

Predictive roles of perceived stressors and life skills on stress responses of collegiate athletes during the COVID-19 pandemic

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Abstract:

Problem Statement: The novel coronavirus disease 2019 (COVID-19) pandemic has significantly altered the daily lives of humanity, including in sports. Competitions were canceled or postponed, and sports activities were restricted to prevent the spread of COVID-19, which collegiate athletes might have perceived as stressors. Previous studies have reported that athletes have experienced stress responses during the pandemic. Life skills, which can be developed through sports activities, help athletes cope with critical events. **Purpose:** This study aimed to examine whether COVID-19-related stressors and life skills can predict stress responses of Japanese collegiate athletes. An online survey was conducted in December 2020 to assess collegiate athletes' perceived COVID-19-related stressors, stress responses, and life skills. A sample of 123 collegiate athletes (66 females and 57 males, age: 20.35, SD: 1.17) who played various sports participated in this study. **Results:** The results of the *t*-test indicated that female athletes perceived more stressors and experienced more stress responses than male athletes. The results of the multiple regression analysis showed that COVID-19-related stressors positively predicted stress responses, whereas life skills negatively predicted stress responses. Furthermore, the results of multiple regression analyses using subscales of stressors, stress responses, and life skills showed that restrictions on sports activities positively predicted physical fatigue and apathy, self-restraint requests positively predicted depression, and pressure from the surrounding environment positively predicted physical fatigue, anger, and depression. Among the subscales of life skills, positive thinking negatively predicted all five subscales of stress responses, intimacy negatively predicted anger and interpersonal distrust, planning negatively predicted physical fatigue, empathy negatively predicted interpersonal distrust, and knowledge summarization negatively predicted anger. **Conclusions:** These findings indicate that life skills, especially positive thinking, intimacy, planning, empathy, and knowledge summarization, could be utilized by collegiate athletes as a buffer for stress responses in challenging situations and provide helpful information for designing effective life skill programs.

Key Words: coronavirus, mental health, multiple regression analysis, student-athletes, Japan

Introduction

On March 11, 2020, the World Health Organization (WHO) declared the novel coronavirus disease 2019 (COVID-19) a global pandemic. The first case of COVID-19 in Japan was reported in January 2020 (Ministry of Health, Labour, and Welfare [MHLW], 2020a). Soon after, the COVID-19 outbreak also impacted daily lives and routines. On February 28, 2020, the Ministry of Education, Culture, Sports, Science, and Technology (MEXT) instructed the temporary closure of Japanese schools (MEXT, n.d.). At the beginning of April 2020, the Japanese government declared a state of emergency (Prime Minister of Japan and His Cabinet, 2020). Due to this declaration, approximately 90% of Japanese universities postponed the start of the spring semester in 2020 (MEXT, 2020). Additionally, the semester began with most classes being offered online. The first state of emergency was lifted in May 2020, after which the government asked citizens to avoid mass gatherings, conversations without wearing masks, and unnecessary trips. By January 2021, the number of COVID-19 cases had reached three peaks (Karako et al., 2021), and the unpredicted situation continued in 2022. In addition to changes in daily life, the COVID-19 pandemic has seriously affected collegiate sports. Due to restrictions on extracurricular activities, collegiate athletes could not gain access to the facilities or communicate with their coaches and teammates. Additionally, the National Sports Festival was postponed (Japan Sport Association, 2020), and other major competitions or events were canceled or postponed. Even when competitions were held, no spectators were allowed on site because the government asked citizens to avoid mass gatherings. Moreover, athletes have been required to be quarantined as soon as they, their teammates, or their families are infected with COVID-19.

These changes and restrictions could be perceived as stressors by athletes and are related to their stress responses. Toresdahl and Irfan (2020) predicted that elite athletes perceive cancellations, postponements, and restrictions on sports activities as stressors. Moore et al. (2022) conducted a survey on collegiate athletes in the

United States from April to May 2020 and reported that the experience of COVID-19 events positively related to worries about COVID-19 and were related to increased psychological distress in collegiate athletes. Knowles et al. (2021) reported that the level of anxiety of athletes, especially female athletes, was higher than non-athletes. According to Kudo et al. (2022), Japanese collegiate swimmers reported physical and psychological declines during the pandemic.

