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Fear of COVID-19 changes the motivation for physical activity participation: Polish-Chinese comparisons

BACKGROUND

COVID-19 has brought people many negative emotions, such as fear and anxiety about the epidemic. However, when people in different countries face the COVID-19 epidemic, the impact is also different due to different cultural and sports habits. Therefore, this study compares China and Poland's sports motivations in the face of COVID-19 anxiety to find out the cultural differences behind them.

PARTICIPANTS AND PROCEDURE

In the study were $N = 674$ participants (female $n = 407$, male $n = 260$, other $n = 4$). Their average age was $M = 29.86$, $SD = 11.03$. There were $n = 381$ participants in the Chinese sample, and $n = 293$ in Polish. The scales used for the purpose of the study were the Inventory of Physical Activity Objectives (IPAO) and the Coronavirus Anxiety Scale (CAS).

RESULTS

The study results showed that the increased level of COVID-19 anxiety changed selected motives for physical activity, and different changes of motives characterized women and men as well as people of different ages. As predicted in the study model, culture was the moderator of the shifts of the selected motives.

CONCLUSIONS

The understanding of what motivates individuals to participate in sport seems to have significant value, especially for health practitioners and researchers to design appropriate interventions and programs to increase activity.

KEY WORDS

COVID-19 anxiety; motives for physical activity; nationality

BACKGROUND

The novel coronavirus (COVID-19) was first detected in Wuhan, China, in December 2019 among patients who suffered from an unidentified form of viral pneumonia with the same history of visiting the Huanan sea-food market (Zhu et al., 2020). Its pervasive transmission was recognized by the World Health Organization (WHO) as a pandemic. Uncertain or even faked information about factors related to virus transmission as well as the number of infected, and the actual mortality rate, has led to doubt and fear in the world's population (Peeri et al., 2020). These uncertainties have created a host of new challenges that have brought profound changes and have affected the population's lifestyles and mental health (Ornell et al., 2020). Moreover, nowadays the situation raises a number of questions, including whether there is a fear/stress pandemic concomitant with the COVID-19 pandemic, how this fear influences people's motives for different activities and what the remedy for this situation is. It is important to underline that fear causes anxiety and increases the stress levels among healthy individuals. Furthermore, the restrictions made by the governments for different activities have adversely affected the health-related quality of life of humans compared to pre-pandemic times. Among all the obstacles people have faced in the time of COVID-19, the restriction on outdoor physical activities has seemed to be very difficult to manage. At the same time, participation in some activities, especially indoor ones, could cause the fear of COVID-19. As the studies show, the emotions and states of fear and anxiety have a significant impact on the level of people's physical activity (Topcu et al., 2020). Therefore the main aim of this study is to measure this impact but on the motives for physical activity.

The motives for practicing physical activity and sport have been among the main priorities of researchers and other specialists to understand the reasons that lead individuals to exercise. The objectives determine such essential aspects as strength, direction, and resistance that the individual brings to activity and achievement. The character and complexity of the motives usually determine the level of engagement, and significantly contribute to the desire to either continue the activity or to quit (Lipowski & Ussorowska, 2018). Motivation factors for physical activity are relatively diverse, and adequate quality of sports motivation can promote people's physical and mental health. However, five motives are usually most cited for engagement in sport among the adult population: health and fitness; improvement of physical appearance; enjoyment; socialization; psychological benefits physical activity brings (Angosto et al., 2020). Moreover, people's motives for physical activity participation differ for example according to gender, age, living area, type of activity as well as education level. Louw et al. (2012) underline that the significant and main motives for women undertaking physical activity are weight control and appearance, while among male respondents strength and endurance as well as feeling good are ranked highest. In the study of Leyton Román et al. (2018), men got higher scores in autonomy and intention of doing physical activities, and women got high scores in social interaction through sport. Moreover, individuals from rural areas obtained higher scores than those from urban areas in self-directed motivation. Hickey and Mason (2017) found that compared to women, men participate in more hours of exercise and more types of activities and have a greater number of motivators, while women reported having more barriers to exercise than men and lower levels of sport participation and have fewer motivators. The same authors also underline that an individual's age is an important factor that influences the types of physical activities pursued. Endurance exercises, such as running, tend to be more popular with younger adults, while walking is one of the most popular forms of exercise among older adults as well as swimming and floor exercises. Women, regardless of age, show a preference for leisure physical activities such as cycling, yoga. walking, dancing, and treadmill.

