

ORIGINAL

Received: 2022/11/16
 Accepted: 2023/9/23
 Published: 2023/11/22

e202311100

e1-e11

Estilo de vida, hábitos de higiene oral y autopercepción del estado anímico en estudiantes de Odontología de la Comunidad de Madrid durante la pandemia de la COVID-19: ¿pudo la pandemia tener algún efecto favorable?

Authors declare there was no conflict of interests

CORRESPONDENCE

Inmaculada Casado Gómez

Docente responsable de
 Prevención y Salud Pública.
 Departamento de Especialidades
 Clínicas Odontológicas.
 Facultad de Odontología.
 Universidad Complutense de Madrid.
 Pza. Ramón y Cajal, s/n.
 CP 28040. Madrid. Spain.

incasago@ucm.es

SUGGESTED CITATION

Descalzo-Casado E, Martín Morales JF, Arias-Macias CM, Romero-Lastra PT, Kobayashi H y Casado-Gómez I. Lifestyle, oral hygiene habits and self-perception of mood in Dental students of the Community of Madrid during the COVID-19 pandemic: could the pandemic have any favorable effect? Rev Esp Salud Pública. 2023; 97: November 22^e e202311100.

Lifestyle, oral hygiene habits and self-perception of mood in Dental students of the Community of Madrid during the COVID-19 pandemic: could the pandemic have any favorable effect?

AUTHORS

Elena Descalzo-Casado **(1,2)** [ORCID: 0000-0002-3595-8919]
 José Francisco Martín Morales **(3)** [ORCID: 0000-0002-1598-5469]
 Caridad Margarita Arias-Macias **(4)** [ORCID: 0000-0003-4424-726X]
 Patricia Teresa Romero-Lastra **(2)** [ORCID: 0000-0003-4421-7845]
 Hikaru Kobayashi **(2,5)** [ORCID: 0000-0003-4191-2527]
 Inmaculada Casado-Gómez **(3)** [ORCID: 0000-0001-7990-6371]

AFFILIATIONS

- (1)** Family and Community Medicine; Madrid Health Service (SERMAS). Madrid, Spain.
- (2)** Honorary Collaborator of the Department of Public and Maternal-Child Health; Faculty of Medicine; Universidad Complutense de Madrid. Madrid, Spain.
- (3)** Professor; Faculty of Dentistry; Universidad Complutense de Madrid. Madrid, Spain.
- (4)** Professor; Department of Dentistry; Faculty of Medicine; Universidad CEU-San Pablo. Madrid, Spain.
- (5)** Professor; Faculty of Dentistry; Universidad Alfonso X el Sabio. Madrid, Spain.

AUTHOR CONTRIBUTIONS

CONCEPTUALIZATION, DESIGN AND METHODOLOGY OF STUDY
 E Descalzo-Casado
 JF Martín Morales
 I Casado-Gómez

ORIGINAL DRAFT AND WRITING
 E Descalzo-Casado
 JF Martín Morales
 I Casado-Gómez

SUPERVISION
 E Descalzo-Casado
 JF Martín Morales
 I Casado-Gómez

DATA CURATION AND ANALYSIS
 E Descalzo-Casado
 H Kobayashi
 PT Romero-Lastra

All authors reviewed and commented on previous versions the manuscript.
 All authors reviewed and approved to the publish version of the manuscript.

ABSTRACT

BACKGROUND // The COVID-19 pandemic and its control measures seem to have altered the vital dynamics of the population. It was justifiable, therefore, to try to specify the impact on lifestyle, oral hygiene and mood, in specific groups, such as dental university students in Madrid, who were accessible to us.

METHODS // An anonymous and voluntary cross-sectional observational study was carried out in the first fortnight of December 2021, through an *ad hoc* online questionnaire, in dentistry students from the Autonomous Community of Madrid. Descriptive analysis of the variables was performed and the associations and significance were assessed using Chi-squared and Student's t-distributions.

RESULTS // There were received seventy-two surveys. 82% were women and 18% men, with 23±3 years of mean age. 94% had good oral hygiene habits that improved with the pandemic. Their usual diet was varied and complete. Women consumed less meat (p=0.014) and more fruit (p=0.066), habits that they maintained, and men have improved with an increase in fruits (p<0.002), vegetables and legumes (p<0.003) in the pandemic. Tobacco (23.4%) and alcohol (54%) consumption decreased in confinement and increase in post-confinement. 36% increased their physical activity, initially low, especially in post-confinement.

CONCLUSIONS // The students in the sample have good oral hygiene and eating habits, which they keep and even improve with the pandemic, including an increase in physical exercise in a significant fraction of the sample. The lockdown affected the mood and social relationships, even altering the sleep of women, with an increase in night awakenings, especially in post-lockdown.

KEYWORDS // COVID-19 pandemic; Lifestyle; Oral hygienic; Diet; Physical activity; Mood; Dental students; Lockdown; Epidemiology.

RESUMEN

FUNDAMENTOS // La pandemia de la COVID-19 y sus medidas de control parecen haber alterado la dinámica vital de la población. Fue justificable, por tanto, tratar de precisar el impacto sobre el estilo de vida, la higiene bucodental y el estado anímico, en grupos específicos, como estudiantes universitarios de Odontología de Madrid, que nos eran accesibles.

MÉTODOS // Se realizó un estudio observacional transversal anónimo y voluntario en la primera quincena de diciembre de 2021, mediante cuestionario *online ad hoc*, en estudiantes de Odontología de universidades de la Comunidad Autónoma de Madrid (CAM). Se realizó análisis descriptivo de las variables y se valoraron las asociaciones y significación con Chi-cuadrado y T-student.

