

## Impact of the COVID-19 pandemic on quality of life among para-footballers with brain impairment Impacto de la pandemia de COVID-19 en la calidad de vida de para-futbolistas con lesión cerebral

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**Abstract.** People with disabilities might be at a higher risk of suffering from the psychosocial impact of the coronavirus disease 2019 (COVID-19) pandemic on quality of life (QoL), due to isolation and social restrictions. The purpose of this study was to describe the impact of confinement caused by the COVID-19 pandemic on the QoL of Chilean para-footballers with brain impairment. Forty male football players with brain impairment participated in this study. All participants completed the WHOQOL-BREF QoL questionnaire at two different moments (before and during confinement). A significant reduction in the perception of QoL was found between the different periods. Moreover, the physical, psychological, social, and environmental domains presented lower scores during the pandemic. These results suggest that the impact of confinement reduced the perception of QoL in all domains. Differentiated strategies with multidisciplinary professional support are necessary for dealing with the COVID-19 pandemic's psychosocial consequences on para-footballers with brain impairments.

**Keywords:** Pandemic, disability, coronavirus, quality of life, para-sport, sports health

**Resumen.** Las personas con discapacidad pueden correr un mayor riesgo de sufrir el impacto psicosocial de la pandemia por la enfermedad de coronavirus 2019 (COVID-19) en su calidad de vida (CV) debido al aislamiento y las restricciones sociales. El propósito de este estudio fue describir el impacto del confinamiento provocado por la pandemia de COVID-19 en la CV de para-futbolistas chilenos con lesión cerebral. Cuarenta jugadores de fútbol masculino con lesión cerebral participaron en este estudio. Todos los participantes completaron el cuestionario de calidad de vida WHOQOL-BREF en dos momentos diferentes (antes y durante el confinamiento). Se encontró una reducción significativa en la percepción de la CV entre los diferentes períodos. Además, los dominios físico, psicológico, social y ambiental presentaron puntajes más bajos durante la pandemia. Estos resultados sugieren que el impacto del encierro redujo la percepción de la CV en todos los dominios. Son necesarias estrategias diferenciadas con apoyo profesional multidisciplinar para hacer frente a las consecuencias psicosociales de la pandemia por COVID-19 en para-futbolistas con lesión cerebral.

**Palabras clave:** Pandemia, discapacidad, coronavirus, calidad de vida, paradeporte, salud deportiva

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### Introduction

The severe acute respiratory syndrome produced by a novel strain of coronavirus (SARS-CoV-2), also known as coronavirus disease 2019 (COVID-19), is characterised as being highly contagious, generating a rapid spread in the population and representing a risk to public health (Sohrabi et al., 2020). As a consequence of the diagnosis and mortality rate, the World Health Organisation (WHO) declared the COVID-19 outbreak a global emergency (Lai, Shih, Ko, Tang, & Hsueh, 2020). International organisations recommended the adoption of various preventive measures, such as restricted movement of the citizens, social/physical distancing, and banning social gatherings, which include the practice of any physical activity in sports facilities (Hossain, Sultana, & Purohit, 2020). Some of the principal consequences of the outbreak are related to a significant economic impact, health deterioration, and forcing people to adopt sedentary lifestyle behaviours due to the home confinement strategies (Narici et al., 2020). Previous studies have reported that long-term confinement due to COVID-19 has generated an increased perception of stress, anxiety, and depression, accompanied by adverse effects on psychosocial and mental health, strongly affecting the well-being of societies (Ozamiz-Etxebarria et al., 2020; Wang et al., 2020; Zhang & Ma, 2020). The adoption of various

preventive measures, such as restricted movement of citizens, social/physical distancing, and banning social gatherings, has also resulted in a sedentary lifestyle for many people, further negatively impacting their quality of life (QoL) (Castañeda-Babarro et al., 2022; Hossain et al., 2020; Miranda de Oliveira et al., 2022). In this unique context, it is plausible to suppose that QoL could be affected in the general population, with a greater risk in the population with disabilities.