The lockdown is a significant barrier that prevents participation in exercise, and people have the tendency to switch from physical activity to different ones. A study on Chinese adults proved that a two-to-three-month lockdown had mixed effects. The participants were found to have focused more on their eating quality and other patterns, which had a positive influence on their quality of life (Wang et al., 2020). However, experts strongly recommend continuing exercising during the prolonged quarantine to avoid health problems, such as increasing obesity, depression, infections, and cardiovascular diseases, as much as possible. When studying the impact of COVID-19 on the level and patterns of exercise in the adult population, Constandt et al. (2020) observed a general increase in exercise frequency and also in sedentary behavior. Moreover, people above the age of 55, who previously were low active, reported exercising more during the lockdown. On the other hand, people in the same age group, who were already highly active before COVID-19 and also with low education, who additionally used to exercise with friends or in a sports club, and those who were not using online tools to exercise, reported exercising less during the lockdown. The main reasons for a self-reported exercise reduction were: having less time, sitting more, and missing the familiar way and competitive element of exercising. Also, cross-cultural studies show different approaches toward exercises among respondents from different cultures and nationalities. A study on selected European countries proved that the Netherlands is characterized by a sig-

Dominika
Wilczyńska,
Jianye Li,
Yin Yang,
Hongying Fan,
Taofeng Liu,
Mariusz Lipowski

nificantly higher level of physical activity than Poland, the Czech Republic, and Germany. The authors also emphasize that identification of the motives and reasons for differences in physical activity levels might help exclude the barriers and increase participation in physical activity in different countries and worldwide (Maciaszek et al., 2020).

The study of whether the fear of COVID-19 changes the motivation for physical activity participation has particular research value. It seems essential to estimate motives for participation in physical activity, which could help promote motives that increase sports participation. Moreover, as China and Poland have had different cultures, histories, and sports concepts since ancient times, through comparative research, we can understand the different motives for physical activity and psychological states and changes of the residents of the two countries during the COVID-19 epidemic. Once motivators for physical activity during such tough times as the pandemic are identified, programs can be designed to maximize motivation factors and minimize barriers to activity such as fear of the virus and how to follow the COVID-19 pandemic and to adopt the "new normal" of the future. Moreover, this study may bring useful and timely information to develop new action plans for health care providers and the management staff of gyms and other community fitness centers to ensure services in the event of another outbreak. The study tries to answer the research question whether the fear of COVID-19 changes the motives for physical activity and whether the culture is the moderator of those changes.

PARTICIPANTS AND PROCEDURE

PARTICIPANTS

In the study were $N = 674$ participants (female $n = 407$, male $n = 260$, other $n = 4$). Their average age was $M = 29.86$, $SD = 11.03$. There were $n = 381$ participants in the Chinese sample, and $n = 293$ in the Polish one. The analysis showed that Chinese participants were younger than Polish ones, $M = 26.58$, $SD = 9.27$ vs. $M = 34.11$, $SD = 11.68$, $t = 9.32$, $p < .001$, and more male participants were in the Chinese sample than in the Polish one ($n = 172$ vs. $n = 235$) $\chi^2(4) = 93.34$, $p < .001$.

RESEARCH TOOLS

The *Inventory of Physical Activity Objectives* (IPAO; Lipowski & Zaleski, 2015) is used to assess the motivational function of an objective of physical activity. The IPAO consists of questions about the variety of forms, volume, frequency of PA, as well as socio-demographic variables. Participants are also asked about:
- engagement in competitive sports (both currently and in the past),
- attitude towards passive engagement in sports (e.g. as a fan).

