

# Emotional states of athletes in the first lockdown due to Covid-19: A comparison of Polish and Spanish samples

## Authors' Contribution:

- A Study Design
- B Data Collection
- C Statistical Analysis
- D Data Interpretation
- E Manuscript Preparation
- F Literature Search
- G Funds Collection

**Dominika Wilczynska**<sup>1 BDEF</sup>, **David Alarcon Rubio**<sup>2 CDE</sup>, **Patrycja Sliwinska**<sup>1 BDF</sup>, **Jose Carlos Jaenes**<sup>2 ABDEFG</sup>

<sup>1</sup> Gdansk University of Physical Education and Sport, Gdansk, Poland

<sup>2</sup> University of Pablo de Olavide, Seville, Spain

## abstract

**Background:** The situation of the coronavirus pandemic has affected the lives of many athletes from different disciplines. Therefore, the present study investigated the impact of Covid-19 first lockdown on emotional states and motivation of athletes from Spain and Poland.

**Material and methods:** Polish male (N=24) and female (N=94) and Spanish male (N=81) female (N=95) athletes were investigated. The respondents did online ad hoc questionnaires, namely Emotional and Adaptative reactions during confinement (COVID-19-RECOVID-19), and Profile of Mood States (POMS).

**Results:** Significant differences were observed in training conditions by country, with the Polish sample having higher scores than Spaniards. Stressing thoughts characterized Polish female athletes significantly more than others; Spanish athletes, both females and males were characterized by the highest agreement to confinement rules. Females, relative to males, had a higher level of fatigue. Moreover, significant differences by country appeared in anger, vigor, friendship, tension, and depressed feelings. Polish female athletes were characterized by the highest scores apart from friendship, which was similarly high among Polish athletes.

**Conclusions:** Monitoring the mental conditions of sports professionals and designing psychological interventions that would match athletes' personal needs seems crucial to similar, tremendously complex, and socially isolating situations, such as lockdown due to Covid-19.

**Key words:** coping, athletes, moods, transcultural, stress, and pandemic.

## article details

**Article statistics:** **Word count:** 2,830; **Tables:** 2; **Figures:** 0; **References:** 23

**Received:** May 2021; **Accepted:** June 2021; **Published:** September 2021

**Full-text PDF:** <http://www.balticsportscience.com>

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**Indexation:** Celdes, Clarivate Analytics Emerging Sources Citation Index (ESCI), CNKI Scholar (China National Knowledge Infrastructure), CNPIEC, DOAJ, EBSCO - Central & Eastern European Academic Source, EBSCO - SPORTDiscus, EBSCO Discovery Service, Google Scholar, Index Copernicus, J-Gate, Naviga (Softweco, Primo Central (ExLibris), ProQuest - Family Health, ProQuest - Health & Medical Complete, ProQuest - Illustrata: Health Sciences, ProQuest - Nursing & Allied Health Source, Summon (Serials Solutions/ProQuest, TDone (TDNet), Ulrich's Periodicals Directory/ulrichsweb, WorldCat (OCLC)

**Funding:** This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

**Conflict of interests:** Authors have declared that no competing interest exists.

**Corresponding author:** Dr Dominika Wilczyńska, Gdansk University of Physical Education and Sport, Chair of Physical Education and Social Sciences, Gorskiego 1 Str., 80-336 Gdańsk; phone +48 58 55-47-269; [dominika.wilczynska@awf.gda.pl](mailto:dominika.wilczynska@awf.gda.pl)