RESULTADOS // Se recibieron setenta y dos encuestas. El 82% eran mujeres y el 18% varones, con 23±3 años de media. El 94% tenía buenos hábitos de higiene oral, que mejoraron con la pandemia. Su dieta habitual era variada y completa. Las mujeres consumían menos carne (p=0,014) y más fruta (p=0,066), hábitos que mantenían, y mejoraron los varones con incremento en frutas (p<0,002), verduras y legumbres (p<0,003) en la pandemia. El consumo de tabaco (23,4%) y alcohol (54%) disminuyó en confinamiento y subió en postconfinamiento. Un 36% aumentó, especialmente en postconfinamiento, su actividad física, antes baja.

CONCLUSIONES // Los estudiantes de la muestra tienen buenos hábitos de higiene oral y alimentación que mantienen e incluso mejoran con la pandemia, incluido un incremento del ejercicio físico en una fracción importante de la muestra. El confinamiento afecta al estado anímico y las relaciones sociales, llegando a alterar el sueño de las mujeres, con aumento de despertares nocturnos, sobre todo, en postconfinamiento.

PALABRAS CLAVE // Pandemia COVID-19; Estilo vida; Higiene oral; Dieta; Actividad física; Estado anímico; Estudiantes de Odontología; Confinamiento; Epidemiología.

INTRODUCTION

THE APPEARANCE OF THE NEW CORONAVIRUS SARS-CoV-2, responsible for the COVID-19 pandemic declared by the World Health Organization (WHO) (1) on March 11th, 2020, determined that Spain established the state of alarm on March 14th, which was subsequently extended until June 21st, 2020. Severe isolation measures were adopted for sick people and confinement for the rest of population for its universal control. In the post-lockdown period, preventive measures were adapted to the evolution and effectiveness of vaccination, as well as to the containment of the pandemic, allowing the progressive recovery of activity and social coexistence (2). Physical attendance was not recovered in the universities of the Autonomous Community of Madrid (CAM) until the first quarter of 2022, and only with adequate distancing and personal protection measures.

Habits and routines were severely affected by the confinement, together with the severity and uncertainty in the evolution of the infection, the sudden and forced readjustment of family coexistence, and the change in work, educational and social activities that went online. In addition this subjected the population to new stress, as the vital dynamics of the world were altered (3,4), whose effects on different economic, social and health spheres have given rise to a large number of studies during the first phase of the pandemic (5-12). Despite the very serious consequences of this pandemic on morbi-mortality and the economy, Nelson (BMJ, 2020) (13) and Shastri (2022) (14) already published reflections on unexpected, potentially positive aspects that this health incident has revealed for changes in behaviour and routines, as well as for the important role of Public Health. Due to its long evolution and the special measures applied for its control, the objectives of this research were to study the changes that occurred in lifestyle and habits, such as oral hygiene, physical activity, sleep, and mood during and post-lockdown,

in university students of Dentistry from the Community of Madrid.

SUBJECTS AND METHODS

A CROSS-SECTIONAL OBSERVATIONAL study was carried out using a self-administered *ad hoc* online questionnaire, prepared with the *Google Forms* platform. This survey was sent by university email and social networks, in the first half of December 2021, to Dentistry students from public and private universities in the Autonomous Community of Madrid (CAM). The objective of the study and the permission to publish the results of the answers was notified, being the participation in the questionnaire voluntary and anonymous. It complied with the Ethical Principles of the *Declaration of Helsinki* and with the Spanish *Organic Law on the Protection of Personal Data and Guarantee of Digital Rights (LOPDGDD) 3/2018, of December 5th*. The seventy-two surveys received were included in the study, since they were fully completed, and none had to be excluded. The questionnaire contained thirty-two items with closed, open, multiple responses and one on a 5-option Likert Scale (1=very low to 5=very high affectation) for self-perception of mood and social relationships. The result was grouped into three levels (Low [1 and 2], Intermediate [3] and High [4 and 5]). The studied aspects were personal variables, oral hygiene habits, diet, sleep, tobacco and alcohol consumption, physical and sedentary activity, and mood self-perception during and post-COVID-19 lockdown. For the statistical analysis, the *IBM SPSS Statistics Program* version 25 was used, and together with the descriptive statistics, the Chi-square and Student's T tests were applied to assess the association and significance between the variables according to sex.

RESULTS

Demographic characteristics. Of the seventy-two surveys received, fifty-nine (82%) were

Lifestyle, oral hygiene habits and self-perception of mood in Dental students of the Community of Madrid during the COVID-19 pandemic: could the pandemic have any favorable effect?

ELENA DESCALZO-CASADO et al.

from women and thirteen (18%) from men, with an average age of 23 ± 3 years. Twenty-five respondents (34%) were studying at CAM public universities, fourteen (20%) were foreigners, and sixty-five (90%) were studying the final years of their degree. Furthermore, 94.4% of respondents spent lockdown with their family, 2.8% with their couple and 1.4% in a shared apartment or alone. Among all respondents, twenty-nine (40%) reported having suffered or presented symptoms compatible with COVID-19. Seventy-one (98.6%) were vaccinated, the majority with Moderna[®] and Pfizer[®], forty (55.5%) reported some post-vaccination symptoms, more so among women ($p=0.490$) **[TABLE 1]**.

Oral hygiene habits. 94% reported brushing their teeth two or more times a day, 67% flossed one or more times a day, 72% brushed their tongue and 32% used mouthwash daily. These last two practices were more frequent among the thirteen men in the sample. During lockdown, most of respondents maintained their hygiene regimen and even increased the use of dental floss, tongue cleaning and daily mouthwashes, especially women. In the post-lockdown period, 60% maintained or improved the acquired routine, compared to 40% who returned to the previous one, although none of these differences were statistically significant **[TABLE 2]**.