The above 12 objectives are estimated on a Likert-type scale (1-5).

The subsequent part of the questionnaire concerns the motivational function of the PA objectives: motivational value, time management, persistence in action and motivational conflict. As well as these dimensions, the test also measures the multidimensionality of objectives. Raw scores are transformed into sten values (Lipowski & Ussorowska, 2018). The inventory has been shown to have acceptable psychometric properties. Cronbach's reliability coefficient was .78 (Lipowski & Zaleski, 2015). In the current study α for the Polish and Chinese (respectively) was .80 and .86.

The *Coronavirus Anxiety Scale* (CAS) is a tool developed by Lee (2020). The scale consists of 5 questions about emotional states during the COVID-19 pandemic. The CAS is a mental health screener created to efficiently and effectively support healthcare professionals and researchers in identifying probable cases of dysfunctional anxiety associated with the COVID-19 crisis. The respondents describe on a Likert-type scale (1 – *not at all*, 2 – *rarely, less than a day or two*, 3 – *several days*, 4 – *more than 7 days*, 5 – *nearly every day over the last 2 weeks*) how often during the last two weeks they have experienced distinct physiologically based fear and anxiety reactions to coronavirus related thoughts and information. The scale has been shown to be valid and reliable with α = .93 (Lee, 2020). In the current study, the Cronbach's α for Polish and Chinese respectively was .80 and .91.

MOTIVATING GOALS AT T1 (BEFORE COVID-19) AND T2 (DURING COVID-19)

In order to reduce multicollinearity, in the statistical model, between the motivating goals measured at t1 (before COVID-19) and at t2 (during COVID-19), we computed the new 12 variables using the following formula: Changes in a motivating goal = a motivating goal at t2 – a motivating goal at t1. A higher score indicates an increased level of the motivating goal during COVID-19 in comparison to the previous period.

RESEARCH MODEL

Our conceptualization was formulated as follows. We predict that COVID-19 anxiety, gender and age

will be related to the increased level of the motivating goals. However, we predict that culture (Chinese vs. Polish) will moderate the predicted relations. The research model is presented in Figure 1.

MODELING METHOD

To assess predictive power of the research model structural equation modeling was conducted in WarpPLS 7.0 software (Kock, 2010, 2020). In congruence with Dijkstra and Hensler (2015) the Consistent PLS algorithm was selected to establish path estimates in the proposed model. The fit statistics shown in Table 1 indicate that the tested model had small collinearity within the path model (AVIF) and measurement model (AFVIF) (Kock, 2015; Kock & Mayfield, 2015) and low/moderate predictive power (GoF) (Tenenhaus et al., 2005). The path signs (SPR) and path values (SSR) in the model were similar to the signs and values of the independent zero-order correlations between the tested variables (Pearl, 2009; Tenenhaus et al., 2005). The analysis also displayed a very good data fit to the measurement model of latent variables (SRMR, SMAR, χ^2).

PROCEDURE

The procedure carried out in this study consisted of an online questionnaire survey. The questionnaires were distributed among Polish and Chinese populations. The period in which the survey was ongoing was between April and June, 2020, in the period of the world pandemic situation. The data used for this study was part of a larger survey, and the questionnaires that formed this study took around 10 minutes to complete. The protocol of this study was approved by the Ethics Board for Research Projects at the Institute of Psychology, University of Gdansk, Poland (decision no. 33/2020), and registered in Protocol Registration and Results System – ClinicalTrials.gov https://clinicaltrials.gov/ct2/show/NCT04432038.

