratio of MP (-) group was 1.00, and it was 0.92 in the MP (+) group. Mean age (months) was 121.32±21.22 in MP (-) group,and it was 147.34±24.63 in MP (+). Daily usage time of EDs was 234.10±114.49 in MP (-) group, and it was 286.70±116.32 in MP (+) group. Statistical difference was significant between groups (p≤0,05). BMI of MP (-) group was 19.01±5.08; and it was 20.88±4.74 in MP (+) group. Although BMI values of MP(+) group were higher than the values of BMI (-) group, there was no statistically significant difference (p≥0.05). Waist/hip ratio of MP(-) group was 0.86±0.07, and it was 0.85±0.07 in MP(+) group (p≥0.05).

Bed time of MP(-) group was 20.53±5.96, and it was 21.44±4.67 in MP(+) group. Time of getting up in the MP(-) group was 07.68±1.22, and it was 07.31±0.94 in the MP (+) group. Bed time of MP (+) group was later, and time of getting up was earlier, but there were no statistical differences between groups (p≥0.05). Total sleep time period (hours) of MP (-) group was 9.42±1.08, and it was 8.74±1.06 in MP (+) group. The difference between them was statistically significant (p≤0.05).

Frequence of consumption of FF in the MP (-) group was 2.38±2.85, and it was 5.14±6.93 in

the MP (+) group. There was an important significant statistical difference between groups (p≤0,01). Weekly consumption of sweetened food in the MP (-) group was 2.85±2.63, and it was 4.18±4.34 in the MP (+) group. Sweetened food consumption of MP (+) group was more than MP(-) group, but the difference was not statistically significant (p≥0.05).

Daily total active life time as minutes was 147.74±254.04 in the MP (-) group, and it was 95.60±64.77 in the MP (+) group. Although MP(-) group had more total physical activity period than MP(+) group, there was not a statistically significant difference betwen groups (p≥0.05).

Relationship among mobile phone usage and body mass index (kg/m2), total sleep time (hours), consumption of fast-food (weekly frequency) and daily total active life time (hours) in MP (-) and MP (+) children/adolescent groups has been demonstrated in figure 1.

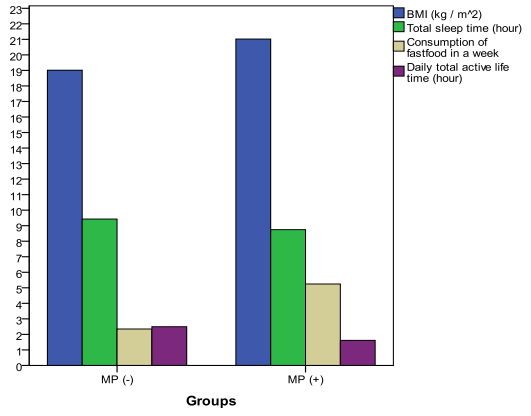

Figure 1: Demonstration of relationship among mobile phone usage and body mass index, total sleep time, consumption of fast-food and daily total active life time in MP (-) and MP (+) groups.

In our study, children/adolescents using EDs, especially MPs, were found to have higher BMI values due to their sedantary life. This result emphasizes the benefits of the limited usage time of EDs to prevent obesity in children/adolescents.

In our study, also, total daily sleep time period of children/adolescents who use MPs and EDs were less than the others. Another finding of our study was later bed time and earlier time of getting up in the MP (+) group. Our study emphasizes the limited usage time of EDs in children/adolescents in order to provide optimum sleep time.

Another important finding of our study was higher FF and sweetened food intake of children/adolescents who use EDs, especially MPs. Our study emphasizes the limited usage time of EDs, especially MPs, in children/adolescents in order to prevent obesity, because usage of EDs increases the consumption of FF and sweetened food.

In the physical activity evaluation part of our study, we reveal that total daily active life time,including walking, playing motion-required games and making sport, was lesser in the children/adolescents who use EDs more than the other group. Our study put forward the opinion of decresing the usage time of EDs, especially MPs, in order to increase the physical activity period of children/adolescents.

Discussion

Because electronic opportunities are increasing, there is an increase in the use of EDs, especially MPs, among children and adolescents. EDs and MPs make the life easier, but also they decrease the active life time period and form the basis of a sedantary life. There are a lot of factors causing obesity that is one of the leading health problems in the world, and obesity is increasing especially in children/adolescents[1-4]. Recent studies have started to research the effect of usage of MPs on development of obesity[5,6]. In our study,

BMIs of the children/adolescents who spend more time with EDs were found higher, due to their sedantary life.

Beside the other characteristics of sleep, sleep period is one of the most important factors for growth and development. Lifestyle and quality of life are in a change due tomany environmental factors that can effect sleep period and characteristics of sleep in children/adolescents[7-8]. Some studies determine that the usage period of MPs and EDs, and period of watching TV negatively effect the period and characteristics of sleep in this age group[9-11]. In our study, we found that the children/adolescents who spend more time with EDs have later sleep time and earlier time of getting up, and also have less total daily sleep time.

Consumption of FF is critically increasing among children and adolescents. Many studies were carried out about the effect of usage of EDs and MPs on consumption of FF among children/adolescents[12-17]. In our study, we found that children who spend more time with EDs, and especially with MPs, consume more FF and sweetened food than the others.

Recently, active lifestyle is being left due to the factors, especially due to the electronic opportunities that facilitate the life. Sedantary lifestyle is increasingly internalized among children/adolescents. The effect of use of MP and/or EDs and social media applications on changing nutritional habits and period of physical activity in children/adolescents was studied in many researches so far[18-21]. In our study, we found that the children/adolescents who spend more time with EDs and MPs have less activities like walking, playing motion-required game and making sport.

In our study, we emphasize that less usage period of EDs, especially MPs, may be beneficial to provide decreased consumption of FF and sweetened foods, increased physical activity period, optimal sleep period and prevention of obesity in children/adolescents.

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Declaration of conflict of interest:

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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