Research article

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Association between screen-time use and cardiometabolic-related lifestyle characteristics, in Greek young adults

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ABSTRACT

Background: studies evaluating screen time with a variety of lifestyle determinants have been focused, mostly on children and adolescents. To the best of our knowledge, very few studies have been conducted in adult populations, worldwide.

Aim: to investigate the association between time spent on screen, for work or and entertainment, with fast food consumption, and certain lifestyle behaviors (physical activity, smoking, dietary habits), in Greek young adults.

Methods: a cross-sectional, observational study with convenience sampling of 687 Greek adults, 18-30 years old, was conducted in May, 2023, using a structured web-based questionnaire. Participants were asked regarding time spent on screens (i.e., cellphone/tablet, television, computer/laptop), separately for work and entertainment, as well as various sociodemographic, clinical and lifestyle characteristics, including adherence to Mediterranean diet (through MedDietScore, ranged 0-55).

Results: mean daily screen time was 5±4 hours for work and 6±3.5 hours for entertainment. Screen time for entertainment was inversely associated with a participant's adherence to the Mediterranean diet (OR per 1 h, 0.93, 95%CI 0.89, 0.97, p=0.002). A positive association was found between fast food, sweet and salty snacks consumption with overall screen time (all p-values<0.05), while recreational screen time was inversely associated with the likelihood of a person being physically active (OR per 1 h, 0.90, 95%CI 0.85, 0.95,p=0.001). Body mass index was also positively associated with remote work screen time (rho=0.27, p=0.027). No associations were observed regarding smoking habits.

Conclusion: a potential link between screen time and devaluation of the quality of life was revealed, which, in the long-term, can impact human health status.

KEY WORDS: *Screen time, health, diet, lifestyle, young*

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INTRODUCTION

Time spent on screen has been a subject of extensive research interest the last years, as accessibility to digital media has increased dramatically over the last decade.

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and affects quality of life. Primary prevention is of major importance and may lead to significant savings on resources. Upon establishment, it should be treated as a severe disease, the management of which reduce mortality and may prevent the development of severe and life-threatening complications. As a disease, it should stop being so underestimated and take the important part that it should be occupying in the public health and, once its importance has been recognised, it should be given the opportunity of being correctly treated in a scientifically way for the benefit of the people with obesity and the healthcare system.

KEY WORDS: *Obesity, body mass index, co-morbidities, survival, health costs*

Significant impact to this noticeable integration of technology in daily lives was determined by the COVID-19 pandemic, which enforced most people to embrace technological means as their work environment, but also as an entertainment option[1,2]. According to the EUROSTAT, concerning entertainment screen time in European citizens, Greek population mean daily screen time (3 hours and 14 minutes) was the highest among 15 European countries, with 95.1% of the population having non-work-related screen time usage[3,4]. Digital resources are expanding access to education and work, and in some cases, especially younger people are using them to become more civically engaged[5,6,7]. However, studies focusing in children and adolescents showed that excessive screen time has been associated with the adoption of poor quality dietary habits, more frequent fast food consumption, and skipping breakfast, decreased physical activity, sleep disorders, and higher prevalence of obesity[4,8]. Current evidence from systematic reviews and meta-analyses in children and adolescents indicate that increased screen time is associated with higher body mass index (BMI) and poorer dietary habits such as, decreased consumption of fruits and vegetables, increased consumption of unhealthy foods, energy-dense snacks and sugar-sweetened beverages[9,10]. In addition to the aforementioned, multiple children/adolescent-based meta-analyses concerning screen time and its impact on human health, support, that increased time spent on screen is associated with a variety of both physical dysfunctions such as: ophthalmological problems (nearsightedness, myopia), musculoskeletal problems (low back pain, posture alignment) and psychological diseases, for example, aggression and irritability[11,12,13]. Alongside irritability and aggression, long-term, elevated television and/or computer screen time was associated with a greater risk for violent behaviors, including physical fighting, victimization and bullying in teenagers[13]. Following psychological problems, an interesting but concerning observation was made by a study that was conducted on Canadian young adults, in which increased screen time was associated with anxiety and depression severity[14]. As far as adult population is concerned, a meta-analysis of 22 cross-sectional studies, four prospective cohort studies and a total of 105,239 participants, showed that screen time was associated with increased risk of metabolic syndrome,[15] and morbid obesity[16]. Therefore, screen time is a subject of particular interest, especially when it comes to young adults.