RESULTS

To assess interaction effects, the ANOVA was conducted. The two-factor model was formulated as follows: 2 (gender: male vs. female) vs. 2 (country: Poland vs. China). Dependent variables included particular motivating goals and COVID-19 anxiety. The analysis showed that both factors had an influence on the company of other people and escape from everyday life. Analysis of the simple interaction effect showed that in the Chinese group, females had a higher score on the company of other people measure than males, $M = -0.51$, $SD = 1.12$
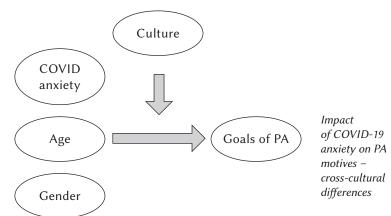
Figure 1

Research mode of culture

Impact of COVID-19 anxiety on PA motives – cross-cultural differences

Table 1

Model fit and quality indices in tested model

Coefficient	Value
Tenenhaus GoF (GoF)	0.14
Simpson's paradox ratio (SPR)	0.97
Statistical suppression ratio (SSR)	1.00
SRMR	0.04
AVIF	1.01
AFVIF	1.29
SMAR	0.02

Note. AVIF – average variance inflation factor (accepted if AVIF ≤ 5.00, ideally AVIF ≤ 3.30); AFVIF – average full variance inflation factor (accepted if AVIF ≤ 5.00, ideally AVIF ≤ 3.30); GoF – goodness of fit (low if GoF ≥ 0.10, moderate if GoF ≥ 0.25, high if GoF ≥ 0.36); SPR – Simpson's paradox ratio (accepted if SPR ≥ 0.70, ideally SPR = 1.00); SSR – statistical suppression ratio (accepted if SSR ≥ 0.70, ideally SSR = 1.00); SRMR – standardized root mean squared residual (accepted if SRMR ≤ 0.10); SMAR – standardized mean absolute residual (accepted if SMAR ≤ 0.10).

vs. $M = -0.94$, $SD = 1.31$, $F(1, 610) = 12.65$, $p < .001$, $\eta^2 = .02$. However, in the Polish group this difference was insignificant $F(1, 610) = 0.41$, $p > .05$, $\eta^2 = .00$. Further analysis showed that both factors had influenced escape from everyday life. Analysis of the simple interaction effect showed that in the Polish group, females had a higher score on escape from everyday life than males, $M = 0.48$, $SD = 0.98$ vs. $M = 0.06$, $SD = 0.77$, $F(1, 610) = 10.08$, $p < .01$, $\eta^2 = .02$. However, in the Chinese group this difference was insignificant $F(1, 610) = 0.00$, $p > .05$, $\eta^2 = .00$. There were no other significant interaction effects. Table 2 shows the ANOVA's interaction estimates. Figures 2 and 3 show patterns of described results.

Table 2

ANOVA's estimates of interaction effects 2 (gender: male vs. female) vs. 2 (country: Poland vs. China)

Factor: Gender * Country	F	p	η^2
Health	0.90	.344	.00
Physical fitness, being in shape	1.16	.283	.00
Company of other people	**6.52**	**.011**	**.01**
Fit, shapely body	1.13	.289	.00
Well-being	0.21	.645	.00
Being physically active according to fashion	0.48	.488	.00
Boosting confidence, gaining appreciation from others	0.04	.841	.00
Pleasure from physical activity	0.03	.871	.00
Escape from everyday life	**6.79**	**.009**	**.01**
Managing stress	2.39	.123	.00
Fulfilling the need for activity	2.87	.091	.00
Promoting PA by setting a behavioral example	0.18	.674	.00
COVID-19 anxiety	1.46	.228	.00

Dominika
Wilczyńska,
Jianye Li,
Yin Yang,
Hongying Fan,
Taofeng Liu,
Mariusz Lipowski

Figure 2

ANOVA's estimates of interaction effects 2 (gender: male vs. female) vs. 2 (country: Poland vs. China) on company of other people
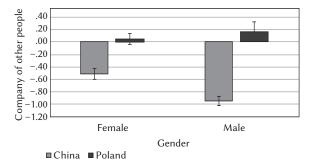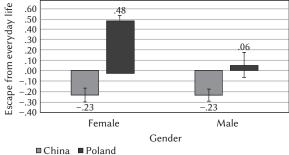