Several factors may affect the QoL during the COVID-19 pandemic. These include the physical and psychological impact of the disease, social isolation, economic challenges, and changes in daily routines and lifestyles (Bäuerle et al., 2020). In this context, people with disabilities may face additional challenges, such as reduced access to healthcare, decreased social support, and limited opportunities for physical activity and recreation (Jespersen et al., 2019). These common barriers and fewer social participation opportunities can negatively affect their QoL. However, previous studies have described the positive influence of sports practice in different domains of the QoL and improvements in the social participation of athletes with disabilities or para-athletes during periods of non-confinement (Ciampolini et al., 2017; Ciampolini, Pinto, De Sousa, Silva, & Galatti, 2018; Groff et al., 2009; Ingrassia et al., 2020). Therefore, promoting physical activity and sports

participation, especially for people with disabilities, could be a promising strategy to improve QoL after the COVID-19 pandemic.

There is an increasing number of people with brain impairments (i.e., health conditions such as cerebral palsy, stroke, and traumatic brain injuries) participating in para-sport and specifically in cerebral palsy football (CP football) which is an adapted discipline similar to the regular sport that brings opportunities to individuals with mild motor impairments (Henríquez et al., 2021; Nogueira et al., 2022; Peña González et al., 2021). Para-footballers with brain impairments were also required to adopt the general prevention strategies during the COVID-19 lockdown, limiting the possibility of regular training and generating changes in their lifestyle. Considering that people with disabilities face different complex challenges and psychosocial needs compared to able-bodied populations during this global emergency, it is remarkable the limited available data about the impact of the home confinement strategies caused by COVID-19 on the QoL of para-footballers. Therefore, the aim of this study was to describe the impact of confinement caused by the COVID-19 pandemic on the QoL of Chilean para-footballers with brain impairment.

## Material and Methods

### Participants

Forty male Chilean football players with brain impairment ( $26.1 \pm 8.7$  years; cerebral palsy = 33; stroke = 2; traumatic brain injury = 5) participated in this study. All the participants met the minimum eligibility criteria to practice CP football (i.e., eligible impairments of hypertonia, ataxia or athetosis) and were recruited from different sports clubs from three different cities in Chile. The participants were classified as tier 3 considering their experience at the national level (McKay et al., 2022). The local university ethics committee approved this study (Code n° ID-01-2020) and complied with the recommendations of the Declaration of Helsinki.

### Procedures

This study comprises a cross-sectional analysis using the self-administered WHO Quality of Life Instrument-Short Form (WHOQOL-BREF) questionnaire in the Spanish language used to measure the participants' QoL perception (Espinoza et al., 2011). Along with this, participants were asked questions in order to collect data such as age, medical diagnosis, and sports classification. The questionnaires were carried out at two different times with a gap period of six months between each data collection. The first data collection was in the third week of January 2020, during the national CP football tournament, before the COVID-19 (pre-COVID) confinement. The second data collection was administrated during the third week of June 2020, during the pandemic declaration and with confinement measures applied throughout the country (during-COVID). Throughout the confinement period, an online self-administration questionnaire was sent

with additional questions to obtain data about the para-footballer's current state related to the QoL and sports training sessions. These questions were the following: i) Do you think that the COVID-19 pandemic affected your quality of life? ii) Do you think that the COVID-19 pandemic affects your preparation for sports training sessions?

