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Lifestyles of Spanish university students during the 2020 COVID-19 lockdown
Estilos de vida de estudiantes universitarios españoles durante el confinamiento por COVID-19

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Abstract. During the 2020 stay-at-home lockdown ordered as a response to the COVID-19 pandemic, university students had access to diverse digital technologies, which offered researchers the opportunity to study changes in their lifestyles while they occurred and to classify them into groups according to such lifestyles. Therefore, the main objective of this research is to establish a typology of university students according to the lifestyles they followed during the lockdown, based on the study of their daily routines, emotional state, media consumption habits and use of apps. The study is based on a sample of 913 Spanish university students. Data has been processed with SPSS 28.0 and SPAD 5.0. The following six groups were identified by using factor analysis and multiple correspondence analysis: 1) the fearless and adapted (21%); 2) the unhealthy (22.56%); 3) the hardworking and studious (27.93%); 4) the hyperconnected (9.09%); 5) the sedentary and withdrawn (13.85%); and 6) the athletic and healthy (6.68%). The use of apps for social relations is shown as a relevant construct, in relation to other indicators such as emotional state, time spent on studies, leisure, family and physical activity. The lifestyles observed exhibit differences with respect to sports activity, eating habits and rest routines, as well as time spent on academic and professional activities.
Key Words: Physical activity, Pandemic, Emotional state, Digital behavior.

Resumen. El acceso a la tecnología digital por parte de la población universitaria durante el confinamiento mundial por la COVID-19 ofrece al contexto académico la oportunidad de estudiar los cambios en sus estilos vida en el mismo momento en el que estos se están produciendo analizando de forma única su posible segmentación. Por ello, el objetivo principal de esta investigación es establecer una clasificación de estudiantes universitarios en grupos en función del constructo estilo de vida adoptado durante el confinamiento, a partir del estudio de sus rutinas diarias, actividad física, estado emocional, hábitos de consumo de medios y uso de aplicaciones digitales. Se ha analizado una muestra de 913 jóvenes universitarios en España. Los datos se han procesado con SPSS 28.0 y SPAD 5.0. A partir de un análisis factorial y de clasificación se han obtenido seis grupos diferenciados: 1- Sin miedo y adaptados/as (21%), 2-No healthy (22.56%), 3-Trabajadores/as y estudiantes aplicado/as (27,93%), 4-Hiperconetados/as (9,09%), 5-Sedendarios/as y poco sociables (13,85%) y 6-Deportistas y sanos/as (6,68%). El uso de aplicaciones digitales y las relaciones sociales online se muestra como un constructo relevante, en relación a otros indicadores como el estado emocional, el tiempo dedicado a los estudios, al ocio, la familia y la actividad física. Los estilos de vida observados muestran diferencias respecto a rutinas deportivas, de alimentación y descanso, así como al tiempo dedicado a tareas académicas y profesionales.
Palabras clave: Actividad física, Pandemia, Estado emocional, Comportamiento digital.

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Introduction

The world is facing a pandemic that nobody fully understands, so strategies are needed to mitigate its effects quickly and efficiently. As Piña-Ferrer (2020) points out, given the uncertainty caused by the lack of knowledge about the virus, the only possible vaccine is duly verified scientific information about how to protect people from contagion. For Rodríguez et al. (2020), the best strategy is to prevent the spread of the virus through self-care, lifestyle changes and strict compliance with protection measures. One of the strategies implemented in many countries to prevent the spread of the virus has been to order the population to stay at home. The mandatory lockdown of the population, motivated by the state of emergency, has led to substantial lifestyle changes across the general population. In this regard, one of the groups the lockdown has affected the most is university students, who already undergo other significant lifestyle changes that affect their health condition during this age. Young people, at this stage of development, have more personal autonomy, greater independence, and an additional burden of responsibility. Thus, it is interesting to study the meaning university students imprint during this phase of development in each of the dimensions of healthy lifestyles. Physical activity is arguably one of the dimensions that best predicts a healthy lifestyle. It has been amply demonstrated that regular exercise significantly decreases the probability of contracting many diseases and is a powerful indicator of health improvement and life expectancy (Beltrán et al., 2017; Orepic et al., 2014; Penades et al., 2022; Vagetti et al., 2014; Warburton and Bredin, 2016). One of the main consequences of the lockdown ordered from March to June 2020 in Spain is the significant increase in time spent sitting, without performing any type of physical activity. The repercussions of immobility can translate into possible health problems, including pulmonary thromboembolism (PTE), which according to some authors (Franch-Llasat et al., 2020) has increased very significantly during lockdown. On the other hand, lockdown with low physical activity can have a direct impact on the respiratory, immune and mental health systems (García-Tascón et al., 2021; Garzón and Aragón, 2021; Mera et al., 2020). Another fundamental issue to study in relation to this, is the levels of physical activity of the population before and during the lockdown. In this sense, some of the reviewed studies show that there is a trend towards a decrease in exercise (García-Tascón et al., 2021; Mercê et al., 2023; Sang et al., 2021; Santos et al., 2021; Zamarripa et al., 2021). As for eating, one of the

