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EATING HABITS AND LIFESTYLES OF MEDICAL STUDENTS AT THE BEGINNING OF THE COVID-19 PANDEMIC EATING

HÁBITOS ALIMENTARIOS Y ESTILOS DE VIDA DE LOS ESTUDIANTES DE MEDICINA A INICIOS DE LA PANDEMIA COVID-19

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ABSTRACT

The mortality rate from COVID-19 in Peru continues to increase, considered by January 24, 2022, as the third country with the most cases and deaths in all of South America. Confinement favors an extremely sedentary lifestyle, physical inactivity, and poor eating practices causing serious health risks. **Objectives:** Describe the eating habits and lifestyles of medical students during the CoVID-19 quarantine. Materials and Methods: Multicenter Descriptive Cross-sectional Study. **Results:** A total of 886 medical students participated. The female gender prevailed with 81.49% (n = 722) compared to the male gender with 18.51% (n = 164). Regarding the perception of health, only 4.51% (n= 40) rated it as low and the remaining 95.49% rated it as satisfactory (n= 111), good (n= 495), very good (n= =200) and excellent (n=40). The predominant healthy habits were not smoking 91.08% (n= 807) and doing physical activity 78.78% (n= 698); During the pandemic, physical activity was reduced, reaching 53.95% of students. **Conclusions:** Medical students during the COVID-19 confinement stage, medical students opted for regular healthy eating habits and preventive behaviors. However, daily physical activity was predominantly low.

Keywords: COVID-19; Habits; Quarantine; Medical Students. (Source: MeSH NLM).

RESUMEN

La tasa de mortalidad por COVID-19 en el Perú sigue en aumento, considerado para el 24 de Enero del 2022 como el tercer país con más casos y muertes en toda Sudamérica. El confinamiento favorece al sedentarismo extremo, la inactividad física y a malas prácticas alimentarias causando serios riesgos para la salud. **Objetivos:** Describir los hábitos alimentarios y estilos de vida de los estudiantes de medicina durante la cuarentena CoVID-19. **Métodos:** Estudio Transversal Descriptivo Multicéntrico. **Resultados:** Participaron un total de 886 estudiantes de medicina. Predominó el sexo femenino con un 81,49% (n =722) frente al sexo masculino con 18,51% (n=164). En cuanto a la percepción de salud, solo el 4,51 % (n= 40) la calificaron como baja y el 95,49 % restante calificaron de satisfactoria (n= 111), buena (n= 495), muy buena (n=200) y excelente (n=40). Los hábitos saludables predominantes fueron no fumar 91,08 % (n= 807) y hacer actividad física 78,78% (n= 698); Durante la pandemia, la actividad física se redujo logrando alcanzar un 53,95 % de estudiantes. **Conclusiones:** Los estudiantes de medicina durante la etapa de confinamiento por COVID-19 optaron por hábitos alimentarios regularmente saludables y conductas preventivas. Sin embargo, la actividad física diaria fue predominantemente baja.

Palabras Claves: COVID-19; Hábitos; Cuarentena; Estudiantes. (Fuente: DeCS BIREME).

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INTRODUCTION

The world is going through a health crisis due to COVID-19. The latest statistics from the World Health Organization (WHO) [1] until the end of January 2021, nearly one hundred million infected people and more than two million deaths were reported worldwide. For this reason, the Peruvian government has taken measures for a collective quarantine to reduce the spread of the COVID-19 virus among the population and prevent the collapse of hospitals [2], taking China and its strategy of social isolation as an example.

However, this measure has not turned out to be a pleasant experience for many complying with it. This leads to various side effects, especially when this confinement lasts for months, thus affecting interpersonal relationships modifying lifestyles and eating habits in the general population.

The increase in hours at home without any type of outdoor activity brings boredom, which has been shown to be associated with a higher caloric intake[14]of foods rich in saturated fats, sugars, and especially refined carbohydrates[3,4]. This food consumption is explained by the production of serotonin generated in our body, causing a favorable effect on mood. Its production is influenced by the desire to ingest carbohydrates [3] so that these foods could alleviate the symptoms of stress[3].