Screens dominate our lives more than ever before. The debate regarding the appropriate amount of screen time for work or entertainment, for children or adults, is complex issue which will probably be difficult to solve. Moreover, the volume of research regarding the time spent on screen is abundant, most of those surveys focus on children and adolescents, and very few in adult populations[8-10]. To the best of our knowledge, current data about screen time and health-related lifestyle determinants in the Greek population and especially in young adults -where long-stand habits are established-, are lacking. Early stages of adulthood are crucial for the development of healthy habits, due to the transition from adolescence to the adulthood, and therefore this is a group that research shall focus on when examining health-related lifestyle factors and their longitudinal effects[17]. Thus, this study aims at evaluating the time that young Greek adults spend on screen in the post-COVID-19 era and accessing its impact on various health-related lifestyle parameters.

METHODS

Study design

This is a cross-sectional, observational study, via electronic interviews, which was conducted in Greek young adults, 18-30 years of age.

Setting

A web-based, structured questionnaire was used and spread throughout the country, during May 2023, via a convenience sampling scheme, stratified by age and sex (biological) of the adult Greek population, aged 18-30 years (census 2021). Sample recruitment was carried out

through mass promotion of the web based questionnaire using social media and verbal methods. This continuous promotion and eligibility of the survey's questionnaire lasted for 1 month, always under the condition that a bare minimum of 500 participants would eventually be gathered. This threshold of 500 participants was estimated based on the current demographic data by the 2021 Population-Housing Census[18]. Participants were from all provinces of Greece.

Sample

The sample consisted of 687 participants, 522 women (24±4 years) and 165 men (23±3 years). Women represented the 76% of participants, therefore there was no gender representativeness of the final sample and, therefore the data analysis was based on the total number of participants.

Bioethics

This study was carried out in accordance with the Declaration of Helsinki (1989) of the World Medical Association and was approved by Institutional Ethics Committee of Harokopio University (#1644/2.5.2023). All participants were informed about the aims and procedures and agreed to participate by completing the corresponding questionnaire.

Measurements

Screen time in front of cellphone/tablet, television and computer, was recorded in hours per day, and was categorized into, screen time use for remote work, complementary work, and or studying, as well as for entertainment purposes.

Dietary habits during screen time were assessed using a food frequency questionnaire that recorded the consumption of all main foods, beverages and snacks consumed in the population. Consumption was categorized as never, rare/monthly, 1-3 times per week, 3-5 times per week, every day, and recorded separately for each screen time category. Dietary behaviors were also recorded through a series of questions regarding the number of times fast-food, salty and sweet snacks were preferably consumed during screen time. To avoid reporting bias or miss-reporting of certain dietary behaviors assessed, large-scales were used (range 0-10, 0: indicating never, 10: indicating always) instead of structured responses. Moreover, the degree of adherence to the Mediterranean diet was assessed using the MedDietScore (range 0-55)[19]. A ready-to-eat-meal consumption frequency questionnaire (in times per month/week) and questions referring to refreshment's consumption, and sugar-enriched beverages, was also applied.

Other lifestyle behaviors included the assessment of current or ever smoking habit, including use of e-cigarettes, duration of smoking habit in years, and number of cigarettes per day; and physical activity status which was evaluated in terms of frequency (never, rare, 1-2 times per week, >3 times per week), duration (in minutes per time) and years of being physically active. Physically active were defined those who reported engagement in any type and of any duration of physical activities at least one time per week.