main consequences of the autonomy and independence of young people lies in the possibility of abusing fast food, in comparison to a traditional meal, along with other health-risk behaviors. According to a multicenter study carried out prior to the pandemic in a sample of 1,418 Chilean university students, more than a third presented malnutrition with high consumption of unhealthy foods, with breakfast consumption below 50% and fruit consumption below 8% (Durán et al., 2017). Moreover, because sleep quality is imperative for overall health, a healthy lifestyle needs to consider the quantity and quality of sleep as a fundamental dimension. University students were already especially vulnerable to breaking regular sleep patterns prior to the pandemic, due to the conditions and demands of their study programs and campus life (Tsai and Li, 2004; Tsui and Wing, 2009; Taylor et al., 2011). It is not surprising, therefore, that food and rest have played a fundamental role in university students' lifestyle and physical and emotional health during lockdown (Bennett et al., 2021; Cantisano et al. 2021; Rodríguez Fuentes et al., 2022; Rodríguez-Pérez et al., 2020). In relation to sleep and its consequences on lifestyle, we can see its impact on work and academic performance during lockdown (Gálvez, 2021; Hernández, 2020; Valdivieso et al., 2020).

Leisure time and free time allow young people to choose ways of enjoying themselves and potentially mean an increase in their psychological and physical well-being, provided their activities do not involve health-risk situations. In this sense, the young population, including university students, is more vulnerable to the consumption of substances such as tobacco, alcohol and other drugs. According to García del Castillo (2015), psychosocial vulnerability is directly and indirectly associated with health-risk behaviors and substance use based on low-risk perception, ineffective coping strategies, inadequate resilience levels, poor stress management, inadequate attachment styles, and low emotional intelligence. In Spain, substance consumption decreased during lockdown, which could be explained by the high social component of the consumption habit, which has been altered by the lockdown (Fernández-Artamendi et al., 2021; Villanueva-Blasco et al., 2021).

Research carried out prior to the lockdown found out that the main leisure activities among young people, in order of importance to them, were going out with friends and everything related to their social group, followed by listening to music and, thirdly, using technologies. Going out for drinks to bars and clubs was in eighth place and sports in ninth (Aguirre et al., 2019). For university students, interpersonal relations are, without a doubt, a cornerstone of their lifestyle and one of the greatest impacts of lockdown in young people has been an increase in the time spent using technologies to maintain social relations. However, the excessive time spent using digital screens has also negatively impacted young people's emotional state (Belmonte et al., 2021; Kanstrup et al., 2020; Sánchez et al., 2021).

The main objective of this research is to study the lifestyles followed by university students during the 2020 COVID-19 lockdown to classify them according to their emotional state and daily routines. The following three specific objectives derive from the general research objective:

1. Study the main daily activities carried out during lockdown (in the areas of diet, rest, leisure, sports and ICT use) and their frequency.
2. Classify university students into groups, based on the lifestyles they followed during lockdown.
3. Describe and analyze the different lifestyle-based groups of university students.

Methods

Participants

The universe under study is university students living in Spain. The sampling unit is people over 18 years of age, of any gender, who were studying a university degree in Spain when the government declared a state of emergency caused by COVID19 and mandated stay-at-home lockdown from March to June 2020. A total of 913 university students have been studied. Participants' average age was 21.9, and their distribution by gender was quite balanced: 51.4% were women and 48.6% were men. During lockdown, most participants lived with their parents (75.1%), 51.3% were not afraid of being or getting infected by COVID-19, while 46.2% did feared that possibility, which indicates risk perception is quite polarized

Design and procedure

The study uses a correlational and ex post facto research method, with a correlational design, based on the use of surveys. Data were obtained from a non-random sample, selected with snowball and sequential techniques, which are used when it is difficult to access or locate the population, as in this case. When this sampling method is used, data collection stops when the desired quotas are achieved (Grande and Abascal, 2007).