The eating habits they adopt in the quarantine may or may not increase the risk of some metabolic diseases. Currently, in Peru, the mortality rate from COVID-19 continues to increase; by January 24, 2022, Peru is considered the third country with the most cases and deaths in all of South America [5]. In this regard, scientific evidence states that overweight and obese young people have a higher risk of developing metabolic and cardiovascular diseases, so they are more predisposed to worsening their health status during confinement.[6,7,15].

Social isolation leads to a sedentary lifestyle[16], physical inactivity [17] and poor eating habits. Likewise, social isolation can generate stress in students and affect their physical health and mental health [18,19]. Despite this, a study carried out in Spain showed the opposite, where the population opted for healthy foods during quarantine[20].

During this national emergency, it is important to know the habits and lifestyles that the country's future doctors adopt and see their trends. So far, no work like this has been done in times of confinement. The main objective of this manuscript was to describe the eating habits and lifestyles of medical students during the COVID-19 quarantine.

METHODS

A cross-sectional, descriptive, and multicenter study was carried out, using a virtual questionnaire as an instrument. The population corresponds to all the students of the Human Medicine career whose faculties were accredited by the National Superintendence of Higher University Education (SUNEDU) [23] (Federico Villarreal National University, San Juan Bautista Private University, Piura National University, San Juan National University). Antonio Abad del Cusco, National University of Cajamarca, Scientific University of the South, National University of San Marcos, Catholic University of Santa María, University of San Martín de Porres, Ricardo Palma University, Cayetano Heredia Peruvian University, Continental University Peruvian University, Los Andes National University of San Martín, National University of Central Peru, National University of the Peruvian Amazon, National University of Trujillo, National University of San Agustín, National University of the Altiplano, Private University of Tacna, Peruvian University of Applied Sciences) and that is part of some e the twenty-one active scientific societies of Peru. These societies represent around 10% of the total medical students [7].

A non-probabilistic sampling was carried out for convenience. Using information from the study by Rimarova et al.[6] a frequency of bad eating habits in Human Medicine students was assumed to be 34.89%, with a confidence level of 5%, and an infinite population, calculating a necessary sample size of 349 participants, using the OpenEpi software for Windows [20].

The data collection was carried out after the approval of the ethics committee of the Universidad Científica del Sur during the months of March-April 2021, for which a self-report questionnaire was used that was structured with questions about eating habits and styles of life from previous studies [6,9,10,11]. The Survey Monkey platform was used to create a 26-question questionnaire, categorized into five sections: sociodemographic variables, lifestyle practices, anthropometric variables, information on COVID-19 quarantine status, and dietary practices.

The dissemination of the instrument was carried out through social networks (emails, social networks, Whatsapp). Previously, it was coordinated with the medical education committees of the twenty-one societies registered in the Peruvian Medical-Student Scientific Society (SOCIMEP) and the International Federation of Medical Students Associations (IFMSA) [21] for the mention of the questionnaire in the virtual workshops of scheduled classes. All participants signed informed consent before answering the questionnaire questions, excluding minors and belonging to foreign faculties. Sociodemographic variables included gender (male vs. female); Age in years; residence ("I live alone" vs. "I live with my parents"); and Year of the study expressed in years.

The lifestyle variables had five questions [6] : 1) the self-perception of the participants regarding their health (excellent, very good, good, satisfactory, and poor) whose answers were classified into two groups ("good, satisfactory, and poor" and "excellent and very good"); 2) Smoking habit was assessed with the question "Do you smoke?" (Yes vs No); 3) Stress at university was assessed with the question "Are you stressed by university classes?" [5] (Yes vs. No); 4) The self-perception of physical activity was evaluated with the question: "Do you consider that you do little physical activity?" [5] (Yes vs. No); and 5) The self-perception of healthy eating was evaluated with the question: "Do you consider that you eat healthy?" [6]. These questions were asked in reference to the COVID-19 quarantine period.