Life skills, defined as the "abilities for adaptive and positive behavior that enable individuals to deal effectively with demands and challenges of everyday life" (WHO, 1994, p. 1), can be negative predictors of stress responses during challenging situations. The WHO (1994) proposed a core set of life skills: decision making, problem solving, creative thinking, critical thinking, effective communication, interpersonal relationship skills, self-awareness, empathy, coping with emotions, and coping with stress. Williams et al. (2022) provided another definition of life skills, "functional skills that individuals develop and use effectively in one context to manage demands (such as home, school, sport, community, workplace) and are also used effectively in other contexts beyond that in which we learnt" (p. 413). Sports are ideal for teaching life skills (Goudas, 2010), and developed life skills can be transferred to other settings (Gould & Carson, 2008). Life skills enable athletes to cope with future events (Danish et al., 1993). Yamada et al. (2022) reported that high-school student-athletes with a high level of life skills experienced fewer stress responses during the COVID-19 pandemic than those with a lower level of life skills. Thus, the current study aimed to examine the predictive roles of COVID-19-related stressors and life skills on the stress responses of collegiate athletes. We predicted that COVID-19-related stressors would positively predict stress responses and that life skills would negatively predict stress responses.

Material & methods

Participants

This study involved 131 students from a university specializing in sports in Western Japan. After excluding data from non-athletes, a remaining sample of 123 athletes (66 females and 57 males, aged 18 to 22 years, $M = 20.35$, $SD = 1.17$) were used for analyses. The sample consisted of 26 first-year students, 42 second-year students, 23 third-year students, and 32 fourth-year students. The sports that the participants played were ball sports (e.g., handball, soccer, tennis, baseball, and basketball; $n = 99$), gymnastics ($n = 11$), martial arts (e.g., karate, kendo, and judo; $n = 7$), and others ($n = 5$). Participants' competitive levels were international ($n = 6$), national ($n = 72$), prefectural ($n = 26$), and regional and lower ($n = 19$).

Procedure

An online survey was conducted in December 2020. The participants completed the survey after being informed of the study's objectives and providing informed consent. This study was approved by the ethics committee of Osaka University of Health and Sport Sciences.

Measure

The Japanese version of the K6 (Furukawa et al., 2008), originally developed in English by Kessler et al. (2003), was used to screen for psychological distress. Participants rated six items on a 5-point Likert scale ranging from 0 (*not at all*) to 4 (*very often*), with a higher score indicating worse mental health.

Since there were no appropriate standardized scales to assess COVID-19-related stressors perceived by collegiate athletes, a scale consisting of 17 items was developed: 16 items that were taken from the Stressors for Athletes During the COVID-19 Pandemic Scale (SAC-19; Yamada et al., 2022; Yamaguchi, 2022) and one item indicating a decline in income from part-time jobs. SAC-19 was developed to assess stressors perceived by high-school student-athletes based on previous reports about stressors or issues perceived by athletes (e.g., National Collegiate Athletic Association, 2020). Participants rated each item on a 7-point Likert scale ranging from 1 (*not at all*) to 7 (*very often*), with higher scores indicating a higher level of perceived stressors.

The Stress Response Scale for Athletes (SRSA; Kemuriyama, 2013) was used to measure participants' degree of stress responses. This 15-item scale consists of five factors: physical fatigue, apathy, anger, interpersonal distrust, and depression, each with three items. Participants rated each item on a 5-point Likert scale ranging from 1 (*not at all*) to 5 (*very often*), with a higher score indicating a higher level of stress responses.

The Daily Life Skills Scale: College Student Form (DLSS; Shimamoto & Ishii, 2006) was used to measure the participants' life skills. This self-report scale consists of eight factors: intimacy, leadership, planning, empathy, knowledge summarization, self-esteem, positive thinking, and interpersonal manner. Each factor consists of three items. Participants rated each item on a 4-point Likert scale ranging from 1 (*not at all*) to 4 (*very true*), with higher scores indicating a higher level of life skills.

Data analyses

An exploratory factor analysis with varimax rotation was conducted to explore the dimensionality and factor structure of the scale that was developed to assess COVID-19-related stressors. Based on the categorization of previous studies (Nishi et al., 2018; Sakurai et al., 2011), participants were divided into three categories: scores of the K6 from 0 to 4, 5 to 12, and 13 or more. Nishi et al. (2018) defined a score of 13 or more as "severe psychological distress" and a score from 5 to 12 as "moderate psychological distress."