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## INTRODUCTION

The Covid-19 pandemic has hit the world of sport immensely hard and brought remarkable changes to daily life. The first wave of pandemic led to a societal shutdown, including sport, and concern was raised about the mental health of athletes all around the world. For athletes' and fans' safety, it was decided to postpone the largest sports events scheduled for 2020, including the Tokyo Olympic Games. Consequently, following international and national health recommendations, both Polish and Spanish sports facilities were closed, including high performance and sports medical centers, specialized training centers, gyms, outdoor and indoor sport facilities as well as professional sport leagues. Athletes, trainers, coaches, physicians, physiotherapists, psychologists and many other professionals were directed to stay at home [1]. The effects of that isolation may bring different psychological symptoms, including depression and anxiety [2]. Home confinement, a result of Covid 19 restrictions, caused athletes to partially or sometimes completely stop their training routines and competition schedules. Therefore, this "abrupt stoppage" could impair athletes' performance, especially as regards older and elite athletes. This particular group could lose profits as well as sponsorship, business plans, and their career could be disturbed. By contrast, this aspect is less common among younger athletes who, one could say, have all their career ahead of them, and this could cause more relaxed attitudes [3, 4]. Also, there could be gender differences in the influence of the lockdown on mental health. As women are more predisposed to psychiatric symptoms while dealing with difficult or traumatic events, due to the genetic, environmental, hormonal and neurobiological factors, hence athletic females could suffer from more negative emotional states during isolation caused by Covid-19 [1, 2]. Also Pons et al. [5] proved in the study on Spanish young athletes that participants who showed high negative impact of Covid-19 lockdown and serious mental health problems had poor or inexistent training conditions during lockdown and also high academic demands. In the study by Clemente-Suárez et al. [6] on Olympic athletes, personality characteristics such as neuroticism and psychological inflexibility were predictors of negative feelings for female athletes as well as the perception that quarantine will negatively influence their sports performance. On the other hand, research shows that coping strategies play an important role in managing the pandemic situation. Athletes with coping strategies as cognitive reconstructive and emotional calm suffered less from negative emotional states [7]. However, when considering athletes and non-athletes, there are studies which show that athletes report greater anxiety than non-athletes, and that the level of athletic identity (the degree to which an individual identifies with the athletic role) has a tendency to decrease [8, 9]. This phenomenon occurs more among young athletes who may resign from sport [10].

Indisputably, professional athletes are one of the social groups which can suffer significantly from confinement. As their daily routines, training loads, and planned competitions were stopped, the loss of sports efficiency and performance improvement can cause negative psychological consequences. The knowledge about athletes' psychological conditions, such as emotional reactions to quarantine, and the need for psychological support as well as athlete's living and training conditions, seems to be fundamental to understand their mental response and define the most suitable psychological interventions to help athletes thrive again. Also, the social context can have a significant influence on pandemic response; therefore, the comparison between countries should be of interest, and exploring this can bring future planning and direct interventions appropriately [11].

Therefore, the current study aimed to investigate the emotional states, coping strategies, and training and living conditions among Polish and Spanish athletes of the national and international levels. The study tried to answer the following questions: 1) Did Polish and Spanish athletes differ in terms of training and living conditions and coping strategies during the first lockdown? 2) Were there significant cross-cultural and gender differences between Polish and Spanish athletes in their emotional attitude toward the situation of the first lockdown?

## MATERIAL AND METHODS

### METHOD AND PROCEDURE

An online ad hoc questionnaire was designed (Emotional and Adaptive reactions during confinement RECOVID-19; Jaenes, Agudo, González, González, & Ordoñez [12]) to assess competitive Spanish and Polish athletes of different sports. The questionnaire included an introduction with the aims of the survey, specific instructions on how to fill out the questionnaire, ethics information for participants, as well as an informed consent for adults and parent permission for athletes under 18. The survey sought information about the following parameters: age, gender, competitive level, and education level. Life and training related information with questions about the house size, the availability of terraces or gardens, and the number of training hours per week is shown in Table 1.