The anthropometric variables were taken from the study validated by Rimarova et al.[6] which included weight in kilograms (Kg), height expressed in meters (m); the body mass index (BMI), which was calculated by dividing the kg of weight by the square of the height in meters (m2). Likewise, overweight criteria were used at all BMI >25 and obesity at a BMI > 30; the waist and hip variables were measured in centimeters (cm). All these variables were self-reported and had instructions written below the questions requested for their measurement. according to WHO regulations [12].

The eating habits variables were taken from the Fala Bede et al. study questionnaire 9 and were made up of seven questions: 1) "Do you eat breakfast?", 2) "Lunch?", 3) "Dinners?", 4) " Do you eat fruits?", 5) "Do you eat vegetables?" whose responses were categorized into four responses (regularly, sometimes, rarely, never); and with dichotomous answers ("Yes vs. No") to two questions: 6) "Do you eat snacks?", understand "snacks" for light foods that are consumed between meals based on fried foods, preservatives, high amounts of salt and fat without no nutritional value; 7) "Do you consume alcohol?", understood as the intake of any alcoholic beverage. All these questions were asked about the period of confinement. Regarding the variables on the quarantine status due to COVID-19, it was evaluated with two questions obtained from the instrument of the study by Filgueiras et al. [10], which were: 1) Do you have any risk factor for COVID-19?", taking as a reference to known risk factors [12] (cancer, hypertension, diabetes, cardiovascular disease, chronic lung disease, obesity, and smoking); 2) "Do you abide by the quarantine?", understanding whether or not the participant complied with the measures dictated by the Peruvian government; Finally, the question from the study by

Barari S et al.[11] : 3) "Reason for leaving home" (Buying food for your family", Going to the pharmacy, Going to work, Walking the pet, Caring for dependent people, Doing a physical activity, Going to the hospital/receiving medical treatment, Tired of being inside the house, Because I have the right to freedom, Meeting with family or friends, Out of boredom, Getting a little adrenaline (for breaking the law), others).

Microsoft Excel ® 2011 24 software was used for the descriptive analysis of the sample and the STATA V16 program. [25]. This study has the approval of the ethics committee of the Universidad Científica del Sur (UCSUR) with the code: 189-2020-PRE B15.

RESULTS

A total of 965 medical students from all over Peru were surveyed, and 79 participants were excluded; 67 for being minors, three for incorrect entry of their weight in Kg, and nine for having erroneous data in the measurement of waist and hip circumference. Table 1 shows that 82.28% of participants belong to private universities (n =729), while only 17.72% to national universities (n =157). The female gender prevailed with 81.49% (n=722) compared to the male gender with 18.51% (n=164) and 84.99% (n=753) live with their parents. Likewise, the majority (n=510) of the participants belong to pre-clinical periods with a mean age of 20.97 ± 2.88. Regarding the perception of health, only 4.51% (n= 40) rated it as low and the remaining 95.49% rated it as satisfactory (n= 111), good (n= 495), very good (n= =200) and excellent (n=40). The predominant healthy habits were not smoking 91.08% (n= 807) and doing physical activity 78.78% (n= 698); while in unhealthy habits, stress prevailed with 82.05% (n= 727) and the non-consumption of healthy foods 50.23% (n= 445). Finally, in relation to the anthropometric variables obtained, average weight in Kilograms of 63.03 ± 12.33, a height in meters of 1.62 ± 0.08, and a waist-hip ratio of 23.99 ± 3.71, a waist in centimeters of 79.08 ± 12.29, a hip circumference measured in centimeters of 93.36 ± 12.82 and a waist-hip ratio of 0.85 ± 0.13. Table 2 shows that more than half of the participants regularly eat breakfast 75.40% (n=668), lunch 96.05% (n=851), dinner 63.66% (n=564) and eat vegetables 55 .64% (n= 493). While the participants who consume snacks and alcohol represent 62.75% (n= 556) and 30.25% (n= 268), respectively.

