

## RELACIÓN ENTRE LOS NIVELES DE ACTIVIDAD FÍSICA Y LA SALUD MENTAL SEGÚN EL SEXO DE LOS ADULTOS DURANTE EL TIEMPO DE PANDEMIA POR COVID-19

Estudiante (es): Julian David Santos Guevara

Tutor(es): Yaneth Herazo Beltrán y Lilibeth Sanchez Guette

### RESUMEN

**Objetivo:** Determinar el cumplimiento de las recomendaciones de actividad física y la salud mental durante la pandemia COVID-19 en relación al sexo.

**Materiales y Métodos:** Se realizó un estudio de tipo cuantitativo, con un enfoque transversal a 550 ciudadanos mayores de 18 años residentes en Barranquilla y el departamento del Atlántico. Diferentes variables medidas en un momento dado de la vida de los sujetos de estudio. La actividad física se evaluó por medio del cuestionario internacional de actividad física (IPAQ) formato corto. El comportamiento sedentario se evaluó mediante auto-reporte del tiempo frente a pantallas y trabajando. Para medir la salud mental se utilizó la Escala de Depresión, Ansiedad y Estrés (DASS 21).

**Resultados:** Se encontró que las mujeres presentan niveles de actividad física bajos mas bajos (41,5%) que los hombres. En cuanto al estado de salud mental en relación al sexo de los participantes, se aprecia que el sexo femenino presentó síntomas de depresión, ansiedad y estrés (30,7%, 39,3%, 36,7%) más alto que los hombres (28,3%, 29,4%, 25,9%). Adicionalmente existen diferencias significativas en el sexo femenino de depresión, ansiedad, estrés y los niveles de actividad física (bajo y alto) con (20%) o sin (80%) síntomas ( $p=0,00$ ), (30,3%) (69,7%) ( $p=0,004$ ), (29%) (71%) ( $p=0,01$ ).

**Conclusiones:** Las mujeres mostraron tener menores valores de actividad física en comparación con los hombres. Es importante promover la actividad física y la salud mental mediante la implementación de estrategias que reduzcan la inactividad física y el comportamiento sedentario.

**Palabras Clave:** COVID, Actividad Motora, Conducta Sedentaria, Salud Mental.

### ABSTRACT

**Objective:** To determine compliance with the recommendations for physical activity and mental health during the COVID-19 pandemic in relation to sex.

**Materials and methods:** A quantitative study was carried out, with a cross-sectional approach to 550 citizens over 18 years of age residing in Barranquilla and the

department of Atlántico. Different variables measured at a given moment in the life of the study subjects. Physical activity was assessed using the short format International Physical Activity Questionnaire (IPAQ). Sedentary behavior was evaluated by self-report of time in front of screens and working. The Depression, Anxiety and Stress Scale (DASS 21) was used to measure mental health.

**Results:** It was found that women have lower levels of physical activity (41.5%) than men. Regarding the state of mental health in relation to the sex of the participants, it is appreciated that the female sex presented symptoms of depression, anxiety and stress (30.7%, 39.3%, 36.7%) higher than the men (28.3%, 29.4%, 25.9%). In addition, there are significant differences in the female gender of depression, anxiety, stress and levels of physical activity (low and high) with (20%) or without (80%) symptoms ( $p = 0.00$ ), (30.3%) (69.7%) ( $p = 0.004$ ), (29%) (71%) ( $p = 0.01$ ).

**Conclusions:** Women show lower values of physical activity compared to men. It is important to promote physical activity and mental health by implementing strategies that reduce physical inactivity and sedentary behavior.