A *t*-test was performed to examine whether there were any statistically significant differences between female and male participants for each measure. Pearson's correlation coefficients were calculated before the main analysis.

A multiple regression analysis was conducted to examine whether COVID-19-related stressors and life skills predicted the stress responses of collegiate athletes. Additionally, to investigate the predictive roles of the subscales of SCAC-19 and DLSS on each subscale of SRSA, multiple linear regression analyses were performed, with each subscale of SRSA being entered as a dependent variable. All analyses were performed using the IBM SPSS ver. 28.0.

Results

Psychological distress

Among the participants, the scores of 56 (45.5%) athletes were between 5 and 12, which indicated moderate psychological distress, while 13 (10.6%) athletes scored 13 or more, indicating severe psychological distress.

Exploratory factor analysis

During the exploratory factor analysis, two items were excluded due to insufficient factor loadings, and four factors were composed of 15 items, as shown in Table 1. These factors were labeled as: (1) restrictions on sports activities (seven items), (2) self-restraint requests (three items), (3) fear of exposure to COVID-19 (two items), and (4) pressure from the surrounding environment (three items). The Cronbach's alpha coefficients were .88 for restrictions on sports activities, .77 for self-restraint requests, .82 for fear of exposure to COVID-19, .53 for pressure from the surrounding environment, and .88 for the total score. The modified version of SAC-19 was named the Stressors for Collegiate Athletes During the COVID-19 Pandemic Scale (SCAC-19).

Table 1. Results of exploratory factor analysis for the Stressors for Collegiate Athletes during the COVID-19 Pandemic

No		F1	F2	F3	F4
1	Unable to get or limited access to people to practice with	.83	.48	.28	-.08
2	Unable to get or limited access to advice from a coach	.81	.39	.24	.13
3	Unable to get or limited access to training facilities	.78	.63	.47	-.18
4	Unable to get or limited access to usual facilities or materials for training	.77	.35	.35	.02
5	Difficulty in maintaining physical conditions, including weight, muscle mass, and endurance	.74	.21	.57	-.03
6	Difficulty in maintaining motivation for training	.71	.21	.31	-.21
7	Cancellations or postponement of target competitions or games	.68	.46	.59	.20
8	Prolonged temporary school closure	.39	.88	.34	.16
9	Prolonged request to stay home	.43	.84	.50	.18
10	Unable to get or limited access to friends or classmates	.31	.72	.30	.06
11	Anxious about being infected with the coronavirus	.32	.34	.91	.15
12	Anxious about infecting others with the coronavirus	.41	.45	.86	.15
13	Deterioration of the domestic economic situation	.15	.11	.25	.78
14	Difficulty in handling pressure or excessive expectations from parents	.01	.34	.10	.75
15	Difficulty in simultaneously handling studies and sports during the COVID-19 situation	.47	.02	.18	.49

Note. F1: restrictions on sports activities; F2: self-restraint requests; F3: fear of exposure to COVID-19, F4: pressure from the surrounding environment

Descriptive statistics

The results of the *t*-test are shown in Table 2. The results revealed that the level of stress responses of female athletes was significantly higher than that of male athletes ($t(121) = 2.64, p < .01$). Among the subscales, physical fatigue and apathy scores were significantly higher in females than males ($t(121) = 2.58, p < .05$; $t(121) = 3.42, p < .01$). In addition, female athletes perceived COVID-19-stressors significantly more than males did ($t(121) = 3.61, p < .001$). Scores for restrictions on sports activities, self-restraint requests, and fear of exposure to COVID-19 were significantly higher in females than males ($t(121) = 4.13, p < .001$; $t(121) = 2.48, p < .05$; $t(121) = 2.43, p < .05$). Regarding life skills, no significant difference between genders was observed for the total score, while scores for empathy and interpersonal manner were significantly higher in females than males ($t(121) = 1.98, p < .05$; $t(121) = 2.24, p < .05$). Table 3 presents the results of the correlation analysis. The results indicated a weak positive correlation between stress responses and perceived COVID-19-related stressors ($r = .33, p < .001$). In addition, there was a weak negative correlation between stress responses and life skills ($r = -.33, p < .001$).

