

META-ANALYSIS ON MENTAL AND PHYSICAL HEALTH OF ATHLETES DURING COVID-19 PANDEMIC

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ABSTRACT

This meta-analysis investigates the multifaceted effects of the COVID-19 pandemic on the mental and physical well-being of athletes. Ten studies were systematically reviewed, revealing pervasive levels of anxiety, depression, stress, and psychological distress among athletes, with elite athletes and those in individual sports experiencing even higher levels of distress. Eight studies specifically identified elevated levels of depression among athletes. Furthermore, a significant decline in athletes' performance was noted due to the pandemic. In addition to mental health challenges, physical health obstacles were also prominent, with cardiovascular symptoms being particularly prevalent among athletes, as indicated by nine studies. These findings underscore the urgent need for tailored interventions and mental health support to address the well-being of athletes during and after the pandemic. Future

research should continue to explore both mental and physical health hurdles faced by athletes, aiming to foster a comprehensive understanding of their overall well-being and to inform targeted interventions and support mechanisms.

KEY WORDS - physical, pandemic, mental health, athletes, performance.

INTRODUCTION

The onset of the global COVID-19 pandemic has reverberated across the world, ushering in a new era fraught with challenges and uncertainties. Among the myriad of individuals affected, athletes have found themselves navigating a particularly tumultuous terrain characterized by the abrupt halting of sports events, disruptions in training regimens, and the erosion of social support networks essential for their well-being. These disruptions have not only reshaped the landscape of sports but have also profoundly impacted the mental health of athletes, necessitating a nuanced understanding of their psychological resilience and vulnerabilities during this unprecedented era.

Against this backdrop, this meta-analysis embarks on a comprehensive exploration of the mental health status of athletes amidst the COVID-19 pandemic. Drawing upon a meticulous examination of ten studies, this research endeavors to unravel the intricate layers of anxiety, depression, stress, and psychological distress experienced by athletes worldwide. The findings unearth a disconcerting reality wherein athletes, irrespective of their competitive level, grapple with heightened levels of psychological turmoil, with elite athletes and those in individual sports bearing an even heavier burden. Particularly alarming is the notable surge in depression levels among athletes, underscoring the profound psychological toll exacted by the pandemic. This surge not only underscores the fragility of athletes' mental well-being but also accentuates the urgent imperative for targeted interventions and support mechanisms tailored to address their unique needs.

Moreover, the deleterious impact of the pandemic extends beyond the realms of mental health, manifesting in a tangible decline in athletes' performance. This decline, attributed to disrupted training routines, limited access to facilities, and the absence of competitive events, serves as a poignant reminder of the intricate interplay between mental and physical health in the realm of sports. In light of these findings, urgent action is warranted to safeguard the mental well-being of athletes and mitigate the adverse consequences of the pandemic. Tailored interventions, informed by a nuanced understanding of athletes' mental health trajectories, are imperative to bolster resilience and foster psychological well-being amidst the prevailing uncertainty. Looking ahead, future research endeavors should delve deeper into the myriad dimensions of athletes' mental health, including the impact of social isolation, loss of identity, and changes in support structures. Additionally, an exploration of the long-term physical health implications of the pandemic on athletes is indispensable for a holistic understanding of their overall well-being. By synthesizing the existing evidence, this meta-analysis serves as a clarion call to action, galvanizing efforts to fortify the mental resilience of athletes and pave the way for a brighter, more resilient future in the realm of sports amidst the tumultuous backdrop of the COVID-19 pandemic.

METHODOLOGY

Out of 330 studies, 20 were chosen. Ten studies focused on physical problems, and the other ten on psychological issues. We looked at things like age, number of people in the studies, symptoms, performance, experience of the researchers, how important the results were, where the studies were done, and how they were done. We used statistics like frequency and percentage (%) to analyze the data. This helped us understand things like how big the studies were, how important the results were, how well people did, and what symptoms were common.

RESULT

TOPICS	PAPER		PAPER		VARIABLE S	VARIABLES
	PHYSICAL	MENTAL	PHYSICAL %	MENTAL %	PHYSICAL	MENTAL
Highest numbers of subjects used in papers	4	4	40%	40%	Less then 100	Less then 100
Highest symptoms shown by subjects in paper	3	8	28%	80%	Cardiovascular	Depression
Level of performance	9	9	90%	90%	decrease	decrease
Level of significance	8	7	80%	70%	0.05	0.05
Methods used	7	7	58%	70%	questionnaire	questionnaire