**Key Words:** COVID, Motor activity, sedentary behavior, mental health.

#### REFERENCIAS (colocar a cada artículo el DOI o la URL en caso de no tener DOI):

1. World Health Organization (WHO). WHO Guidelines on Physical Activity and Sedentary Behaviour. Geneva; 2020. <https://www.who.int/publications/i/item/9789240015128>.
2. Organización Mundial de la Salud (OMS). Actividad Física. Noviembre 2020. <https://www.who.int/es/news-room/fact-sheets/detail/physical-activity>
3. Instituto Nacional de Bienestar Familiar. Encuesta Nacional de Situación Nutricional (ENSIN) 2015. Bogotá D.C.; 2015. <https://www.icbf.gov.co/bienestar/nutricion/encuesta-nacional-situacion-nutricional>.
4. Organización Mundial de la Salud (OMS). COVID-19: cronología de la actuación de la OMS. Abril 2020. <https://www.who.int/es/news/item/27-04-2020-who-timeline--covid-19>.
5. Sedano-Chiroque FL, Rojas-Miliano C, Vela-Ruiz JM. COVID-19 desde la perspectiva de la prevención primaria. Rev. Fac. Med. Hum. 2020; 20(3): 494-501. doi.org/10.25176/rfmh.v20i3.3031.
6. Ramírez-Ortiz J, Castro-Quintero D, Lerma-Córdoba C, Yela-Ceballos F, EscobarCórdoba F. Consecuencias de la pandemia de la COVID-19 en la salud mental asociadas al aislamiento social. Rev. colomb. Anestesiología. 2020; 48(4): e301. doi.org/10.5554/22562087.e930.
7. Liu S, Yang L, Zhang C, Xiang YT, Liu Z, Hu S, Zhang B. Online mental health services in China during the COVID-19 outbreak. Lancet Psychiatry. 2020; 7(4): e17-e18. doi: 10.1016/S2215-0366(20)30077-8.
8. Gamboa Suárez AA, Hernández Suárez CA, Prada Nuñez R. Efectos depresivos del aislamiento preventivo obligatorio asociados a la pandemia del COVID-19 en docentes y estudiantes de una universidad pública en Colombia: Psicogente. 2020; 24(45):1-20. doi.org/10.17081/psico.24.45.4156

**9.** Parrado-González A, León-Jariego J. COVID-19: Factores asociados al malestar emocional y morbilidad psíquica en población española. *Rev Esp Salud Pública.* 2020; 94: 1-16.

[https://www.mscbs.gob.es/biblioPublic/publicaciones/recursos\\_propios/resp/revista\\_cdrom/VOL94/ORIGINALES/RS94C\\_202006058.pdf](https://www.mscbs.gob.es/biblioPublic/publicaciones/recursos_propios/resp/revista_cdrom/VOL94/ORIGINALES/RS94C_202006058.pdf).

**10.** Severi C, Medina M. Cambios en los hábitos alimentarios y actividad física durante el aislamiento físico durante el COVID -19:. *An Facultad Med.* 2020; 7(1):e2020v7n1a15. doi: 10.14642/RENC.2020.26.2.5213.

**11.** Fitbit. The Impact of Coronavirus on Global Activity. Report. 2020. Disponible en: <https://blog.fitbit.com/covid-19-global-activity/>

**12.** Chandrasekaran B, Ganesan TB. Sedentarism and chronic disease risk in COVID 19 lockdown - a scoping review. *Scott Med J.* 2021; 66(1):3-10. doi: 10.1177/0036933020946336.

**13.** Organización Mundial de la Salud (OMS). Enfermedades no transmisibles. Genova; 2109. <https://www.who.int/es/news-room/fact-sheets/detail/noncommunicablediseases>.

**14.** Rangel YR, Morejón SR, Cabrera MY, Herranz BD, Rodríguez OW. Therapeutic adherence, level of knowledge of the disease and self-esteem in type 2 diabetic patients. *Gac Méd Espirit.* 2018; 20 (3): 13-

23. <https://www.medigraphic.com/pdfs/espirituana/gme-2018/gme183b.pdf>

**15.** Parra-Soto S, Martínez-Sanguinetti M, Cigarroa I, Díaz-Martínez X, Matus-Castillo C, Garrido-Méndez A, et al. ¿Cuál es la asociación entre actividad física, sedentarismo y riesgo de desarrollar cáncer en población adulta? Una revisión de la literatura. *Rev. chil. nutr.* 2021; 48(2): 245-254. doi.org/10.4067/S0717-75182021000200245

**16.** Prieto BDH, Correa BJE, Ramírez VR. Niveles de actividad física, condición física y tiempo en pantallas en escolares de Bogotá, Colombia: Estudio FUPRECOL. *Nutr Hosp.* 2015; 32(5): 2184-2192. doi:10.3305/nh.2015.32.5.9576.