Data were collected during April and May 2020 using the online platform Google Forms, due to the extraordinary circumstances faced nationally and internationally due to the health emergency caused by the SARS-COV2 virus. Following the ethical principles of the American Psychological Association for Research (APA, 2017), the first page of the online questionnaire informed participants of the objectives and importance of the research, as well as the estimated time to complete it and the way to react to the items. Participants were also informed about their right to not participate in the online survey, and about the confidentiality and anonymization of the data. Before answering the questionnaire, respondents had to explicitly indicate their agreement to participate in the survey.

Instrument

The instrument used in the study combines sections designed ad hoc for this study and sections from other questionnaires that were adapted to the Spanish population, such as the lifestyle questionnaire, adapted from Ponce et al. (2016), the physical and sports activities questionnaire,

adapted from the IPAQ of Craig et al. (2003), and two 7-point Likert scales on emotional state (anxiety and depression) during lockdown, adapted from the Hospital Anxiety and Depression (HAD) Scale developed by Zigmund and Snaith (1983). The sociodemographic, academic, and ICT-use sections of the questionnaire were specifically designed for this research.

Data analysis

The computer processing of the collected data was carried out using SPSS (Statistical Package for Social Science) version 28.0 and SPAD (*Système Portable pour l'analyse des donnes*) version 5.0. The technique used for data analysis was the multiple correspondence factor analysis multiple correspondence factor analysis to achieve the objective of classifying university students according to the lifestyle adopted during the lockdown.

a) Daily activities, physical exercise and consumption of digital media and apps during lockdown have been used as active variables.

b) Physical exercise and sports routines before and during the lockdown, technological devices, opinions, eating habits, rest and drink consumption during lockdown and general sociodemographic data were used as illustrative variables.

The nominal variables used in the survey have been transformed into quantitative data using the data processing program SPAD (v.5.0). This software produces a hierarchical cluster analysis of participants characterized by their factorial coordinates, using Ward's clustering method (Grande and Abascal, 2009), which is the most appropriate when the variables are the factors, as in this case. The classification dendrogram is as follows:

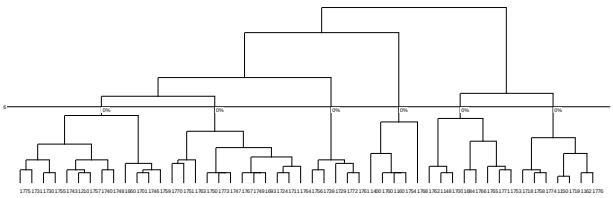

Figure 1. Dendrogram. Source: Authors' own creation.

Table 1.
Description of participants into six groups

Inertia Students	Weight	Distance		
Intergroup Inertia	.2457			
Intragroup Inertia				
Group 1/6	.1030	187	187	.1830
Group 2/6	.0818	206	206	.1301
Group 3/6	.1143	255	255	.0878
Group 4/6	.0833	83	83	.5322
Group 5/6	.0690	121	121	.3567
Group 6/6	.0446	61	61	.8786

Source: Authors' own creation

A typology of six groups was established based on the general principle of classification analysis (minimize internal variations of clusters and maximize their separation). The objective is to ensure that the intragroup inertia is as low as possible while intergroup inertia is greater. The table below describes the groups (Table 1).

Groups one and three are the most heterogeneous, since their inertia is the highest, they are also two of the largest (187 and 255 participants), with group six being the most homogeneous and the smallest.

Results

The following sections describe the groups of students established according to their lifestyles and characteristics.

Group 1: "The fearless and adapted"

This group represents almost 21% of the sample, which makes it the third largest (187 people). This group is composed mostly of male students (67.38%), with an average age of 22 years; the majority are in good health (71%) and are not afraid of contracting COVID-19. In fact, members of this group affirm that, despite the situation, they remain hopeful (M=4.55), calm and relaxed. Participants in this group are in the second and third year of their BA degrees and spend much of the week, between four and five days, studying and performing academic tasks related to their studies. In their day to day, they frequently use email, academic apps (such as Kahoot, Drive, Office), video-conference apps (such as Meet, Zoom and Skype), and laptops (between one and three hours a day). This group has 60% of all participants who spent the lockdown with friends, classmates and/or workmates. Participants in this group do household chores four to five days a week and shop two or three times a week, in many cases using shopping apps.