Table 2. Results of *t*-test

	Female (<i>n</i> =66)		Male (<i>n</i> =57)		<i>t</i> (121)	
	M	SD	M	SD		
Physical fatigue	8.29	3.36	6.79	3.03	2.58	*
Apathy	9.02	3.49	6.88	3.42	3.42	**
Anger	5.59	3.00	5.04	2.70	1.07	
Interpersonal distrust	5.20	2.70	4.68	2.74	1.04	
Depression	7.29	3.52	6.26	3.19	1.68	
SRSA	35.38	12.70	29.65	11.10	2.64	**
Restrictions on sports activities	38.06	8.30	31.79	8.53	4.13	***
Self-restraint requests	14.23	4.65	12.25	4.13	2.48	*
Fear of exposure to COVID-19	10.26	2.97	8.86	3.41	2.43	*
PSE	9.92	3.81	10.00	3.40	0.12	
SCAC-19	72.47	14.63	62.89	14.67	3.61	***
Intimacy	9.73	1.71	9.74	1.79	0.03	
Leadership	8.03	2.02	7.88	1.89	0.43	
Planning	8.35	1.89	8.21	2.01	0.39	
Empathy	9.56	1.66	8.96	1.67	1.98	*
Knowledge summarization	8.12	1.82	8.21	1.41	0.30	
Self-esteem	8.30	1.78	8.14	1.78	0.51	
Positive thinking	8.06	2.20	8.23	1.74	0.47	
Interpersonal manner	10.76	1.28	10.16	1.63	2.24	*
DLSS	70.91	8.11	69.53	8.58	0.92	

Note. SRSA: The Stress Response Scale for Athletes, PSE: Pressure from the surrounding environment, SCAC-19: The Stressors for Collegiate Athletes During the COVID-19 Pandemic Scale, DLSS: The Daily Life Skills Scale

p* < .05, *p* < .01, ****p* < .001

Table 3. Correlations among variables

	1	2	3
1. SRSA	-		
2. SCAC-19	.33***	-	
3. DLSS	-.33***	.06	-

Note. SRSA: The Stress Response Scale for Athletes, SCAC-19: The Stressors for Collegiate Athletes During the COVID-19 Pandemic Scale, DLSS: Daily Life Skills Scale

****p* < .001

Multiple Regression analyses

The results of the multiple regression analysis showed that COVID-19-related stressors were a significant positive predictor of stress responses of collegiate athletes ($\beta = .35, p < .001$), while life skills were a significant negative predictor ($\beta = -.35, p < .001; R^2 = .22, p < .001$, Table 4).

Table 4. Results of multiple regression analysis

Explanatory variables	<i>B</i>	<i>SE</i>	β	
SCAC-19	0.28	0.06	.35	***
DLSS	-0.51	0.12	-.35	***
<i>R</i> ² (Adjusted)	.22	***		

Note. SCAC-19: The Stressors for Collegiate Athletes During the COVID-19 Pandemic Scale, DLSS: The Daily Life Skills Scale

****p* < .001

The results of the multiple regression analyses using the subscales of the three measurements, SRSA, SCAC-19, and DLSS, are shown in Table 5. The results indicated that two subscales of SCAC-19, restrictions on sports activities and pressure from the surrounding environment, were significant positive predictors of physical fatigue ($\beta = .20, p < .05; \beta = .29, p < .001$), while the two subscales of DLSS, planning and positive thinking, were negative predictors of physical fatigue ($\beta = -.16, p < .05; \beta = -.30, p < .001; R^2 = .29, p < .001$). Regarding apathy, one subscale of SCAC-19, restrictions on sports activities, and one subscale of DLSS, leadership, were significant positive predictors ($\beta = .31, p < .001; \beta = .21, p < .05$), while one subscale of DLSS, positive thinking, was a significant negative predictor ($\beta = -.19, p < .05; R^2 = .17, p < .001$). One subscale of SCAC-19, pressure from the surrounding environment, was a significant positive predictor of anger ($\beta = .27, p < .001$), while three subscales of DLSS, intimacy, knowledge summarization, and positive thinking, were significant negative predictors of anger ($\beta = -.20, p < .05; \beta = -.21, p < .001; \beta = -.28, p < .001; R^2 = .32, p < .001$). The three subscales of DLSS, intimacy, empathy, and positive thinking, were negative predictors of interpersonal

distrust ($\beta = -.28, p < .01$; $\beta = -.23, p < .01$; $\beta = -.25, p < .01$; $R^2 = .24, p < .001$). In addition, two subscales of SCAC-19, self-restraint requests and pressure from the surrounding environment, were significant positive predictors of depression ($\beta = .21, p < .05$; $\beta = .22, p < .05$), while one subscale of DLSS, positive thinking, was a negative predictor of depression ($\beta = -.31, p < .001$; $R^2 = .24, p < .001$).