**17.** Arévalo H, Urina M, Santacruz J. Impacto del aislamiento preventivo obligatorio en la actividad física diaria y en el peso de los niños durante la pandemia por SARSCoV-2. *Rev. Colomb. Cardiol.* 2020; 27 (6): 575-582. doi.org/10.1016/j.rccar.2020.09.003

**18.** Rodríguez-Romo G, Barriopedro M, Alonso SP, Garrido-Muñoz M. Relaciones entre Actividad Física y Salud Mental en la Población Adulta de Madrid. *Rev. psicol. deport.* 2015;24(2):233-239. <https://www.redalyc.org/pdf/2351/235141413005.pdf>

**19.** Jacob L, Tully MA, Barnett Y, Lopez-Sanchez G, Butler L, Schuch F, et al. The relationship between physical activity and mental health in a sample of the UK public: A cross-sectional study during the implementation of COVID-19 social distancing measures. *Ment. Health Phys. Act.* 2020; 19: doi.org/10.1016/j.mhpa.2020.100345

**20.** Dinler E, Badat T, Kocamaz D, Yakut Y. Evaluation of the physical activity, sleep quality, depression, and life satisfaction of university students during the COVID-19. *Int J Disabil Sports Health Sci.* 2020; 3(2): 128-139. doi.org/10.33438/ijdshts.770346

**21.** Stockwell S, Trott M, Tully M, Shin J, Barnett Y, Butler L, et al. Changes in physical activity and sedentary behaviours from before to during the COVID-19

pandemic lockdown: a systematic review. *BMJ Open Sport Exerc Med.* 2021; 7(1):e000960. doi: 10.1136/bmjsem-2020-000960.

**22.** Naciones Unidas. Objetivos de Desarrollo Sostenible.

<https://www.un.org/sustainabledevelopment/es/health/>

**23.** República de Colombia. Ministerio de Salud y Protección Social. La importancia de la actividad física como hábito de vida saludable. Boletín de Prensa No 002 de 2021.

<https://www.minsalud.gov.co/Paginas/La-importancia-de-la-actividad-fisica-como-habito-de-vida-saludable.aspx>

**24.** Organización Mundial de la Salud (OMS). Coronavirus. Ginebra; 2020.

[https://www.who.int/es/health-topics/coronavirus#tab=tab\\_1](https://www.who.int/es/health-topics/coronavirus#tab=tab_1)

**25.** Cervera-Martínez J, Atienza-Carbonell B, Mota JC, Bobes-Bascarán T, Crespo-Facorro B, Esteban C, et al. Lifestyle changes and mental health during the COVID-19 pandemic: A repeated, cross-sectional web survey. *J Affect Disord.* 2021; 295:173-182. doi:10.1016/j.jad.2021.08.020

**26.** Rawat D, Dixit V, Gulati S, Gulati S, Gulati A. Impact of COVID-19 outbreak on

lifestyle behaviour: A review of studies published in India. *Diabetes Metab Syndr Clin Res Rev.* 2021;15(1):331-336. doi.org/10.1016/j.dsx.2020.12.038

**27.** Totosy de Zepetnek JO, Martin J, Cortes N, Caswell S, Boolani A. Influence of

grit on lifestyle factors during the COVID-19 pandemic in a sample of adults in the United States. *Pers Individ Dif.* 2021; 175:110705.

doi:10.1016/j.paid.2021.110705

**28.** Sánchez OM, De Luna BE. Hábitos de vida saludable en la población

universitaria. *Nutr Hosp.* 2015; 31 (5):1910-1919.