DISCUSSION AND FINDING

The findings of the study indicate a significant decline in athletes' performance due to the COVID-19 pandemic, which aligns with the collective results from all 10 papers demonstrating a consistent negative impact on athletes' mental health. Mental health-related symptoms such as depression (Lima et al.), anxiety (Şenisik et al.), stress (Facer-Childs et al.), and sleeping disorders (Wentz Kyle et al.) were identified, significantly affecting athletes' well-being. The hypothesis positing a significant effect of the COVID-19 pandemic on athletes' mental health is supported by these findings, attributed to factors such as lockdown measures, closure of gyms and fitness centers, training restrictions, suspension of professional sports activities, and limitations on outdoor activities, exacerbating anxiety, stress, and depression among athletes. Similarly, the study results also show a notable decrease in athletes' physical health due to the COVID-19 pandemic, in line with findings from all 10 papers highlighting various physical health-related symptoms such as cardiovascular issues (Li et al.), respiratory problems (Blanco et al.), deconditioning, and poor sleep. The accepted hypothesis suggests that the pandemic significantly affected athletes' physical health, possibly due to reduced physical activity caused by lockdown

measures (Chaabene et al.; Wunsch et al.), closure of gyms and fitness centers, training restrictions, and suspension of professional sports activities (Vitali et al.), all contributing to the negative impact on athletes' physical well-being.

CONCLUSION

The meta-analysis consistently indicates a significant negative influence of the COVID-19 pandemic on athletes' mental health, evidenced by a decline in performance across the ten selected papers alongside various mental health symptoms such as depression, stress, anxiety, eating disorders, and disrupted sleep patterns. These effects are attributed to factors like lockdown measures, limited access to training facilities, and reduced physical activity. Urgent actions are needed to address this impact, including implementing alternative training options and establishing support systems, while prioritizing the safe resumption of training and competition. Continued research is crucial to develop targeted interventions and understand dispositional and emotional factors associated with mental health symptoms among athletes during the pandemic. Additionally, athletes have experienced a notable decline in performance due to the pandemic, with cardiovascular symptoms being prevalent, as highlighted by studies utilizing questionnaires. Given the focus on physical health, further research on mental health effects is recommended to comprehensively understand the pandemic's impact on athletes.

REFERENCES

- Chaabene H, Prieske O, Herz M, Moran J, Höhne J, Kliegl R, Ramirez-Campillo R, Behm DG, Hortobágyi T, Granacher U.,(2021).Home-based exercise programmes improve physical fitness of healthy older adults: A PRISMA- compliant systematic review and meta-analysis with relevance for COVID-19. *Ageing Research Reviews*.;67:101265.
- Charest, J., & Grandner, M. A. (2020). Sleep and athletic performance: impacts on physical performance, mental performance, injury risk and recovery, and mental health. *Sleep Medicine Clinics*, 15(1), 41-57.
- Gorczynski, P. F., Coyle, M., & Gibson, K. (2017). Depressive symptoms in high-performance athletes and non-athletes: a comparative meta-analysis. *British Journal of Sports Medicine*, 51(18), 1348–1354.
- Filbay S, Pandya T, Thomas B, McKay C, Adams J, Arden N,(2019).Quality of Life and Life Satisfaction in Former Athletes: A Systematic Review and Meta- Analysis. *Sports Medicine*;49(11):1723-1738
- Gorczynski PF, Coyle M, Gibson K, Blanco, J. R., Cobos-Ceballos, M. J., Navarro, F., Sanjoaquin, I., de Las Revillas, F. A., Bernal, E., ... & Ugedo, J. (2021). Pulmonary long-term consequences of COVID-19 infections after hospital discharge. *Clinical Microbiology and Infection*, 27(6), 892-896
- Jia L, Huffman WH, Cusano A, Trofa DP, Li X, Kelly JD, Parisien RL,(2022). The risk of COVID-19 transmission upon return to sport: a systematic review.*The Physician and Sports Medicine*.11:1-7
- Jiawen Deng, Fangwen Zhou, Wenteng Hou, Kiyan Heybati, Saif Ali, Oswin Chang, Zachary Silver, Thanansayan Dhivagaran, Harikrishnaa Ba Ramaraju, Chi Yi Wong, Qi