Table 1. Descriptive analysis of the sociodemographic variables of the sample (N=886)

	n	%	Standard deviation
Universities			
National	157	17.7	
Private	729	82.3	
Gender			
Male	164	18.5	
Female	722	81.5	
Age			20.97 ± 2.88
Residence			
I live with my parents	753	85.0	
I live without my parents	133	15.0	
Year of Study			
First year	147	16.6	
Second year	204	23.0	
Third year	159	18.0	
Fourth year	142	16.0	
Fifth year	98	11.1	
Sixth year	80	09.0	
Seventh year	56	6.3	
Health Perception			
Poor	40	4.51	
Satisfactory	111	12.53	
Good	495	55.87	
Very good	200	22.57	
Excellent	40	4.51	
Smoking			
Yes	79	8.92	
No	807	9.08	

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Stress			
Yes	727	82.1	
No	159	18.0	
Practice physical activity			
Yes	698	78.8	
No	188	21.2	
Eat healthy meals			
Yes	441	49.8	
No	445	50.2	
Weight (kg)			63.03 ± 12.33
Height (m)			1.62 ± 0.08
Body mass index (BMI)			23.99 ± 3.71
Waist			79.08 ± 12.29
Hip			93.36 ± 12.82
Waist-hip ratio (WHR)			0.85 ± 0.13

Table 2 shows that more than half of the participants regularly eat breakfast 75.40% (n=668), lunch 96.05% (n=851), dinner 63.66% (n=564) and eat vegetables 55 .64% (n= 493).

While the participants who consume snacks and alcohol represent 62.75% (n= 556) and 30.25% (n= 268), respectively.

Tabla 2. Descriptive analysis of the eating habits variables of the sample (N=886)

	n	%
Consume breakfast		
Never	12	1.4
Rarely	59	6.7
Sometimes	147	16.6
Regularly	668	75.4
Lunch		
Never	3	0.3
Rarely	7	0.8
Sometimes	25	2.8
Regularly	851	96.1
Dinner		
Never	11	1.2
Rarely	67	7.6
Sometimes	244	27.5
Regularly	564	63.7
Eat fruit		
Never	10	1.1
Rarely	107	12.1
Sometimes	351	39.6
Regularly	418	47.2

Consume Vegetables		
Never	10	1.1
Rarely	82	9.3
Sometimes	301	34.0
Regularly	493	55.6
Consume snacks		
Yes	556	62.8
No	330	37.3
Consume alcohol		
Yes	268	30.3
No	618	69.8

Table 3 shows the results of the quarantine status where 75.51% of medical students were at risk of having COVID-19.

Table 3. Descriptive analysis of the state Quarantine by COVID-19 of the sample (N=886)

	n	%
They are at risk of having COVID-19		
Yes	669	75.5
No	217	24.5
They practice exercise		
They do not exercise	478	54.0
One to three times a week	282	31.8
At least 4 times a week	126	14.2
They abide by the quarantine		
Yes	331	37.4
No	555	62.6
They did not comply with the quarantine		
for Buying food for your family		
Yes	604	68.2
No	282	31.8
Going to the pharmacy		
Yes	483	54.5
No	403	45.5
Going to work		
Yes	60	6.8
No	826	93.2
Walking pets		
Yes	155	17.49
No	731	82.51
Caring for dependent people		
Yes	124	14
No	762	86

Doing physical activity		
Yes	54	06.1
No	832	93.9
Going to the hospital / Receiving treatment		
Yes	111	12.5
No	775	87.5
Tired of being inside the house		
Yes	141	15.9
No	745	84.1
Meeting with family or friends		
Yes	138	15.6
No	748	84.4
Because I have the right to freedom		
Yes	69	7.8
No	817	92.2
Get a bit of adrenaline (by law)		
Yes	15	1.7
No	871	98.3
Get together with family or friends		
Yes	138	15.6
No	748	84.4
Boredom		
Yes	105	11.9
No	781	88.2

DISCUSSION

The main objective of this study was to describe the eating habits and lifestyles during the COVID-19 quarantine of 2020. The average age of the participants was 20.97 ± 2.88, finding that 17.72% of them belonged to national universities and 82.28% to private ones. Regarding the gender of the participants, this was predominantly female (81.49%), following the global trend. According to various national and international studies, it stands out that there is a feminization of the medical career[26] where it is indicated that, out of every ten medical students, six are women[27,28,29].