Consumption habits and weight. Women consumed meat less frequently than men ($p=0.014$), a habit maintained by most of the participants during lockdown, although one of the thirteen men reduced it. On the contrary, fruit intake was more frequent in women than in men before lockdown ($p=0.066$); a habit that females maintained during lockdown without significant changes. Men however, increased fruit ($p<0.002$), dairy ($p<0.003$) and legumes ($p<0.022$) intake, while reducing the frequency of fish consumption ($p=0.054$) and vegetables ($p<0.003$). Almost half of the participants, especially men, maintained their new favourable dietary habit post-lockdown, with more legu-

mes and fruits. The 72.2% of respondents stated that they do not consume soft drinks on a regular basis or snack between meals (51.4%); those who did it daily were mostly men (23.1%, $p=0.052$). During lockdown, snacking between meals increased by 26.4%. Respondents had an average BMI (Body Mass Index) of 22.15 ± 1.17 . During lockdown of all the respondents, 45% maintained their weight; 24% increased it, especially men, and 28% lost it ($p<0.01$), particularly women; but in post-lockdown, also women (32.2%) increased it slightly ($p=0.056$) **[TABLE 3]**.

The 76.4% of the students, especially women, declared themselves non-smokers, and 46% reported not consuming alcohol. Both consumptions decreased during lockdown, however, in the post-lockdown period they increased in both sexes and, significantly, alcohol consumption in men (46%, $p<0.003$) and 3.4% of ex-smoking women said they had resumed smoking.

Physical activity, sedentary activities, and sleep habits. During lockdown 23.6% of respondents stated that they did not do any physical activity on a regular basis. During lockdown and in post-lockdown, a higher proportion of men (61.5%) than the proportion of women (39%) increased physical exercise, although the difference was not statistically significant ($p=0.558$).

During lockdown, 82% increased sedentary activities, without differences by sex. Practices such as writing or painting were more frequent in women than in men (44.1% vs. 7.7%, $p<0.008$), as well as relaxation techniques ($p=0.071$) or time dedicated to social gatherings or entertainment with cohabitants ($p=0.049$). 44.4% of participants increased their sleep hours, slightly more in men, while women increased their nighttime awakenings. Post-lockdown, they reported a general decrease in hours of sleep and women reported an increase in nocturnal awakenings ($p=0.426$) **[TABLE 4]**.

Lifestyle, oral hygiene habits and self-perception of mood in Dental students of the Community of Madrid during the COVID-19 pandemic: could the pandemic have any favorable effect?

ELENA DESCALZO-CASADO et al.

Rev Esp Salud Pública
Issue 97
2023/11/22
e20231100

Characteristics	All	Women	Men	p-value ^(c)	
	$\bar{X} \pm SD^{(a)}$	$\bar{X} \pm SD^{(a)}$	$\bar{X} \pm SD^{(a)}$		
Age (years) Range (min-max) ^(b)	22.9±3.0 (18-41)	22.9±3.1 (21-41)	22.7±2.6 (18-29)	0.784	
Weight (kg) Range (min-max)	58.9±9.6 (42-83)	56.3±7.9 (42-77)	71.0±7.3 (59-83)	<0.001	
Height (meters) Range (min-max)	1.63±2.86 (1.55-1.87)	1.59±3.5 (1.55-1.80)	1.79±5.1 (1.72-1.87)	0.026	
	n (%)	n (%)	n (%)	p-value^(d)	
Gender	72 (100)	59 (82)	13 (18)	-	
Nationality	Spanish	58 (80)	47 (65.3)	11 (15.3)	0.933
	Other	14 (20)	12 (16.6)	2 (2.8)	
University	Public	25 (34)	22 (30.5)	3 (4.2)	0.532
	Private	47 (66)	37 (51.4)	10 (13.8)	
Odontology Course	4 th -5 th	65 (90)	54 (75)	11 (15.3)	0.540
	Preclinical	7 (10)	5 (6.9)	2 (2.8)	
Spent the lockdown with	Relatives	68 (94.4)	56 (78)	12 (16.4)	0.609
	Others (partner)	2 (2.8)	1 (1.4)	1 (1.4)	
	Student apartment	1 (1.4)	1 (1.4)	0	
	Alone	1 (1.4)	1 (1.4)	0	
Suffered from COVID-19	No	43 (60)	36 (61)	7 (54)	0.430
	Yes	29 (40)	23 (39)	6 (46)	
Post-vaccination symptoms	Yes	40 (55.5)	33 (56)	7 (54)	0.490
	No	30 (41.6)	25 (42)	5 (38.5)	
	Not vaccinated	1 (1.4)	0	1 (7.5)	
	DK/NR ^(e)	1 (1.4)	1 (2)	0	

(a) Values $\bar{X} \pm SD$ (Average±Standard Deviation); (b) Minimum range (min.)-maximum range (max.); (c) p-value calculated with T-student; (d) p-value calculated with Pearson Chi-square statistical test; (e) DK/NR (Don't know/No response).

Lifestyle, oral hygiene habits and self-perception of mood in Dental students of the Community of Madrid during the COVID-19 pandemic: could the pandemic have any favorable effect?

ELENA
DESCALZO-
CASADO
et al.

Table 2
Influence of the COVID-19 pandemic on oral hygiene habits.