As for their rest routines, the members of this group are characterized by sleeping occasionally throughout the day and staying up at night two or three times a week. Before the lockdown, sport was an important part of the daily routine of the members of this group. They used to regularly perform physical activities, such as bodybuilding, rugby, and individual sports such as athletics, swimming, cycling or CrossFit, in some cases with the help of sports-related apps. During lockdown, this group of students continued with this daily sports routine at home, frequently practiced strength and aerobic exercises of varying intensity, for one to one and a half hours, to compensate for the almost five hours a day they also spent sitting during these months of isolation.

Regarding their eating habits, this group stands out for its use of healthy-eating apps and the daily consumption of protein-rich foods, being fruit, vegetables and natural juices also common in their diet. Very occasionally, they consume ice cream, sweets and factory-made pastries and never eat fatty foods such as butter, fried food, mayonnaise or sauces. Their leisure and entertainment time during the lockdown is marked by the consumption of movies, series and television, between five and three times a week, using streaming apps, both offline and online. In their leisure time, they also use apps to virtually enjoy cultural activities, such as listening to concerts and visiting museums. The intense use of

smartphones (between four and five hours a day) also stands out in this group. They use mobile apps like WhatsApp, Instagram, YouTube, Facebook, as well as music, radio, and gaming apps.

Group 2: "The unhealthy"

This group represents 22.56% of the sample, with 206 students. Most participants in this group are first-year students (42.23%), who perform academic activities between three and five days a week, for one to three hours a day. They are characterized by using apps such as Drive, Office and Kahoot on their laptops. The members of this group affirm that during the COVID19 lockdown they felt tense and/or wound-up (M=4.73), did not use to buy online; some of them smoked daily, and performed household chores one day a week. They like audiovisual content, since almost 50% of all those who watch TV more than 8 hours a day are part of this group. Outstandingly, they dedicate between one and three hours a day to watch these contents, using platforms such as Netflix, Amazon Prime, HBO, etc. They meet with their friends online at least once a week and believe that smartphone use has positively influenced their social relations during this period (M=5.9). Their sleep habits during lockdown show that they stayed up late practically every day and spent a lot of time (between one and three hours a day) playing video games on mobile apps or consoles. Throughout the day, they listened intensively to music and radio apps such as Spotify and Shazam.

The members of this group are not very physically active, as they did not practice any sport, neither individual or collective, before or during the 2020 mandatory home lockdown. Almost 80% spent more than six hours a day sitting and practically never performed strength nor aerobic exercises nor used sports or health-related apps. They love to eat between meals. In fact, they only manage to maintain the daily routine of having breakfast, lunch and dinner at regular times two or three days a week. They do not eat fruit regularly (at most once a week) and their diet focuses mainly on protein-rich foods, fats (fried food, mayonnaise, sauces, etc.) and vegetables. Two or three times a week, they also incorporate ice cream, sweets and factory-made pastries into their diet. They love fizzy and sugary drinks (such as juices and factory-made teas), yet nearly 98% of them never drink energy drinks, such as Monster or RedBull.

Group 3: "The hardworking and studious"

This group represent 27.93% of the sample, with 255 students. Their intragroup inertia indicates that it is the most heterogeneous of all. It is formed mostly by women (77.65%), who claim to be in good health and do not smoke (92.16%) but are afraid of being or getting infected by SARS-COV2. Their daily activities during the lockdown have been marked mainly by academic work, which they do for four to five hours every day, even Saturdays and Sundays, using apps such as Drive and Office. Members of this group are also characterized by working remotely, for two to five days a week. They use video conferencing apps such as Skype, Meet and Zoom; perform household chores daily; and usually stay up late once a week.

Between two and five times a week, they like to entertain themselves with online cultural activities such as listening to concerts, musicals and visiting museums. They also have fun with their smartphone and online video games, and use digital devices to chat online with friends, at least four or five days a week. These social and leisure activities are carried out on their smartphones and laptops. The vast majority do not use video game consoles. Another characteristic of this group is its intense daily use (four to five hours) of audiovisual content platforms such as Netflix, HBO and Amazon Prime.