Table 5. Results of multiple regression analyses (subscales) (β)

Explanatory variables	PF	Apathy	Anger	ID	Depression
Restriction on sports activities	.20 *	.31 ***	-.05	.03	-.03
Self-restraint requests	.10	.03	-.04	-.01	.21 *
Fear of exposure to COVID-19	.04	.08	-.12	-.10	.01
PSE	.29 ***	.13	.27 ***	.11	.22 *
Intimacy	-.13	-.10	-.20 *	-.28 **	-.04
Leadership	.03	.21 *	.03	-.03	-.02
Planning	-.16 *	-.16	-.02	-.12	-.07
Empathy	-.01	-.05	-.15	-.23 **	.08
Knowledge summarization	-.05	-.07	-.21 ***	-.08	-.04
Self-esteem	.03	-.04	.08	-.10	.00
Positive thinking	-.30 ***	-.19 *	-.28 ***	-.25 **	-.31 ***
Interpersonal manner	-.06	.03	-.09	-.13	.00
R^2 (adjusted)	.29 ***	.17 ***	.32 ***	.24 ***	.24 ***

Note. PF, physical fatigue; ID, interpersonal distrust; PSE, pressure from the surrounding environment
 * $p < .05$, ** $p < .01$, *** $p < .001$

Discussion

This study aimed to examine the predictive roles of COVID-19-related stressors and life skills on the stress responses of collegiate athletes. First, the results indicated that 45.5% of participants experienced moderate psychological distress, while 10.6% experienced severe psychological distress. Both proportions were higher than the results of previous research on pre-COVID-19 data (MHLW, 2020b; Nishi et al., 2018). Slavin et al. (2022) reported similar results. Therefore, the mental health of collegiate athletes may have worsened during the COVID-19 pandemic.

The *t*-test results indicated that the level of stress responses, especially physical fatigue and apathy, was higher among females. In addition, female athletes perceived more stressors, especially restrictions on sports activities, self-restraint requests, and fear of exposure to COVID-19. These findings support those of previous studies (e.g., Parm et al., 2021; Sanborn et al., 2021). Consequently, psychological support is needed, especially for female collegiate athletes. The results indicated no differences between genders in terms of life skills. However, the levels of the two subscales, empathy and interpersonal manner, were significantly higher in female athletes. This partly supports Shimamoto et al.'s (2013) findings, who reported that female collegiate athletes had higher levels of life skills.

The results of the multiple regression analysis indicated that COVID-19-related stressors positively predicted stress responses. Similar to previous studies (e.g., Hagiwara et al., 2021; Moore et al., 2022), collegiate athletes experience stress responses due to changes related to the COVID-19 pandemic. Among the subscales, one factor, restrictions on sports activities, was positively associated with physical fatigue and apathy. Previous studies have revealed that athletes were physically affected by restrictions on access to training facilities and receiving treatment for injuries (Bullard, 2020), unsupervised training (Jagim et al., 2020; Sarto et al., 2020), and changes in their sleep-wake times (Pillay et al., 2020). The participants in the current study might have experienced similar challenges related to physical fatigue. Rowe et al. (2022) reported that student-athletes reported a lack of motivation for sports as a concern during the pandemic, and the findings of this study were consistent.

Additionally, one factor, self-restraint requests, was positively related to depression. Hagiwara et al. (2021) reported that receiving social support appears to be related to decreased levels of depression. Self-restraint requests significantly affected sports activities and general daily life activities of collegiate athletes, including academic classes and gatherings with their teammates or friends, which might be related to depression. Von Keyserlingk et al. (2022) suggested that collegiate students' stress levels were higher than before the COVID-19 outbreak due to the study-life balance. The results of this study were consistent with these findings. Second, pressure from the surrounding environment was positively related to physical fatigue, anger, and depression. This subscale includes "deterioration of the domestic economic situation" and "difficulty in handling pressure or excessive expectations from parents." Similar to Sundarasan et al. (2020), the uncertainty of situations appeared to be related to the stress responses of collegiate athletes. In addition, Taku and Arai (2020) noted that "the meaning of values that society places on sports (i.e., societal values) have been challenged by the COVID-19 pandemic" (p. 6). How the individuals around collegiate athletes regard sports may change, possibly increasing the experienced pressure on athletes.