Sociodemographic characteristics assessed included, area of living, biological sex (male/female), age (year of birth), educational level (years of attending school, vocational institutes, college/university), and family status (unmarried, married or cohabitation, divorced, widowed). Work-related questions were also included, assessing current work status (i.e., self-employed, private or public employee, lack of steady job, unemployed) as well as work type (i.e., physical, remotely, hybrid).

Clinical characteristics, included self-reported body weight (in kilograms), height (in meters), diagnosed medical history of chronic diseases such as, cancer, cardiovascular, diabetes mellitus, hypertension, dyslipidemia, renal, any type of gastrointestinal, as well as mental disorders (anxiety, depression). Participants were categorized according to their body mass index (weight/height^2) to underweight (<18.5 kg/m^2), normal weight (18.5-24.9 kg/m^2), overweight (25.0-29.9 kg/m^2) and with obesity (≥30 kg/m^2).

Statistical analysis

All analyses were conducted using Stata 14.0 (Stata Corp., College Station, TX, USA) at the 5% significance level.

Continuous variables are presented as mean value ± standard deviation (SD), while categorical variables are presented as absolute and relative (%) frequencies. Differences in group mean values were evaluated through the analysis of variance (ANOVA) and Student's t-test for unequal variances, where appropriate. Spearman's correlation coefficient was used to examine associations between quantitative variables. Multiple binary logistic regression (adjustment for age and biological sex) was used to determine the likelihood of being physically active, consuming food during screen time, consuming refreshments, having good or bad adherence (i.e., MedDietScore score </> 27) to the Mediterranean diet, and smoking, according to screen time. Multiple linear regression was applied to evaluate possible associations between continuous dependent variables (i.e., BMI, times of fast-food use/week, salty and sweet snacks consumed, physical activity

duration, number of cigarettes smoked per day) and screen time (independent factor), taking into account biological sex and age of the participants. The results of the logistic and linear regressions are presented as odds ratios (OR) and *b*-coefficients (coefficients), respectively, along with their corresponding 95% confidence intervals (95% CI).

RESULTS

Out of the 687 participants, 165 (24%) were male, the mean age of the sample was 24±4 years, the educational level was estimated at 15±3 years, which, according the current education system of Greece, means that the participants have completed High School and are mostly in the course of their bachelor's degree and based on the self-reported health status, 42 (6%) reported to be diagnosed with a chronic disease. Utilizing self-reported height and weight, participants were categorized based on their BMI with 45 (6,5%) being underweight (<18.5 kg/m^2), 458 (65,7%) being normal weight (18.5-24.9 kg/m^2), 66 (9,5%) being overweight and 189 (27,5%) having obesity (.≥30 kg/m^2). Regarding work status, 284 (39,3%) reported to work, out of which 24 (8,4%) are working remotely, 42 (14,8%) maintain a hybrid type of work (both remotely and by physical presence) while the rest 218 (76,8%) are working exclusively with physical presence (Table 1). Participants that work remotely and by hybrid type spend approximately 8.3±2 hours/day on screen for remote work purposes and 2.4±2.6 hours/day for complementary work, while studying screen time was estimated at 3.2±2.7 hours/day. In regard of recreational screen time, participants spend 3.5±2.1 hours/day on cellphone/tablet, 1.5±1.8 hours/day on computers/laptops and 1±1.2 hours/day on television (Table 2).

A positive association between remote work screen time and body mass index was observed (rho=0.27, p=0.027), while there were no associations regarding body mass index and time spent on different types of screens (television, cellphone, computer) either for work (complementary work, studying) or entertainment purposes.

As far as dietary habits are concerned, 386 (56.2%) participants scored <27 in MedDietScore indicating low to moderate adherence degree to the Mediterranean Diet, while the rest 301 (43.8%) received a ≥27 score, indicating moderate to high adherence. Participants with low to moderate adherence to the Mediterranean Diet, presented increased time spent on screen for entertainment purposes, by 17.2% and decreased screen time for work, by 13.6%, compared to those who had moderate to high adherence. Multi-adjusted analysis (adjustment for age and biological sex) revealed an inverse association between screen time for entertainment and participant's adherence

TABLE 1. Sociodemographic, clinical and lifestyle characteristics of the participants.