Figure 3

ANOVA's estimates of interaction effects 2 (gender: male vs. female) vs. 2 (country: Poland vs. China) on escape from everyday life

Analysis of the results, calculated in both groups, showed that an increased level of COVID-19 anxiety was related to an increased level of the fit, shapely body, escape from everyday activity, managing stress, and promoting PA by setting a behavioral example. The analysis also showed the male participants had a higher level of physical fitness, being in shape, and well-being, but female participants had a higher level of the company of other people, being physically active according to fashion, boosting confidence, escape from everyday life, and managing stress. Further analysis showed that older age was related to a higher level of the company of other people, and to a lower level of physical fitness, being in shape, and well-being. Results are shown in Table 3.

MODERATION ANALYSIS

To compare direct relations between two different groups (Chinese vs. Polish sample), a multi-group analysis (MGA) was conducted in WarpPLS 7.0 software (Kock, 2014; Rodríguez-Entrena et al., 2018). The MGA aims to verify differences between groups in terms of estimated path values. MGA analysis showed that in the Polish sample the increased level of COVID-19 anxiety was related to the increased level of escape from everyday life measure, but in the Chinese sample that relation was significantly smaller (it was close to zero). Further analysis showed that in the Chinese sample the female participants had a higher level of the company of other people than

in the Polish sample, but in the Polish sample the female participants had a higher level of escape from everyday life than in the Chinese sample. The results also showed that in the Polish sample, the male participants had a higher level of fulfilling the need for activity than the male participants in the Chinese sample. Further analysis also showed that older age was related to an increased level of the company of other people measure in the Chinese sample, but in the Polish sample that relation was inverted. The last significant differences in MGA analysis showed that increasing age was related to lowered levels of escape from everyday life and managing stress in the Polish sample, but these relationships were close to zero in the Chinese sample. Results are shown in Table 4.

Table 3

Path estimates in the empirical SEM-PLS model

Path	β	t	p	95%CI Lower	95%CI Upper
COVID-19 anxiety → Health	.03	0.70	.243	−.05	.10
COVID-19 anxiety → Physical fitness, being in shape	.00	−0.10	.459	−.08	.07
COVID-19 anxiety → Company of other people	.03	0.67	.253	−.05	.10
COVID-19 anxiety → Fit, shapely body	**.07**	**1.92**	**.027**	**.00**	**.15**
COVID-19 anxiety → Well-being	−.01	−0.24	.405	−.09	.07
COVID-19 anxiety → Being physically active according to fashion	.01	0.23	.408	−.07	.08
COVID-19 anxiety → Boosting confidence, gaining appreciation from others	.06	1.64	.051	−.01	.14
COVID-19 anxiety → Pleasure from physical activity	.05	1.29	.098	−.03	.13
COVID-19 anxiety → Escape from everyday life	**.08**	**2.15**	**.016**	**.01**	**.16**
COVID-19 anxiety → Managing stress	**.11**	**2.82**	**.002**	**.03**	**.18**
COVID-19 anxiety → Fulfilling the need for activity	.00	0.12	.454	−.07	.08
COVID-19 anxiety → Promoting PA by setting a behavioral example	**.08**	**2.06**	**.020**	**.00**	**.15**
Gender → Health	.02	0.50	.309	−.06	.09
Gender → Physical fitness, being in shape	**.15**	**4.08**	**< .001**	**.08**	**.23**
Gender → Company of other people	**−.19**	**−5.02**	**< .001**	**−.26**	**−.12**
Gender → Fit, shapely body	.04	1.14	.127	−.03	.12
Gender → Well-being	**.09**	**2.31**	**.011**	**.01**	**.16**
Gender → Being physically active according to fashion	**−.10**	**−2.61**	**.005**	**−.17**	**−.03**
Gender → Boosting confidence, gaining appreciation from others	**−.06**	**−1.69**	**.046**	**−.14**	**.01**
Gender → Pleasure from physical activity	−.01	−0.29	.386	−.09	.06
Gender → Escape from everyday life	**−.18**	**−4.83**	**< .001**	**−.26**	**−.11**
Gender → Managing stress	**−.12**	**−3.04**	**.001**	**−.19**	**−.04**
Gender → Fulfilling the need for activity	.05	1.35	.090	−.02	.13
Gender → Promoting PA by setting a behavioral example	−.04	−1.11	.135	−.12	.03