BEFORE PANDEMIC				DURING LOCKDOWN				
Characteristics	All	Women	Men	Characteristics	All	Women	Men	
	n (%)	n (%)	n (%)		n (%)	n (%)	n (%)	
Tooth brushing	≥2 times/day	68 (94)	56 (95)	12 (92)	Unchanged	62 (86)	52 (88)	10 (77)
	<Frequency	4 (6)	3 (5)	1 (8)	Increased	6 (8)	5 (8)	1 (8)
					Decreased	4 (6)	2 (4)	2 (15)
Tongue cleaning	≥once/day	52 (72)	41(69)	11 (85)	Unchanged	65 (90)	55 (93)	10 (77)
	<Frequency	20 (28)	18 (31)	2 (15)	Increased	5 (7)	3 (5)	2 (15)
					Decreased	2 (3)	1 (2)	1 (8)
Dental floss	≥once/day	48 (67)	41(70)	7 (54)	Unchanged	61(85)	50 (85)	11 (84)
	<Frequency	24 (33)	18 (30)	6 (46)	Increased	6 (8)	5 (8)	1 (8)
					Decreased	5 (7)	4 (7)	1 (8)
Mouthwash	≥once/day	23 (32)	18 (30.6)	5 (38)	Unchanged	64 (89)	54 (91)	10 (77)
	<Frequency	48 (67)	41 (69.6)	7 (54)	Increased	6 (8)	4 (7)	2 (15)
	No response	1 (1)	0	1 (8)	Decreased	2 (3)	1 (2)	1 (8)
POST-LOCKDOWN								
Oral Hygiene Habits	Total sample			Women			Men	
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)		
Same as before lockdown	29 (40)	23 (39)	6 (46)					
Same as during lockdown	43 (60)	36 (61)	7 (54)					

(a) p-value calculated by Chi -Square statistical Test.

Table 3
Effect of the COVID-19 Pandemic on Diet, BMI and Weight.

Usual Diet	All	1-2/ week		3-4/ week		Every- day		Some- times		Never		p-value ^(c)	Lockdown Diet		Same as Always		Increase Decrease		DK/ NR ^(d)	p-value ^(c)	
		n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)		n (%)	n (%)	n (%)	n (%)	n (%)	n (%)			
Characteristics																					
Meat	Women	59 (100)	29 (49.2)	19 (32.2)	1 (1.7)	10 (17)	0	0	0	0	0	0.014	56 (100)	51 (91.1)	3 (5.4)	2 (3.6)	0	0	0.141		
	Men	13 (100)	2 (15.4)	8 (61.5)	2 (15.4)	1 (7.7)	-	-	-	-	-	-	13 (100)	11 (84.6)	0	1 (7.7)	1 (7.7)	0	0		
Fish	Women	59 (100)	37 (62.7)	8 (13.6)	0	13 (22.1)	1 (1.7)	0	0	0	0	0.835	56 (100)	46 (82.1)	7 (12.5)	4 (7.1)	0	0	0.054		
	Men	13 (100)	8 (61.5)	1 (7.7)	0	4 (31)	0	0	0	0	0	0	13 (100)	8 (61.5)	1 (7.7)	3 (23.1)	1 (7.7)	0	0		
Eggs	Women	59 (100)	23 (39)	22 (37.3)	2 (3.4)	11 (18.6)	1 (1.7)	0	0	0	0	0.295	56 (100)	51 (91.1)	4 (7.1)	1 (1.8)	0	0	0.133		
	Men	13 (100)	7 (54)	3 (23.1)	2 (15.4)	1 (7.7)	0	0	0	0	0	0	13 (100)	10 (77)	2 (15.4)	0	1 (7.7)	0	0		
Dairy	Women	59 (100)	10 (17)	16 (27.2)	26 (44.1)	7 (11.9)	0	0	0	0	0	0.256	56 (100)	52 (92.9)	3 (5.4)	1 (1.8)	0	0	0.003		
	Men	13 (100)	1 (7.7)	3 (23.1)	6 (46.2)	2 (15.4)	1 (7.7)	0	0	0	0	0	13 (100)	8 (61.5)	3 (23.1)	0	2 (15.4)	0	0		
Legumes	Women	59 (100)	36 (61)	10 (17)	2 (3.4)	11 (18.6)	-	-	-	-	-	0.838	56 (100)	46 (82.1)	7 (12.5)	3 (5.6)	0	0	0.022		
	Men	13 (100)	7 (54)	3 (23.1)	1 (7.7)	2 (15.4)	-	-	-	-	-	0	13 (100)	9 (69)	2 (15.4)	0	2 (15.4)	0	0		
Vegetables/ Greens	Women	59 (100)	13 (22.1)	19 (32.2)	24 (40.7)	3 (5.1)	-	-	-	-	-	0.638	56 (100)	49 (87.5)	7 (12.5)	0	0	0	0.003		
	Men	13 (100)	1 (7.7)	4 (30.8)	7 (54)	1 (7.7)	-	-	-	-	-	0	13 (100)	8 (61.5)	2 (15.4)	2 (15.4)	1 (7.7)	0	0		
Fruit	Women	59 (100)	14 (23.7)	17 (28.8)	21 (35.6)	7 (11.9)	0	0	0	0	0	0.066	56 (100)	48 (85.7)	4 (7.1)	4 (7.1)	0	0	0.002		
	Men	13 (100)	3 (23.1)	1 (7.7)	3 (23.1)	5 (38.5)	1 (7.7)	0	0	0	0	0	13 (100)	8 (61.5)	3 (23.1)	1 (7.7)	1 (7.7)	0	0		
Snacking	Women	59 (100)	9 (15.3)	12 (20.3)	7 (11.9)	26 (44.1)	5 (8.5)	0	0	0	0	0.722	56 (100)	38 (67)	15 (26.8)	3 (5.4)	0	0	0.188		
	Men	13 (100)	2 (15.4)	3 (23.1)	4 (30.8)	2 (15.4)	0	0	0	0	0	0	13 (100)	7 (53.8)	4 (30.8)	1 (7.7)	1 (7.7)	0	0		
Soft Drinks	Women	59 (100)	11 (18.6)	4 (6.8)	2 (3.4)	23 (39)	19 (32.2)	0	0	0	0	0.052	56 (100)	47 (84)	4 (7.1)	5 (8.9)	0	0	0.170		
	Men	13 (100)	0	0	3 (23.1)	6 (46.1)	4 (30.8)	0	0	0	0	0	13 (100)	9 (69.2)	1 (7.7)	2 (15.4)	1 (7.7)	0	0		
POST-LOCKDOWN DIET																					
Characteristics		All n (%)		Women n (%)		Men n (%)		p-value^(c)		Women n (%)		Men n (%)		p-value^(c)							
Return to regular diet		42 (58)		36 (61)		6 (46)		0.538		36 (61)		6 (46)		0							
The same as during confinement		28 (39)		22 (37)		6 (46)		0.538		22 (37)		6 (46)		0							
Others: nutritionist		2 (3)		1 (2)		1 (2)		0		1 (2)		1 (2)		0							
BMI ^(a) (Average±SD)		22.15±1.17		22.25±0.64		22.18±0.28		0		22.18±0.28		22.18±0.28		0							
BODY WEIGHT																					
During lockdown																					
All n (%)		Women n (%)		Men n (%)		p-value^(c)		All n (%)		Women n (%)		Men n (%)		p-value^(c)							
Unchanged		32 (44.4)		26 (44.1)		6 (46.1)		32 (44.4)		23 (39)		9 (69.2)		0							
Increased		17 (23.7)		12 (20.3)		5 (38.5)		21 (29.2)		19 (32.2)		2 (15.4)		0							
Decreased		20 (27.7)		18 (30.5)		2 (15.4)		19 (26.4)		17 (28.8)		2 (15.4)		0							
Don't know/No response		3 (4.2)		3 (5.1)		0		0		0		0		0							