doi:10.3305/nh.2015.31.5.8608

**29.** Egger G. Healthy living. *Aust Fam Physician.* 2017; 46 (1): 10-

13. <https://www.racgp.org.au/download/Documents/AFP/2017/Jan-Feb/AFPJan-Feb-2017-Focus-Egger.pdf>

**30.** Gooding H, Shay C, Ning H, Gillman M, Chiuve S, Reis J, et al. Optimal lifestyle components in young adulthood are associated with maintaining the ideal

cardiovascular health profile into middle age. *J Am Heart Assoc.* 2015; 4 (11): 1-9. doi: 10.1161/JAHA.115.002048.

**31.** Mize TD. Profiles in health: Multiple roles and health lifestyles in early adulthood.

*Soc Sci Med.* 2017; 178: 196-205. doi: 10.1016/j.socscimed.2017.02.017

**32.** Foth T, Holmes D. Governing through lifestyle-Lalonde and the biopolitical management of public health in Canada. *Nurs Philos.* 2018 Oct;19(4):e12222.

doi: 10.1111/nup.12222.

**33.** Roberti di Sarsina P, Tassinari M. Integrative approaches for health: Biomedical

research, ayurveda, and yoga. *J Ayurveda Integr Med.* 2015 Jul-Sep;6(3):213-

4. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4630699/pdf/JAIM-6-213.pdf>

**34.** Rippe JM. Lifestyle Medicine 2019: Deeper, Broader, and More Precise. *Am J Lifestyle Med.* 2019;13(5):436-439. doi: 10.1177/1559827619845342.

**35.** James PA, Oparil S, Carter BL, Cushman WC, Dennison-Himmelfarb C, Handler J, Lackland D, et al. 2014 evidence-based guideline for the management of high

blood pressure in adults: report from the panel members appointed to the Eighth

Joint National Committee. *JAMA.* 2014;311(5):507-520.

doi:10.1001/jama.2013.284427.



36. Farhud DD. Impact of Lifestyle on Health. Iran J Public Health. 2015 Nov;44(11):1442-1444. <https://europepmc.org/article/PMC/4703222>
37. Cureau FV, Sparrenberger K, Bloch KV, Ekelund U, Schaan BD. Associations of multiple unhealthy lifestyle behaviors with overweight/obesity and abdominal obesity among Brazilian adolescents: A country-wide survey. Nutr Metab Cardiovasc Dis. 2018;28(7):765-774. doi:10.1016/j.numecd.2018.04.012
38. National Center for Health Statistics (US). Health, United States, 2008: With Special Feature on the Health of Young Adults. Hyattsville (MD): National Center for Health Statistics (US); 2009 Mar. Report No.: 2009-1232. <https://www.cdc.gov/nchs/data/hs/hs08.pdf>
39. Tremblay MS, on behalf of SBRN Terminology Consensus Project Participants, Aubert S, Barnes JD, Saunders TJ, Carson V, et al. Sedentary Behavior Research Network (SBRN) – Terminology Consensus Project process and outcome. Int J Behav Nutr Phys Act. 2017; 14(1):75. doi: 10.1186/s12966-017-0525-8.
40. Pate RR, O'Neill JR, Lobelo F. The evolving definition of "sedentary". Exerc Sport Sci Rev. 2008;36(4):173-178. doi: 10.1097/JES.0b013e3181877d1a
41. Owen N, Healy GN, Matthews CE, Dunstan DW. Too much sitting: the population health science of sedentary behavior. Exerc Sport Sci Rev. 2010;38(3):105-113. doi: 10.1097/JES.0b013e3181e373a2
42. Botero JP, Farah BQ, Correia M de A, Lofrano-Prado MC, Cucato GG, Shumate G, et al. Impact of the COVID-19 pandemic stay at home order and social isolation on physical activity levels and sedentary behavior in Brazilian adults. Einstein. 2021;19: eAE6156. doi: 10.31744/einstein\_journal/2021AE6156
43. Centers for Disease Control and Prevention. Physical Activity Basics. ¿Cuánta actividad física necesitan los adultos? U.S. Department of Health and Human Services; 2020. Disponible en: <https://www.cdc.gov/physicalactivity/basics/adults/index.htm>
44. National Heart, Lung and Blood Institute (NIH). Physical Activity and Your Heart. U.S.A. Disponible en: <https://www.nhlbi.nih.gov/health-topics/physical-activity-and-your-heart>
45. Ministerio de la Protección Social, Departamento Administrativo del Deporte, la Recreación, la Actividad Física y el Aprovechamiento del Tiempo Libre - COLDEPORTES. Hábitos y Estilos de Vida Saludable. Tomo 2. Documento técnico con los contenidos de direccionamiento pedagógico para la promoción de hábitos de vida saludable, con énfasis en alimentación saludable y el fomento de ambientes 100% libres de humo de cigarrillo a través de la práctica regular de la actividad física cotidiana, dirigidos a los referentes de las entidades territoriales. Bogotá D.C, Colombia; 2011. <https://www.javeriana.edu.co/documents/245769/305029/Habitos+y+Estilos+de+Vida+Saludable+TOMO+2/6b664115-0b42-4262-8f05-18b7caa3d1bc>
46. Posada JA. La salud mental en Colombia. Biomédica. 2013; 33 (4): 497-498. doi.org/10.7705/biomedica.2214
47. Organización Mundial de la Salud. Salud Mental. Ginebra; 2017. [https://www.who.int/topics/mental\\_health/es/](https://www.who.int/topics/mental_health/es/)
48. American Psychiatric Association. What Is Depression?. Washington; 2020