Age, years	24 ± 4
Biological sex, *males*	165 (24%)
Education level, years	15 ± 3
History of chronic disease diagnosis, yes	42 (6%)
Body Mass Index, *kg/m^2*	23,4± 4,3
Body Mass Index categories	
Underweight (<18.5 kg/ m^2)	45 (6,5%)
Normal weight (18.5-24.9 kg m^2)	458 (65,7%)
Overweight (25-30 kg/m^2)	128 (18,3%)
Obese (≥30 kg/m^2)	66 (9,5%)
Smoking, ever	189 (27,5%)
Cigarettes (current) / day	8± 8
Duration of smoking habit, *years*	5± 4
e-Smoking, yes	121 (17,6%)
Physically active, yes	622 (90,5%)
Physical activity frequency	
Never	65 (9,5%)
1-3 times/week	254 (37%)
>3 times/week	368 (53,5%)
Work status, yes	284 (39,3%)
Lack of steady job/unemployed	403 (58,7%)
Public employee	35 (5%)
Private employee/ Self employed	249 (36,3%)
Work type	
Physical	218 (76,8%)
Remotely	24 (8,4%)
Hybrid	42 (14,8%)

TABLE 2. Time spent in front of the screen for work or and entertainment of the participants.

	N (%)	Hours/day
Remote work, *yes*	66 (0.1%)	8.3± 2.0
Complementary work, *yes*	284 (41%)	2.4± 2.6
Studying, *yes*	683 (99%)	3.2± 2.7
Entertainment, *yes*		
Cellphone/tablet	686 (99%)	3.5± 2.1
Television	685 (99%)	1.0± 1.2
Computer/laptop	684 (99%)	1.5± 1.8

to the Mediterranean diet (OR per 1 h, 0.93, 95%CI 0.89, 0.97, p=0.002) (Table 3). In addition, participants who spent >2 hours/day on screen for entertainment were more likely to consume fast food (p<0.001), eat sweets (p=0.001) and salty snacks (p=0.001) compared to those on the 1-2 hours/day category. No significant differences were observed either with the ≤1 hours/day category for entertainment screen time or work screen time, in general (all p-values >0.05). Spearman's correlation was evaluated individually for each type of screen time with its coherent variable (regarding food preference frequency during screen time), and indicated a positive association between fast food, sweet and salty snacks consumption with study (rho: 0.14, 0.13, 0.13, respectively, p<0.001), television (rho: 0.28, 0.3, 0.27, respectively, p<0.001), cellphone (rho: 0.16, 0.23, 0.15, respectively, p<0.001) and computer (rho: 0.33, 0.34, 0.27, respectively, p<0.001) screen time, while no significant associations were observed regarding remote and complementary work screen time. Results from multi-adjusted analysis (adjustment for age and biological sex), about the aforementioned associations, are presented in Table 4.

Focusing on various lifestyle parameters, 189 (27.5%) participants reported conventional smoking with mean daily consumption to be 8±8 cigarettes/day, while 121 (17.7%) participants reported exclusive or non-exclusive use of e-cigarettes. Regarding smoking habits, no significant associations were observed with screen time.

Moreover, 90.5% of the participants responded that they are being physically active by exercising at least 1 time/week (for 58±35 minutes/time); in particular, 37% reported that are exercising 1-3 times/week and 54% are exercising >3 times/week. In association with time spent on screen, mean entertainment screen time was 25% (p=0.005) higher in those who are physically inactive as compared to those who are physically active, while no significant associations were observed for work screen time. Since residual confounding may exists, multiple logistic regression was applied, taking into account age and biological sex, and revealed a negative association between time spent on screen for entertainment purposes and the likelihood of a person being physically active (i.e., for at least 1 time/week) (OR per 1 h 0.90, 95%CI 0.85, 0.95, p=0.001). No significant associations were observed between physical activity and screen time spent for work. However, inverse associations were observed between complementary work screen time (OR per 1 h 0.84, 95%CI 0.74, 0.96, p=0.008), study screen time (OR per 1 h 0.90, 95%CI 0.83, 0.99, p=0.022) and the likelihood of being physically active, respectively, in an age-sex multi-adjusted analysis (Table 3).