(a) BMI (Body Mass Index); (b) n (%) in categorical variables; (c) p-value calculated by Chi Square statistical Test; (d) NK/NR (Don't know/No response).

Mental self-perception and affectation of social relationships. In the self-perception of mood components, assessed using a Likert scale (1-5), men presented low scores (Likert \leq 2)

compared to women, who almost all of them recorded high scores (Likert \geq 4). These were especially different in fear (p=0.046) and worry (p=0.059) in women compared to men.

Table 4
COVID-19 pandemic's influence on sedentary activities, physical activity and rest.

SEDENTARY ACTIVITIES DURING LOCKDOWN									
Activities	Unchanged		Increased		Decreased		DK/NR ^(a)		p-value ^(b)
	Women n (%)	Men n (%)	Women n (%)	Men n (%)	Women n (%)	Men n (%)	Women n (%)	Men n (%)	
Internet / New Technologies	9 (15.2)	1 (7.7)	48 (81.4)	11 (84.6)	0 (0)	1 (7.7)	2 (3.4)	0 (0)	0.231
TV-Films	10 (17)	3 (23.1)	46 (78)	10 (76.9)	1 (1.6)	0 (0)	2 (3.4)	0 (0)	0.925
Radio/Music	21 (35.6)	4 (30.8)	33 (56)	8 (61.5)	2 (5.1)	1 (7.7)	2 (3.3)	0 (0)	0.920
Study	15 (25.4)	3 (23.1)	32 (54.2)	7 (53.8)	9 (15.1)	2 (15.4)	3 (5.1)	1 (7.7)	0.995
Remote Working	13 (22.1)	2 (15.4)	44 (74.6)	9 (69.2)	0 (0)	1 (7.7)	2 (3.3)	1 (7.7)	0.197
Reading	30 (50.9)	8 (61.5)	24 (40.7)	4 (30.8)	2 (3.3)	0 (0)	3 (5.1)	1 (7.7)	0.948
Writing/Painting	28 (47.5)	9 (69.2)	26 (44.1)	1 (7.7)	3 (5.1)	0 (0)	2 (3.3)	3 (23.1)	0.008
Relaxation Techniques/ Meditation	27 (45.9)	10 (77)	29 (49.2)	2 (15.4)	1 (1.6)	1 (7.6)	2 (3.3)	0 (0)	0.071
Entertainment/ gathering with cohabitants	16 (26.2)	8 (61.5)	39 (67.1)	3 (23.1)	1 (1.6)	0 (0)	3 (5.1)	2 (15.4)	0.049

PHYSICAL ACTIVITY AND SLEEP									
		Durante Lockdown			p-value	Post lockdown			p-value
		All n (%)	Women n (%)	Men n (%)		All n (%)	Women n (%)	Men n (%)	
Physical Activity	No Activity	17 (23.6)	13 (22)	4 (30.8)	0.806	13 (18.1)	10 (17)	3 (23)	0.558
	Irregular	14 (19.4)	13 (22)	1 (7.7)		12 (16.6)	11 (18.6)	1 (7.7)	
	Increased	26 (36.1)	21 (35.6)	5 (38.5)		31 (43.1)	23 (39)	8 (61.5)	
	Decreased	15 (20.8)	12 (20.4)	3 (23)		16 (22.2)	15 (25.4)	1 (7.7)	
Sleeping Habits	Unchanged	24 (33.3)	20 (33.9)	4 (30.8)	0.836	33 (45.8)	29 (49.1)	4 (30.8)	0.426
	Increased	32 (44.4)	25 (42.4)	7 (53.8)		8 (11.1)	6 (10.2)	2 (15.4)	
	Decreased	11 (15.3)	9 (15.2)	2 (15.4)		26 (36.1)	19 (32.2)	7 (53.8)	
	Nighttime awakenings	2 (2.8)	2 (3.4)	0		5 (7)	5 (8.5)	0	
	DK/NR ^(a)	3 (4.2)	3 (5.1)	0		0	0	0	

Lifestyle, oral hygiene habits and self-perception of mood in Dental students of the Community of Madrid during the COVID-19 pandemic: could the pandemic have any favorable effect?