In addition to sociodemographic and housing characteristics information, the questionnaire collected information on home training conditions, and the performance of coping activities during confinement. Training conditions on confinement were tested by items, such as availability of equipment at home to train properly, coaches' follow up, organization timesheet, and their opinion on their ability to keep their physical fitness. Participants were asked to answer on a four-point Likert scale from 1 (never) to 4 (very frequently). A list of coping strategies was assessed through gathering information about activities, such as reading, watching TV, playing video-games, listening to music, practicing relaxation techniques, using social networks, learning something new like cooking, etc. The 15 items coping activities were coded as "1. yes" or "0. no". Behavioral and motivational problems were tested with items, such as the presence of obsessive or compulsive thoughts or behaviors or rituals in confinement, difficulties in maintaining training motivation, and significant variation in food intake from their usual baselines. Participants were asked to answer on a five-point Likert scale from 1 (never) to 5 (extremely frequently). Stressful thoughts during the time confined were assessed through items questioning about sleep disturbances, difficulty concentrating, and fear of a death of a family member. Participants were asked to answer on a five-point Likert scale from 1 (never) to 5 (extremely frequently).

Psychological information and support to deal with their responses to confinement was evaluated with items about whether the athlete had talked to a psychologist, had received any psychological information, and if they found the psychological advice useful. Participants were asked to answer on a five-point Likert scale from 1 (never) to 5 (extremely frequently).

Athletes were asked about their beliefs regarding quarantine, the confinement rules, and if they agreed with the Olympics cancellation (Table 2). Participants were asked to answer on a four-point Likert scale from 1 (never) to 4 (very frequently).

Finally, a short and validated Spanish version of the Profile of Mood States POMS was used [13]. The Profile of Mood States (POMS) is a widely used tool among sport psychologists who have used it to compare the prevailing moods of athletes, and to measure different dimensions of mood swings over a period of time. This version has 30 items and six subscales: anger, fatigue, vigor, friendship, tension, and depression, with five answer options from 0 (not at all) to 5 (extremely). The internal consistency measured by Cronbach's alpha of the total POMS scale was 0.872 for the Polish sample and 0.874 for the Spanish sample, indicating high reliability.

## DATA ANALYSIS

Statistical analyses were performed using SPSS-V23, employing a statistical significance at  $\alpha=0.05$ . Descriptive analyses were applied to describe the sample characteristics (i.e., the sociodemographic ones). ANOVA F-tests were used to assess gender by country differences. As unequal sample sizes were used, Levene's test was performed to comprobe the homogeneity of variances assumption, and we used Brown-Forsythe robust test for the F-ratio when this assumption was not met.

## PARTICIPANTS

The Polish sample consisted of men (N=24; 20.3%) and women (N=94; 79.7%), while the Spanish sample consists of men (N=81; 46%) and women (N=95; 54%). More precised characteristics are presented in Table 1 below. What is worth underlining that Spanish athletes live in significantly more extensive flats comparing to Polish respondents, and they generally train longer hours per week during the quarantine. Additionally, more Spanish athletes have a garden or terrace at home in comparison to Polish athletes.

Table 1. Characteristics of the Spanish (N=176) and Polish (N=118) sample

	Polish athletes n (%)	Spanish athletes n (%)	$\chi^2$ (df)
Gender			20.3*** (1)
Females	94 <sup>a</sup> (79.7)	95 <sup>b</sup> (54)	
Males	24 <sup>a</sup> (20.3)	81 <sup>b</sup> (46)	
Education level			23.5*** (4)
Primary School	6 <sup>a</sup> (5.1)	24 <sup>b</sup> (13.6)	
Secondary School	17 <sup>a</sup> (14.4)	30 <sup>a</sup> (17)	
High School	66 <sup>a</sup> (55.9)	51 <sup>b</sup> (29)	
University (BA, MA)	21 <sup>a</sup> (17.8)	53 <sup>b</sup> (30.1)	
PhD, post graduate	8 <sup>a</sup> (6.8)	18 <sup>a</sup> (10.2)	
Competition level			16.055*** (2)
Local	14 <sup>a</sup> (14.1)	56 <sup>b</sup> (36.4)	
National	41 <sup>a</sup> (41.4)	55 <sup>a</sup> (35.7)	
International	44 <sup>a</sup> (44.4)	43 <sup>b</sup> (27.9)	
A garden or outdoor terrace at home	63 <sup>a</sup> (53.4)	117 <sup>b</sup> (66.5)	5.097* (1)
Home square meters			50.202*** (3)
Up to 70m <sup>2</sup>	63 <sup>a</sup> (53.4)	26 <sup>b</sup> (14.8)	
Between 70m <sup>2</sup> and 90m <sup>2</sup>	16 <sup>a</sup> (13.6)	50 <sup>b</sup> (28.4)	
Between 90m <sup>2</sup> and 120m <sup>2</sup>	17 <sup>a</sup> (14.4)	42 <sup>b</sup> (23.9)	
More than 120m <sup>2</sup>	22 <sup>a</sup> (18.6)	58 <sup>b</sup> (33)	
Weekly training hours			19.111*** (5)
Less than 5 hours	28 <sup>a</sup> (23.7)	35 <sup>a</sup> (19.9)	
Between 5 and 7 hours	30 <sup>a</sup> (25.4)	44 <sup>a</sup> (25)	
Between 8 and 10 hours	14 <sup>a</sup> (11.9)	51 <sup>b</sup> (29)	
Between 11 and 13 hours	18 <sup>a</sup> (15.3)	27 <sup>a</sup> (15.3)	
Between 14 and 16 hours	12 <sup>a</sup> (10.2)	12 <sup>a</sup> (6.8)	
More than 16 hours	16 <sup>a</sup> (13.6)	7 <sup>b</sup> (4)	