DISCUSSION

Understanding the influence of screen time for work or and entertainment on daily lifestyle habits, is essential to determine barriers for its proper use and maximize the socio-economic and entertainment benefits while preventing any adverse health consequences. To the best of our knowledge, this is the first study conducted in young adults in Greece. In the population we studied, increased screen time was associated with less healthy food choices and behaviors as well as increased likelihood of obesity and physical inactivity. All these factors may have been established during youth. They in turn may lead to adverse health consequences, like metabolic disorders, and cardiovascular diseases.

A recent meta-analysis involving children found that those in the highest screen time category had increased BMI, compared to those with fewer screen time, by 0.7 kg/m^2.[10] Similar results were observed in a study conducted in Mexico with adults over twenty years of age, in which participants with obesity class II (BMI 35–39.9 kg/m^2) and class III (BMI > 40 kg/m^2) spent increased time in front of screens compared to normal weight participants (0.60 hours/day and 0.54 hours/day, respectfully)[16]. The present study partially confirms the aforementioned results, since a weak positive correlation of screen time for remote work was found in relation to body mass index, but this was not confirmed for the other types of screens. Even though this possible association between BMI and remote work screen time could provide useful information regarding the impact of increased time spent on screen on a rather important health-related determinant, it has to be interpreted carefully, as only a mere 8.4% of the participants who work, is working remotely and another 14.8% of them, by hybrid means. This particular finding may interpret an in-sample association between these two variables but cannot be generalized in the whole population of Greek young adults. Irrespectively of the main purpose of this study, a finding that is worth mentioning is that 65.7% of the participants had normal weight and only 27.8% were classified as overweight or with obesity. This finding comes in conflict with the results from WHO's European Regional Obesity Report 2022, in which the prevalence of overweight (including obesity) in Greece was 62.3%, for both sexes[20].

Additionally, an important finding of the current study is the association between screen time and the adherence degree to the Mediterranean diet. MedDietScore was positively associated with recreational screen time and inversely associated with work screen time. Consistent with these findings, in a survey of Spanish students, those who met recommendations for physical activity

TABLE 3. Time spent in front of screen for work or and entertainment in relation to dietary and lifestyle behaviors of the participants.