ELENA
DESCALZO-
CASADO
et al.

Rev Esp Salud Pública
Issue 97
2023/11/22
e202311100

(a) DK/NR: Don't know/No response; (b) p-value: calculated by Chi Square statistical Test.

22% of respondents, especially women, reported that their social relationships were affected (50% of women with a Likert scale ≥ 4 compared to 70% of men with a Likert scale ≤ 2 ($p=0.353$) [FIGURE 1].

DISCUSSION

IN THIS STUDY THERE IS A HIGH PERCENTAGE of female participation and students from private universities, a reflection of the demographic characteristics of the Degree in Dentistry, taught by the five universities (two public and three private) of the CAM. The higher percentage of women in this study owes to their higher presence in careers related to education or care (Health Sciences)(15), as well as their greater willingness to participate in surveys. The symptoms reported post-vaccination against COVID-19 are all local or mild, as Wu Q *et al.* (16) also found in their review work.

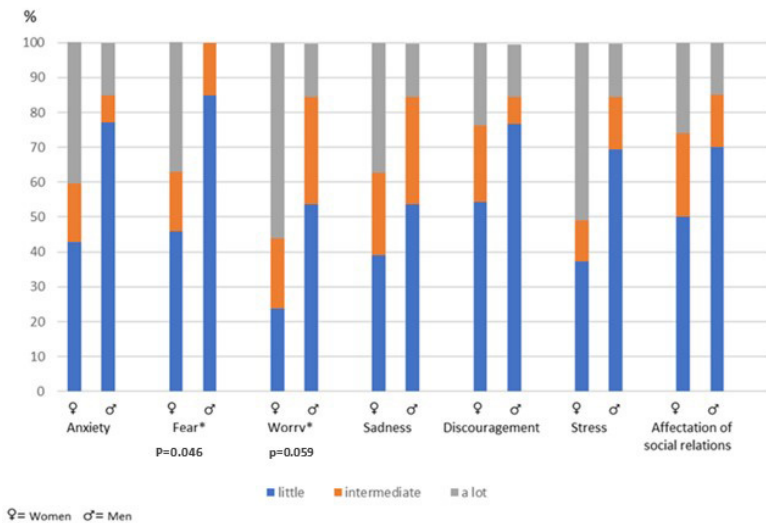
The respondents, as expected in health-care personnel and coinciding with similar

research (17,18), have good oral hygiene habits, which exceed those published in studies of the general population (19-21) and even improve it in the confinement phase, especially in women. It was possibly favoured by the greater availability of time and a large part of the respondents maintain these habits afterwards.

The usual diet of those surveyed improves due to the pandemic, it is varied and complete, with little snacking between meals. Both sexes have an average BMI within the appropriate or healthy weight.

During lockdown they maintain dietary habits, and even improve them, and a good part maintain them post-lockdown. Especially men increase their choice of healthier foods (legumes, vegetables, fruits, etc.) during lockdown, in which our results agree with Rodríguez-Pérez *et al.* (8), who reported greater consumption of the Mediterranean diet during this restriction period. They argue the possible beneficial effects of this diet against

Figure 1
Self-perception of own mood and social relationships using Likert scale (1-5).



(*) p-value (Chi Square). Likert Scale values (1-5) are represented grouped in three levels: Little: groups levels 1 and 2; Intermediate: level 3; A lot: groups levels 4 and 5.

Lifestyle, oral hygiene habits and self-perception of mood in Dental students of the Community of Madrid during the COVID-19 pandemic: could the pandemic have any favorable effect?
ELENA DESCALZO-CASADO *et al.*

complications due to COVID-19. Unlike this author, in ours and other works (10,22,23), snacking between meals is increased; a behaviour favoured by stress, anxiety, limitation of going outside, or more leisure time, among others. The moderate habitual consumption of tobacco and alcohol in those surveyed decreases during lockdown, as reported by Pérez-Albéniz (12), and increases post-lockdown, particularly among men. However, Lange and Nakamura (24) find more alcohol consumption during lockdown in Australians, facilitated by circumstances.

Also, during lockdown, the majority of students increase their hours of sleep and sedentary activities, as reported by many other studies (6,9,23,25-28), which is also contributed by teaching in online format. Probably to mitigate boredom and to reduce stress, activities such as writing, painting, relaxation and meditation techniques, or time shared with cohabitants stand out among the sedentary practices, most practiced by women during lockdown. Whereas men favoured activities related to the internet, new technologies or physical exercise (5,29).

Almost a quarter of the university students surveyed here declare that they do not do physical exercise on a regular basis, as stated in other studies (30,31), exposing as the main causes the lack of time due to dedication to study and/or the environment. Romero-Blanco (9) reports a greater increase in physical activities in women during lockdown. In this study, we report a slightly higher proportion of men that increase their physical activity and also after the confinement period, as reported by other authors (23,25). The availability of hours during the restriction and the need to counteract the confinement and stress experienced could explain the greater physical activity initiated during lock-down and its subsequent increase, in an appreciable number of participants. Thus, this pandemic seems to have led to an increase in the physical activity as a possible mechanism of vitality recovery.

On the other hand, our results agree with many other studies (23,28,32) that, due to forced confinement, the affectation of the emotional state and social relationships is greater in women than in men. Although online communication is favoured, both work and social, close personal relationships and physical contact links are interrupted. The woman's different stress management (5) and, above all, her particular dedication and concern in family care could have contributed to this notable emotional response. Despite the limitations of a survey study, and with a discrete sample, its appreciable statistical significances credit it to contribute to outlining the effects of the measures that have been adopted to control this long pandemic, as well as its influence on the habits and health of different individuals and communities, which we now present as a preamble to new assessments.