### Measurements

The WHOQOL-BREF questionnaire contains 26 questions, of which 24 were grouped into four domains: physical health, psychological health, social relationships, and environment, as well as two questions categorised under the general domain related to the QoL and satisfaction with the state of health (World Health Organisation, 1998). This questionnaire presented a good internal consistency with a Cronbach alpha of 0.88 for the total scale and ranging from 0.70 to 0.79 in each of the dimensions (Espinoza et al., 2011). In addition, this questionnaire was used in the Chilean older population and was reported as a validated and reliable instrument (Espinoza et al., 2011). The response item presents five multiple-choice options in the Likert format and is scored such that having a higher score represents a better QoL (Espinoza et al., 2011; Urzúa M. & Caqueo-Urizar, 2013). Associated with the first question, the responses between scores 1, 2, and 3 were classified with a negative perception. On the other hand, scores 4 and 5 were categorised with a positive perception of QoL (Ciampolini et al., 2017; World Health Organisation, 1998). The value of the domains was calculated by the total sum of points divided by the number of items (Hurtado, 2018). Therefore, the results obtained from the WHOQOL-BREF questionnaire can help to identify areas of strengths and weaknesses in an individual's QoL and guide interventions to improve their overall well-being (Espinoza et al., 2011).

### Statistical analysis

The Shapiro-Wilk test was used to assess the distribution of the data, where all examined variables had a normal distribution. Chi-square ( $X^2$ ) test was used to verify the hypothesis of question 1 (quality of life rating) and 2 (health satisfaction) of the questionnaire. Overall, the results are presented as mean (M) and  $\pm$  standard deviation (SD). To compare the different periods (pre-COVID and during-COVID), the paired Student's t-test was performed. The procedures suggested by the WHO were used for data analysis and for the analysis of the differences between items, the means of responses were used according to the Likert scale of 1-5 points. For the statistical analysis, the GraphPad Prism program (GraphPad Software, version 8 for Windows, San Diego, CA, USA) and the Statistical Package for Social Sciences (SPSS Inc., version 26.0 for Windows, Chicago, IL, USA) were used. The level of statistical significance adopted was  $p < 0.05$ .

## Results

The results of the question, 'Do you think that the

COVID-19 pandemic affected your quality of life?' 82.5% of the participants responded that their QoL was affected. For the question 'Do you think that the COVID-19 pandemic affected your quality of life?' 90.0% replied that their training preparation was affected. The general evaluation of the QoL and general health satisfaction before and during COVID-19 confinement are described in Table 1. In the during-COVID period, a higher score in the negative perception was presented for the general evaluation of QoL ( $p = 0.02$ ), but not for general health satisfaction ( $p = 0.49$ ).

Table 2 shows the QoL results according to physical, psychological, social, and environmental domains. A significant reduction was obtained during-COVID the confinement period in the physical ( $p = 0.04$ ), psychological ( $p < 0.01$ ), social ( $p < 0.01$ ), and environmental ( $p < 0.01$ ) domains. In addition, a significant reduction was presented in the overall QoL score in the during-COVID period ( $p < 0.01$ ).

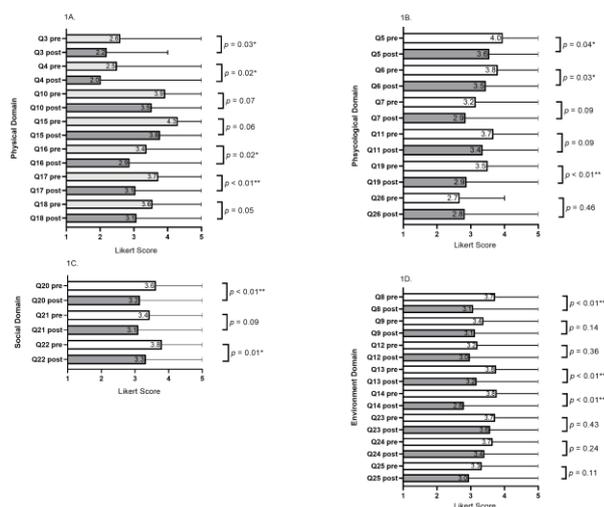


Figure 1. Comparison of the results per item according to the quality of life domains before and during COVID-19 confinement of football players with brain impairment. Q = Question,  $p < 0.05^*$ ,  $p < 0.01^{**}$ .

Table 1.

Results of the general evaluation of the quality of life and general health satisfaction before and during COVID-19 confinement of football players with brain impairment.