Note. Percentages (%) displayed refer to column percentages. \* $p$ -value chi-square < .05;

\*\*\*  $p$ -value chi-square < .001. Letters <sup>a</sup> and <sup>b</sup> show a significant difference between the subset groups.

## RESULTS

The description of the results starts with the answer to the first study question concerning the differences in training and livings conditions and coping strategies between athletes from two countries. Significant differences were observed in training conditions by country,  $F$ -test = 5.014 ( $df=1,290$ ), and by gender,  $F = 4.682$  (1,290). The Polish sample was more likely to engage in coping activities at home than the Spanish sample. The respondents' age was also the variable in which significant differences were observed. Females in both groups, Polish ( $M=21.15$ ;  $SD=6.4$ ) and Spanish ( $M=21.82$ ;  $SD=11.2$ ) were younger than Polish ( $M=27.37$ ;  $SD=8.69$ ) and Spanish ( $M=28.42$ ;  $SD=12.67$ ) males. Also, gender and country interactions in stressful thoughts were distinguished,  $F=6.078$  ( $df=1,289$ ). Polish females ( $M=1.75$ ;  $SD=0.79$ ) had higher levels of sleep disturbances, problems with attention, and fear of a death of a family member compared to other respondents. However, the result of the agreement to confinement rules item shows the country effect,  $F= 50.013$  ( $df=1,290$ ). Spanish athletes, both females ( $M=2.65$ ;  $SD=0.43$ ) and males ( $M=2.59$ ;  $SD=0.47$ ) followed the rules and decisions on quarantine and agreed to Olympics cancellation more in comparison to Polish females (2.12;  $SD=0.70$ ) and males ( $M=1.92$ ;  $SD=0.88$ ). The above results are presented in Table 2.

