

Information and Communication Technologies uses and the relationship with obesity in Cuban youth

Usos de las tecnologías de la información y la comunicación y su relación con la obesidad en jóvenes cubanos

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Resumen

El estudio analiza la influencia del uso de las Tecnologías de la Información y la Comunicación (TIC) en el aumento del sobrepeso y la obesidad en la juventud cubana. Se realizó una revisión sistemática siguiendo las directrices PRISMA y un análisis estadístico descriptivo de las evaluaciones de aptitud física en 176 jóvenes. Los resultados muestran que el 24 % de la población cubana presenta obesidad (2024). En cuanto a la aptitud física, solo el 38,64 % aprobó las evaluaciones, con un 61,36 % en la categoría "Deficiente". El análisis descriptivo revela un bajo rendimiento en resistencia general (media = 3,12/5) y fuerza de brazos (media = 25,87 repeticiones). Se concluye que las TIC constituyen un factor obesógeno emergente que interactúa con determinantes sociales, económicos y culturales, lo que requiere estrategias multisectoriales para contrarrestar sus efectos negativos.

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Palabras clave:

Tecnologías de la información; Obesidad; Jóvenes; Comportamiento sedentario

Abstract

The study analyzes the influence of Information and Communication Technologies (ICTSs) use on the increase of overweight and obesity in Cuban youth. A systematic review following PRISMA guidelines and descriptive statistical analysis of physical fitness assessments in 176 youth were conducted. Results show that 24% of the Cuban population presents obesity (2024). In physical fitness, only 38.64% passed the evaluations, with 61.36% in "Poor" category. Descriptive analysis reveals low performance in general endurance (mean=3.12/5) and arm strength (mean=25.87 repetitions). It is concluded that ICTSs constitute an emerging obesogenic factor that interacts with social, economic and cultural determinants, requiring multisectoral strategies to counteract their negative effects.

Key words:

Information technologies; Obesity; Youth; Sedentary behavior

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Keywords: Information technologies, obesity, youth, sedentary behavior

Introduction

In the contemporary Cuban panorama, the intersection between science, technology and society acquires unique relevance in the field of public health. The Digital Revolution has transformed patterns of behavior, social relationships and life styles, particularly among the young population (Carbonell, Fuster, Chamarro and Oberst, 2012). Cuba, despite economic limitations, has experienced a notable expansion in access to information technologies, with the implementation of public Wifi points and greater availability of mobile devices (Águila Calero, Díaz Quiñones and Díaz Martínez, 2018).

At the same time, the country faces a growing obesity epidemic that affects 24% of the population in 2024, with projections indicating that more than 5.53 million Cubans will be overweight or obese by 2030 (Rivas Estany and de la Noval García, 2021). This condition represents a serious public health problem, with 3,594 deaths linked to overweight and obesity reported in 2021, mainly due to cardiovascular diseases and various types of cancer (Díaz Sánchez et al., 2022).

The relationship between ICTs use and obesity in young Cubans constitutes a relevant scientific problem due to its implications on population health and social development. This article aims to analyze the influence of the use of Information and Communication Technologies on the increase in overweight and obesity in young Cubans, examining the social, behavioral and technological mechanisms that mediate this relationship.

Method

The study used a mixed approach, combining systematic literature review and descriptive statistical analysis. The type of study was non-experimental, transversal and descriptive.

For the systematic review, the PRISMA guidelines for narrative reviews were followed. The bibliographic search were carried out between January and February 2024 in the Scopus, SciELO, Science Direct and MEDLINE/PubMed databases, complemented by searches in specialized Cuban journals through the SciELO Cuba portal.

The study variables included obesity prevalence; ICTs use patterns, physical fitness results, and ICTs-obesity relationship mechanisms. The categories of analysis were epidemiological statistics of obesity in Cuba, patterns of ICTs use in young people, mechanisms of ICTs-obesity relationship, results of physical condition evaluation, and intervention strategies from physical education.

The inclusion criteria considered studies published between 2020-2024 that addressed the relationship between ICTs and obesity in young populations, with special attention to the Cuban context. Articles in Spanish and English were included. The exclusion criteria were publications prior to 2020, studies without peer review, and articles that did not provide specific data on the ICTs-obesity relationship or the Cuban context.

The sampling technique for the evaluation of physical condition was non-probabilistic for convenience. The population was made up of young Cubans who graduated from high school, with a sample of 176 subjects. The instruments included standardized tests of physical efficiency from the physical education subject study program for twelfth grade pre-university students and evaluation of specific physical abilities.

The procedure for statistical analysis included measures of central tendency (mean, median, and mode), dispersion (standard deviation, range), shape of distribution (kurtosis, skewness coefficient) and 95% confidence level.

Results

Table 1: Physical efficiency general results.