<https://www.psychiatry.org/patients-families/depression/what-is-depression>

**49.** González N, Martínez A, Carmona O, Viera C, Jerez D, González J. Tratamiento acupuntural para la ansiedad en la consulta de medicina tradicional. Policlínico Baracoa, 2010. Panorama Cuba y Salud. 2011; 6: 142-143.

<https://www.redalyc.org/pdf/4773/477348946043.pdf>

**50.** Mental Health UK 2020. Mental Health UK. What is anxiety? <https://mentalhealthuk.org/help-and-information/conditions/anxiety-disorders/what-is-anxiety/>

**51.** Andreu CE. Actividad física y efectos psicológicos del confinamiento por covid-19. Revista INFAD de Psicología. 2020; 2 (1): 209-220. doi: doi.org/10.17060/ijodaep.2020.n1.v2.1828

**52.** González S, Sarmiento O, Lozano O, Ramirez A, Grijalba C. Niveles de actividad física de la población colombiana: desigualdades por sexo y condición socioeconómica. Biomédica. 2014; 34:447-459. doi:10.7705/biomedica.v34i3.2258

**53.** Bauman AE, Reis RS, Sallis JF, Wells JC, Loos RJ, Martin BW, et al. Correlates of physical activity: why are some people physically active and others not? Lancet. 2012;380(9838):258-271. doi: 10.1016/S0140-6736(12)60735-1.

**54.** Petersen JM, Kemps E, Lewis LK, Prichard I. Promoting physical activity during the COVID-19 lockdown in Australia: The roles of psychological predictors and commercial physical activity apps. Psychol Sport Exerc. 2021; 56:102002. doi:10.1016/j.psychsport.2021.102002

**55.** Bakhsh MA, Khawandanah J, Naaman RK, Alashmali S. The impact of COVID-19 quarantine on dietary habits and physical activity in Saudi Arabia: a crosssectional study. BMC Public Health. 2021;21(1):1487. doi: 10.1186/s12889-021-11540-y.