Table 2. Age and scales mean differences by country

	Poland		Spain		F-test (df)
	Female Mean (S.D.)	Male Mean (S.D.)	Female Mean (S.D.)	Male Mean (S.D.)	
Age	21.15 (6.4)	27.37 (8.69)	21.82 (11.2)	28.42 (12.67)	21.001b*** (1,290)
Coping activities	7.91 (1.85)	7.83 (1.94)	7.76 (1.93)	7.06 (1.77)	<i>n.s.</i>
Training conditions	1.95 (.65)	1.83 (.57)	1.87 (.58)	1.53 (.52)	5.014a* (1,290) 4.682b* (1,290)
Behavior and motivational problems	2.02 (.76)	2.01 (1.07)	2.09 (.64)	2.11 (.66)	<i>n.s.</i>
Stressful thoughts	1.75 (.79)	1.21 (.76)	1.29 (.84)	1.28 (.74)	6.078c*** (1,289)
Seeking psychological advice	.69 (1.06)	.54 (.83)	.40 (.80)	.50 (.97)	<i>n.s.</i>
Agreement to confinement rules	2.17 (.70)	1.92 (.88)	2.65 (.43)	2.59 (.47)	50.013a*** (1,290)
Emotion Scale					
Anger	1.61 (.83)	1.28 (.92)	.98 (.73)	.92 (.75)	20.392a*** (1,289)
Fatigue	1.78 (1.03)	1.21 (.98)	1.12 (.75)	.94 (.86)	13.806a*** (1,289) 4.812b* (1,289)
Vigor	2.06 (.99)	1.77 (1.07)	1.57 (.93)	1.45 (.86)	9.661a** (1,289)
Friendship	2.34 (.77)	2.32 (.71)	1.99 (.93)	1.91 (.75)	11.432a*** (1,289)
Tension	1.76 (.92)	1.09 (.93)	1.34 (.97)	1.30 (1.01)	5.876c* (1,289)
Depression	1.51 (1.05)	0.85 (.77)	0.97 (.78)	0.86 (.89)	4.885c* (1,289)

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ . Letters show F-test significant difference by <sup>a</sup> Country, <sup>b</sup> Gender, and <sup>c</sup> Country x Gender interaction. *N.s.* - not significant.

As regards the second study question, the analysis of the Emotion Scale (the POMS questionnaire) detected many important results. There were significant differences in fatigue by gender. In females, relative to males, fatigue was more pronounced,  $F=4.812$  ( $df=1,289$ ): Polish females ( $M=1.78$ ;  $SD=1.03$ ), Spanish females ( $M=1.12$ ;  $SD=0.75$ ) compared to Polish males ( $M=1.21$ ;  $SD=0.98$ ) and Spanish males ( $M=0.94$ ;  $SD=0.86$ ). Moreover, significant differences between the Polish and Spanish samples in anger ( $F=20.392$ ;  $df=1,289$ ), vigor ( $F=9.661$ ;  $df=1,289$ ), friendship ( $F=11.432$ ;  $df=1,289$ ) were found. Polish female athletes were characterized with higher results in anger ( $M=1.61$ ;  $SD=0.83$ ), as well as vigor ( $M=2.06$ ;  $SD=0.99$ ) comparing to others. Also Polish male athletes had substantially higher results in friendship ( $M=2.32$ ;  $SD=0.71$ ) comparing to Spanish females ( $M=1.99$ ;  $SD=0.93$ ) and Spanish males ( $M=1.91$ ;  $SD=0.75$ ). It is worth noting that there were interactions of country and gender in tension ( $F=5.876$ ;  $df=1,289$ ) and depressed feelings,  $F=4.885$  ( $df=1,289$ ). In both parameters, Polish female athletes were noticed to have significantly higher results for tension ( $M=1.76$ ;  $SD=0.92$ ) and feeling depressed ( $M=1.51$ ;  $SD=1.05$ ) compared to Polish males ( $M=0.85$ ;  $SD=0.77$ ), and both Spanish female ( $M=0.97$ ;  $SD=0.78$ ) and male ( $M=0.86$ ;  $SD=0.89$ ) athletes. The results are also presented in Table 2 below.

## DISCUSSION

The study on Polish and Spanish athletes revealed significant results in different aspects of psychological response to the lockdown caused by Covid-19. When considering gender and country interactions in stressful thoughts, Polish female athletes had higher levels of sleeping problems, a decreased level of attention, and they feared for the health and life of their family members. The low quality of sleep can produce many consequences, such as weak dietary habits [13], lower motivation to exercise [14], and increased risk of chronic diseases [15] and depression [16]. For athletes, sleep quantity and quality may be detrimental to the recovery process after training and stressful events [17, 18]. Polish sportswomen were also significantly more tense, angry, and depressed because of the confinement derived from the pandemic than Spanish respondents. Also, generally, female respondents were characterized with higher fatigue than male athletes. Also, Polish males had higher results on the friendship scale comparing to Spanish competitors. Thus, we see in the current study that Polish athletes, especially women, have a stronger response to the lockdown situation, which should receive particular interest. Numerous studies show that athletes all around the world experienced a decrease in mental well-being, an increased level of stress, anxiety, depressive symptoms and feelings of anger, confusion during the first lockdown, and women and individual sports representatives seem to have the highest costs of the problematic situation of pandemic [1, 9, 19-21].