Concerned about their health and physical condition during the lockdown, they have practiced aerobic exercises, of different intensities, between two and five days a week. Their weekly sports routine was the same before and during the lockdown, and centered on group aerobic activities, such as Zumba, spinning, walking and body pump. They are also characterized by their use of sports and health-related apps.

All the members of this group have a laptop and a smartphone, and make very intense use of them, between six and seven hours a day. They believe that smartphone use has positively influenced their family relations (M=5.21) and their physical and sports activity. Regarding their daily use of social networks and apps, they use WhatsApp between four and seven hours, and Instagram, between four and five hours. The frequency with which they use email, Facebook and news apps is also high (between one and three hours a day). Their daily use of shopping apps, game apps, TikTok and Snapchat is less intense, but occurs every week.

Group 4: "The hyperconnected"

This is the second smallest group, with only 83 students, who represent 9.09% of the sample. They are good students, although not especially bright, as their average grade is "B" (M=7.4). During lockdown, they felt somewhat tense and/or wound-up (M=5.02). They are fundamentally characterized by being "hooked" to their technological devices, be it smartphone, computer, tablet or smart watch. They spend the day connected, especially to their smartphone, with a daily use of more than eight hours (77.11%). They use WhatsApp, Instagram and YouTube most of the day (from six to more than eight hours) and believe smartphone use has positively influenced their social relations (M=6.05) and their family (M=5.34) relations. This digital connection also occurs in the academic field, since they use academic, email, language software and videoconferencing apps, such as Skype, Meet and Zoom, from four o more than eight hours a day. They have also used news apps to stay informed and to meet people during lockdown.

Another one of the main daily activities this group carried out during lockdown was watching television series and movies, which they did intensely from four to eight hours.

Enjoying cultural activities online, such as listening to concerts, was another important leisure activity during the pandemic. The use of apps to watch movies or series (like Netflix, Amazon Prime and HBO) and apps to listen to music and radio (like Spotify and Shazam) exceeds eight hours a day in this group. They used online apps intensively to maintain their social relations with friends, for four to seven hours a day. They have also used online gaming apps, some of which include video calls. They shopped at least once a week, often on smartphone apps.

During lockdown, their diet has been characterized by being far from what is considered healthy". They ate between meals a lot, practically every day, consuming ice cream, sweets, factory-made pastries and fatty and fried foods, mayonnaise and sauces. They never ate fruit and frequently consumed sugary drinks, such as prepackaged juices and teas, soft drinks, energy drinks like RedBull and Monster, coffee, and tea. Alcohol consumption has also been sporadically present in this group. Members of this group say they were sleepy during the day, which may explain their consumption of tea, coffee and energy drinks. Another characteristic of the members of this group is that before lockdown they were not very sporty but stayed active mainly by practicing gentle physical activities, like walking, dancing and playing tennis. This has been reflected in the physical activity performed at home during lockdown, when they performed low-intensity aerobic exercises with a moderate weekly frequency of four to five times a week.

Group 5: "The sedentary and withdrawn"

This group is composed of 121 students, who represent 13.85% of the sample. In this group the weight of the male gender is high (66.94%). Its members are mainly last-year students who, during the lockdown, did not work, dedicated most of their time to academic work (72.73%), and did not use online shopping apps. They are also characterized by their intense use of laptops, usually for more than 8 hours a day. They spend a day a week on household chores and entertain themselves by playing video game consoles, between one and three hours a day. They do not use gaming apps on their smartphones. From time to time, they also watch TV series or movies and use music apps, such as Spotify and Shazam.

They use smartphones between one and three hours a day, mainly to access Instagram, WhatsApp and YouTube. They believe that the use of smartphones has affected their sleeping hours (M=2.9). In addition, they are not very sociable, as they talk to their friends online once a week at most. They are characterized by their sedentary lifestyle and lack of sports activity. Before the lockdown, they spent more than six hours a day sitting and did not do practice any sports or group activities such as Zumba and dancing. This lack of physical routine continued during lockdown, when they did not perform any aerobic or strength exercises at home nor used health or sports apps. Regarding their diet, they are characterized more by what they did not consume than by what they did consume. For example, they affirm that during lockdown they never took alcohol, coffee or tea, and that they usually did not have breakfast. However, they say they consumed fruit and natural juices from time to time.