(Table 3 continues)

Table 3

Table 3 continued

Path	β	t	p	95%CI	
				Lower	Upper
Age → Health	.02	0.46	.322	−.06	.09
Age → Physical fitness, being in shape	−.12	−3.13	< .001	−.19	−.05
Age → Company of other people	.12	3.06	.001	.04	.19
Age → Fit, shapely body	−.05	−1.19	.118	−.12	.03
Age → Well-being	**−.10**	**−2.66**	**.004**	**−.18**	**−.03**
Age → Being physically active according to fashion	.05	1.41	.079	−.02	.13
Age → Boosting confidence, gaining appreciation from others	.06	1.63	.052	−.01	.14
Age → Pleasure from physical activity	−.05	−1.37	.086	−.13	.02
Age → Escape from everyday life	.02	0.42	.337	−.06	.09
Age → Managing stress	.00	−0.05	.480	−.08	.07
Age → Fulfilling the need for activity	−.04	−0.90	.183	−.11	.04
Age → Promoting PA by setting a behavioral example	.02	0.55	.292	−.05	.10

Note. Measurements related to the motivating goals were computed using the following formula: Changes in a motivating goal = a motivating goal at t2 – a motivating goal at t1. Higher score indicates an increased motivating goal during COVID-19 in comparison to the previous period.

Table 4

Results of the conducted PLS-SEM multigroup analysis

Path	China	Poland	t	p
COVID-19 anxiety → Health	.03	.02	0.15	.442
COVID-19 anxiety → Physical fitness, being in shape	−.03	−.09	0.89	.187
COVID-19 anxiety → Company of other people	.03	.11	1.08	.140
COVID-19 anxiety → Fit, shapely body	.09	.00	1.11	.134
COVID-19 anxiety → Well-being	−.01	−.05	0.47	.319
COVID-19 anxiety → Being physically active according to fashion	.05	−.05	1.24	.107
COVID-19 anxiety → Boosting confidence, gaining appreciation from others	.10	.05	0.63	.264
COVID-19 anxiety → Pleasure from physical activity	.05	.05	0.08	.470
COVID-19 anxiety → Escape from everyday life	**.03**	**.21**	**2.25**	**.012**
COVID-19 anxiety → Managing stress	.08	.18	1.31	.095
COVID-19 anxiety → Fulfilling the need for activity	−.01	−.02	0.15	.439
COVID-19 anxiety → Promoting PA by setting a behavioral example	.10	.03	0.92	.179
Gender → Health	−.03	.06	1.12	.132
Gender → Physical fitness, being in shape	.06	−.02	1.05	.148
Gender → Company of other people	**−.16**	**.05**	**2.67**	**.004**

(Table 4 continues)

Dominika Wilczyńska, Jianye Li, Yin Yang, Hongying Fan, Taofeng Liu, Mariusz Lipowski