	Screen time for work (first row) or entertainment (second row)			p-value
	<1 hour/day	1-2 hours/day	>2 hours/day	
Fast food consumption score, 0-10	2.5 ± 3	2 ± 2.5	2 ± 2.5	0.291
	1.5 ± 3	1 ± 1.5	2.5 ± 2.5	<0.001
Sweet snacks consumption score, 0-10	3 ± 3	3 ± 3	3.5 ± 3	0.07
	1.5 ± 3	1 ± 2	2.5 ± 2.5	0.001
Salty snacks consumption score, 0-10	2 ± 3	1.5 ± 2.5	1.5 ± 2.5	0.501
	1.5 ± 3	1 ± 1.5	2 ± 2.5	0.002
Ready-to-eat-meal consumption, times/week	1.9 ± 1.4	1.7 ± 1.3	1.9 ± 1.4	0.640
	1.2 ± 0.7	1.4 ± 1.2	1.9 ± 1.4	0.006
Refreshment consumption, N (%)				
No	75 (60.5%)	61 (64.2%)	282 (60.3%)	0.770
	10 (83.3%)	44 (77.2%)	364 (58.9%)	0.007
Yes	49 (39.5%)	34 (35.8%)	186 (39.7%)	0.770
	2 (16.7%)	13 (22.8%)	254 (41.1%)	0.007
Sugar-sweetened refreshments, N (%)				
0-1 cans/day	16 (84.2%)	19 (86.4)	67 (77%)	0.950
	-	5 (100%)	97 (79.5%)	0.605
1-2 cans/day	3 (15.8%)	3 (13.6%)	15 (17.2%)	0.950
	1 (100%)	-	20 (16.4%)	0.605
2-3 cans/day	-	-	1 (1.2%)	0.950
	-	-	1 (0.8%)	0.605
3-5 cans/day	-	-	2 (2.3%)	0.950
	-	-	2 (1.65%)	0.605
>5 cans/day	-	-	2 (2.3%)	0.950
	-	-	2 (1.65%)	0.605
MedDietScore, 0-55	24.4 ± 4.8	25 ± 4.8	25.6 ± 5	0.04
	26.5 ± 4.4	25.6 ± 4.2	25.2 ± 5	0.606
Physicaly acitivity N (%)				
Never/rare	11 (8.9%)	7 (7.4%)	47 (10%)	0.676
	-	1 (1.8%)	64 (10.3%)	0.024
1-3 times/week	47 (37.9%)	41 (43.1%)	166 (35.5%)	0.676
	5 (41.7%)	15 (26.3%)	243 (37.9%)	0.024
>3 times/week	66 (53.2%)	47 (49.5%)	255 (54.5%)	0.676
	7 (58.3%)	41 (71.9%)	320 (51.8%)	0.024
Cigarettes (current) / day	7.2 ± 7.6	7 ± 8.5	8 ± 7.7	0.836
	7 ± 2.8	8.4 ± 7	7.6 ± 7.9	0.934

p-values derived through Pearson's chi square test for categorical variables and ANOVA for the continuous variables.

TABLE 4. Multiple linear regression, adjustment for age and biological sex, that evaluated various types of screen time use in relation to consumption certain dietary habits and behaviors.

	b-coefficient (Coef.)	95% Confidence Interval (95%CI)	p-value
Remote Work Screen Time (per 1 h)			
Model for: Fast Food use	-0.25	-0.55, 0.04	0.09
Model for: Sweet snacks consumption	-0.38	-0.78, 0.03	0.06
Model for: Salty snacks consumption	-0.23	-0.56, 0.10	0.16
Complementary Work Screen Time (per 1 h)			
Model for: Fast Food use	0.09	-0.09, 0.27	0.34
Model for: Sweet snacks consumption	0.07	-0.121, 0.27	0.45
Model for: Salty snacks consumption	-0.07	-0.26, 0.11	0.44
Study Screen Time (per 1 h)			
Model for: Fast Food use	0.06	-0.01, 0.12	0.09
Model for: Sweet snacks consumption	0.07	-0.01, 0,14	0.10
Model for: Salty snacks consumption	0.08	0.01, 0.14	0.02
Television Screen Time (per 1 h)			
Model for: Fast Food use	0.38	0.21, 0.54	<0.001
Model for: Sweet snacks consumption	0.44	0.28, 0.60	<0.001
Model for: Salty snacks consumption	0.38	0.23, 0.54	<0.001
Cellphone Screen Time (per 1 h)			
Model for: Fast Food use	0.17	0.09, 0.26	<0.001
Model for: Sweet snacks consumption	0.23	0.14, 0.33	<0.001
Model for: Salty snacks consumption	0.17	0.09, 0.25	<0.001
Computer Screen Time (per 1 h)			
Model for: Fast Food use	0.24	0.14, 0.35	<0.001
Model for: Sweet snacks consumption	0.31	0.21, 0.41	<0.001
Model for: Salty snacks consumption	0.23	0.13, 0.33	<0.001