Group 6: "The athletic and healthy"

This is the smallest group of all, with only 61 students, representing 6.68% of the sample. It is also the most homogeneous group, as shown by its inertia. They believe that their use of smartphones positively influences their physical and sports activities (M=4.98) as well eating habits (M=4.8), but also negatively affects their sleep hours (M=3.2). They use Instagram intensively throughout the day (for more than 8 hours) as well as gaming apps with videocall functionality.

They like to sleep for seven to eight hours a day. They claim that they get up rested because they sleep well, and never stay up late. During the lockdown, they enjoyed a good book, or a good radio or television program (M=5.5), and used streaming apps like Netflix, Amazon Prime and HBO many times for more than eight hours a day. They are characterized for maintaining a constant eating routine throughout the week: they have breakfast, lunch and dinner at the same time, and never snacked between meals. Every day, they eat protein-rich foods, fruits, vegetables and natural juices. Alcohol and sugary drinks are allowed a few days a week. They are active and athletic. Before the lockdown, they liked walking and strength and bodybuilding exercises and, during the lockdown, they continued performing strength and aerobic exercises of different intensities at home on a daily and intense basis (for one to two hours), and also participated in physical activities directed by online professionals.

Discussion

This research has examined the impact of the 2020 lockdown on the emotional state and behavior of a sample of Spanish university students, based on the analysis of a series of lifestyle variables (diet, physical activity, rest, leisure activities and digital behavior). The historical lockdown mandated after the declaration of state of emergency has allowed us to delve into these variables and to classify university students into six types or clusters that reflect different changes and adaptive responses in their lifestyles during this exceptional period.

The sample of students was divided into six groups according to their lifestyle profile. Group one, "the fearless and adapted", is mostly composed of men wo are in good health, unafraid of contracting the disease, hopeful and calm. Group two, "the unhealthy", is composed of students who dedicate between three and five days a week to school activities, make use of laptops, smoke more and recognize they felt tense and/or wound-up during lockdown. Group three, "the hardworking and studious", is the most heterogeneous of all and is composed mainly of women who are in good health, but are afraid of getting infected, and focus

on studying and working remotely from home. Group four, "the hyperconnected", is characterized by being composed of good students, who felt tense and/or anxious during lockdown and were hooked on their technological devices. Group five, "the sedentary and withdrawn", is formed mainly by men who did not work, dedicated most of their time to their studies, and used their laptop intensively. Finally, group six, "the athletic and healthy", is the smallest cluster and is composed by students who are very active and athletic, eat a balanced diet and maintain adequate sleep routines.

Physical activity, exercise and sedentary lifestyles have been determining factors in the configuration of these groups. During lockdown, sitting hours among the students in our sample increased compared to the previous period. A large number of participants (more than 300 university students), the "unhealthy" and "the sedentary and withdrawn", spent more than six hours a day sitting and did not practice any type of aerobic physical exercise before the lockdown. During the lockdown, 73% of the total sample exceeded six hours of sitting. Two factors influenced this result: the mandatory lockdown and the possibility of using different digital media for interpersonal relations, leisure consumption, study and remote work. In fact, the lockdown has generated a significant increase in the use of technologies, especially in the areas of communication with friends and family (more than 80%), study and remote work (more than 71%), and leisure consumption (more than 60%) (García del Castillo et al., 2020).

In turn, the general trend in the population during the lockdown period has been a significant decrease in physical activity (García-Tascón et al., 2021; Sang et al., 2021; Santos et al., 2021; Zamarripa, 2021). It is important to keep in mind that, as the WHO (2020) points out, the state of lockdown prevents people from carrying out activities that keep them active, such as work, study, household chores, transport and leisure. In fact, household chores are the only activities that can be carried out during lockdown. One of the issues that prevents people from keeping their pre-lockdown level of physical exercise during lockdown is the perception that this type of activity must be developed outside the home. As Irazusta and Ara (2020) point out, the fact of not being able to go out to the streets to practice exercise significantly promotes a sedentary lifestyle due to that perception.

On the other hand, as it has been observed, students who played sports on a regular basis before lockdown are also the ones who have played sports at home the most during lockdown. This fact is reflected especially in the "athletic and healthy" group but also among the "fearless and adapted", the "hardworking and studious" and the "hyperconnected". According to Di Renzo (2020), the state of lockdown can generate maintenance habits on some occasions, such as adherence to physical activity, which may be linked to the fact that in many students in our sample maintained high levels of physical exercise during lockdown. This fact may have been due to health reasons, to combat diseases and to spend leisure time in healthy activities. In turn, those who stayed more physically active during lockdown, in addition to being more physically active before it, have a more active attitude towards exercise, and avoid inactivity and sedentary lifestyle, which is in line with the results of recent research works (Camacho et al., 2020; Jiménez et al., 2020; Mera et al., 2020).