In summary, we confirm that the students investigated have good oral hygiene and diet habits, which they maintain and even improve with this pandemic episode in which, in addition, they increase physical exercise, which was initially low. This is why, through educational campaigns, these discussed healthy routines should be promoted with prevention in mind. Confinement affects the mood and social relationships of women more severely, which they combat with relaxing practices. This is desirable to remain and become widespread in Community Health. (2)

REFERENCES



1. World Health Organization (WHO, 2020). *Coronavirus disease (COVID-19) pandemic*. Disponible en: <https://www.who.int/emergencias/diseases/novel-coronavirus-2019>
2. Boletín Oficial del Estado. *Modificación de obligatoriedad del uso de mascarillas durante la crisis sanitaria ocasionada por la COVID-19*. BOE n°94, de 20-04-2022. <https://www.boe.es/boe/dias/2022/04/20/pdfs/BOE-A-2022-6449.pdf>

Lifestyle, oral hygiene habits and self-perception of mood in Dental students of the Community of Madrid during the COVID-19 pandemic: could the pandemic have any favorable effect?

ELENA DESCALZO-CASADO et al.

Rev Esp Salud Pública
Issue 97
2023/11/22
e20231100



3. Chakraborty I, Maity P. *COVID-19 outbreak: migration, effects on society, global environment and prevention*. *Sci. Total Environ.* 2020; 728, 138882. doi: <https://dx.doi.org/10.1016/j.scitotenv.2020.138882>
4. Farrokhi F, Mohebbi SZ, Farrokhi F, Khami MR. *Impact of COVID-19 on dental education-a scoping review*. *BMC Med Educ.* 2020;21:587. <https://dx.doi.org/10.1186/s12909-021-03017-8>
5. Lelek-Kratiuk M, Szczygieł M. *Stress appraisal as a mediator between the sense of coherence and the frequency of stress coping strategies in women and men during COVID-19 lockdown*. *Scand J Psychol.* 2022;63: 365-375. <https://dx.doi.org/10.1111/sjop.12813>
6. Bezerra ACV, Da Silva CEM, Soares FRG, Da Silva JAM. *Fatores associados ao comportamento da população durante o isolamento social na pandemia de COVID-19*. *Rev Ciência e Saúde Coletiva.* 2020;25:2411-2421. <https://www.scielo.br/j/csc/a/9g4hLHkSSW35gYsSpggz6m/?lang=pt>
7. Cellini N, Canale N, Mioni G, Costa S. *Changes in sleep pattern, sense of time and digital media use during COVID-19 lockdown in Italy*. *J Sleep Res* 2020 Aug;29(4):e13074. doi: <https://dx.doi.org/10.1111/jsr.13074>. Epub 15 mayo 2020.
8. Rodríguez-Pérez C, Molina Montes E, Verardo V, Artacho R, García-Vilanova B, Ruiz-López MD. *Changes in dietary behaviors during the COVID-19 outbreak confinement in the Spanish Covid diet study*. *Nutrients.*,12(6): 1730, 2020. <https://dx.doi.org/10.3390/nu12061730>
9. Romero-Blanco C, Rodríguez-Almagro J, Onieva-Zafra MD, Parra-Fernández ML, Prado-Laguna MDC, Hernández-Martínez A. *Physical Activity and Sedentary Lifestyle in University Students: Changes during Confinement Due to the COVID-19 Pandemic*. *Int J Environ Res Public Health.* 2020; 17(18):6567. doi: <https://dx.doi.org/10.3390/ijerph17186567>
10. Ammar A, Brach M, Trabelsi K, Chtourou H, Boukhris O, Masmoudi L et al. *Effects of COVID-19 home confinement on eating behaviour and physical activity: Results of the ECLB-COVID-19 International Online Survey*. *Nutrients.* 2020; 12(6): 1583. <https://dx.doi.org/10.3390/nu12061583>
11. Cielo F, Ulberg R, Di Giacomo D. *Psychological impact of the COVID-19 outbreak on mental health outcomes among youth: a rapid narrative review*. *Int J Environ Res Public Health.* 2021;18(11): 6067. doi: <https://dx.doi.org/10.3390/ijerph18116067>
12. Pérez-Albéniz A, Nuez C, Lucas-Molina B, Ezquerro M, Fonseca-Pedrero E. *Impacto del confinamiento en la conducta adictiva de los universitarios riojanos*. *Adicciones*, [En línea], abril, 2022. <https://dx.doi.org/10.20882/adicciones.1646>
13. Nelson B. *The positive effects of COVID-19*. *BMJ.*2020;369:m1785 doi: <https://dx.doi.org/10.1136/bmj.m1785> (publicado 04 Mayo 2020).
14. Motilal S, Khan R, St. Bernard G, Ivey MA, Reid SD. (2022) *Positive influences of the COVID-19 pandemic on community dwelling adults in Trinidad and Tobago: a cross sectional study*. *Journal of Mental Health*. doi: <https://dx.doi.org/10.1080/09638237.2022.2118690>
15. *La mujer en la ciencia española, en datos y gráficos*. Datos a 8-03-2022. Ministerio de Ciencia, Innovación y Universidades (MICIU). <https://www.epdata.es/datos/mujer-ciencia-española-datos-estadisticas/298>
16. Wu Q, Dudley Mz, Chen X, Bai X, Dong K, Zhuang T et al. *Evaluation of the Safety Profile of COVID-19 Vaccines: A Rapid Review*. *Bmc Med.* 2021 Jul 28;19(1):173. doi: <https://dx.doi.org/10.1186/S12916-021-02059-5>
17. Zadik Y, Galor S, Lachmi R, Proter N. *Oral self-care habits of dental and healthcare providers*. *Int J Dent Hyg.*2008;6(4):354-60. doi: <https://dx.doi.org/10.1111/j.1601-5037.2008.00334.x>
18. Pinzan-Vercelino CR, Freitas KM, Girão VM, da Silva DO, Peloso RM, Pinzan A. *Does the use of face masks during the COVID-19 pandemic impact on oral hygiene habits, oral conditions, reasons to seek dental care and esthetic concerns?* *J Clin Exp Dent.* 2021 Apr 1;13(4):e369-e375. doi: <https://dx.doi.org/10.4317/jced.57798>