Likewise, about 85% of the participants state that they live with their parents in terms of residence. There is evidence that the option of staying in the family home during a university course instead of moving only near the study center is associated with greater academic achievement[29], such a reason can be understood that, in times of confinement, where the student He is concerned not only about the academic load but also about the situation, he needs family and emotional support. In addition, classes are being held virtually, somost are at home. These results may also be influenced by the fact that the sample is dominated by young people in their early years (n= 510) who, for the most part, do not achieve economic independence to live on their own.

According to the perception of the students' health, it was found that the majority self-reported to be in good health. This is also correlated with healthy habits, such as not smoking (91.08%) and doing physical activity. However, despite being a good habit, physical activity was reduced during confinement, reaching 53.95% of students who did not exercise (78.78%). These results are consistent with several studies carried out in Latin America on medical students where they found that only 22% of them reported having performed physical activity during confinement and that in those who used to exercise daily, this was reduced[30].

A similar study in Spain showed that young students who used to practice sports significantly reduced their daily physical activity during the pandemic [31]. Consequently, the anthropometric measurements of the participants in the present study were in a normal to elevated range, such as a BMI of 23.99 ± 3.71 and an ICC of 0.85 ± 0.13.

Likewise, the participants' self-reported stress during the 2020 confinement was 82.05%. It is not uncommon to find a high prevalence of these symptoms since social isolation, especially in young people, causes damage to mental health, physical activity, and eating habits[32]. In fact, in a study where they wanted to evaluate the psychosocial impact during confinement by self-report, they found that about 61.3% of medical students had moderate to severe anxiety whose risk factors included being a preclinical semester student, being a woman, and having a previous mental illness[33]. These data are related to the results of this study where there could be an association with the female gender and the psychosocial impact. In relation to mental health, in Mexico, they found that 45% of undergraduate medical students presented symptoms of sadness while 88% of them presented anxiety during the pandemic.

Stress and anxiety are two entities that have been observed the most in medical students. It is very important to identify it since it can influence mood, academic performance and physical performance, probably this could influence the little physical activity of many students during the pandemic[34,35,36,1].

Eating habits were not affected during confinement, as most students ate breakfast, lunch and dinner, contrary to what was observed before the pandemic where they used to skip breakfast [34]. In addition, most of them regularly provided vegetables (47.18%) and fruits (55.64%) in their meals. These results are compatible with studies abroad where it was shown that healthy habits were regularly practiced in contrast to unhealthy ones during the pandemic[27] and this may be due to the economic crisis caused by the pandemic, avoiding the unnecessary purchase of unhealthy foods and the time factor that allowed medical students to dedicate more space to eat a balanced diet.

During the COVID-19 quarantine, it was observed that a large part of the medical student participants (75.51%; N=669) had risk factors for acquiring the COVID-19 disease. As in several studies where it has been observed that medical students have risky eating behaviors, little access to nutritional guidance, high consumption of trans fats, obesity, sedentary lifestyle, and lack of access to psychological help, all this adds up to a significant risk develop COVID -19 disease[37].

Likewise, not all medical students were able to abide by social isolation (62.64%) strictly as mandated by the government. However, the reasons were justified since the vast majority were to buy food for the family. Many of the medical students did not break the regulations issued by the government, and this is because a large part of the health personnel has a high knowledge of the possible risk factors of COVID-19 and applies preventive behavior practices [35].

This study has certain limitations. It has the self-report of anthropometry and non-probabilistic sampling. In addition, there is the possibility of recall bias. The sample could be representative only of medical students belonging to scientific societies.

In conclusion, it was found that the majority of medical students during the COVID-19 confinement stage opted for regular healthy eating habits. However, daily physical activity was predominantly low.

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