- Kang Zuo, Elizabeth Lapshina, Madeline Mellett, (2022).Efficacy of lopinavir–ritonavir combination therapy for the treatment of hospitalized COVID- 19 patients: a meta-analysis, *Future Virology*, 10.2217/fvl-2021-0066, 17, 3, (169-189).
- Kumar A, Arora A, Sharma P, Anikhindi SA, Bansal N, Singla V, Khare S, Srivastava A. (2020).Is diabetes mellitus associated with mortality and severity of COVID-19? A meta-analysis. *Diabetes Metabolic Syndrome*;14(4):535-545.
 - Li, Jian, and Johannes Siegrist.(2012). "Physical Activity and Risk of Cardiovascular Disease—A Meta-Analysis of Prospective Cohort Studies." *International Journal of Environmental Research and Public Health* 9, no. 2: 391-407
 - Megan N. Houston, Matthew C. Hoch, Johanna M. Hoch; (2016) *Health-Related Quality of Life in Athletes: A Systematic Review with Meta-Analysis. Journal of Athletic Training*; 51 (6): 442–453.
 - Sahebi A, Abdi K, Moayedi S, Torres M, Golitaleb M.(2021) The prevalence of insomnia among health care workers amid the COVID-19 pandemic: An umbrella review of meta-analyses. *Journal of Psychosomatic Research*,149:110597.
 - Snedden TR, Scerpella J, Kliethermes SA, et al. (2019).Sport and Physical Activity Level Impacts Health-Related Quality of Life Among Collegiate Students. *American Journal of Health Promotion.*;33(5):675-682.
 - Runacres, A., Mackintosh, K. A., & McNarry, M. A. (2021). Health Consequences of an Elite Sporting Career: Long-Term Detriment or Long-Term Gain? A Meta-Analysis of 165,000 Former Athletes. *Sports Medicine (Auckland, N.Z.)*, 51(2), 289–301.
 - Visco V, Vitale C, Rispoli A, Izzo C, Virtuoso N, Ferruzzi GJ, Santopietro M, Melfi A, Rusciano MR, Maglio A, Di Pietro P, Carrizzo A, Galasso G, Vatrella A, Vecchione C, Ciccarelli M. (2022)post-COVID-19 Syndrome: Involvement and Interactions between Respiratory, Cardiovascular and Nervous Systems. *Journal of Clinical Medicine.*; 11(3):524
 - Vitali F, Bisagno E, Coco M, Cadamuro A, Maldonato NM, Di Corrado D. A . (2022) Moderated Mediation Analysis of the Effects of the COVID-19 Pandemic on Well-Being and Sport Readiness of Italian Team Sports Players: The Role of Perceived Safety of the Training Environment. *International Journal of Environmental Research and Public Health* 27;19(5):2764.
 - Wunsch K, Kienberger K, Niessner C., (2022).Changes in Physical Activity Patterns Due to the Covid-19 Pandemic: A Systematic Review and Meta- Analysis. *International Journal of Environmental Research and Public Health.*; 19(4):2250
 - Facer-Childs ER, Hoffman D, Tran JN, Drummond SPA, Rajaratnam SMW (2021). —Sleep and mental health in athletes during COVID19lockdown.14;44(5):zsaa261. doi: 10.1093/sleep/zsaa261.PMID: 3535229; PMCID: PMC7928674.
 - Hagiwara, G.(2021) —Relationships among Student-Athletes‘ Identity and Mental Health Condition—Survey in the COVID-19 Pandemic”Medical Science Forum 2021,4,31. <https://doi.org/10.3390/ECERPH-3-09074>
 - Lambert, C., Schuetz, LM., Rice, S. et al. (2022) “Depressive symptoms among Olympic athletes during the Covid-19 pandemic”. BMC Sports Science Medical Rehabilitation 14, 36 <https://doi.org/10.1186/s13102-022-00427-z>

- Lima Y, Senisik S, Denerel N, Hursitoglu H, Balci GA, Bolat GU, et al.,(2022) “Effects of COVID 19 pandemic on the psychological states of youth and adult elite male athletes. Turk J Sports Medicine.;57(1):317; <https://doi.org/10.47447/tjsm.0597>
- Pensgaard AM, Oevreboe TH, (2021) —Ivarsson A. Mental health among elite athletes in Norway during a selected period of the COVID-19pandemic. BMJ Open Sport & Exercise Medicine ;7:e001025. <http://dx.doi.org/10.1136/bmjsem-2020-001025>
- Seçkin Şenışık, Nevzad Denerel, Ogün Köyağasıoğlu & Serhat Tunç (2021) “The effect of isolation on athletes’ mental health during the COVIDpandemic, The Physician and Sportsmedicine, 49:2, 187-193,DOI: 10.1080/00913847.2020.1807297
- Uroh CC and Adewunmi CM (2021) —Psychological Impact of the COVID-19 Pandemic on Athletes. Front. Sports Act. Living 3:603415. doi: 10.3389/fspor.2021.603415
- Vaughan RS, Edwards EJ and MacIntyre TE (2020) “Mental Health Measurement in a Post Covid-19 World: Psychometric Properties and Invariance of the DASS- 30 21 in Athletes and Non-athletes. Front. Psychol. 11:590559. doi: 10.3389/fpsyg.2020.590559
- Wagemans J, Catteeuw P, Vandenhouten J, Jansen J, de Corte X, Ceusters C and Vissers D (2021) —The Impact of COVID-19 on Physical Performance and Mental Health—A Retrospective Case Series of Belgian Male Professional Football Players. Front. Sports Act. Living 3:803130 doi: 10.3389/fspor.2021.803130
- Wentz Kyle, Milburn Nate, Chhabra Avneesh, Tietze David, Shah Jay P (2021) “COVID-19 Pandemic Negatively Impacted Mental Health and Sports Participation of High School and Collegiate Athletes. Biomed J Sci & Tech Res 37(1)-2021. BJSTR. MS.ID.005932. DOI: 10.26717/BJSTR.2021.37.005932