**56.** Manuel DG, Eddeen AB, Colley RC, Tjepkema M, Garner R, Bennett C, et al. The effect of COVID-19 on physical activity among Canadians and the future risk of cardiovascular disease. Statcan.gc.ca. 2021. Catalogue no. 45-28-0001. <https://www150.statcan.gc.ca/n1/en/pub/45-28-0001/2021001/article/00019-eng.pdf?st=NpISle8D>

**57.** 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: 10.3390/ijerph17186567

**58.** Meyer J, McDowell C, Lansing J, Brower C, Smith L, Tully M, et al. Changes in Physical Activity and Sedentary Behavior in Response to COVID-19 and Their Associations with Mental Health in 3052 US Adults. Int J Environ Res Public Health. 2020;17(18):6469. doi.org/10.3390/ijerph17186469

**59.** Watson, K.B., Whitfield, G.P., Huntzicker, G., Omura, J.D., Ussery, E., Chen, T.J., et al. Cross-sectional study of changes in physical activity behavior during the COVID-19 pandemic among US adults. Int J Behav Nutr Phys Act. 2021; 18(1):91. doi.org/10.1186/s12966-021-01161-4.

**60.** Pears M, Kola-Palmer S, De Azevedo LB. The impact of sitting time and physical activity on mental health during COVID-19 lockdown. Sport Sci Health. 2021; 10:1-13. doi: 10.1007/s11332-021-00791-2.

61. McBride E, Arden MA, Chater A, Chilcot J. The impact of COVID-19 on health behaviour, well-being, and long-term physical health. *Br J Health Psychol.* 2021;26(2):259-270. doi: 10.1111/bjhp.12520
62. Malta DC, Szwarcwald CL, Barros MBA, Gomes CS, Machado IE, Souza Júnior PRB, et al. El COVID-19 Pandemia y cambios en los estilos de vida de adultos brasileños: un estudio transversal, 2020. *Epidemiol Serv Saude.* 2020; 29(4): e2020407. doi: 10.1590 / S1679-49742020000400026.
63. Rodríguez-Larra A, Mañas A, Labayen I, González-Gross M, Espin A, Aznar S, et al. Impact of COVID-19 confinement on physical activity and sedentary behaviour in spanish university students: Role of gender. *Int J Environ Res Public Health.* 2021 18(2):369. doi: 10.3390/ijerph18020369
64. Bertrand L, Shaw KA, Ko J, Deprez D, Chilibeck PD, Zello GA. The impact of the coronavirus disease 2019 (COVID-19) pandemic on university students' dietary intake, physical activity, and sedentary behaviour. *Appl Physiol Nutr Metab.* 2021;46(3):265-272. doi: 10.1139/apnm-2020-0990
65. Barwais FA. Assessing physical activity and sedentary time during the COVID-19 pandemic using self-reported measurement. *Natl J Physiol Pharm Pharmacol.* 2020;10(11): 1019-1024. doi: 10.09241202001102020
66. Jacob L, Tully MA, Barnett Y, Lopez-Sanchez GF, Butler L, Schuch F, et al. The relationship between physical activity and mental health in a sample of the UK public: A cross-sectional study during the implementation of COVID-19 social distancing measures. *Ment Health Phys Act.* 2020; 19:100345. doi: 10.1016/j.mhpa.2020.100345.
67. Dziewior J, Carr L, Pierce G, Whitaker K. Physical activity and sedentary behavior in college students during the covid-19 pandemic. *Med Sci Sports Exerc.* 2021;53(8S):184-185. doi: 10.1249/01.mss.0000761204. 78353.d8.
68. Ministerio de Salud y Protección Social. Resolución 3280 de 2018. Bogotá; 2018. <https://www.minsalud.gov.co/sites/rid/Lists/BibliotecaDigital/RIDE/DE/DIJ/resolucion-3280-de-2018.pdf>
69. Rey-López JP, Tomas C, Vicente-Rodríguez G, Gracia-Marco L, Jiménez-Pavón D, Pérez-Llamas F, et al. Sedentary behaviours and socio-economic status in Spanish adolescents: the AVENA study. *Eur J Public Health.* 2011;21(2):151-157. doi: 10.1093/eurpub/ckq035.
70. Clark BK, Winkler E, Healy GN, Gardiner PG, Dunstan DW, Owen N, et al. Adults' past-day recall of sedentary time: reliability, validity, and responsiveness. *Med Sci Sports Exerc.* 2013;45(6):1198-207. doi: 10.1249/MSS.0b013e3182837f57.
71. Barrera R. Cuestionario Internacional de actividad física (IPAQ) Revista Enfermería del Trabajo. 2017;7(2):49–54. <https://dialnet.unirioja.es/servlet/articulo?codigo=5920688>
72. Mella RF, Vinet EV, Alarcón M. Escalas de Depresión, Ansiedad y Estrés (DASS-21): Adaptación y propiedades psicométricas en estudiantes secundarios de Temuco. *Revista Argentina de Clínica Psicológica.* 2014; 23 (2): 179-190. <https://www.redalyc.org/articulo.oa?id=281943265009>.
73. Zheng C, Huang WY, Sheridan S, Sit CH-P, Chen X-K, Wong SH-S. COVID-19 pandemic brings a sedentary lifestyle in young adults: A cross-sectional and longitudinal study. *Int J Environ Res Public Health.* 2020;17(17):6035.