Table 4

Table 4 continued

Path	China	Poland	*t*	*p*
Gender → Fit, shapely body	−.02	.07	1.18	.119
Gender → Well-being	.00	−.04	0.49	.313
Gender → Being physically active according to fashion	−.09	−.01	1.04	.150
Gender → Boosting confidence, gaining appreciation from others	−.03	−.02	0.15	.440
Gender → Pleasure from physical activity	−.06	−.02	0.53	.297
Gender → Escape from everyday life	**−.01**	**−.16**	**1.93**	**.027**
Gender → Managing stress	.01	−.11	1.51	.066
Gender → Fulfilling the need for activity	**−.02**	**.12**	**1.81**	**.035**
Gender → Promoting PA by setting a behavioral example	−.03	.01	0.52	.303
Age → Health	.08	−.03	1.32	.093
Age → Physical fitness, being in shape	−.03	.01	0.51	.307
Age → Company of other people	**.13**	**−.11**	**3.17**	**< .001**
Age → Fit, shapely body	−.04	.01	0.57	.285
Age → Well-being	.00	−.04	0.57	.285
Age → Being physically active according to fashion	.05	.00	0.76	.225
Age → Boosting confidence, gaining appreciation from others	.03	.02	0.18	.427
Age → Pleasure from physical activity	.01	−.06	0.85	.197
Age → Escape from everyday life	**.06**	**−.22**	**3.57**	**< .001**
Age → Managing stress	**.00**	**−.15**	**1.96**	**.025**
Age → Fulfilling the need for activity	−.04	.01	0.55	.291
Age → Promoting PA by setting a behavioral example	.02	−.03	0.67	.251

Note. Measurements related to the motivating goals were computed using the following formula: Changes in a motivating goal = a motivating goal at t2 – a motivating goal at t1. Higher score indicates an increased motivating goal during COVID-19 in comparison to the previous period.

Impact of COVID-19 anxiety on PA motives – cross-cultural differences

DISCUSSION

The current study aimed to investigate, firstly, whether coronavirus anxiety, gender, and age are related to an increased level of particular physical activity motives, and secondly, whether the aspect of culture (Chinese vs. Polish) moderates the predicted relations. As the results showed, the changes in respondents' selected physical activity motives were related to fear of COVID-19. The participants from Poland and China practiced physical activity to manage the stressful situation and escape from everyday routines and trained to be in good shape and set a behavioral example. Similarly, in a study on motives for practicing sport among 1025 amateurs, Angosto et al. (2020) found that the main motives during confinement were psychological motives related to improvement or management of general or emotional well-being.

Also, research on younger adults presented results in line with the current study, in which one of the main objectives apart from psychological ones was being fit, a mainly physical motive. The present study results also correspond with the outcomes showing that people tend to engage in sport or physical activity to disconnect from daily family or work routine and be in a fit state. On the other hand, research on young adults practicing different fitness activities indicated health and skill development motives (Angosto et al., 2020). Kaur et al. (2020) underlined that regular fitness workouts at home during the lockdown significantly helped participants to overcome psychological issues and fitness concerns. Generally, the motives of enjoyment and stress relief are also significant predictors of engagement in sport and physical activity among exercisers and amateur athletes (Moradi et al., 2020). Moreover, Violant-Holz

Dominika
Wilczyńska,
Jianye Li,
Yin Yang,
Hongying Fan,
Taofeng Liu,
Mariusz Lipowski

et al. (2020) in a systematic review underlined that physical activity could be an effective strategy to face the COVID-19 pandemic psychological effects and decrease the prevalence of psychiatric disorders. Also, findings of Ugbolue et al. (2020) highlighted the health consequences of individual distress caused by COVID-19.