The subjective incentives to maintain an adequate level of physical activity during lockdown include the large number of exercise programs that multiple digital platforms have promoted (Andreu, 2020) and that have served as an engine for many users, especially those who had high levels of physical activity before the lockdown. Therefore, the use of technology has led, paradoxically, to both an increase in sedentary time and an increase in physical exercise time. It should be noted that, although we maintain an adequate level of physical exercise, if our sedentary time is high during the day, we will still be at risk of suffering multiple physical and psychological health problems, as reflected in some recent research (Franch-Llasat et al., 2020; García-Tascón et al., 2021; Garzón and Aragón, 2021; Mera et al., 2020).

As for their diet, most of the students in the sample maintained healthy habits that include eating three meals a day and consuming plenty of fruit and vegetables throughout the week. The "fearless and adapted" and the "athletic and healthy" are especially healthy in this regard. However, the "unhealthy" and the "hyperconnected" have unhealthy eating habits that include the regular consumption of sugary drinks, ice cream, sweets and factory-made pastries, which significantly increase the risk of obesity, cholesterol, hypertension, diabetes and emotional problems (Almendra et al., 2021).

Regarding rest habits, most students maintain adequate sleep routines. Despite not being able to leave their home, the frequency of staying up late is quite high, especially among the "hyperconnected", the "unhealthy" and the "hardworking and studious". However, hours of sleep are compensated in many of the cases since students sleep between seven and eight hours a day. Other studies (Tamayo et al., 2020) indicate that during lockdown most university students (85%) suffered from sleep problems associated with negative emotional feelings (like depression and pessimism) and physical health problems, especially headaches. Likewise Anger et al. (2021) have confirmed that more than 77% of their sample of university students (n=2,619) suffered from sleep problems associated with anxiety, demotivation and sadness. In relation to the Spanish population, Sandín et al. (2020) concluded, based on a sample of more than 1000 participants, that there is an association between sleep problems and negative emotional states.

Therefore, the level of physical activity, diet and rest influence students' emotional state (Almendra et al. 2021; Bennett et al., 2021; Cantisano et al. 2021; García-Tascón et al., 2021; Ramírez and Zerpa, 2020; Rodríguez-Pérez et al., 2020). Living in lockdown, especially for as long as people did during the Covid-19 pandemic, breaks routines and forces new ones that can be contradictory: it can improve

students' health condition and lifestyle, but can also harm their physical and emotional state. For example, in our sample, students in the "unhealthy" group have a lifestyle that negatively influences their emotional state, the "hyperconnected" make an excessive use of technology and have eating habits that seem to affect their rest and emotional state, while the "hardworking and studious" are tense and fear contagion. On the opposite side, the "fearless and adapted" and the "athletic and healthy" groups lead a healthy lifestyle that has a positive impact on their physical and emotional health.

Conclusions

According to the objectives set out in this research, it is concluded that:

1- The daily routines followed by the university students during the 2020 COVID-19 lock-in and their emotional state, allow segmenting the study group into 6 segments of lifestyles different from each other, and with internal coherence.

2- The main activities carried out by the sample of university students were academic work, followed closely by use of smartphone apps, video games and online games. Other activities carried out frequently by students are watching TV (specially series and movies), household chores and interaction with friends and family through digital technologies.

3- In the classification of groups obtained based on lifestyles, physical activity and diet established as habits in homes during this period have also been decisive. In reference to eating habits during lockdown, the sample of students maintained the routine of eating three meals a day practically every day of the week, following a quite balanced diet. Students who played sports on a regular basis before the lockdown are the ones who practiced sports at home the most during lockdown.

4- Regarding the existence of differences in the emotional state of the students during confinement among the different groups, it is concluded that these are produced more by gender than by lifestyle segments. Women score higher in emotional dimensions such as distress, fear, anxiety and stress, than men.

The main limitations of this research work include the sample size, so it would be advisable for future studies to cover larger and heterogeneous populations, to maximize the generalization of results.

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