Variables	Perception	Pre-COVID		During-COVID		X <sup>2</sup>	p
		n	%	n	%		
Quality of life rating	Positive	13	32.5	8	20.0	1.61	0.20
	Negative	27	67.5	32	80.0		
Health satisfaction	Positive	14	35.0	13	32.5	0.05	0.81
	Negative	26	65.0	27	67.5		

Note: X<sup>2</sup> = Chi squared, \* $p < 0.05$

Table 2.

The WHOQOL-BREF questionnaire results according to domains of the quality of life before and during COVID-19 confinement of football players with brain impairment.

Domains	Pre-COVID	During-COVID	p
Physical	67.07 ± 14.37	60.95 ± 17.27	0.04*
Psychological	64.17 ± 15.98	55.21 ± 15.87	< 0.01**
Social	65.52 ± 21.20	54.48 ± 24.85	< 0.01**
Environment	64.14 ± 15.05	53.51 ± 16.31	< 0.01**
Total	64.44 ± 6.58	55.72 ± 8.05	< 0.01**

Note: Results are expressed as mean ± standard deviation.  $p < 0.05^*$ ,  $p < 0.01^{**}$ .

Figure 1 describes the results of each item separated by the four domains, for example: physical domain (1A),

psychological domain (1B), social domain (1C), and environmental domain (1D) of the questionnaire of QoL. Significant differences were shown for the physical domain in questions Q3, Q4, Q16, and Q17 ( $p < 0.05$ ), for the psychological domain in questions Q5, Q6 and Q19 ( $p < 0.05$ ), for the social domain Q20 and Q22 ( $p < 0.05$ ), and the environmental domain Q8, Q13 and Q14 ( $p < 0.05$ ).

## Discussion

The aim of this study was to describe the impact of confinement caused by the COVID-19 pandemic on the QoL of Chilean para-footballers with brain impairment. The results show that a high percentage of the participants were affected by the pandemic situation regarding their QoL and training preparation performance. Also, a significant reduction in QoL was reported during the COVID-19 confinement, expressed in the physical, psychological, social, and environment domains. The present results probably show the consequences of long-term confinement and worldwide preventive strategies where the population experienced physical and social inactivity, poor sleep quality, unhealthy habits, and unemployment (Ammar et al., 2020; Castañeda-Babarro et al., 2022; Miranda de Oliveira et al., 2022). Moreover, the limited movement due to confinement strategies drastically decreased physical activity levels and increased sedentary lifestyles, generating direct repercussions on the neuromuscular, cardiovascular, metabolic, and endocrine systems (Narici et al., 2020). In a previous study, Slimani et al. (2020) described a significant relationship between the total amount of physical activity and all the QoL domains during the confinement period caused by the COVID-19 pandemic. Based on this, populations with physical disabilities could be more affected by the consequences of confinement, mainly due to health comorbidities, a tendency to increase cardio-metabolic risk, and more significant barriers to participation in physical activity (Bauman, 2009). Therefore, the decrease in the QoL scores in the physical domain during the COVID-19 pandemic could reflect the complications and challenges experienced by para-footballers during the confinement period and movement restrictions.

The benefits of the participation of people with disabilities in sport is well-known, particularly regarding the important role and positive influence on psychological factors such as decreased anxiety and depression (Sahlin & Lexell, 2015). Indeed, in a recent study by Cornejo et al. (2022), the authors investigated the perception of quality of life in Chilean para-athletes and non-athletes with brain injuries. The results indicated that para-athletes reported a significantly higher perception of quality of life compared to non-athletes. Nevertheless, the results indicate significant decreases in the psychological domain, evoking the unique psychosocial strain and emotional demands generated by the global health emergency. Ammar et al. (2020) investigated the effects of home confinement in different countries during the COVID-19 pandemic, demonstrating