The findings of this study showed that life skills were negatively related to stress responses, which is consistent with the findings of Yamada et al. (2022). The WHO (1994) notes that life skills include successfully coping with unavoidable stressors, and the results of this study indicated that life skills could negatively predict stress responses during challenging situations. Among the subscales, positive thinking negatively predicted all five subscales of SRSA. This is in line with Verger et al. (2021), who suggested that thinking positively might help individuals maintain their mental health. Shimamoto and Ishii (2006) reported that positive thinking was negatively correlated with depression and anxiety, and the results of this study support that.

These results imply the importance of life skills programs that focus on positive thinking to enable athletes to cope with stressors in the future. Third, intimacy is negatively related to anger and interpersonal distrust. Intimacy includes an item, "I can ask for help and advice when I am in trouble," indicating the willingness to ask for social support. The findings of this study supported previous studies (e.g., Graupensperger et al., 2020), which reported that social connectedness was associated with the mental health of collegiate athletes. Athletes can maintain their mental health by asking for social support and creating supportive relationships with the individuals around them. Furthermore, planning negatively predicted physical fatigue. During the pandemic, athletes needed to maintain their physical condition at home by themselves due to limited access to facilities and less contact with trainers, coaches, and teammates. The skill of planning seemed to be helpful in the situation.

In addition, empathy negatively predicted interpersonal distrust. Empathy is an interpersonal life skill defined as "a skill to share other people's feelings" (Shimamoto & Ishii, 2006, p. 214). Athletes with a higher level of this skill might feel less stressed with the individuals around them. Knowledge summarization negatively predicted anger. This skill is "handling information" (Shimamoto & Ishii, 2006, p. 215). The results of this study were similar to those of von Keyserlingk et al. (2022), which indicated that self-regulation skills are critical in a less-structured setting. During extraordinary situations such as the COVID-19 pandemic, collecting reliable information is necessary to stay calm, and this skill appears to help athletes feel less anger.

In contrast, leadership positively predicted apathy. Leadership is "a skill to try to get involved in groups to which a person belongs actively" (Shimamoto & Ishii, 2006, p. 214).

The spread of COVID-19 seemed to prevent athletes with a higher level of leadership from demonstrating this skill, which might be related to apathy.

This study had some limitations. First, as the participants of the present study belonged to the same university, the findings cannot be generalized. Further research should be conducted on participants from other areas due to the possibility of situation variations. Second, this study was cross-sectional and self-reported; therefore, additional research is needed to determine the causal relationships among the variables and their reliability. Third, the criterion-related validity of the SCAC-19 was not completely confirmed due to this study being a rapid investigation. Internal consistency was calculated before the analyses, and acceptance was confirmed.

Conclusions

The results of this study indicated that female athletes perceived more stressors and experienced more stress responses than male athletes during the COVID-19 pandemic. As Scharly and Lundqvist (2021) suggested, "tailor-made" psychological support should be provided to collegiate athletes in challenging situations. Practitioners should consider additional psychological support for athletes, especially females, who seem to have experienced stressors related to COVID-19 and stress responses.

In addition, the results of the current study showed that COVID-19-related stressors positively predicted the stress responses of collegiate athletes, while life skills negatively predicted them. Changes and restrictions due to the COVID-19 pandemic might have been perceived as stressors by collegiate athletes and were possibly related to stress responses. Life skills, especially positive thinking, intimacy, planning, empathy, and knowledge summarization, can be protective factors of mental health in collegiate athletes. These findings provide considerable knowledge for the development of programs to teach athletes life skills.

The spread of COVID-19 seriously impacted the daily life of athletes and may result in an increased prevalence of post-traumatic stress disorder (Dutheil et al., 2021). Unpredictable and challenging events, such as earthquakes, typhoons, and diseases, will happen in the future; therefore, people in sports-related professions need to be prepared for these situations. The findings of this study can be utilized in preparation for such future events.

Conflicts of interest

All authors declare that they have no conflicts of interest.

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