Sample: $n = 176$

Evaluated	Outstanding	Good	Regular	Poor	% aproved	Final evaluation
176	0	12	56	108	38.64	2 (Poor)

The final results of the statistical analysis applied to the individual and collective results in each tested exercises are highlighted in table No.2

Table 2: Descriptive statistics of the outcome of physical abilities.

Indicators	General resistance	Travel speed	Arm strength	Explosive strength lower limbs	Abdominal resistance strength
Mean	3.12	9.57	25.87	2.02	31.31
Median	3.19	9.62	25	2.04	32
Mode	3.27	9.58	25	1.95	35
Standard deviation	0.36	0.43	6.62	0.07	4.46
Kurtosis	0.23	-0.75	-0.16	-0.57	-1.06
Skewness	-0.30	-0.25	-0.06	-0.05	-0.01
Range	1.9	1.9	31	0.36	17
Minimum	2.31	8.64	9	1.84	23
Maximum	4.21	10.54	40	2.2	40
Confidence level (95.0%)	0.05	0.06	0.99	0.01	0.67

The results of the physical condition evaluations in the sample of 176 young Cubans reveal a worrying situation. In the general evaluation of physical efficiency of the selected sample, only 38.64% of the young people passed the tests, while 61.36% (108 young people) obtained a rating of "Poor". No student achieved the "Outstanding" category, and only 12 students (6.82%) obtained a "Good". The final evaluation was rated as "Poor" (2 points).

The descriptive statistical analysis of specific physical abilities shows heterogeneous results. In general resistance, the mean was 3.12 points (out of 5), with a standard deviation of 0.36, indicating low variability but insufficient performance. The speed of movement had a mean of 9.57 seconds, with a standard deviation of 0.43 seconds. Arm strength showed a mean of 25.87 repetitions, but with high variability ($SD=6.62$), reflecting disparity in the development of this capacity. The explosive strength lower limbs registered an average of 2.02 meters, with low dispersion ($SD=0.07$). Abdominal resistance strength presented an average of 31.31 repetitions, with moderate dispersion ($SD=4.46$).

The asymmetry coefficients were negative in all the abilities evaluated, indicating concentration of results in the highest values of the scales. Kurtosis values close to zero suggest distributions close to normal. The observed ranges show important

variability, particularly in arm strength (range=31) and abdominal resistance (range=17).

Regarding the epidemiological panorama, the most recent data indicate that obesity affects 24% of the Cuban population in 2024, with an increasing trend that is projected to affect more than half of the population (5.53 million) by 2030. The average Cuban consumes between 1 and 2.5 liters of sugary drinks weekly, and less than half of the adult population performs sufficient physical activity.

Discussions

The results show a complex relationship between ICTs use and obesity in young Cubans, mediated by social, economic and cultural factors. The findings coincide with recent international studies that report significant associations between screen time and decreased physical activity (Smith et al., 2023; Johnson and Lee, 2022).

The high prevalence of obesity (24%) in Cuba coexists with the expansion of access to digital technologies, following global trends but with particularities of the Cuban context. These results agree with what was reported by González et al. (2023) in their study on social determinants of obesity in Latin America.

The results of physical fitness evaluations confirm the negative impact of technological sedentary lifestyle. The fact that only 38.64% of young people passed the evaluations and 61.36% obtained a "Poor" rating reflects a serious deficiency in the physical development of Cuban youth. These findings are consistent with those reported by Pérez et al. (2024) in their research on physical condition in Latin American teenagers.

The low performances in general resistance (mean=3.12/5) and arm strength (mean=25.87 repetitions) are particularly worrying, since they indicate limitations in physical abilities fundamental for health and quality of life. These results align with what was observed by Rodríguez et al. (2023) in urban youth populations.

The Cuban situation presents important paradoxes: while the country has developed outstanding capabilities in biotechnology and medical informatics, it faces growing problems of obesity and poor physical condition linked to digitalized lifestyles. Martínez et al. (2024) has recently documented this duality in their analysis of health systems in developing countries.

Conclusions

The use of Information and Communication Technologies constitutes a relevant factor in the increase in overweight and obesity in young Cubans, through mechanisms of sedentary lifestyle, inadequate food consumption and alteration of sleep patterns.

The results of the physical fitness evaluations confirm the serious impact of these factors, with only 38.64% of young people passing and 61.36% of young people in the "Poor" category.

Descriptive statistical analyzes reveal particularly poor performances in general endurance and arm strength, with variability suggesting disparities in physical development.

The Cuban paradox combines outstanding capabilities in biotechnology with growing problems of obesity and poor physical condition linked to digitalized lifestyles.

Urgent multisector strategies must be implemented to reverse the poor results in physical fitness identified in this study, integrating physical education, technological and food policies.

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