the negative impact on mental well-being, emotional status, and in some cases, the need for psychosocial support. Similar results were reported by other authors describing higher levels of stress, anxiety, and depression during the pandemic lockdown (Ozamiz-Etxebarria et al., 2020; Wang et al., 2020; Zhang & Ma, 2020). Moreover, a recent systematic review by Leung et al. (2023) suggests a possible negative impact of the COVID-19 pandemic on the mental health of young people, reinforcing the difficulties faced by this population and exacerbating of the psychological burden during this period. The social domain of the questionnaire involves facets related to personal relationships, sexual activity, and practical social support. The overall score of this investigation reflected significant decreases in the during-COVID period. Community support is suggested as a relevant facilitator for the participation of individuals with disabilities; however, the difficulties of confinement limited the possibilities in this respect and affected the QoL of the para-footballers participants in this study (Diaz, Miller, Kraus, & Fredericson, 2019). These results are in line with previous findings where social participation was reduced due to the restriction measures taken to control the pandemic (Ammar et al., 2020). In the environment domain, significant reductions in the score were observed during-COVID period. Relevant aspects of this topic are related to the ability of para-footballers to access a healthy physical environment, with stable financial resources, transport possibilities, home environment, and accessibility. These factors could significantly influence QoL during a period of confinement (Ciampolini et al., 2018). In addition, according to Amerio et al. (2020), there is a strong relationship between poor housing and depressive symptoms expressed during confinement periods, highlighting the effects of the environment on mental health, which possible could affect this population during the pandemic period. Furthermore, individuals with disabilities have experienced exceptional levels of stress due to various environmental changes brought on by COVID-19, often without support or guidance on coping strategies (Umucu & Lee, 2020). In a recent study, Tichy et al. (2022) conducted a systematic review of 19 published studies to summarize what is currently known about the impact of COVID-19 on individuals with disabilities. The findings suggest that COVID-19 had a negative impact on areas such as employment, quality of life, and coping strategies for people with disabilities. These results underscore the unique challenges of individuals with disabilities have faced during the pandemic and highlight the need for increased support and resources for this population.

The overall score of QoL in the pre-COVID period was close to the values obtained in a study with wheelchair basketball players (Feter, Calonego, Cavanhi, & del Vecchio, 2018), but was lower than that reported in other para-sports (Ciampolini et al., 2017, 2018). The decrease in the total QoL score during-COVID period could indicate the impact of the social restrictions and psychosocial consequences that para-footballers experienced during home

confinement (Dubey et al., 2020). Vidart Egurbide Baga-zgoitia et al. (2021) conducted a longitudinal study analyzing the QoL in young adults with cerebral palsy and reported a decrease in QoL from childhood to young adulthood in the domain of psychological well-being, while it increased linearly in social relationships. In addition, the severity of the impairment was found related to a reduced QoL, with motor impairment being linked to social relationships and intellectual impairment to psychological well-being and social relationships. Overall, gaining insights into the determinants of QoL in people with brain impairments and identifying areas where interventions can improve outcomes for this population is of paramount importance. This study includes some limitations related to the reduced number and specific type of impairment of the participants, although this information can provide relevant information about the confinement impact due to the health crisis on the QoL. Moreover, even though the WHOQOL-BREF questionnaire was used in Chilean older adults (Espinoza et al., 2011), and para-footballers with brain impairments (Cornejo et al., 2022), more studies are needed to analyze the psychometric properties in the local population living with disabilities. Further studies are needed to describe the impact of the confinement on the QoL of para-footballers with different impairments, with a larger number of participants (i.e., amputee football, powerchair football, blind football, among other types of para-football).

## Conclusions

The principal results of this study suggest that the impact of confinement caused by the COVID-19 pandemic reduced the perception of QoL in all domains and health satisfaction in para-footballers with brain impairment. Differentiated strategies with multidisciplinary professional support are necessary for dealing with the negative psychosocial consequences of the pandemic in para-footballers with disabilities. There is a need to develop specific strategies to mitigate the pandemic's multidimensional effects with essential emphasis on risk groups.

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