and screen time had greater adherence to the Mediterranean diet[21,22]. Similarly, in a study conducted on Greek students, it was found that the longer the screen time, the greater the chances of unhealthy eating behaviors such as frequent fast food consumption and frequent sweets consumption[4]. This is also confirmed by the findings of the present study as it was observed that compared to those who watched television for 1-2 hours per day, those who watched television for more than 2 hours per day preferred fast food, sweet, and salty snacks more frequently. However, neither the 1 hours/day category for entertainment screen time nor screen time in general showed any significant differences. This negative association between screen time and an unhealthy eating pattern with plenty of salty and sweet snacks, sugary drinks and fast food is confirmed by the existing literature for both adults and children. In a systematic review of fifty-three studies, eleven of which involved adults, the above relationship was confirmed[23]. The same conclusion was reached by the remaining forty-two studies involving children and adolescents, as well as a study conducted on European adolescents from eight countries, which found that consumption of salty snacks and sugary drinks were higher in groups that did not meet physical activity and sedentary screen time recommendations[24]. In more recent studies, another important factor associated with screen time is smoking habit, with smokers spending more time watching TV[25]. Conversely, smokers appear to spend more time in front of a screen with smoking cessation influencing this association by reducing screen time[26]. Although, there are some concerns regarding the aforementioned thesis, due to the fact that smoking habits

could be practiced simultaneously with screen time use (e.g. cellphone use), and we speculate that this action could alter the association between smoking habits and screen time. However, after thorough review of the current literature, we were unable to identify any studies which would look at this specifically. This association was also supported when the quality of life score was assessed in adolescents, with quality showing negative associations with higher screen time and positive with higher physical activity[27]. Increased screen time (and television screen time in particular) was positively associated with higher risk of smoking in a cross-sectional study which was conducted in adolescent, when television screen was >2 hours/day[28]. In addition to the above, a study that was also conducted in adolescents, found that smoking was positively associated with problematic use of internet and as a possible predictor for internet addiction[29]. However, the present study found no association between screen time for either work or entertainment with smoking habits.

Another finding of this study was the inverse association between physical activity and screen time. It was observed that participants who were more physically active spent less time in front of screens for entertainment, complementary work and studying. In contrast, no relationship was found between physical activity and remote work screen time. Regarding exercise frequency, a negative correlation was observed between recreational screen time and the likelihood that a person exercises at least 1 time/week. We speculate that screen time might have a profound effect on physical activity especially if it displaces exercise as a recreation activity but we are currently lacking means and/or studies to prove this. To the best of our knowledge, data on the association of physical activity with screen time are limited, with the existing literature examining it as a cofactor for the study of other lifestyle factors such as quality of life in both adults[30] and adolescents[27] without comparing them to each other.

Limitations

As an observational, cross-sectional study cannot establish causal relationships, but only state hypotheses for future research. Regarding the sampling, the gender ratio was unbalanced (i.e., 76% female and 24% male), so there was no gender representativeness in the final sample and therefore cannot be generalized to the population. In addition, the data were collected by self-administered questionnaire and are therefore subject to recall bias, which may have resulted in, for example, under- or over-estimation of screen time and, perhaps, food intake and anthropometrics (height and weight).

Conclusions

Despite the limitations, this study is undoubtedly a valuable addition to the current scientific knowledge of screen time use in the post-COVID-19 era, and its relationship with lifestyle habits of Greek young adults. The associations revealed regarding screen time with the adherence to the Mediterranean diet, or various other unhealthy dietary habits and behaviors (i.e., fast food consumption, excess sweet and salty snacks consumption), as well as physical activity status and body mass index are all major atherosclerotic disease risk determinants. All these determinants, frame the profile of the modern young individuals who are exposed to the technology for work or and for entertainment, and provide useful data for future public health actions, regarding the prevention of cardio-metabolic diseases. The emerging findings of this cross-sectional study provide a wide variety of possible associations that can be examined thoroughly in long-term, via cohort studies and by using intervention-control-group comparisons, in order to establish causal associations between lifestyle parameters and time spent on screen. This procedure can result in addressing specific guidelines for the Greek population, regarding the appropriate usage duration of digital means.