Lifestyle, oral hygiene habits and self-perception of mood in Dental students of the Community of Madrid during the COVID-19 pandemic: could the pandemic have any favorable effect?
ELENA DESCALZO-CASADO et al.

19. Varela-Centelles P, Bugarín-González R, Blanco-Hortas A, Varela-Centelles A, Seoane-Romero JM, Romero-Méndez A. *Hábitos de higiene oral. Resultados de un estudio poblacional*. An Sist Sanit Navar. 2020; 43(2): 217-223. Epub 25 de enero de 2021. <https://dx.doi.org/10.23938/assn.0869>
20. Bravo M, Almerich JM, Canorea E, Casals E, Cortés FJ, Expósito JA et al. *Encuesta de Salud Oral en España 2020*. RCOE.2020; 25(4):12-69. ISSN 1138-123X.
21. González-Olmo M.J, Delgado-Ramos B, Ruiz-Guillén A et al. *Oral hygiene habits and possible transmission of COVID-19 among cohabitants*. BMC Oral Health.2020; 20: 286. <https://dx.doi.org/10.1186/s12903-020-01274-5>
22. Kriaucioniene V, Bagdonaviciene L, Rodríguez-Pérez C, Petkeviciene J. *Associations between Changes in Health Behaviours and Body Weight during the COVID-19 Quarantine in Lithuania: The Lithuanian COVIDiet Study*. Nutrients. 2020;12(10):3119. doi: <https://dx.doi.org/10.3390/nu12103119>
23. Antunes R, Frontini R, Amaro N, Salvador R, Matos R, Morouço P, Rebelo-Gonçalves R. *Exploring Lifestyle Habits, Physical Activity, Anxiety and Basic Psychological Needs in a Sample of Portuguese Adults during COVID-19*. Int J Environ Res Public Health. 2020 Jun 18;17(12):4360. doi: <https://dx.doi.org/10.3390/ijerph17124360>
24. Lange KW, Nakamura Y. *Lifestyle factors in the prevention of COVID-19*. Glob Health J. 2020; 4(4):146-152. doi: <https://dx.doi.org/10.1016/j.glohj.2020.11.002>. Epub 2020 Nov 9.
25. Castañeda-Babarro A, Arbillaga-Etxarri A, Gutiérrez-Santamaría B, Coca A. *Physical Activity Change during COVID-19 Confinement*. Int J Environ Res Public Health. 2020 Sep 21;17(18):6878. doi: <https://dx.doi.org/10.3390/ijerph17186878>
26. Luciano F, Cenacchi V, Vegro V, Pavei G. *COVID-19 lockdown: Physical activity, sedentary behavior, and sleep in Italian medicine students*. Eur J Sport Sci.2021; 21(10):1459-1468. doi: <https://dx.doi.org/10.1080/17461391.2020.1842910>
27. Sánchez-Lastra MA, López Valenciano A, Suárez-Iglesias D, Ayán C. *Estimación del aumento global del tiempo de sedentarismo durante los confinamientos de la COVID-19: una revisión sistemática y un metanálisis*. Rev Esp Salud Pública. 2022; 96: 19 de mayo e202205042.
28. Violant-Holz V, Gallego-Jiménez MG, González-González CS, Muñoz-Violant S, Rodríguez MJ, Sansano-Nadal O et al. *Psychological Health and Physical Activity Levels during the COVID-19 Pandemic: A Systematic Review*. Int. J. Environ. Res. Public Health 2020; 17(24): 9419. <https://dx.doi.org/10.3390/ijerph17249419>
29. Shechter A, Diaz F, Moise N, Anstey DE, Ye S, Abdalla M. *Psychological distress, coping behaviors, and preferences for support among New York healthcare workers during the COVID-19 pandemic*. Gen Hosp Psychiatry. 2020; 66:1-8. Epub 2020 Jun 16. doi: <https://dx.doi.org/10.1016/j.genhosppsych.2020.06.007>
30. Moreno-Arrebola R, Fernández-Revelles AB, Linares-Manrique M, Espejo-Garcés T. *Revisión sistemática sobre hábitos de actividad física en estudiantes universitarios*. Sportis Sci J. School Sport, physical education and psychomotricity.2018; 4 (1): 162-183.
31. Castro O, Bennie J, Vergeer I, Bosselut G, Biddle SJH. *How Sedentary Are University Students? A Systematic Review and Meta-Analysis*. Prev Sci. 2020;21(3):332-343. doi: <https://dx.doi.org/10.1007/s11121-020-01093-8>
32. Seetan K, Al-Zubi M, Rubbairi Y, Athamneh M, Khammes A, Radaideh T. *Impact of COVID-19 on medical students' mental wellbeing in Jordan*. PLoS One. 2021 Jun 17;16(6):e0253295. doi: <https://dx.doi.org/10.1371/journal.pone.0253295>

Lifestyle, oral hygiene habits and self-perception of mood in Dental students of the Community of Madrid during the COVID-19 pandemic: could the pandemic have any favorable effect?
ELENA DESCALZO-CASADO et al.