<https://doi.org/10.3390/ijerph17176035>.

- 74.** Sañudo B, Fennell C, Sánchez-Oliver AJ. Objectively-Assessed Physical Activity, Sedentary Behavior, Smartphone Use, and Sleep Patterns Pre- and during-COVID-19 Quarantine in Young Adults from Spain. *Sustainability*. 2020; 12(15):5890. <https://doi.org/10.3390/su12155890>.
- 75.** Hermassi S, Sellami M, Salman A, Al-Mohannadi AS, Bouhafs EG, Hayes LD, et al. Effects of COVID-19 lockdown on physical activity, sedentary behavior, and satisfaction with life in Qatar: A preliminary study. *Int J Environ Res Public Health*. 2021;18(6):3093. <https://doi.org/10.3390/ijerph18063093>.
- 76.** Gonzalo-Encabo P, Cereijo L, Remón ÁLC, Jiménez-Beatty JE, Díaz-Benito VJ, Santacruz Lozano JA. Associations between individual and environmental determinants and physical activity levels of an active population during the Spanish lockdown. *Prev Med*. 2021;153(106719):106719. <https://doi.org/10.1016/j.ypmed.2021.106719>.
- 77.** Puccinelli PJ, da Costa TS, Seffrin A, de Lira CAB, Vancini RL, Nikolaidis PT, et al. Reduced level of physical activity during COVID-19 pandemic is associated with depression and anxiety levels: an internet-based survey. *BMC Public Health*. 2021;21(1):425. <https://doi.org/10.1186/s12889-021-10470-z>.
- 78.** Gallè F, Sabella EA, Da Molin G, De Giglio O, Caggiano G, Di Onofrio V, et al. Understanding knowledge and behaviors related to CoViD-19 epidemic in Italian undergraduate students: The EPICO study. *Int J Environ Res Public Health*. 2020;17(10):3481. <https://doi.org/10.3390/ijerph17103481>.
- 79.** Bhoyroo R, Chivers P, Millar L, Bulsara C, Piggott B, Lambert M, et al. Life in a time of COVID: a mixed method study of the changes in lifestyle, mental and psychosocial health during and after lockdown in Western Australians. *BMC Public Health*. 2021;21(1):1947. <https://doi.org/10.1186/s12889-021-11971-7>.
- 80.** Zach S, Zeev A, Ophir M, Eilat-Adar S. Physical activity, resilience, emotions, moods, and weight control of older adults during the COVID-19 global crisis. *Eur Rev Aging Phys Act*. 2021;18(1):5. <https://doi.org/10.1186/s11556-021-00258-w>.
- 81.** Punia S, Department of Physiotherapy, Guru Jambheshwar University of Science and Technology, Hisar, Haryana, India, Mohini M, Sharma S, Singh V, Joshi S, et al. Impact of the covid-19 pandemic on psychological health status during lockdown period: A cross-sectional study. *Rom J Neurol*. 2021;20(2):217–23. <https://doi.org/10.37897/rjn.2021.2.14>.