Significant differences were also noticed in training conditions and agreement to confinement rules between the studied countries. The Spanish athletes followed the rules and decisions on quarantine and agreed to Olympics cancellation comparing to Polish athletes. Following Oblinger-Peters and Krenn [21], Olympic sportspeople will presumably face the global health crisis because of their attitude toward the Olympic games as a symbol of lifelong dreams and visions and cultivation or culmination of their professional sports goals. Adaptation to the situation seems crucial, and the current study showed that Spanish athletes adjusted to the confinement situation better than Polish respondents. As studies reveal strategies such as self-talk, problem-centered coping, cognitive reconstructive and emotional calm could be helpful to regulate in those difficult pandemic times [7, 22]. Training conditions were also one of the variables which differed between the countries. The Polish sample was more likely to engage in in-home training, receiving coach's follow-up, and having the proper equipment to practice at home. On the other hand, Spaniards were living in substantially more extensive apartments and

they more often declared owning a garden or terrace at home than Polish athletes. Additionally, Spanish athletes trained longer hours weekly during the quarantine. This result is interesting because Polish athletes were more open to practice at home; however, Spanish athletes possessed better living conditions and practiced more hours per week. We could say that Poles coped with confinement by being engaged in home training while Spaniards trained more frequently. Many athletes still have been involved in building resilience since Covid-19 started to take its toll. Gupta and McCarthy [23] found out in their quantitative study that athletes started to express active incongruence between being “perfect athlete vs normal victim,” which probably helped maximizing distinctive psychological protectiveness while minimizing damage.

The current study did not reveal significant differences in variables as coping activities, behavior, and motivational problems, and seeking psychological advice. Polish and Spanish athletes expressed similar opinions considering those aspects. Activities such as reading, watching TV, playing video games, listening to music, practicing relaxation techniques, using social networks, learning something new like cooking were assessed moderately by all respondents. Both Poles and Spaniards exhibited low levels of behavioral and motivational problems, and only some were seeking psychological support. Those characteristics also bring important information. Athletes should be more open to psychological work and advice. Especially in difficult times, personal resources are sometimes not enough, and support from professionals could bring release and resilience. Many sports associations have introduced specially prepared online psychological interventions for athletes. Furthermore, studies revealed that athletes who received such professional mental training coped better with psychological stressors, showing improved well-being than the athletes who did not participate in such training [19]. Therefore, monitoring the mental conditions of sports professionals and designing psychological interventions that would match athletes’ personal needs seems crucial for similar, tremendously complex, and socially isolating situations.

The main limitation of this study is the lack of the follow-up of the findings of the initial survey over the confinement and post-confinement periods. Therefore, future research should consider a longitudinal study to analyze changes in emotional states throughout the lockdown period and, more importantly, its connection with athletic performance both in individual and team athletes.

## CONCLUSIONS

The authors of the study noticed several differences between Polish and Spanish athletes. For example, Polish female athletes expressed more emotional reactions to the pandemic, while Spanish respondents agreed more with the confinement rules. Women generally felt more fatigue during the lockdown, and Poles were more likely to practice at home while Spanish athletes had better living conditions and practiced more hours. Future studies should consider the competition level. Athletes who are more experienced could present different psychological responses to the pandemic situation than the less experienced or lower-level athletes. Also, the character of the sports discipline, whether it is an individual or team sport, can reveal the differences in coping with confinement.

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Cite this article as:

Wilczynska D, Alarcon Rubio D, Sliwinska P, Jaenes JC.  
Emotional states of athletes in the first lockdown due to Covid-19: A comparison of Polish and Spanish samples  
Balt J Health Phys Act. 2021;Suppl(1):1-8.  
doi: 10.29359/BJHPA.2021.Suppl.1.01