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Conflict of interest

The authors report that there is no conflict of interest.

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Εισαγωγή: Οι μελέτες που αποσκοπούν στην εκτίμηση της αλληλεπίδρασης του χρόνου που περνούν οι άνθρωποι μπροστά από τις οθόνες και παραγόντων του τρόπου ζωής, επικεντρώνονται, κυρίως, σε παιδιά και εφήβους, ενώ ο αριθμός των μελετών που εστιάζουν στον ενήλικο πληθυσμό είναι αρκετά περιορισμένος.
Στόχος: Η διερεύνηση της συσχέτισης μεταξύ χρόνου που αφιερώνεται για λόγους εργασίας ή και ψυχαγωγίας μπροστά από οθόνες, με την κατανάλωση πρόχειρου φαγητού και παράγοντες του τρόπου ζωής (π.χ. σωματική άσκηση, καπνιστικές και διατροφικές συνήθειες) σε νεαρούς ενήλικες του Ελληνικού πληθυσμού.
Μεθοδολογία: Συγχρονική μελέτη παρατήρησης, που διεξήχθη την περίοδο του Μάϊου 2023. Συμμετείχαν 687 ενήλικες Έλληνες, 18-30 ετών, που επιλέχθηκαν μέσω βολικής δειγματοληψίας και αξιολογήθηκαν χρησιμοποιώντας κατάλληλα δομημένο διαδικτυακό ερωτηματολόγιο σχετικά με τον χρόνο που αφιερώνουν μπροστά σε κάποια οθόνη (κινητό/tablet, τηλεόραση, υπολογιστή), ξεχωριστά για λόγους εργασίας και ψυχαγωγίας, όπως και για ποικίλους παράγοντες που αφορούν κοινωνικοδημογραφικά, κλινικά και χαρακτηριστικά του τρόπου ζωής, όπως η προσκόλληση στην Μεσογειακή Διατροφή (μέσω MedDietScore, εύρος τιμών 0-55).
Αποτελέσματα: Ο μέσος ημερήσιος χρόνος χρήσης οθόνης για εργασία και ψυχαγωγία ήταν 5±4 ώρες και 6±3.5 ώρες, αντίστοιχα. Ο χρόνος οθόνης για ψυχαγωγία συσχετίσθηκε αρνητικά με τον βαθμό προσκόλλησης στην Μεσογειακή Διατροφή (ΣΛ ανά 1 ώρα, 0.93, 95%ΔΕ 0.89, 0.97,p=0.002). Παρατηρήθηκε θετική συσχέτιση μεταξύ της συχνότητας κατανάλωσης fast food, γλυκών και αλμυρών snack και, εν γένει, του χρόνου χρήσης οθόνης (όλα τα p-value<0.05), ενώ ο χρόνος οθόνης για ψυχαγωγία συσχετίσθηκε αρνητικά με την πιθανότητα ένα άτομο να ασκείται ή όχι (ΣΛ ανά 1 ώρα, 0.90, 95%ΔΕ 0.85, 0.95,p=0.001). Θετική συσχέτιση παρατηρήθηκε και μεταξύ του χρόνου οθόνης για τηλεργασία και του δείκτη μάζας σώματος (rho=0.27,p=0.027). Δεν παρατηρήθηκαν συσχετίσεις αναφορικά με τις καπνιστικές συνήθειες.
Συμπέρασμα: Η αρνητική σχέση που παρατηρήθηκε, μεταξύ χρόνου χρήσης οθόνης και ποιότητας ζωής, δύναται να επηρεάσει, μακροπρόθεσμα, την κατάσταση υγείας των ατόμων, και θα πρέπει να ληφθεί υπόψη ώστε να αποφευχθεί η εκτεταμένη χρήση της.

ΛΕΞΕΙΣ ΚΛΕΙΔΙΑ: *Χρόνος οθόνης, υγεία, διατροφή, τρόπος ζωής, νέοι*

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