The current study's analysis also demonstrated that the male participants were characterized by a higher level of such goals as physical fitness, shape, and well-being. In comparison, female participants had a higher level of other people's company, being physically active according to fashion, boosting confidence, escape from everyday life, and managing stress during the COVID-19 pandemic than before it. Moreover, Chinese females had a significantly higher level of the company of other people motive than Chinese males. On the other hand, Polish females were characterized by a substantially higher escape from everyday life than Polish males. The body of studies shows that there have been gender differences in physical activity objectives. Some studies indicated that females were more motivated by appearance and physical condition than males, whereas males were more oriented toward competition and mastery. Also, Lipowski and Ussorowska (2018) proved that women have been engaging in physical activity to achieve physical fitness, health, and well-being, while among male respondents, the most crucial motive was improving physical ability and fitness. Stereotypical gender requirements could explain those differences still existing in the society where females need to be bodily beautiful while males need to be bodily strong. Studies on Spanish respondents also revealed interesting findings that females who were not active before the pandemic significantly increased their physical activity practice during the pandemic, presenting better adaptation to the circumstances and digital changes than males (García-Tascón et al., 2020). Moreover, the results of this study also revealed a significant relation between selected motives and age. The older respondents were characterized by a higher level of the company of other people's motive and a lower level of physical fitness, being in shape, and well-being objectives. Studies on people aged between 30 and 55 years found that the most important motives for them for practicing sports were mood management, skill development, medical requirements, and enjoyment (Jancey et al., 2009). Some studies indicated that adults practice sports to maintain health, middle-aged adults to cope with stress as well as due to psychological conditions and other's expectations, and older adults to manage chronic health conditions (Molanorouzi et al., 2015; Morris & Roychowdhury, 2020).

The second step of the study was to assess the impact of the culture as a moderator of the relation between coronavirus anxiety, age and gender, and increased level of different physical activity motives. The results confirmed the prediction that culture is a moderator of those relations. COVID anxiety significantly increased the motive of escape from everyday life in the Polish group compared to Chinese respondents. Some studies also indicate a significant negative correlation between the development of the pandemic and people's sports activities. For example, research on respondents from the United States underlines that physical activity decreased by an average of 32%, and among those who self-isolated, the maximum reduction was 43% (Meyer et al., 2020). The influence of gender on the motivation of sports activities in Polish and Chinese samples varies and shows significant differences in three aspects: the company of other people, escape from everyday life, fulfilling the need for activity. Chinese female respondents were more often motivated by other people when practicing sport, whereas Polish females were significantly more motivated by escaping from everyday life during the pandemic. In contrast, Polish male participants' motivation to be physically active was fulfilling the need for activity compared to Chinese males. Furthermore, this gender effect could be explained by Poland's more individualistic characteristic as a European country and the more collective characteristic of China. Research across most countries demonstrates that women are less active than men and the global average for inactive women is 31.7% vs. 23.4% inactive men (Health, 2019).

The authors also considered the effect of culture as a moderator of the relation between age and level of sport motives. There were significant differences between China and Poland in three aspects: the company of other people, escape from everyday life, and managing stress. The results show that in China, age is positively correlated with doing physical activity for the company of other people, while in Poland this relation is inverted. We could assume that the older Polish people become, the more individualistically they are doing sports, compared to the Chinese, who participate in physical activity for social contact. Interestingly, young adults from the Polish sample significantly more often were physically active to deal with stress during the pandemic. On the other hand, this relation was close to zero among Chinese participants. From a broader perspective, those results underline the national and cultural differences in coping with social distancing and isolation in current world conditions. Some researchers confirm that physical activity could be one of the possible coping strategies for today's challenges (Violant-Holz et al., 2020). Furthermore, understanding what motivates individuals to participate in sport and the factors that impact motives for that participation seems to be very important, especially for health practitioners and researchers to design appropriate interventions

and programs to increase activity (Morris & Roy-chowdhury, 2020).

There are a few limitations of the study. First of all, the time of the pandemic for the two countries is different. China has been considerably longer in the COVID-19 pandemic situation than Poland, and people's emotions and overall mental conditions may differ. Secondly, other independent variables such as religion, marital status, residence, education level, and earnings could be considered in future studies.

CONCLUSIONS

The study's findings confirmed the presented model and the pandemic context's influence, which forced the world population to follow social distancing policies and regulations and maintain compulsory confinement conditions at home. The COVID anxiety among respondents influenced the level of selected motives, and this significant change was also moderated by the respondent's culture as well as gender and age. However, future studies should consider the phase of the pandemic in which a particular country exists. Other socio-demographic aspects such as place of residence, income, and ethnicity should be analyzed. The aspect of the character of physical activity itself seems to be worth considering as well as the training loads.

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